# Contribution of Coffee Farmingon RuralCommunity Development: A Case Study of MaijogmaiRural Municipality Ward No. 4 ofIlam District

**AThesis**

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**The Faculty of Humanities & Social Sciences of Tribhuvan University, MahendraRatna Multiple Campus, Ilam**

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**InRural Development**

**By**

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# Declaration

I hereby declare that the thesis **Contribution of Coffee Farming on Rural Community Development: A Case Study of Maijogmai Rural Municipality Ward No-4 ofIlam,** submitted to the Department of Rural Development, Tribhuwan University, MahendraRatna Multiple Campus, Ilam, is entirely my original work prepared under the guidance and supervision of my supervisor. I have due acknowledgements to all ideas and information burrowed from different source of preparing this thesis. The result of this thesis haven't been presented or submitted anywhere else for the award of any degree or for any other purpose. I assure that no part of the content of this thesis has been published in any form before.

…….

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## Recommendation Letter

The thesis entitled **Contribution of Coffee Farming on Rural Community Development: A Case Study of Maijogmai Rural Municipality Ward No-4 ofIlam**has been prepared by**Suresh Rai**under my guidance and supervision. I hereby forward this thesis to the evaluation committee for final evaluation and approval.

**……**
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# Approval Letter

This thesis entitled **Contribution of Coffee Farming on Rural Community Development: A Case Study of Maijogmai Rural Municipality Ward No-4 ofIlam**submitted by **Suresh Rai** in partial fulfillment of the requirements for the Master's Degree (M.A.) in Rural Development has been approved by the evaluation committee.

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# ABSTRACT

Coffee (Coffea) is the newly developing important high value cash crop mainly cultivated in the mid hill sides, altitude between 800m – 16oom, especially in loam and sandy loam mud. Including Nepal many countries in the world. In recent years the production of coffee is increasing along with its demand and consumption in National and International markets, but its export quantity from Nepal is decreasing. It's because the high demand and consumption in National market. The demand of coffee in International market is very high because of its quality and taste. But only 1% to 2% has been supplied to the Global market due to problem in production. Therefore the acreage and quantity of production should be increased throughout the country. This research was attempted to study the current production of coffee, to explore its contribution in income generating and to study the probability of Agritourism in coffee. This study was carried out in Maijogmai Rural Municipality Ward No 4 in Ilam District in 2019 using different community based participatory techniques, secondary information and statistical analysis.

The specific objective of the study are to find out the role of coffee cultivation in rural community development, to study the status of current coffee production and explore the contribution in income generating activities to the rural farmers. Different methodologies have been used to collect various types of primary data like questionnaire, field survey focus group discussion. Exploratory and descriptive methods were used to analyze the data.

The recent data of (NTCDB) shows that the coffee has cultivated in more than 43 districts in the country. The yearly gross production of coffee is 513 metric tons green beans from 2650 hectors cultivated land. 32581 families are directly involved in this farming.

The tolerate temperature range of coffee is from 4°C to 32°C but the suitable temperature range for coffee is 12°C to 26°C, in the elevation from 800m to 1600m high from the sea level. The farmers have cultivated from 2 Ropani to 50 Ropani in the research site. The majority of respondents were Janajatis (Indigenous people) and followed by Aaryan (kshetri and Brahman). The different annual income of farmers before starting coffee farming and after coffee farming were also studied and I found that the average annual income of farmers were 300 to 500% more from coffee

farming in same area of land. Out of total 45 house hold in research area 33.33 percent household were selected as sampling. Out of total sampling 80 percent respondent sell ripe cherry to the local collecting centers and rest of the respondent sell green bean coffee to the National and International markets directly after processing, with the purpose of getting better price.

I also found that farmers have been practicing duel farming system. The infrastructure developments were satisfied and the whole life standard in the research area was comparatively better

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# ACRONYMS/ABBREVIATION

| | |
|---|---|
| ABP | Agri-business Promotion Policy |
| AEC | Agro Enterprises Center |
| AD | Anno Domini |
| AHST | Agriculture Heritage System Tourism |
| APP | Agriculture Prospective Plan |
| BS | BikramSambat |
| CBS | SensunsBikramSambat |
| CCCU | Central Coffee Cooperative Union |
| CoPP | Coffee Promotion Program |
| DADO | District Agriculture Development Office |
| DCPA | District Coffee Producers Association |
| FNCCI | Federation of Nepalese Chambers of Commerce Industry |
| FG | Focus Group Discussion |
| GARDAP | Gulmi-Arghakhachi Rural Development Project |
| GDP | Gross Domestic Product |
| ICS | International Control System |
| IFOAM | International Federation of Organic Agriculture Movements |
| Kg | Kilogram |
| KM | Kilo Meter |
| LISP | Local Initiative Support Program |
| MM | Millimeter |
| MOAC | Ministry of Agriculture and Cooperative |
| MT | Metric ton |
| NAP | National Agriculture Policy |
| NARC | Nepal Agriculture Research Council |
| NASAA | National Association for Sustainable Agriculture Australia |
| NCDC | Namsaling Community Development Center |
| NCPA | National Coffee Producers Association |

| | |
|---|---|
| NeCCo | Nepal Coffee Company |
| NGO | Non-governmental Organization |
| NTCDB | National Tea and Coffee Development Board |
| NR | Nepalese Rupee |
| NTSOAS | National Technical Standard for Organic Agriculture System |
| PACT | Project for Agriculture Commercialization and Trade |
| SSMP | Sustainable Soil Management Program |
| SWOT | Strong Weak Opportunity Threat |
| USA | United States of America |
| US$ | United States Dollar |
| VDC | Village Development Committee |

# GLOSSARY

| | |
|---|---|
| Aaryan | Ethnicity or Caste System of Nepal |
| Coffea | Scientific Name of Coffee |
| Janajatis | Indigenous People |
| Kahve | Name of Coffee in Tukish Language |
| Koffa | Province in Ethiopia |
| Koffie | Coffee in Dutch Language |
| PH | The measurement of Level of Acid or Alkali in a Solution or Substance |
| Quhvaoah | Coffee in Arabic Language |
| Ropani | Measurement of Land in Hill Side Equal Area of $508.74m^2$ |
| Rudraksha | A kind of holey tree, its fruit is ufor make garland. |
| Titiri | A kind of tree, its fruits use for eating |

# CHAPTER I

# INTRODUCTION

## 1.1 Background of the Study

The world has years of history in farming coffee. According to one of the oldest legends; the coffee was first discovered in Koffa province of Ethiopia, Southern tip of the Arabian Peninsula, around 850 A.D. by a goatherd named Mr. Kaldi then it was spread in Yemen, Istanbul Venice then gradually all over the world. The word coffee entered the English language in 1582 A.D via the Dutch 'Koffie' burrowed from the Ottoman Turkish 'Kahve' from Arabic 'quhvaoah' which Arabic etymologist connected with a word meaning wine.

The formal cultivation and use of coffee as a beverage began early in 9$^{th}$ century. There are main 2 species and more than 100 sub-species of coffee in the world. Two species of coffee that have been cultivating thorough out the world are (a) Arabica (b) Robusta

Presently more than 70 countries have been producing coffee across the globe, Including, Ethiopia, Brazil, Vietnam, Colombia, Australia, U.S.A, Indonesia, Honduras, Cuba, Bolivia, Burundi, Cameroon, Costa Rica, Congo, Ecuador, Haiti, India, Ivory coast, Jamaica, Kenya, Madagascar, Mexico, Nepal, Panama, Peru, Papua New Guinea, Philippines, Thailand Uganda and so on.

There are over then 150 brands of coffee are available in the world market. They are : Star bucks coffee, Costa, Dunkin Donuts, McCafe, Tim Horton, Gloria Jeans, Nescafe, Folgers etc.

The coffee was first introduced in Aanpchaur V.D.C of Gulmi District in Nepal (western part of the country) Brought by Mr. HiraGiriFrom Myanmar (Burma) in 1935 A.D. It was categorized as cash crop in 1976 A.D. After that the Government started supporting the farmers to cultivate in the country. Now coffee has been cultivating around 41 districts including palpa, Gulmi, Arghakhachi, Baglung, Parbat, Syanga, Kaski, Lamjung, Tanahu, Gorkha, Dhading, Kavre, Sindhupalchowk ,

Laitpur, Nuwakot, Makawanpur, Okhaldhunga, Ilam, Dhankuta, etc. But coffee has been producing commercially only in 23 districts in mid hill sides. According to the data of (NTCDB 2019) 32,581 family members are directly involved in this farming. Nepalese farmers have been cultivating mainly Bourbon, typical, Catuai etc.

Yearly production of coffee has been increasing along with its demand. But the export quantity of coffee in international market has decreased due to high demand and consumption in local national market.

According to the data of National Tea and Coffee Development Board (NTCDB) 513 metric tons coffee has produced in fiscal year 2074/075 from 2650 hectors area. It was increased by 10 percent from fiscal year 2073/074 and increased in the acreage from 2,646 to 2,650 hectors. Nepal exported 84.22 metric tons of coffee, that worth Rs.937.24 million to the international market, in this fiscal year.

Now 29 legally registered coffee procurers and distributor companies are working throughout the country. There are more than 120 special branded coffee shops are running across the country. And more than 29 brands of Nepali coffee are availabled in the national market, including, Him café coffee, Everest, Fresh Himalayan Arabica, Mustang, Jalpa gold, Nepal mountain, Lalitpur organic, Machhapuchhre flying bird natural, lekali.

Nepal had stared exporting coffee to the international market from 2002. Nepali coffee exporting major countries are: Japan, Korea, Germany, USA. Netherlands. Canada, UK, France, Egypt, Czech Republic, Switzerland.

The major stakeholders that working in the production, development, processing and marketing of coffee are: Central Coffee Cooperative Union (Ltd). District Coffee Producers Association, National Coffee Producers Association (NCPA), Plant Tech Nepal (P) l.td, High Land Coffee Promotion Company, National Tea and Coffee Development Board (NTCDB) HELVETAS Nepal Swish International Coffee Promotion Program, JAICA, IDU Nepal, Nepal Coffee Trade Union, District Coffee Co-operatives etc.

Most of the part of Nepal is surrounded by rural area, with geographical diversity. Due to its specific geographical, altitudinal and climatic features, it carries abundance potential in agriculture. Data shows that 87% population of the country is involved in agriculture sector (C.B.S.2068). And it contributes 27.4% G.D.P to the country. In spite of that much possibility and opportunity in this sector, most of the farmers are living in scarcity and poverty, due to their low per capita income.

According to a data 51,288 youths have gone to abroad for searching job, during the fiscal year 2072/73. The data shows that the large number of Nepalese youth manpower is compelled work hard in abroad, because of unemployment and poor economic condition.

Nepalese farmers have been sustaining their life in two types of farming in the country.

a. Farming livestock

b. Farming crops.

Farmers have been practicing two kinds of crops farming

a. Cereal Crops

b. Cash Crops

Various crops have been cultivating under cash crop by farmers. Among them coffee is one of the important and prestigious new cash crop, grow especially in mid hill sides. It's an alcoholic drinking crop. So, that this crop is different from other general and traditional crops. It's a multiyear plant. We can cultivate this plant in steep and barren fields too, where other crops don't grow.

Nepali coffee has high demand in international and local national market too, because of its quality and taste.

Coffee is second only to oil in terms of dollars trade worldwide. It shows that, there is a great possibility and opportunity in coffee cultivation. Who wants to be a real entrepreneur and independent in own country.

Modern commercial coffee farming would support to solve unemployment problem, exchange foreign currency, stops manpower brain-drain and makes strong economic condition of Nepalese farmers. So that the coffee farming can contribute forboth socio-economic development of rural livelihood

### 1.1.1 Production

Generally coffee is produced mid hill sides in Nepal, from the altitude of 800m to 1,600m high from sea level. The coffee plants start giving fruits from 4 years after planted. Most of the coffee produced in Nepal is organic. They don't use chemical fertilizers and pesticides; they use compost fertilizer and homemade pesticides for cultivation. More than 90 percent coffee cultivated in Nepal is Arabica. About 100 coffee trees can grow in a Ropani (500sq m). A coffee tree can yield up to 40kg ripe cherry in a year. The average production of matured coffee is 8kg – 10 kg. The productive age of coffee is from 8 years to 40 years. The total life expand of coffee tree is 70 to 80 years.

**Seedling**: Mix of fertilizer Mud and sand is used to sow the seeds of coffee. 45 to 60 days of after planted, small plants put into the poly bags filled with fertilizer. After 12 to 18 moths the seedlings are ready for transplant in the field.

**Hole Size and Distance:** To transplant coffee seedlings hole should be ready before 20 to 30 days. The size of hole should be 50 cm circle 50 cm depth between 2 meters of distance.

### 1.1.2 Harvesting

Generally harvesting season of coffee is three months from January 1$^{st}$ to April last. Coffee fruit is picked after ripe in red color, with hand. They pick ripe cherry 3 -4 times in a year by selecting, because the cherries don't ripe equally in same time.

### 1.1.3 Processing

After finished the harvesting we should bring to the processing center as soon as. There are specially two types of processing methods a) dry processing method b)

wet processing method. Most of the farmers follow wet processing method because it's qualitative processing method.

**Dry processing:** The coffee cherries shall be laid out in sun for drying on the drying yard or on clean and dry mats (e.g. bamboo, straw) within 12hours of harvest. Bed depth shall not be more than 5 cm, being turned over in 2 to 3 hours. Care shall be taken to avoid rewetting.

Drying shall be continued until the moisture content is between 9 and 12 percent in the coffee beans.

a) Drying: drying done in two steps:

Pre-drying:- the parchment shall be laid out on wire mesh to drain the water; this should be done under shade for 2 to 3 days.

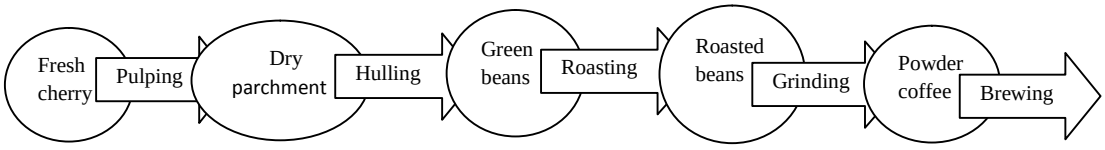
Main drying:- done on the drying yard or on clean and dry mats (e.g. bamboo, straw) in the sun until the moisture content is between 9 and 12 percent in the coffee beans.

**Wet processing**: The steps of wet processing shall be as follows: a) Pulping: Fermentation and washing shall be done either one of the following method. Natural fermentation: pulping should be done within 12 hours of harvesting. Fermentation is done immediately after pulping in non-metallic containers for 12 h to 48 hour until the mucilage is broken down followed by manual wash.

-Pulping by machine wash until the mucilage is broken down: pulping should be done within 18 h of harvesting

**Wet Processing Steps**

**Fig 1, Wet Processing Steps of Coffee**




**Source:NTCDB, 2019**

### 1.1.4 Packing and Storage of Dried Cherry and Parchment

Dried cherries and dried parchment coffee shall be packed in clean jute or cotton bags and stored, at the farm level or in out-of-farm warehouses, under well ventilated and dry condition. The bags shall not touch the wall and floor/ceiling of the room.

### 1.1.5 Post-harvesting Operations from Dry Coffee Cherry and Parchment to Green Coffee Bean

**Hulling and Polishing:** The hulling and polishing operation shall be done just before the export, in order to maintain the original characteristics of the product.

Hulling and polishing shall be done in such a way that the green beans are not broken as well as not crushed.

**Grading:**Grading is carried out using sieveswith round holes of different sizes, with accordance the diameters.

**Sorting:**Sorting shall ensures that defects including black, discolored, off sized, insect, damaged, elephant beans, shells, shrunken beans and cracked green beans as well as stones, metals and any other foreign materials are removed.

**Packaging:** Dried green coffee bean shall be packed in new, clean and dry jute/cotton bags lined with muslin clothes.

**Labeling:** The whole information aboutthe coffee shall be printed on every bag.

**Storage:** The filled bags shall be stored in a well ventilated, dry and separate room.

## 1.2 Statement of the Problem

The problem was deserted in this stipulated research is what is the contribution of farming coffee in rural livelihood community development?

According to a data of World Bank 2016, 81% population lives in rural area of Nepal. Most of the population, who live in countryside are farmers, In spite of their hard labor in agriculture, most of the farmers can't fulfill also their basic needs, due to lack

of knowledge in commercial and modern agriculture system. 25.5% population are living under poverty line in Nepal (Basic Statistic 2017) they have been practicing traditional agriculture methods they don't' have good knowledge and techniques, about modern professional agriculture methods.

Due to unemployment problem large numbers of youths are selling their labor in international labor markets. The data shows that 1921494 youths have gone abroad for searching job (B.S. 2068). On the other hand, Nepal is dependent country on the imported agriculture goods, due to high international market price and duel tax people bearing burden on its price.

In addition the research was answered following questions.

1. Why coffee was better farming for the generating income?

2. Possibility of rural tourism in coffee farming?

### 1.3 Objective of the Study

General objectives of the study were to export the coffee in huge amount to the global market to support the GDP of countryby importing dolor, to change the socio-economic condition of rural livelihood, and rural infrastructure development through inspiring youths to be entrepreneur and independent in professional coffee cultivation, In addition to promote rural Agritourism.

The specific objectives of the study were as follow

1. To study the production of coffee, its price and market potentiality.
2. To explore the contribution of coffee cultivation in income generating activities.
3. To find out the role of coffee cultivation on rural community development.

### 1.4 Significance of the Study

The study was completely concerned to the possibility, opportunity and contribution of coffee farming in rural life standard. So, it gives clear pictorial view and direct impact in various factors in rural socio-economic development. Such as self

employment, entrepreneur, stops youth manpower brain-drain, Discourages in importing coffee, provides local organic coffee in local markets, promote rural tourism and plays positive role in rural infrastructure development. That was why the study is of great valued, from both socio-economic as well as academic point of view. I also hoped that, the study will provide knowledge, techniques, and awareness for professional agriculture methods, who wants to get knowledge especially in coffee cultivation.

### 1.5 Limitation of Study

The study was mainly confined to ward No 4 of Maijogmai Rural Municipality in Ilam district.There are 45 small and large coffee farms/farmers. Out of total universe 15 farms were studied in detail for sampling. Especially altitude, soil structure, average weight of ripe cherry, better method of farming coffee, probability of rural tourism in coffee, living standard of farmers, the condition of infrastructure development and price of ripe cherry getting by farmers were studied in research sites. Field study method and field survey method were used in research. It's because the selected research topic was related to the field that was necessary to observe the study site, to take primary data. The data collection techniques such as, case study, interview, questionnaire survey, observation, group discussion, key informant interview techniques were used to get fact data that needed in study.

# CHAPITER II

## LITERATURE REVIEW

The coffee was first discovered by a goatherd named Kaldi from the southern tip of the Arabian Peninsula. Kaldi one day noticed that when his goats ate a specific red berry the goats would dance and jump excitedly. He had also tried, got more energy. (The world coffee history).

The demand of Nepali coffee is ever growing, as 35% of total production is already being exported to international markets 65% proceed and consumed in local market (KulPrashad andTiwariMsc.). Nepal had begun exporting coffee from 2002. Approximate worth US$6,36,666 during the fiscal year 2006/07. (YogeshPokhrel, 2009).

In the international trades of commodities, coffee occupies a place of pride next only to oil the value of coffee sold in the global market is estimated about US$ 130 billion in 2006/07. (YogeshPokhrel 2009)published on the Rising Nepal. According to the data provided by International Coffee Organization, 9.6 million M.tn coffee is produced in a year around the world (ICO), G.D.P of coffee has over thanUS$100 billion across the globe (world coffee industry) The global coffee industry employs more than 20 million people (YogeshPokhrel 2009,The Rising Nepal.

There are 2 species and over 120 sub-species of coffee, which is grown from seed. The most popular species have been cultivating across the world are; *coffeaarabica*(commonly known Arabica), which accounts for 60-80% of the world Coffee production, and *coffeeacanaphora (known as Robusta)*, which, accounts for about 20-40%. *(*Wikipedia, free encyclopedia).

There is a great potentiality in coffee cultivation in hillsides of Nepal Due to suitable climate, topography, soil structure; relative humidity, temperature, and rain fall (Central coffee cooperator union Ltd.). There are more than 300 coffee shops in Nepal which were less than 20 on 2003 A.D. (September 13$^{th}$ 2014) Coffee cultivation in Nepal; our coffee can be the world class Coffee.

Presently coffee is cultivated in around 40 districts but is has been producing commercially in about 23 districts in Nepal. Coffee is predominantly grown by resources poor and small scales farmers under marginal uplands condition (Shrestha et al. 2008). In production and processing coffee they don't use chemical fertilizers and the pesticides. In most of cases, coffee cultivation is using unproductive, fallow and lands prone to degradation. Thus, it helps to conserve soil erosion and it also provides 20-25% extra income than traditional crops (Chaudhari et al. 2008)

In general Nepali coffee is getting 3.5 times more price than Indian coffee in the world market due to high quality and taste (Pathak, 2004 cited by, Bastola, 2007) about 12000 framers are estimated to be involved in coffee farming at present. Moderate intake of coffee has to be playing a health protective role.

### 2.1 Present Scenario of Coffee in Nepal

Coffees are mainly grown in the mid hill region of Nepal. The production potentialarea of coffee in Nepal is 18,000 ha (AEC, 2000). Basic coffee growing districts of Nepal areGulmi, Arghakhanchi, Palpa, Kaski, Lamjung, Gorkha, Tanahun, Syangja, Baglung, Parvat,Kavre, Lalitpur, Sindhupalchock, Jhapa, Illam, sankhuwasabha, Dhading, Makawanpur andMyagdi (NTCTB, 2008).

Very few formal researches have been carried out on production, processing and marketingaspects of coffee. A study conducted by Coffee Promotion Project of HELVETAS Nepal in 2005found that there were more than 200 pulping centers in operation in the pulping season in various districts. Wet processing of coffee was introduced in the country by Agro enterprise centre (AEC) in 1999 after distribution of 11 metal pulpers to coffee producers associationsat farmers level (CoPP Report, 2005).In the nine districts, 237 pulping centers were functional during the harvest season of2007/08. Highest number of pulping centers were in Kavre (43), followed by Lalitpur (38),Kaski (31), Palpa&Syangja (30), Sindhupalchok&Gulmi (22) and Parbat (20) (CoPPReport, 2008). The present situation of the domestic market is not stable, and it is highlydependent on the number of tourists visiting Nepal. The sale amount of Nepalese coffee in the domestic market is directly related to the number of foreigners who come to Nepal.Nepal needs to exploit the uniqueness of the Nepali coffee and target the international nichemarket of the specialty coffee (Shrestha, 2004).

There are only few major players in this business sharing some portion in national as well asinternational market such as Everest Coffee Mills (P) Ltd, Panchkhal (16%), Highland CoffeePromotion P. Ltd, Kathmandu (20%), Nepal Organic Coffee Products, MadanPokhara(12.5%), GulmiSahakariSastha (25%), Nepal Coffee Company, Butwal (12.5%), HimalayaCoffee Products (P) Ltd, Kathmandu(2%), Plantec Incorporate (7.5%), District CooperativesFederation Ltd, Tamghas and Nepal Mountain Coffee Company, Lalitpur (ATPMC, 2004).

Farmers in central and western mid hills are found interested to grow coffee realizing thatcoffee can fetch higher value compared to other substitutive crops. Moreover, the

Technological initiatives made by several agencies have positively affected to the farmers in cultivating more areas of coffee. The Arabica coffee has been popular and commonly grown by Nepalese farmers.

### 2.2 Trade of Coffee in Nepal

Nepalese coffee, popularly known in international market as specialty coffee, hasbeen fetching premium price (PACT, 2012). While the global coffee price of Arabica coffeehovered around 4 USD in 2014 (Ycharts, 2016), the average price received by NepaleseArabica coffee in the same year was around 10 USD (TEPC, 2015). According to TEPC, infiscal year 2015/16, 112 MT of coffee worth Rs 101 million was exported which is slightincrease compared to the previous year. Similarly, in fiscal year 2015/16, coffee worth Rs55 million was imported.

### 2.3 Coffee in Global Scenario

World coffee production is tremendously dominated by Latin America and Africa which contributing about 70% of the global production. Remaining 30% is shared by Asia andPacific region. Brazil tops the list of global coffee production with 30.16% share, which isfollowed by Vietnam (19.18%), Colombia (9.42%) and Indonesia (7.67%) (ICO 2016).Latin America, eastern Africa, Arabia, and some Asian countries including Nepal produce Arabica coffee. On the other hand, western and central Africa, Southeast Asia, and to some extent in Brazil cultivate the Robusta coffee beans (ICO, 2011).

## 2.4 Consumption of Coffee in Nepal

Coffee has become a popular soft beverage especially among the youths of cities.

Growing tourism sector after 1990 led to increased consumption of coffee in Nepal

(Ranjitkaret.al, 2016). A study conducted by CoPP (2010) found that consumption of both filter and instant coffee in Nepal increased remarkably in recent years. In 2009, the consumption of instant coffee and Nepalese filter coffee was 251 metric tons and 113 metric tons respectively compared to 51 metric tons and 106 metric tons in 2006. Assuming that the income elasticity is 0.6 and average GDP growth is 5.5, the demand of coffee in domestic market is likely to grow by 7.3% during the period of 2010 to 2020. The study concluded that the coffee consumption in 2020 is likely to be double compared to the consumption level at present.

## 2.5 Species of Coffee Cultivate by Farmers

The principal coffee species grown today in the most important coffeeproducing countries are:

### Coffea Arabica

*Coffeaarabica*is a valued species has been grown and selected for several counturies. It currently represents three-quarters of the world coffeeProduction. *Coffeaarabica*originates from Arabia, and thrives in land thatis rich in minerals. Its better-known sub-varieties include Moka, Maragogipe,San Ramon, Colomnaris and Bourbon. The Arabica makes a flavoury, full-bodied coffee that is sharp in taste withrather low caffeine content. As a group, Arabica coffee consists of manycultivars that differ in respect of origin, climatic requirements, tree size,yield pattern, quality of end product, berry size and disease resistance. Infect, some low-quality Arabica species are inferior to the best *Coffearobusta*varieties.Arabica beans look slightly elongated and have a range of greenish-blueshades.

### Coffea Robusta

*Coffearobusta*is a variety that can grow to more than 12 m in height. Itgrows quickly in altitudes up to 600 m, and is more resistant to pests anddiseases. This variety was discovered in the Congo in 1898 and is widely spread, especially in Africa, Asia and Indonesia where the climate is unsuitable forthe cultivation of *Coffee Arabica*. It represents approximately 25% of thetotal world coffee production. Because of their higher caffeine content (about twice as much as Arabica)and strong character, Robusta are used mostly as blends. Robusta beansare typically small, rounded and brownish yellow in appearance.

**Description**

Coffee (*Coffeaarabia*) is a tropical plant, which belongs to the genus *Coffea L*. of the family Rubiaceae.

**Mature Plant**

It can grow to a height of 10 to 15 m at maturity, but is kept at 3 m in plantations for harvesting purposes. The shrubs remain productive for 15 to 20years.

**2.6 Climatic Requirement**

**Temperature**

Temperature is an important aspect in coffee production. The suitable temperature range for coffee is 4 °C to 32 °C with average temperature ranges of 12 °C to 26°C.Although this crop can tolerate temperatures well outside this range, extreme temperature variation usually affects the crop and the coffee bush. Low temperatures retard growth and below 12 °C the growth of the plant is inhibited. The cold period must be short. The prolonged cold period, adversely affects the growth, flowering, fruit development, fruit ripening and eventually the yield. Higher summer temperatures are necessary for proper fruit development and fruit ripening. Coffee plants cannot tolerate frost and windy areas. The effect of frost can be minimized by planting on broad ridges and by mulching while the effect of wind can be minimized by windbreaks.

**Rainfall**

Coffee is sensitive to water shortages and adequate well-distributed precipitation of about 1 500 mm a year should occur. Rainfall also influences flowering and coffee should therefore be produced in areas with adequate spring rains. A dry period during winter (June to August) is important for flowering.

**Soil Requirements**

Coffee has been successfully produced in many parts of the world on awide range of soils, but the ideal soil type is sandy-loam. It can do well in any fertile soil, provided the weather conditions are favorable. To producea high yield, the coffee tree requires deep permeable soil, of good structure,that contains enough organic matter and it is also requires a favorablewater balance. In very sandy or clayey soils, the clay content of thesoil should be between 15 and 35%. The optimum pH is between 5, 0 and6, 0, but the coffee plant can still grow around neutrality. Coffee grows wellwhere natural forests occur.

**2.7 Value Chain Structure of Nepali Coffee**

The major actors participating in coffee value chains in the study area were identified. They are the inputs suppliers, the smallholder farmers, village level pulper operators, producers' associations, cooperative and private companies. The next chain after producers in certified chain is either village level pulper44operators or cooperative while in conventional chain is either village level pulper operators or Everest Coffee Mill (company). In both chains, more than 50% green beans coffee is sold to the international market mainly Japan, USA, and European countries. Only high quality green beans is sold to export while low and medium classes quality of coffee is sold in domestic market either roasted beans or filter/ground coffee through retailer in hotels and major city markets from both chains. As a whole institutional relationship with producers associations and input suppliers in conventional market chain actors are more closed and mutual than certified chains actors. Thus, the type of trust and power dependence among the actors can determine how information flows and how farms upgrade. Indeed, value chain structure of Nepali coffee

The study shows that problems of weak upgrading function and quality inconsistency as well as low bargaining power to the smallholders due to monopoly market situation in both certified and conventional market chains.

However, as noted previously, the interventions were more comprehensive and extensive than what would be recommended under a value chain approach to sector development where facilitation of market forces to strengthen firms is considered more appropriate than direct assistance. There was very little direct support in the form of institution and capacity building and even institution creating with the unions. Institution building in the form training and technical assistance to improve quality, processing and Marketing by farmers, cooperatives, companies and unions was not successfully completed in both certified and conventional market chains. This fact then raises an important question address about the value of combining a strong firm level capacity building program and the value chain approach should be needed in both chain

**2.8 Marketing system**

A marketing system includes producer farmers, traders, transporters, wholesalers, retailers, and consumers as the main actors of carrying out different activities (HMG/N, 1999). Formerly, the system was characterized by direct marketing of produce to consumers by farmers. Although this practice does still occur the system has been rapidly evolving in response to population growth and increased demand, new marketing channel have been developed by which the farmers can supply their produce to collection agents, localassembly markets and to urban wholesalers. A modern marketing system includes producer farmer trader transporter wholesalers, retailers and consumers as the main actors to carrying out different activities. According to (Sindhu, 1986 cited in Adhikari, 2007), there are three major functions of product marketing system namely (i) procuring commodities from the producers (ii) distribution over time, and (iii) providing signals about the supply-demand relationship of a product to facilitate adjustments by the products and consumers in next period.

Chauhan (1998) reported that the price received by the farmers declined with the increase in the number of intermediaries. Furthermore (Chauhan and Singh, 1998

cited in Bastola 2007), the producers shares decreased significantly with the increase in the number of intermediaries. Profit to producer depends upon their farm product reaching to consumers at reasonable marketing cost and price. This depends upon the marketing efficiency and producers share on the price paid by the consumer.

Long marketing channels are one of the reasons for increased marketing cost and bring inefficiency in marketing. This results in the loss of consumer's welfare and producer's profit. The marketing channel can be conceived as a vertical tier of market since product moves from point of production to the hands of ultimate consumers. Negotiations are prevalent throughout the channel. Presence of intermediaries makes the marketing system inefficient in the long channels compared to the shorter ones (Haque et. al., 1996, cited in Adhikari 2007).

Acharya and Agarwal (1999) pointed out that marketing channel vary from commodity to commodity, from producer to producer, lot to lot and time to time. In rural areas and small towns, many producers perform the function of retailers. Large producers directly sell their product to the processing firms.

### 2.9 Coffee marketing in Nepal

Generally in coffee marketing there are five players/stakeholders who are involved in bringing from the producing sites to the consumers or selling centers. They are farmers, collectors, pulpers, processors and traders. However, for the last few years, some collectors also perform the roles of pulping the ripe cherries and then bring it to the processor. This channel is common in wet processing system which covers nearly 80% of the market. Besides, above mentioned circuit, in some places, the farmers bring ripe cherries /dry cherries to the collector, who in turn (after drying if he buys the ripe cherries) takes it to the processors directly. This prevails in the dry processing system that accounts for nearly 20% of the market share. In both the processes, the processors themselves act as traders and sell the final products either in the domestic and, or overseas market. (FNCCI/AEC, 2005)

Nepalese produced coffee is sold both at domestic as well as the overseas markets. However, due to the lack of information and adequate publicity about Nepalese coffee and the prevailing taste preference for the imported instant coffee its consumption is

not that encouraging in the domestic market. Furthermore, tea drinking vastly shadows it. However, it is important to note that coffee consumption is rapidly gaining its momentum and about 25- 30% of the domestic demand is estimated to be fulfilled by the domestic production. Nepal imports around 40 mt.of coffees, part of which can be substituted with domestic production. (FNCCI/AEC, 2005)

Coffee was introduced in Nepal long time ago and remained unnoticed for a long time. The commercial coffee production took place in mid eighties with the establishment of Nepal Coffee Company (NeCCo) Rupandehi district in 1983/85. NeCCo started collecting dry cherries from farmers and produced green beans for supply to domestic market targeted mainly to expatriate residents' and tourists. In recent years coffee has gained popularity as an important high value cash crop in the mid-hills. Already there are 10 established processors/traders; the demand for Nepali coffee has been increasing, and the supply of the product available to the traders is said to be not adequate to meet the demand in the international niche market. (Shrestha&Shingh 2007)

**2.10 Certification of Coffee**

Certification is particularly useful because it allows for consistency of characteristics, improve market transparency, provides marketplace credibility and captures the demandand price incentives of niche markets (Lewin et al. 2004, LYON, 2009). In Nepalcertification for organic coffee is in rudimentary phase. From the government side,established mechanism has not developed yet for promoting the organic certification.However, Gender Equity and Environment Division (GEED) of MOAC has recently preparedNational Technical Standard for Production and Processing of Organic Products forpromoting organic production, processing and certification of organic products. NationalCoordination Committee for Organic Agriculture Processing System has also beenestablished for facilitating this process.

NGOs especially Helvetas, Nepal Perm culture Group and some private organizations arecatering the technological need of organic coffee producers to some extent. Nonetheless,the role of CoPP/Hevetas is appreciable for supporting organic methods of coffeeproduction and inspection, certification and marketing. Considering the importance oforganic coffee certification for the promotion of organic coffee

production, CoPP hasstarted (in 2005) Internal Control System (ICS2) in collaboration of District CooperativesFederation, Gulmi for the certification of coffee. From the experiences of Gulmi, thissystem has also started in the Lalitpur district. The ICS is an aim of gaining experience onrequirements of ICS, expenses needed for the system and identify cost effectiveness andsustainability and appropriateness of ICS in Nepal (CoPP/Helvetas, 2009).In the organic production, certification process is expensive one in case of Nepal becauseonly small amount of coffee has been produced so far and thus traders and companies arenot actually ready for supporting in the certification process. International agencies such asNational Association for Sustainable Agriculture, Australia (NASAA) (Australia) and Japanese

Agriculture Standard (JAS) have involved in the certification of coffee. Aforesaid, onlyNASAA, an Australian organization is certifying the organic coffee especially of Gulmidistrict and have just started in the Lalitpur district. Thus small fraction of coffee is sold ascertified organic coffee in the international market.

**2.11 Processing of Coffee**

There are basically two distinct processing methods of coffee, namely dry processing and wet processing. Under dry processing, the cherry is dried either in the sun or through some other means. It is then, hulled with the use of hullers to produce green beans. The green beans are then sorted and graded to improve the quality and uniformity (AEC, 2004).

In the wet processing method, the beans are mechanically de-pulped with the help of pulping machine. Prior to that, the fresh cherries are dipped into the water and the floating beans, foreign materials are removed. After pulping, the beans are put in an airtight fermentation tank for about 24 hours for the purpose of removing the greasiness. The fermented beans are then washed to remove the mucilage from the parchment, and dried to produce dry parchment. Dry parchment is then hulled to produce green beans, which is the major exportable form of coffee to the international market. Wet processing requires considerable care, as processing errors can cause unpleasant flavors resulting in low quality of coffee. There has been demand of wet processed coffee in the international market (CoPP, Helvetas, 2005). The conversion rate of coffee is 100Kg ripe cherry = 35-38Kg dry cherry (2.75:1); 100Kg ripe cherry = 23-24 Kg parchment beans (4.25:1); 100Kg ripe cherry = 16.5-18.5Kg green beans (5.7:1) and 100 kg of ripe cherry = 14-15 kg of ground coffees (7:1) (FNCCI /AEC, 2006).

## 2.12 Production, Processing and Marketing Constraints

Farmers are not properly and adequately aware of coffee farming technologies. Professionalism and commercialization have yet to be cultivated. Processing technologies and issues of qualities assurance are also equally burning. There are genuine problems in marketing of coffee as well (Bajracharya&Pathak, 2001).

Small scale of production, scattered area under coffee farming, lack of quality saplings, pests esp. the stem borer and diseases infestations, lack of crop insurance, long gestation period, and limited functions of NTCDB are the major constraints in coffee production in Nepal (AEC, 2004).

There are no proper marketing channels for selling coffee in the international market directly by farmers. There is a great need for a proper channel to market the coffee in the international market if the country is to gain sufficient amount of revenue (Rana, 2004).

The domestic market survey conducted by HELVETAS-Nepal has shown that the main constraint for the growth of Nepali coffee in the domestic market is the lack of awareness of the availability of Nepali coffee among the consumers and those who know it lacks know- how on the appropriate methods of coffee preparation. Lack of research and development in coffee is the bottleneck to develop the coffee sub sector into viable industry for producers, processors and traders (Shrestha, 2004).

## 2.13 Institutional Involvement

The number of coffee growers is increasing day by day and also the production due to the governmental as well as nongovernmental organization's interest on coffee. The CoPP/Helvetas, AEC, Coffee Producers Association, NTCDB, Nepal Tree Crop Global Development Alliance, Winrock International are the promoters of Nepalese coffee (Rana,2004). Besides Ministry of Agriculture and Cooperatives (MOAC), NARC, the Nepal Coffee Producers Association (NCPA), and other private sectors are involved in the promotion ofcoffee (Bajracharya and Pathak, 2001).

There has been some degree of efforts from government and non-government sectors to support the coffee sub-sector by motivating farmers to grow coffee. Local

Initiatives Support Program (LISP) and the Sustainable Soil Management Program (SSMP) under HELVETAS-Nepal have been implementing coffee related activities in Palpa, Syangja, Parbat, Kavre and Sindhupalchowk districts. A few development organizations and projects like Gulmi-Arghakhanchi Rural Development Project (GARDP), Winrock International, and DANIDA are promoting coffee for crop diversification and income generation, contributing to the expansion of the coffee production area (CoPP, 2003).

### 2.14 Value Chain Analysis

Value chain analysis is a tool that we use to define a development opportunity, looking at each discrete step in the life of a product, the players at each step, how value is added, and how much they earn for that value created (Piper, 2007, cited in Bastola, 2007). According to ACDI/VOCA "Value chain" refers to all the activities and services that bring a product (or a service) from conception to end use in a particular industry from input supply to production, processing, wholesale and finally, retail. It is so called because value is being added to the product or service at each step. Taking a "value chain approach" to economic development means addressing the major constraints and opportunities faced by businesses at multiple levels of the value chain.

Value chain analysis is based on a comprehensive characterization of input-outputrelationships from grower to retailer, and the coordinating mechanisms that guide activities at each stage. It can include consideration of technical transformations of product, pricing, costs and margins, number and size of firms at each stage, barriers to entry, market power and the sharing of benefits from innovation, product differentiation and diversification (Cruz, 2003).

One of the challenges coffee producers have faced in the last 15 years has been the falling prices in the international market. Local institutions and producers' cooperatives have to take the initiatives which may include the implementation of quality standards, identification of direct buyers to ensure higher profit, and the certification of origin (Fromm and Dubon, 2006).

A value chain is a sequence of related business activities (functions) from the provision of specific inputs for a particular product to primary production, transformation, marketing, and up to the final sale of the particular product to consumers. Enterprises are linked by a series of business transactions in which the product is passed on from primary producers to end consumers. According to the sequence of functions and operators, value chains consist of a series of chain links (or stages). Value chain constitutes an economic system organized around a particular commercial product. The coordination of business activities in a value chain is necessary to provide final customers with the right quality and quantity of the product. The value chain therefore: connects the different yet related business activities(Production, transformation, marketing, etc.) Necessary for serving customers, and joins and coordinates the enterprises (primary producers, processing industry, traders, etc.) performing these business activities (GTZ, 2007).

Value chain analysis is the process of chain upgrading and value chain promotion. Value chain mapping is drawing a visual representation of the value chain system. Maps identify business operations (functions), chain operators and their linkages, as well as the chain supporters within the value chain. Chain maps are the core of any value chain analysis and therefore indispensable. Quantifying and describing value chains in detail includes attaching numbers to the basic chain map, e.g. numbers of actors, the volume of produce or the market shares of particular segments in the chain. Depending on the specific interest, specific chain analyses “zoom in” on any relevant aspect, e.g. characteristics of particular actors, services, or the political, institutional and legal framework conditions enabling or hindering chain development (GTZ, 2007).

A “value chain” encompasses all the activities involved in making a product and delivering it to retail and the consumer. A value chain analysis extends the traditional supply chain analysis by locating values to each stage of the chain (Gilbert, 2006).

Economic analysis of value chains is the assessment of chain performance in terms of economic efficiency. This includes determining the value added along the stages of the value chain, the cost of production and, to the extent possible, the income of operators. Another aspect is the transaction costs, which are the cost of doing business, collecting information and enforcing contracts. The economic performance

of a value chain can be “benchmarked”, that is, the value of important parameters can be compared with those of competing chains in other countries or similar industries (GTZ, 2007).

### 2.15 Review of Agricultural Policies

Some of the policies have special focus on promotion of coffee. These policies with their focus have been mentioned in the following paragraphs.

#### 2.15.1 Agriculture Perspective Plan (APP)

The APP (1994/95-2014/15) is long term strategic policy for accelerating agricultural growth by increasing the factor productivity, transforming the subsistence based agriculture into commercial one by strengthening the production pockets, reducing poverty by providing the employment opportunities and promoting the involvement of private sectors in the development of agriculture. One of the prioritized outputs of APP is to promote high value crops. For this it has prioritized different crops for different ecological zones of the country including Terai, mid hill and high hills. For instance, high hill for apple, mid hills for The Journal of Agriculture and Environment Vol:11, Jun.2010 Review Paper 140 citrus, nevertheless, coffee has not recognized as a high value crop for the mid hill region of Nepal by APP though it has great scope of expanding in the mid hill regions. The huge marginal landscape of mid hills, which are prone to depredate and marginal, can be tapped for the commercial production of coffee. The APP emphasize paradigm shift from subsistence oriented farming to market oriented farming through a land use system based upon sound ecological principles and conducive agricultural policies. Though APP has not focused especially coffee as one the high value crops, the subsequent agricultural policies and strategies have paved the way for the promotion of coffee as high value and exportable commodity.

#### 2.15.2 Periodic Plans the Ninth (1997-2002) and the Tenth (2002-2007)

Five Year Plans have focused to increase production and productivity of high value crops for poverty reduction and protection and promotion of agricultural biodiversity and environment (NPC, 2002). For the first time Ninth plan prioritized promotion of

coffee plantation to fulfill the long term strategic plan of APP (NPC, 1997). The Tenth Plan had also targeted to increase the production of coffee but strong emphasis has not been given for import substitution and promoting the export of coffee. The Tenth Plan has focused on production support on coffee and started to give 50% subsidy on the sampling of coffee to the farmers (NPC, 2002). However, the Ninth and Tenth Plans could not pave the way for large scale production of coffee considering its commercial importance and specialty in the marginal areas of mid hill regions. In line with the Agriculture Perspective Plan (1994/95-2014/15), the Ninth Plan initiated the Pocket Package Approach (PPA) for the different agricultural commodities, however, the production pockets for the coffee was not specified. Additionally, the Ninth and Tenth has not given importance for the promotion of organic agriculture adequately.

### 2.15.3Three Year Interim Plan (2007-2010)

The Three Year Interim Plan (2007-2010) came with the focus of transforming subsistence based farming into commercial one and conserving, protecting and utilizing agricultural biodiversities via development and dissemination of environmentally friendly technologies. This reveals that this plan has apparently given significance to the organic production of high value crops. Realizing the potentiality and emerging role of coffee on the national income and improving farmers' income, this plan has included the coffee, among other 22 valuable commodities, as a priority commodity and fixed target of 685 MT from the base year of 360 MT. The Three Year Plan emphasized mid hill areas for the promotion of coffee production (NPC, 2007).

### 2.15.4 National Agricultural Policy (NAP) 2006

The NAP came as a main document to provide clear direction for the development of agriculture sector in line with APP and to specify major promotional areas of agriculture sector. The NAP's main objectified areas are to commercialize agricultural commodities based on comparative advantage and specialty of geographical setting to make agricultural products more competitive in the regional and international markets and to conserve and promote the natural resources, agro-biodiversity and environment (MOAC, 2006). The NAP strategically prioritized the areas having specific

potentiality for promoting the high value commodities in order to get higher return. The NAP has stressed over the use of the upland and marginal public and private lands for commercial production of high value crops and such stipulated areas could be apt for growing coffee especially of organic one. In the context most of the coffee is grown organically, this policy can be said has spotlighted significantly for fostering coffee as high value crops in the mid hill regions. However, the coffee has not got high focus in comparison with other high value agricultural commodities. The Journal of Agriculture and Environment Vol: 11, Jun.2010 Review Paper 141.

### 2.15.5 Coffee Policy 2004

The coffee policy has formulated to pave the way for involving the private sectors, NGOs, cooperatives and other members based organizations for promoting the production, processing and marketing of coffee in a sustainable and organized way. This policy came to bring momentum in the business of coffee in the context whereas other agricultural policies did not stress visibly for the promotion of coffee. The emphasis of coffee policy is to substitute the import and promote the export of coffee expanding area under coffee production and finally to conserve the ecological environment of mid hills area (MOAC, 2004). This policy has focused on developing the modern technologies for the production and processing of coffee with the active participation of government and private sectors. Importantly, the policy has also given priority to develop necessary manpower for promoting the production and processing of coffee; encouraging the manufacturing of necessary machines and equipments for the coffee processing within the country. Additionally, this policy stressed to coordinate with foreign countries consulates located in Nepal for exporting the coffee; messages about important of organic coffee and other promotional activities conducted and promoting the organic coffee production. Equally, this policy focuses to establish laboratory for improving the quality aspect of coffee; higher education and trainings and conducting the research for promoting production, processing and marketing of coffee. Nevertheless, this policy doesn't focus for the development of special pockets for organic coffee, which is paramount importance for the strengthening the organic coffee in the country.

### 2.15.6 Agricultural Biodiversity Policy2007

The main point of this policy is to protect, promote and use of agricultural biodiversity for sustainable development of the agricultural sector and furthermore focused to conserve and promote traditional knowledge, skills and practices of farming. Therefore, this policy has undoubtedly emphasized for the promotion of organic production of high value agricultural products owing to its significance for biodiversity conservation and high demand in international market. With the center of attention of escalating the organic production, this policy can be said to have a strong promotional character for organic production like coffee and other crops (MOAC, 2006).

### 2.15.7 Agri-business Promotion Policy (ABP), 2007

The ABPP is likely to contribute significantly towards the promotion and development of the high value crops developing commercial pocket areas based on the specialty and possibility of concerned areas. Though the concerned organizations (DOA, DADOs) have focused for the development of pockets of other high value crops, the center of attention of this policy isn't for establishing the production pockets of the coffee with view of the expanding its production and productivity with the additional support of necessary infrastructures. The ABPP further stresses on the demand lead training for promoting agri-business to increase knowledge and skills of the producers, processors and other activities of commercial production of the high value crops (MOAC, 2007). Moreover, this policy clearly mentioned about promotion and development of organic production zone to support and to increase the volume of organic production of agriculture commodities. Since most of the farmers are cultivating coffee without using the chemicals, this policy is highly positive for fostering organic coffee production. In the same way, ABPP also has stated to develop the organic certification of the organic products so as to provide legal guarantee of purity and to meet the international standard of the organic products. The Journal of Agriculture and Environment Vol: 11, Jun.2010 Review Paper.

### 2.15.8 National Technical Standard for Organic Agriculture System (NTSOAS) 2008

The government has promulgated National Technical Standard for Organic Agriculture System 2008, a specific guidelines for promoting organic cultivation. The NTSOAS is in line with the guidelines of IFOAM2 and has focused on specific land arrangement for organic production; prohibits contamination of agrochemicals in crops production, processing and storage; limit the use of chemical fertilizers and un-decomposed organic matter and urban waste; protect farmers from getting fair prices from their agricultural products and to develop organic certification system. The NTSOAS has further cleared the way for promoting the organic production and processing of high value agricultural products.

## 2.16 Agritourism

A less commonly described form of tourism is agritourism or farm-based tourism. This is the form of tourism which capitalizes on rural culture as a tourist attraction (Kasparek, n.d.), or more specifically the recreational visit to a working agricultural facility (Gao et al., 2013). It is different from ecotourism because it focuses on the cultural component instead of the natural component present in ecotourism, although the landscapes and other natural resources are part of the attraction. Agritourism can be initiated or managed by a rural community, but is not necessarily community based. Literature describes several cases of agritourism in Europe and the United States, but only few studies are done in other continents.

The impacts on livelihoods in general are described, but environmental impacts remain largely unclear. Some say that agritourism is part of a larger concept called Agricultural Heritage Systems Tourism (AHST) (Tian et al., 2016). AHST is a combination of agritourism, ecotourism and cultural heritage tourism and gives an understanding of the differences between these types of tourism;Tian et al. claim that the combination of these three tourism approaches can lead to better outcomes than looking at one type of tourism alone. Examples of environmental objectives for AHST are determining the appropriate tourism scale, protecting the environment concerning aspects such as water supply and trash disposal and educating visitors about ecological environmental protection. Looking at tourism as an interconnected set of resources could be a useful way to effectively manage tourism.Agritourism has existed in Europe for over a hundred years (Busby &Rendle, 2000). Poor agricultural commodity prices, rising production costs, globalization, industrialization, the encroachment of suburban development, and the loss of government-supported agriculture programs have led small 8 and medium scale farmers to explore the viability of alternative economic strategies in an effort to preserve the family farm (McGehee& Kim, 2004). Mainly the need for alternative income generation is a well understood driver of agritourism.

# CHAPTER III

## RESEARCH METHODOLOGY

### 3.1 Research Design

Research design is the blue-print for the collection of data. Descriptive and exploratory research has been applied in this research to meet the objective of the study. The data has been collected from field using technique household survey i.e. primary source. The data has been analyzed in descriptive and analytical way. The study was tending to quire how and in what prospect the coffee cultivation contributes in rural livelihood?

### 3.2 Rationale for Selection of the Study Area

Maijogmai Rural Municipality Ward No 4of Ilam District was selected as the research site. There were altogether 45 coffee farms and farm holders. There were also three collection centers with pulping machines. Coffee farmers were experienced, for more than15 years. The research site was never been studied before. So, it's a new research sector, in Ilam District. In this case, the research was suitable for me/researcher, to get all the answers of the questions that rose in problems.

### 3.3 Sampling Procedures and Sample Size

This research was applied purposive sampling for area selection, where as sample population of the study was selected on the following basis.

–The selected area of Maijogmai Rural Municipality Ward No 4 of Ilma District wasthe universe of the study.

–Out of 45 households 15 household of respondents has been selected using simple random sampling method for the study.

–Focus group discussion was held on research site, involving major stakeholders. This dissertation was more descriptive in nature so the data collection could be done in this ways.

1. Field study
2. Field survey
3. Focus group discussion

### 3.4 Nature and Sources of Data

Primary data: Those data which are collected for the first time for a particular purpose of investigation within course of investigation/research period is primary data. Primary data were collected through the, Observation; focus group discussion, interview, and questionnaire as per the conveniences to aid to my study.

Secondary data: Those data which are already been collected for any other purpose or investigation are the secondary data. The sources of secondary data are: Books, Journals, Researches, Biographies, Official Letters, and Descriptions.

**The Various Sources of Secondary Data are mentioned below.**

1. Ministry of Agriculture
2. Central bureau of statistics
3. Department of Agriculture
4. National tea and coffee development board (NTCDB)
5. Nepal Coffee trade union
6. Central coffee cooperative union
7. District coffee producers association
8. Nepal coffee producers association
9. Regional tea and coffee development board
10. Tea and coffee extension offices in districts.
11. Google, YouTube
12. Bulletins/reports etc.

### 3.5 Data Collection Tools and Techniques

#### 3.5.1 Household Survey

This technique has been applied to get actual and fact data. Questionnaire tool has been applied under this technique for household sampling. Questionnaire had both opened and close questions according to the capacity of respondents. Similarly structured questionnaire has been prepared to find actual and believable data from research area.

### 3.5.2 Field Visit and Observation

Each household and respondent selected on the list of sampling has been visited and observed frequently by researcher during the studyat the research site.

### 3.5.3 Focus Group Discussion

Focus group discussion wasalso organized with an eye to get more information and to be cleared in confusion data, related to coffee farming. Thus, that discussion mainly focused on coffee cultivation and its contribution on rural community development.

### 3.5.4 Key Informant Interview

Since this study was based on the exploratory in nature. Key informant interview has been held to those people who have informed detail related to the study objective. The key informant interviews were held to coffee pulpers and staff member of NTCDB.

### 3.5.5 Tools

Camera, phone, video recorder, balance (taraju) calculator, measurement tape and stationary were mainly used as data collection tools.

After collected of these data, the data analysis tools were used to acquire informative results. My research work in progress was guided by professor; research instructor was of great valued to reach to better conclusion.

# CHAPTER IV

## ANALYSIS AND PRESENTATION OF FINDING DATA

According to the proposal, study has been done in Maijogmai -4 Ilam. Therefore most of the primary raw data have collected from this study site. The research site is nearly 13 km east from Ilam Bazar. Although study site lies in periphery of urban area, that site has remained as Rural yet. The road that led to the study area is muddy. There is no any big market too. Most of the population of that community is Indigenous and followed by Brahmin and kshetri. The famers had started Coffee cultivation from 15/20 years ago, but they have been cultivating professionally only from few years ago. There were altogether 45 coffee farms and farms holders.

In this chapter the collected raw finding data has been edited, coded classified, tabulated, analyzed and interpreted for the correction if there are any mistakes,to conserve space, reduce descriptive statement into visual/pictorial form, to estimate the values of unknown parameter of the population form the sample statistics and hypothesis testing in order to reach the conclusion.

### 4.1 Average Coffee Plantation Area in Maijogmai Rural Municipality-4

The farmers have planted in 1 Ropani to 15 Ropani area, most of the farmers are small holders they have planted coffee in small scales due to land problem, lack of irrigation and better knowledge about coffee farming. The acreage of coffee plantation in research area is demonstrated below on the table.

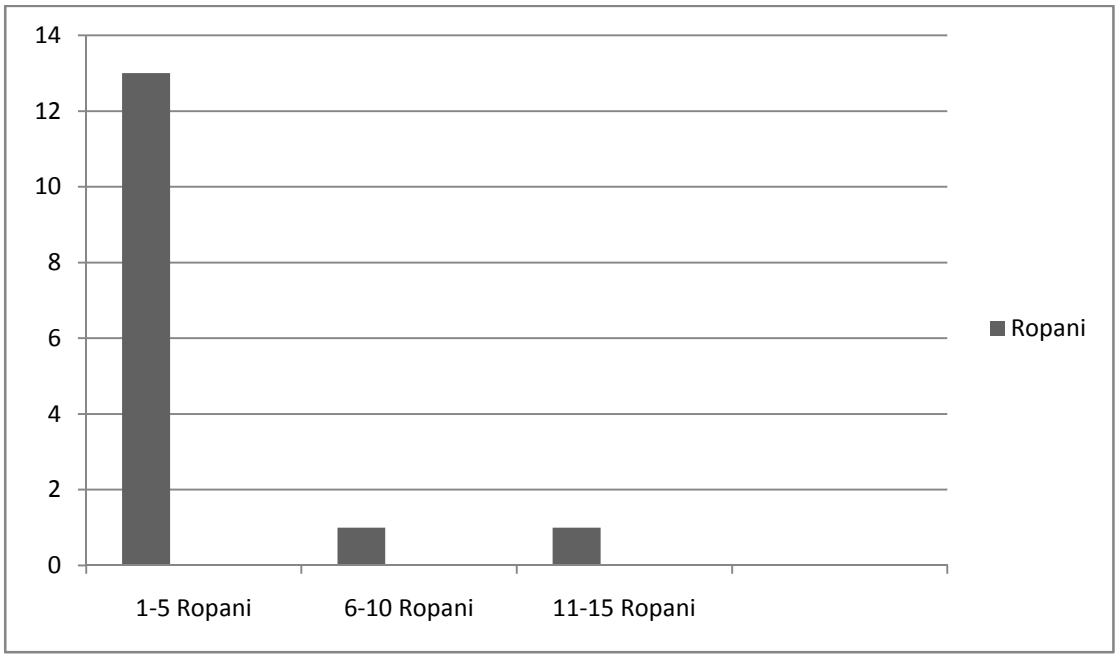
**Table No.1 Average Coffee Plantation Area in Maijogmai-4**

| **Plantation area acreage (in Ropani)** | **Respondents** | **Percentage** |
|---|---|---|
| 1 – 5 | 13 | 86.66 |
| 6 – 10 | 1 | 6.66 |
| 11 -15 | 1 | 6.66 |
| **Total** | **15** | **100** |

**Source: Field Survey, 2019**

The table No. 1 reveals that the 13 respondents have cultivated in within 1 - 5 Ropani, 1 respondent has cultivated in 6 -10 Ropani, and 1 respondent has cultivated in 11–15 Ropani area of land.

**Fig.2 Average Coffee Plantation Area in Maijogmai-4 in Figure**




**Source: Field Survey, 2019**

### 4.2 Average Annual Coffee Production in Research Area

A coffee tree has been produced up to 25kg of ripe cherry in research site. Most of the farmers have been producing 5kg ripe cherry from a coffee tree, in average. According to the data of collecting centers of that ward nearly 22 to 25 metric tons approximate value Rs 2125000, ripe cherry has been producing. The coffee fruit getting from a tree is low due to the land problem, lack of irrigation and trainings and financial support in coffee cultivation. The data about the annual average production of Coffee in the research /sampled ward is mentioned through the table.

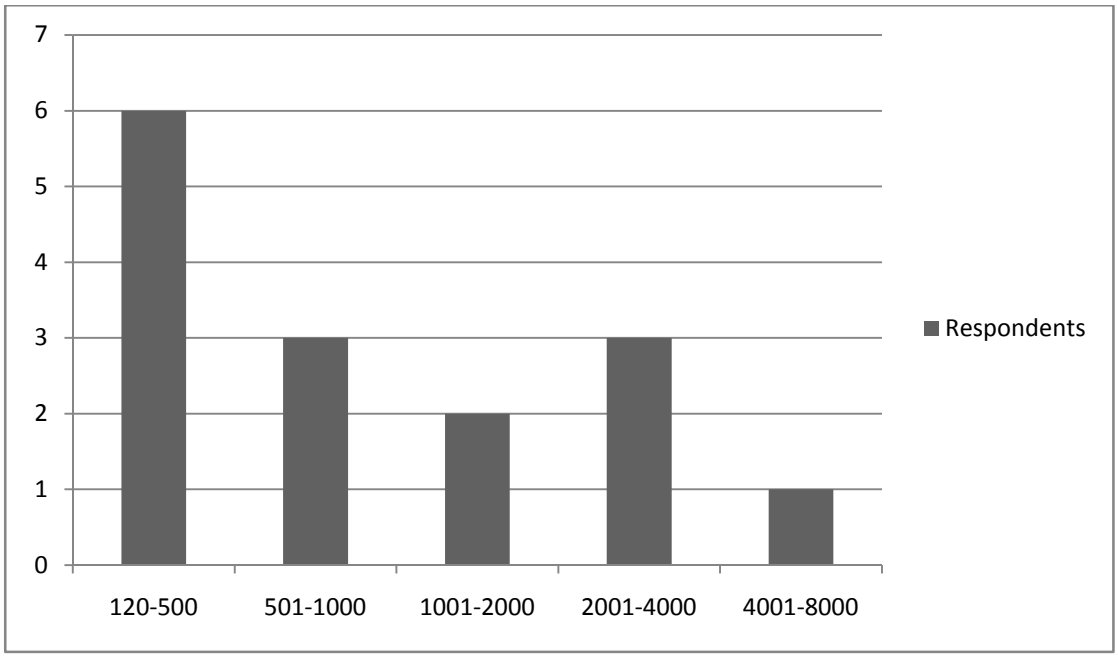
**Table No. 2 Average Annual Production of Coffee in research site**

| **Production Coffee (in kg)** | **Respondents** |
|---|---|
| 120 – 500 | 6 |
| 501 – 1000 | 3 |
| 1001 – 2000 | 2 |
| 2001 – 4000 | 3 |
| 4001 - 8000 | 1 |
| **Total** | **15** |

**Source: Field Survey, 2019**

Table No. 2 shows that 6 respondents have produced from 120–500kg, 3 respondents have produced from 501-1000kg, 2 respondents have produced from 1001- 2000kg, 3 respondents have produced from 2001- 4000kg and 1 respondent has produced from 4001-8000kg ripe cherry every year.

**Fig.3Average Annual Production of Coffee in Research Site in Figure**




**Source: Field Survey, 2019**

### 4.3 Average Annual Earning by Farmers before Coffee Cultivation and after starting Coffee Cultivation at Research Site.

After case study in Maijogmai Rural Municipality Ward No 4, I found that the previous yearly average income of farmers were comparatively lowest than they stared coffee cultivation. The data shows the farmers have been earning up to 300 to 500 times more after starting commercial coffee cultivation. The farmers have different amount of earning in research site. It's because they have planted also in different quantity of coffee plants. It also shows that up to 32.5 to 40 percent extra income is getting by the farmers, who have processing center with pulping machine. It's because they sell parchment beans and green coffee beans after processing.

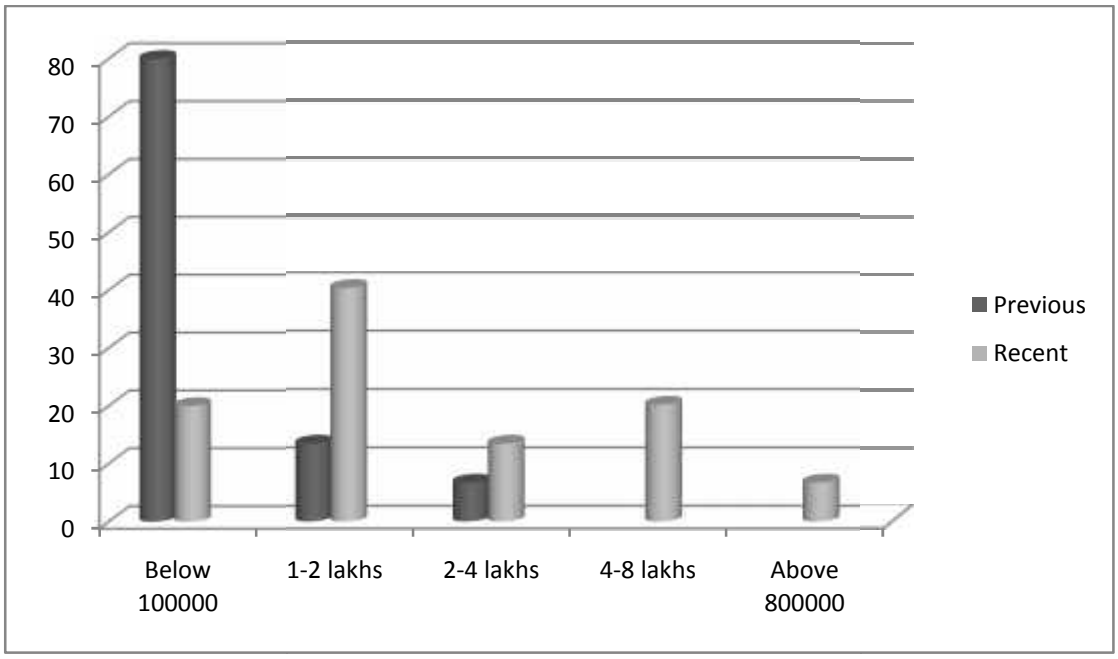
**Table No.3AnnualAverages Earning by Farmers before Coffee Cultivation and after Starting Coffee Cultivation at Research Site.**

| **Previous** | | | **Recent** | | |
|---|---|---|---|---|---|
| **Earning in lakhs** | **Respondent** | **Percentage** | **Earning in lakhs** | **Respondent** | **Average** |
| <100000 | 12 | 80 | <100000 | 3 | 20 |
| 1 – 2 | 2 | 13.66 | 1 – 2 | 6 | 40 |
| 2 - 4 | 1 | 6.66 | 2 – 4 | 2 | 13.66 |
| 4 – 8 | | | 4 – 8 | 3 | 20 |
| 800000> | | | 800000> | 1 | 6.66 |
| **Total** | **15** | **100** | **Total** | **15** | **100** |

**Source: Field Survey, 2019**

The table No 3 shows that the recent average annual earnings are higher than before they started coffee farming. According to the presented data on the table No. 3 previous earning of 80 percent farmers is less than 100000, 13.66 percent farmers have been earning 1–2 lakhs and 6.66 percent farmers have been earning 2-4 lakhs. But we can see on the data of recent earning of respondents is only 20 percent farmers have been earning less than 1 lakhs, 40 percent farmers have been earning 1-2 lakhs, 13.66 percent farmers have been earning 2-4 lakhs, 20 percent farmers have been earning 4-8 lakhs and 6.66 percent farmers have been earning more than 8 lakhs in a year.

**Fig.4 AnnualAverage Earning by Farmers before Coffee Cultivation and after Starting Coffee Cultivation at Research Site**




**Source: Field Survey, 2019**

### 4.4 Land Ownership in Research Area

This study is conducted in Maijogmai Rural Municipality ward No 4. Most of the farmers of that research area have their own land for farming coffee only little number of farmers cultivates coffee on rent and tenant.

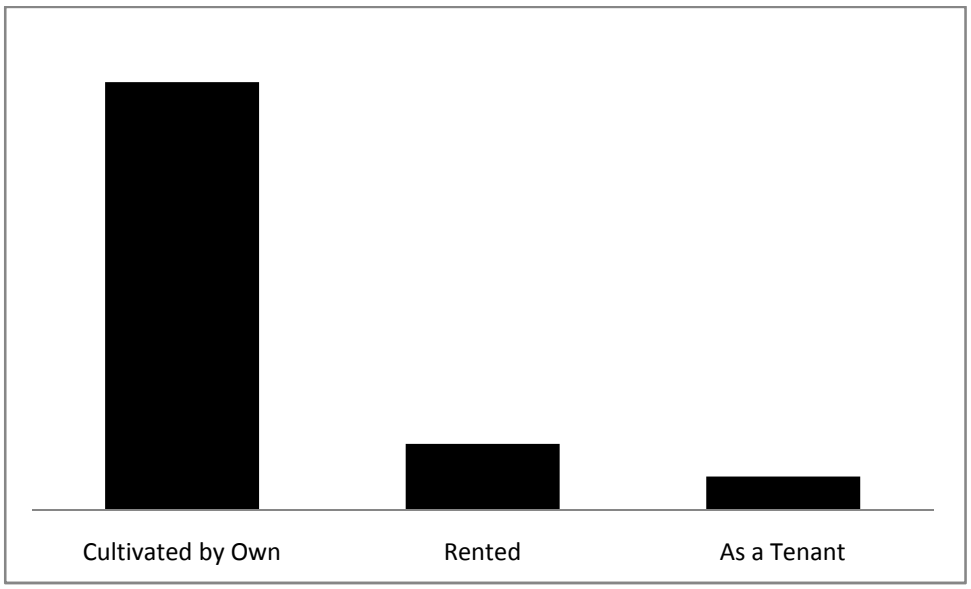
**Table No. 4 Land Ownership of the Study Area**

| **Ownership** | **Respondents** | **Percentage** |
|---|---|---|
| Own | 12 | 80 |
| Rented | 2 | 13.34 |
| As a Tenant | 1 | 6.66 |
| **Total** | **15** | **100** |

**Source: Field Survey, 2019**

Table No 4 shows that among the total sampled households, 80 percent of household cultivate on their own land, 13.34 percent of sampled household cultivate on land taking in rent. Similarly, 6.66 percent of sampled household cultivate land on tenant.

**Fig.5 land ownership of the Study Area**




**Source: Field Survey, 2019**

### 4.5 The Gender (Sex) Selected for Sampling at Research Site

According to the data maximum respondents were male. But in the season of coffee harvesting the age below 25 females are involved in greater number.

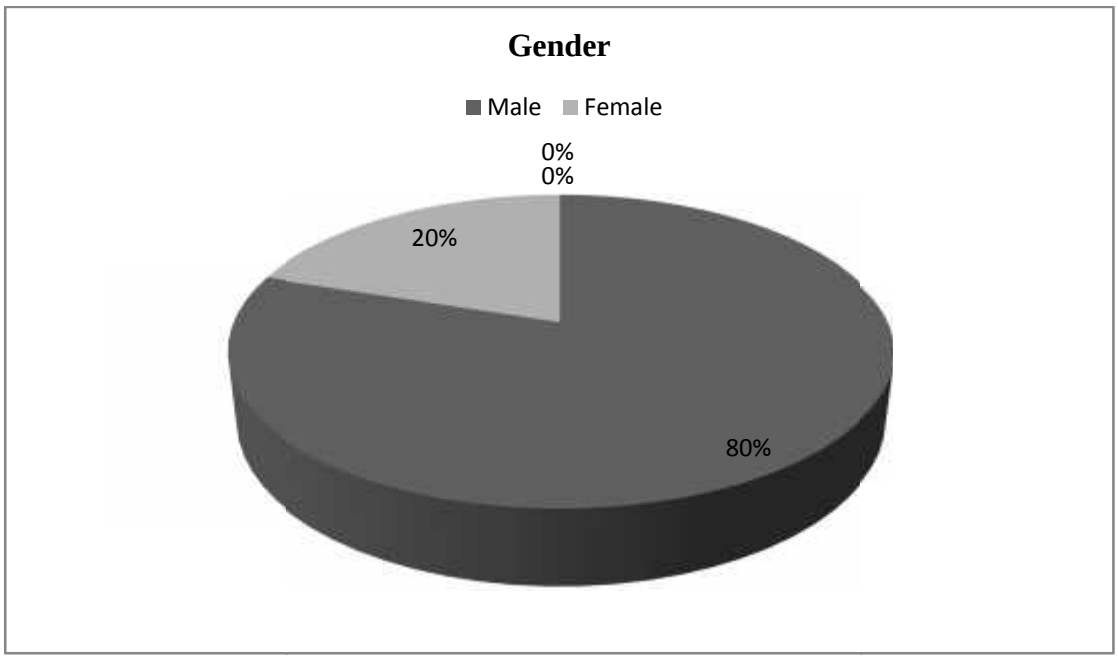
**Table No. 5 The Selected Gender Status for Sampling at Research Site**

| **Sex** | **Respondents** | **Percentage** |
|---|---|---|
| Male | 12 | 80 |
| Female | 3 | 20 |
| **Total** | **15** | **100** |

**Source: Field Survey, 2019**

The data presented on the table tell that, 80 percent respondents were male and rest of 20 percent respondents was female at research site who were involved in sampling size.

**Fig.6The Selected Gender Status for Sampling at Research Site in Figure**




**Source: Field Survey, 2019**

### 4.6Age Condition of Farmers at Research Site

The age of farmers from the research site is 23 – 65 years. Age between 51- 60 years respondents has been involved in sampling size at research area.

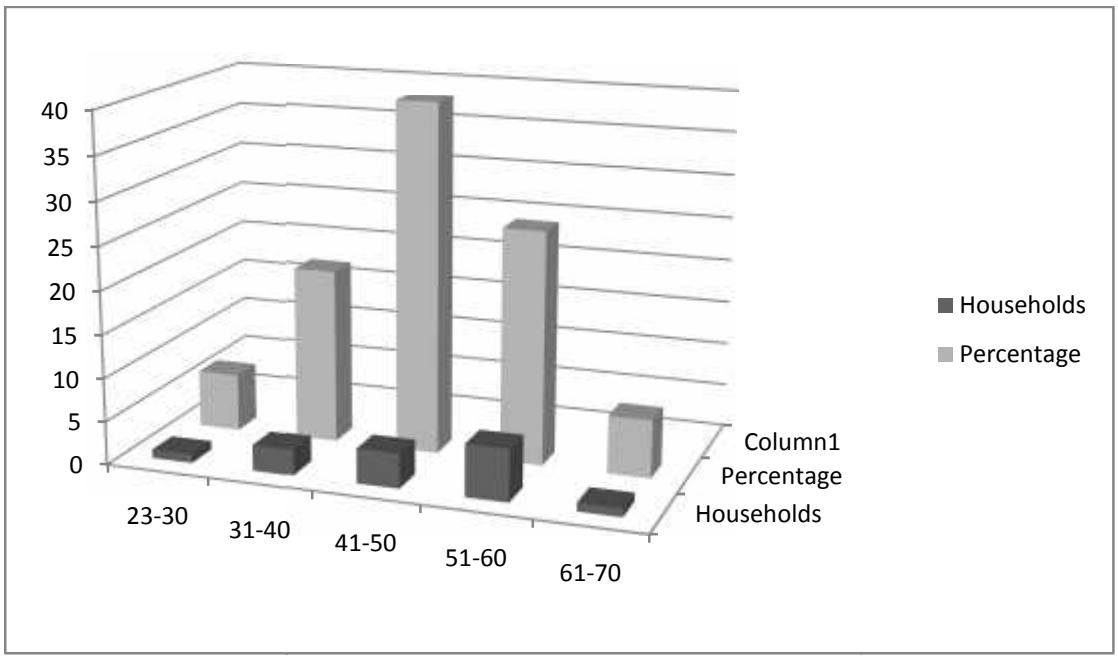
**Table No.6 Age of respondents at Research Site**

| **Age** | **Respondents** | **Percentage** |
|---|---|---|
| 23 – 30 | 1 | 6.66 |
| 31 – 40 | 3 | 20 |
| 41 – 50 | 4 | 40 |
| 51 – 60 | 6 | 26.66 |
| 61 - 70 | 1 | 6.66 |
| **Total** | **15** | **100** |

**Source: Field Survey 2019**

Table No. 6 shows that average age of 1 respondent was 23-30 years, 3 respondents were 31-40 years, 4 respondents were 41-50, 6 respondents were 51-60 and 1 respondent was 61-70years old at research site under sample size. 3 farmers 20 percent, 31 – 40 years 3 farmers 20 percent and 41 – 50 years 9 farmers 60 percent.

**Fig.7 Age of respondents at Research Site in Figure**




**Source: Field Survey, 2019**

### 4.7 Availability of Irrigation

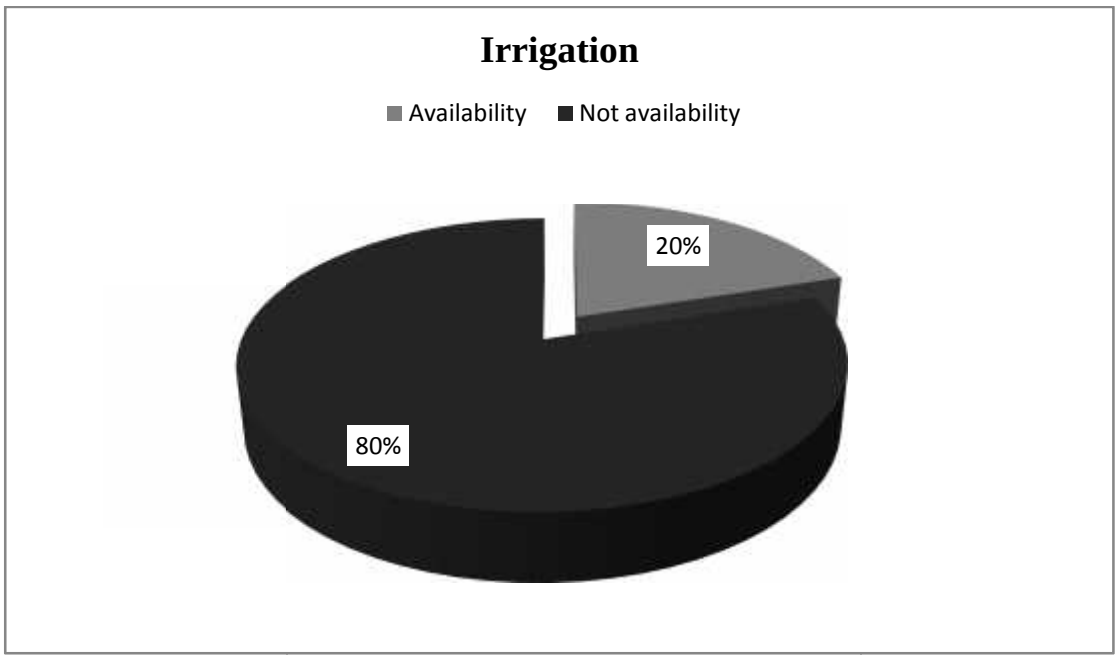
One of the great constraints in this study area is irrigation therefore only 20 percent of total respondents have been irrigating their coffee farms**.**

**Table No.7 Availability of Irrigation**

| **Irrigation** | **Respondents** | **Percentage** |
|---|---|---|
| Availability | 3 | 20 |
| Not Availability | 12 | 80 |
| **Total** | **15** | **100** |

**Source: Field Survey, 2019**

**Fig.8 Irrigation Facilities Availability**




**Source: Field Survey, 2019**

Above figure shows the condition of irrigation in the field of research area. It gives clear pictorial view of irrigation situation. Among 15 households only 3 respondents had provision of irrigation and rest of the households had not provision of irrigation.

### 4.8 Soil Structure and Temperature

The structure of soil was mix of both sandy and black fertile with 5-6ph. Most of the soil in this site is sandy dry nearly 5 percent soil is wet and rest of the available transplanted land is non-wet. The temperature is up to 25°c in summer season of low land and 10°c in winter season in highland of this site.

### 4.9 Altitude at Study Site

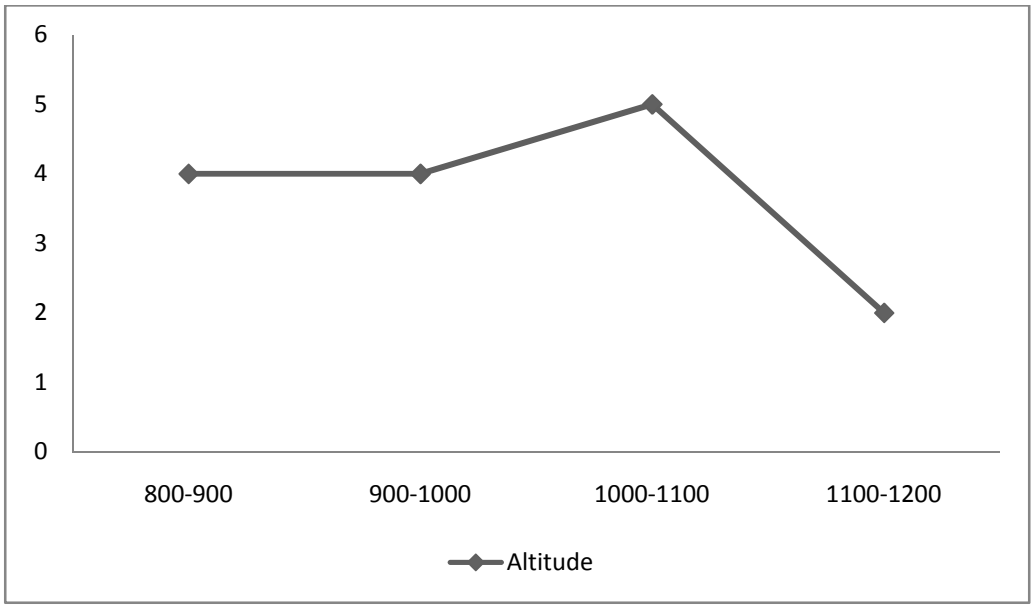
According to NCDC the altitude of research place is from 850 to 1200m high from sea level. It's also the suitable range for cultivation coffee.

**Table No. 8 Altitude of Coffee Farms**

| Altitude | Farms |
|---|---|
| 800 - 900 | 4 |
| 900 - 1000 | 4 |
| 1000 - 1100 | 5 |
| 1100 - 1200 | 2 |
| **Total** | **15** |

**Source: Field Survey, 2019**

**Fig.9 Altitude of Coffee Farms**




**Source: Field Survey, 2019**

Figure.9 shows the altitude of farms. There were 4 farms in the altitude 800-900m, similarly 4 farms were in the height of 900-1000m, 5 farms were in the height of 1000-1100m and 2 farms were in the height of 1100-1200m high from the sea level.

### 4.10 Training Received by Farmers for Coffee Cultivation

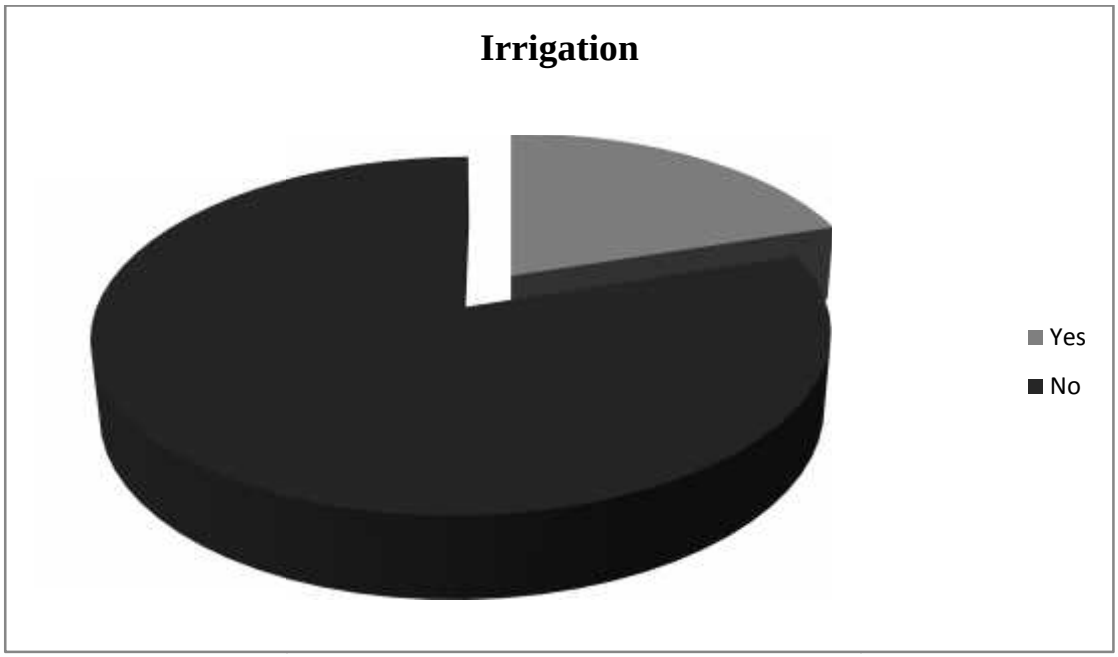
It was due to none of the private organizations and government was involved in providing training for coffee cultivation. Also they don't have good technical knowledge. The one of the main problem in researched place was also lack of better trainings in coffee cultivation. Howeversome of the farmers have obtained training from NGOs being active themselves.

**Table No.9 Training Received by Farmers**

| Training | Yes | No |
|---|---|---|
| Total | 3 | 12 |

**Source: Field Survey, 2019**

**Fig.10 Training Received for Coffee Cultivation**




**Source: Field Survey, 2019**

Fig 10 reveals that only 20% of respondents were trained farmers, getting any sorts of training through NGOs and rest of the 80% was not trained getting.

### 4.11 Land Surface

The land available at the research site was categorized into two categories based on their use namely steep/sloppy land and terrace land. Steep land is that land where other general crops don't grow. This land is also known as forests land in local language in that land most of the farmers have cultivated coffee in research area. Terrace land denotes that where general cereals crops are transplanted like; Rice, Maize, Barley, Millet and vegetables etc. Farmers have been growing Rice, Maize and Millet as major cereal crop in terrace land.

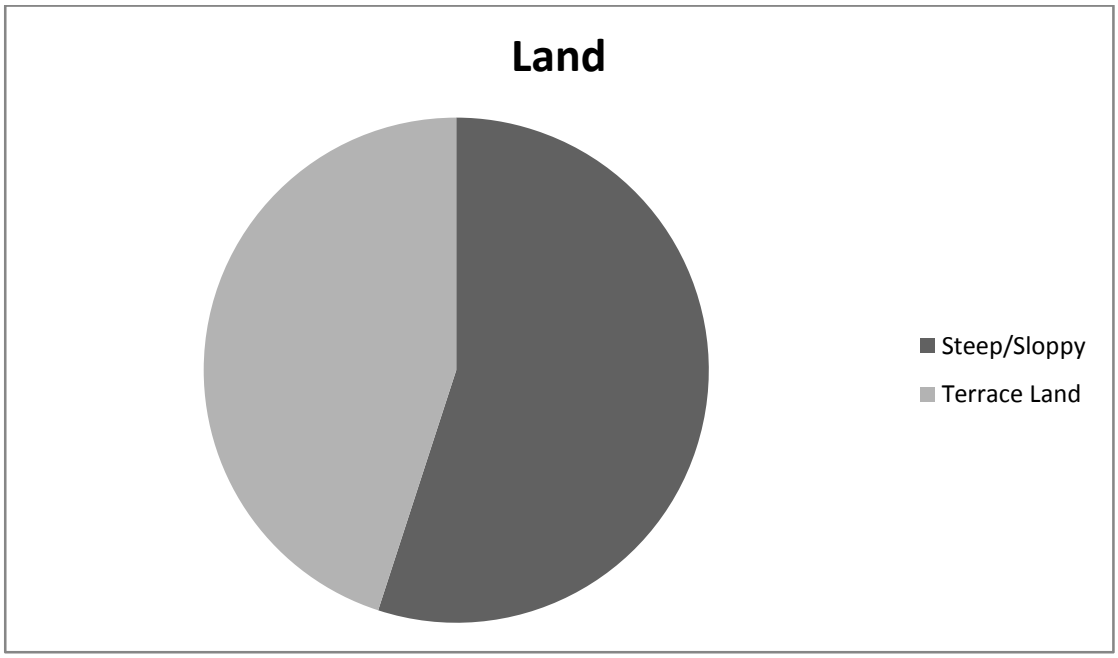
**Table No. 10 Land Surface**

| **Land Surface** | **Area in Percentage** |
|---|---|
| Steep/sloppy land | 55 |
| Terrace land | 45 |
| **Total land** | **100** |

**Source: Field Survey, 2019**

The table No.10 shows that the 55% of the land surface is steep/sloppy type; rest of the land surface is terrace. Plantation acreage and the production quantity of coffee has been growing yearly at research site. Their future plan at this research site is to make known this place as coffee pocket area.

**Fig.11Land Surface**




**Source: Field Survey, 2019**

### 4.12 Caste and Ethnicity of Respondent

The caste system defines social classes by a number of hierarchical endogamous groups often termed Jaat. This custom was traditionally only prevalent in the Hindu-Aryan societies of the Khas, Madhesi, and Newarsetc

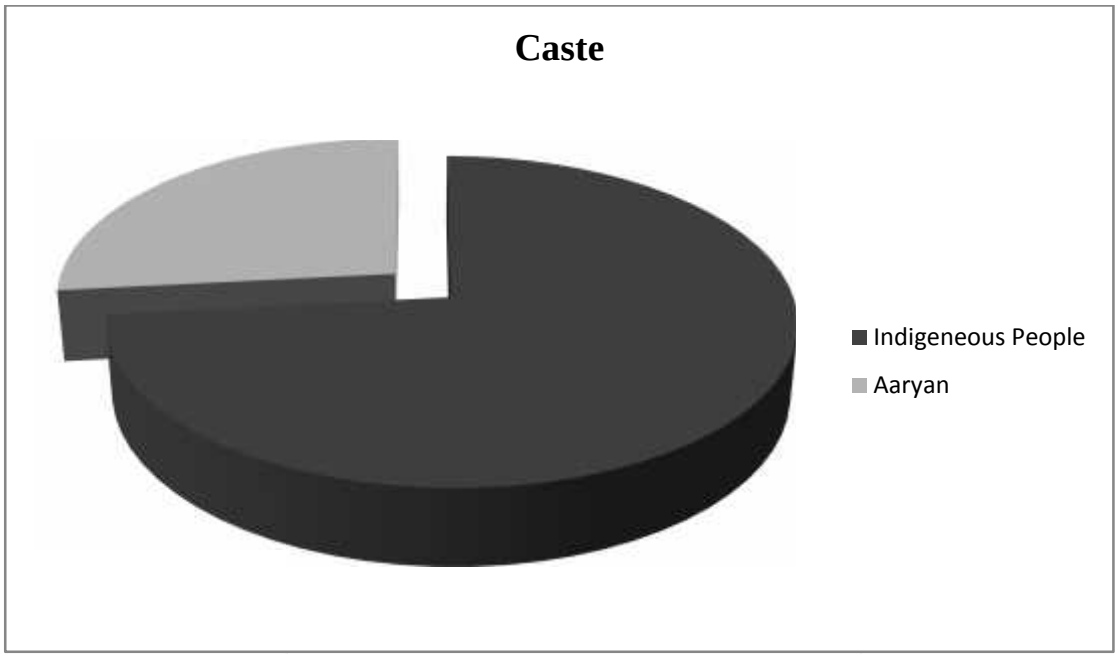
**Table No. 11 Caste and Ethnicity of Respondents**

| Caste | Respondents | Percentage |
|---|---|---|
| Indigenous (janajati) | 11 | 73.33 |
| Aaryan(Brahmin/kshetri) | 4 | 26.66 |
| **Total** | **15** | **100** |

**Source: Field Survey, 2019**

Table No.11 shows that in the study area majority of farmers 73.33% were Indigenous and 26.66 were Aaryan in the study area.

**Fig.12 Caste and Ethnicity of Respondents**




**Source: Field Survey, 2019**

### 4.13 Production, Processing and Marketing Constraints of Coffee Cultivation in research area

The main problem of this area was the lack of technical knowledge and training in the field of cultivation coffee and that was followed by irrigation similarly the coffee pests and other common diseases like; drying plants and branches. And the area of land ownership is also shown as a problem in this study area. Low volume of production was also another constraint and major problem in processing was quality maintain.

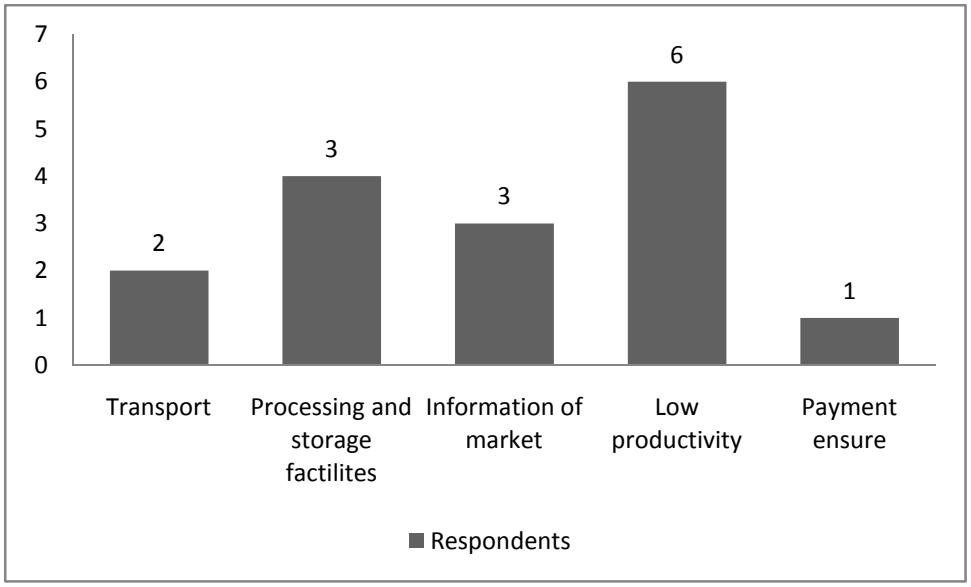
**Table No. 12 Production, Processing and Marketing Constraints in Coffee**

| **Problems on marketing of coffee** | **Respondents** | **Percentage** |
|---|---|---|
| Transport | 2 | 13.33 |
| Processing and storage facilities | 3 | 20 |
| Quality problem | 3 | 20 |
| Low productivity | 6 | 40 |
| Payment ensure | 1 | 6.66 |
| **Total** | **15** | **100** |

**Source: Field Survey, 2019**

Table No. 12 the respondents the topmost constraint was the low production volume. This is followed by quality problem and processing and storage facilities. Then lack of transportation at last payment ensure.

**Fig. 13 Production, Processing and Marketing Constraints in Coffee**




**Source: Field Survey, 2019**

### 4.14 Advantages of processing

Farmers and pulping operators added value on the coffee and got a higher price. They used leisure time for coffee pulping and sun drying. Previously they had to sell the dry cherry fetching low price. But now all the farmers from the Maijogmai Ward No 6

coffee producer group produced dry parchment at home. They could store that dry parchment for long time. They get better price by selling parchment to the processing centers; they made compost manure from the skin or pericarp of cherries.

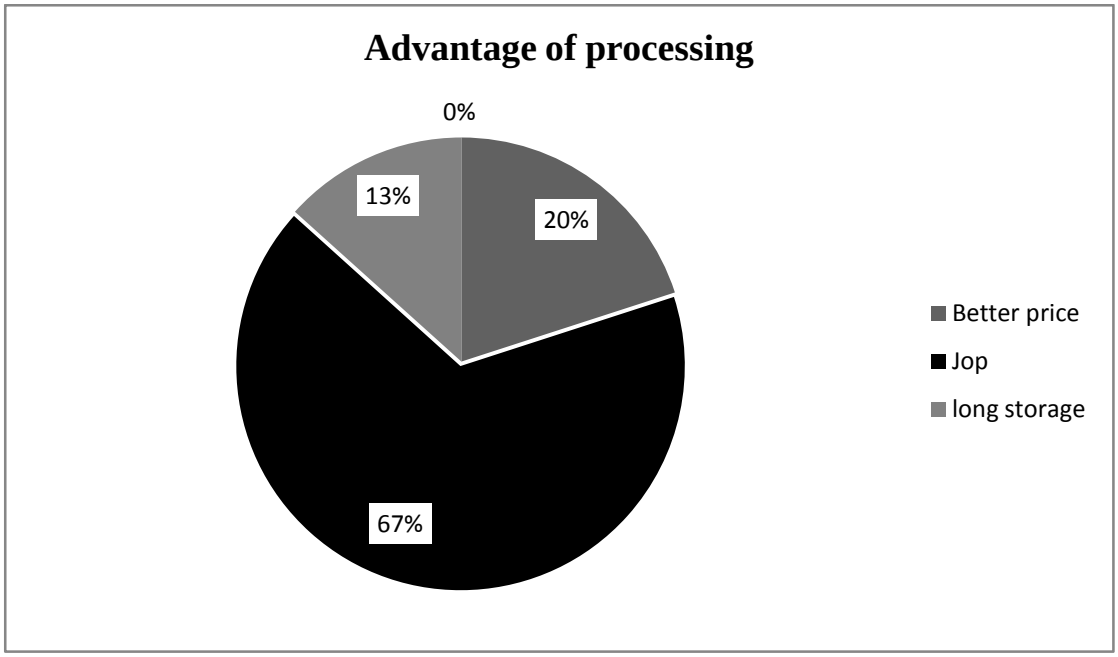
**Table No. 13 Advantages of Processing**

| **Advantages of Coffee processing** | **Respondents** | **Percentage** |
|---|---|---|
| Better price | 3 | 20 |
| Job Opportunity | 10 | 66.66 |
| Longer Storage life | 2 | 13.33 |
| **Total** | **15** | **100** |

**Source: Field Survey, 2019**

Table No. 13 demonstrate that the, 3 respondents (20%) sell the parchment cherry after processing and they get also better price. And secondly 10 respondents (66.66%) farmers get job opportunity, while processing and thirdly 2 (13.33%) respondents get advantage of longer storage.

**Fig.14 Advantages of Processing Coffee**




**Source: Field Survey 2019**

### 4.15 Share of Different Enterprises to Annual Household Income

Nepalese farming system is comprised of the different associated enterprises and shares on the total household economy. Non-farm and other sources have the major contribution to the annual household economy followed bylivestock enterprise. Coffee lonely contributes about 30 percent to the household economy and it is the sign of commercialization.

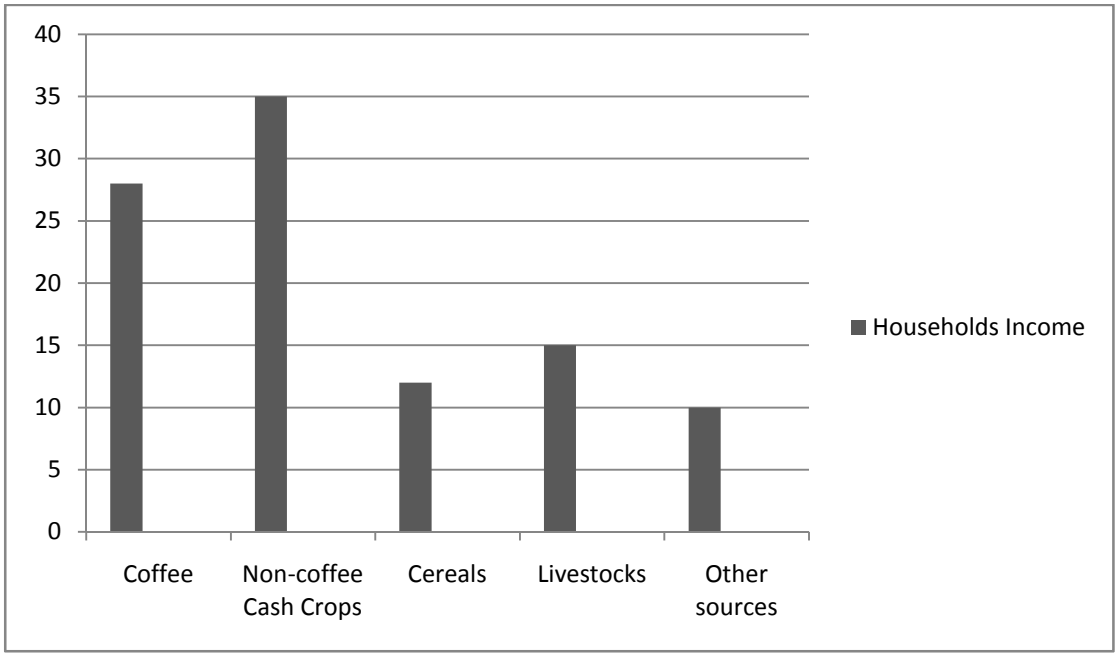
**Table No.14 Share of Different Enterprises to Annual Household Income**

| **Source of Income** | **Percentage** |
|---|---|
| Coffee | 28 |
| Non-coffee cash crops | 35 |
| Cereals | 12 |
| Livestock | 15 |
| Other Sources | 10 |
| **Total** | **100** |

**Source: Field Survey, 2019**

Table No. 14 shows that the income supporting by Non-farming and other sources to the farmers in research area is 10 percent, by livestock 15 percent, by cereals 12 percent, Non-coffee cash crops 35percent and 28 percent by coffee cultivation alone supports in generating income at this research site.

**Fig.15Share of Different Enterprises to Annual Household Income in Figure**




**Source: Field Survey, 2019**

### 4.16 Communication Facilities

The Marketing Communication refers to the means adopted by the companies to convey messages about the products and the brands they sell, either directly or indirectly to the customers with the intention to persuade them to purchase. About 80 percentage farmers sell ripe cherry to the local collecting centers. Because they don't have pulping machine and rest of the farmers collect ripe cherry from farmers and sell to the National and International markets after processed.

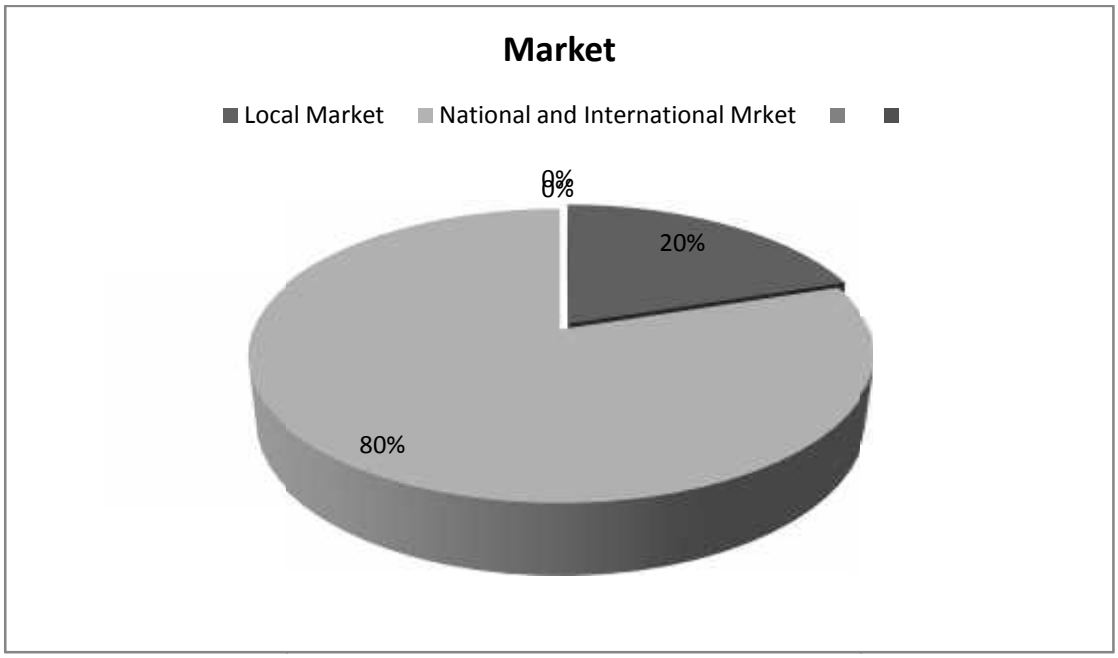
**Table No.15 Communication Facilities**

| **Marketers** | **Respondents** | **Percentage** |
|---|---|---|
| Local market (collector centers) | 12 | 80 |
| National and International Market | 3 | 20 |
| Wholesaler | 0 | 0 |
| Money lender of village | 0 | 0 |
| Others | 0 | 0 |
| **Total** | **15** | **100** |

**Source: Field Survey, 2019**

Table No. 15 reveals that the 80 percent respondents sell ripe cherry in local market (collecting centers), and 20 percent respondent sell parchment coffee in National and International markets after processing.

**Fig.16 Communication Facilities**




**Source: Field Survey, 2019**

### 4.17 Family Structure

Family is a social institution and the most important primary group of the society as well. It is the first and the most important intermediate social environment to which a child is exposed and where a child develops its basic attitudes. Along with the wave of modernization and urbanization, the traditional family system has been changing its shape. Traditional joint family system is gradually fading away replacing by the nuclear family system. Less of the household is found living jointly.

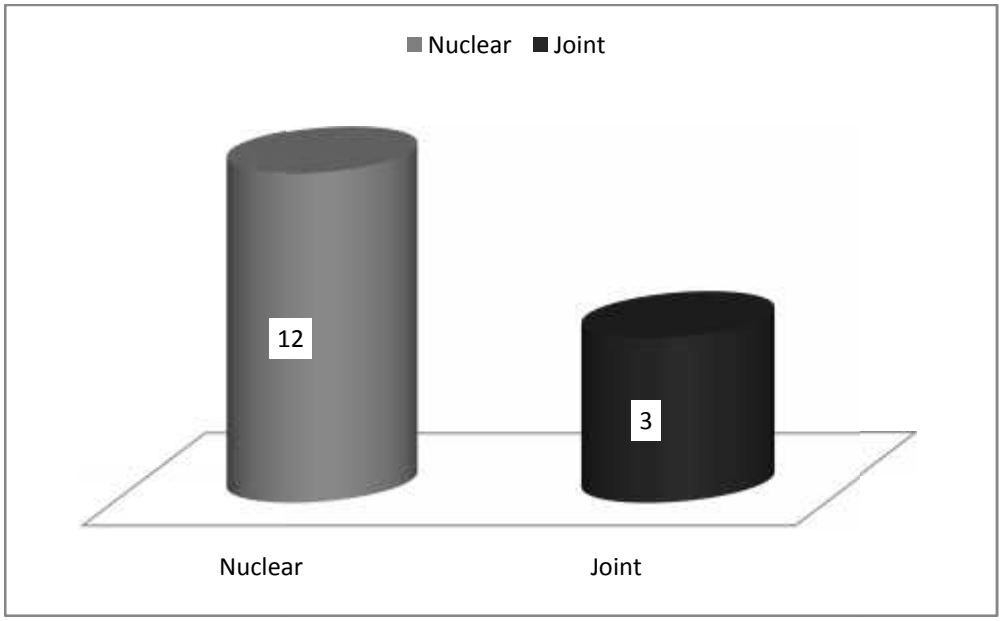
**Table No. 16 Types of Family Structure**

| **Family Structure** | **Respondents** | **Percentage** |
|---|---|---|
| Nuclear | 12 | 80 |
| Joint | 3 | 20 |
| **Total** | **15** | **100** |

**Source: Field Survey, 2019**

Table No.16 indicates that the existence of Nuclear family constitutes fairly high percentage that is 80 percent than that of joint family 20 percent. As the structure of Nuclear family is increasing everywhere, this study also shows the increasing trend of Nuclear family in the study area.

**Fig.17 Types of Family Structure**




**Source: Field Survey, 2019**

### 4.18 Cropping pattern

The main crops had been growing Rice, Ginger, Akabare (a kind of chilly) Millet and Maize, in research site, in terrace land but whole steep and slope lands were laid barren before they started coffee cultivation. Some of the respondents were found to cultivate vegetables after finger millet for market purpose, according to the season and in the remaining period of the year the land was kept fallow and used for grazing the livestock. But nowadays most of the farmers have cultivated coffee plant in both terrace and steep lands. Most of the responds of farmers were, they wanted to cultivate coffee as a major crop in research area.

### 4.19 Educational Status

The respondents were from illiterate to graduate holder in this research area.

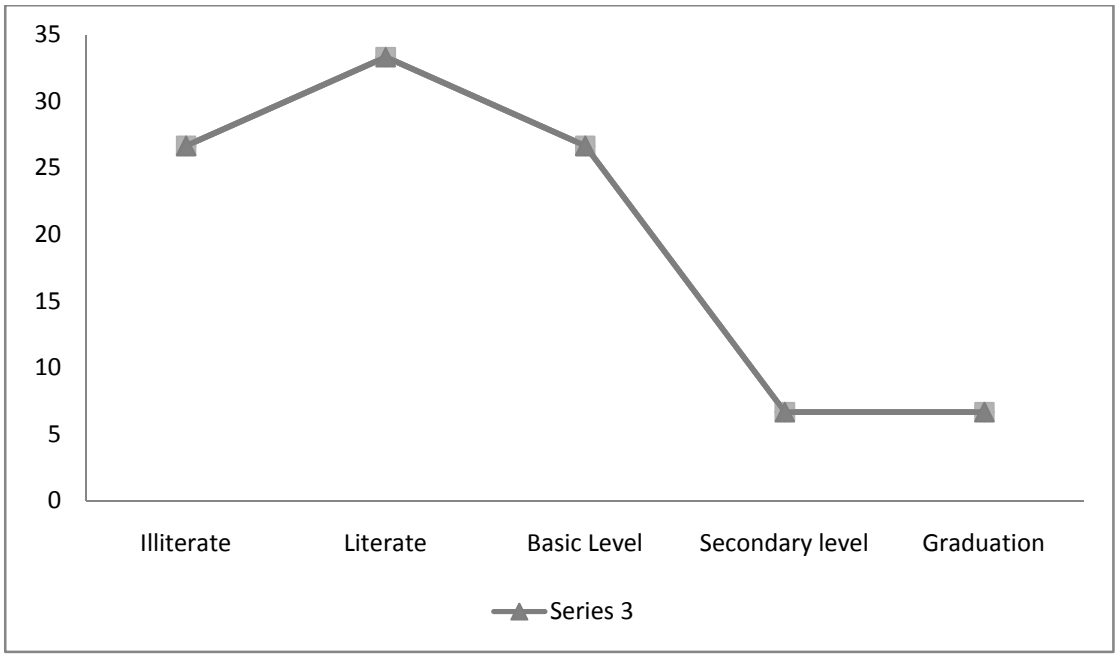
**Table No. 17 Educational Status**

| Education Status | Respondents | Percentage |
|---|---|---|
| Illiterate | 4 | 26.66 |
| Literate | 5 | 33.33 |
| Basic Level | 4 | 26.66 |
| Secondary | 1 | 6.66 |
| Graduation | 1 | 6.66 |
| **Total** | **15** | **100** |

**Source: Field Survey, 2019**

The data in the table No. 17 shows that, 26.66 percent respondents were illiterate, 33.33 percent respondents were literate, 26.66 percent respondents were basic level completed, 6.66 percent respondent was secondary level completed and 6.66 percent respondent was graduation completed at research site.

**Fig.18 Educational Status in Figure**




**Source: Field Survey, 2019**

### 4.20 Coffee Plantation and Production in Nepal

Nepal is listed in lower coffee plantation and producer country in the world. The data of coffee plantation and production of the country is presented hare on table.

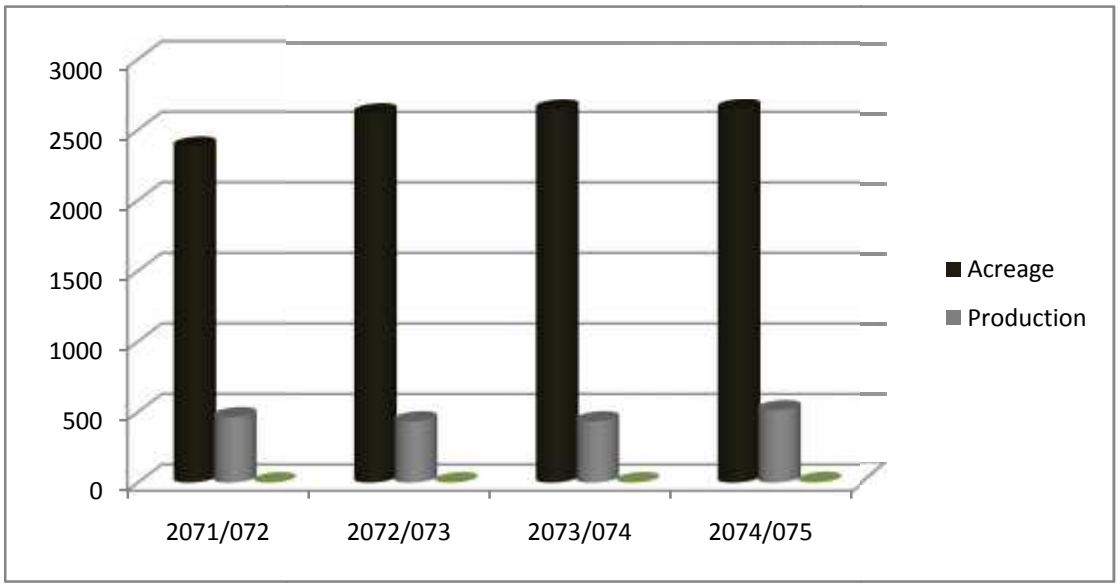
**Table No. 18 Coffee Plantation and Production in Nepal**

| Fiscal year | Plantation area(hector) | Production (Mt.) |
|---|---|---|
| 2071/072 | 2381 | 63.58 |
| 2072/073 | 2618 | 434 |
| 2073/074 | 2646 | 466 |
| 2074/075 | 2650 | 513 |

**Source: NTCDB, 2019**

The plantation and the production of coffee in Nepal have been demonstrated on the table. According to the data the coffee gradually has been growing in every fiscal year. Fiscal year 2071/072 acreage 2381 production 63.58 metric ton, fiscal year 2072/073 acreage 2618 production 434 metric ton, fiscal year 2073/074 acreage 2646 production 466 metric ton and fiscal year 2074/0-75 acreage 2650 production 513 metric ton

**Fig.19 Plantation and Production of Coffee in Nepal**




**Source: NTCDB, 2019**

### 4.21 Price Determination of Coffee in Nepal

Minimum prices of fresh cherry and parchment coffee are determined recently in Nepal. These values of coffee were determined after discussed with all the coffee

stakeholders. Determined price shows that the price of coffee has been yearly. The value of coffee is shown in table No. 19

**Table No.19 Price Determination of Coffee in Nepal**

| **Types** | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 |
|---|---|---|---|---|---|---|---|---|---|
| Fresh cherry A | 30 | 35 | 40 | 50 | 62 | 80 | 83 | 83 | 85 |
| Fresh cherry B | - | - | - | - | - | 75 | 78 | 78 | 80 |
| Parchment A | 105 | 170 | 200 | 225 | 285 | 400 | 415 | 415 | 425 |
| Parchment B | - | - | - | - | - | 375 | 400 | 400 | 410 |

**Source: NTCDB, 2019**

The table No. 19 shows that the value of fresh/ ripe cherry grade A 30Rs IN 2067, grade A 35Rs in 2068 grade A 40Rs in 2069, grade A 50Rs in 2070 grade A 62Rs in 2071 grade A 80Rs grade B 75Rs in 2072 grade A 83Rs grade B 78Rs in 2073 grade A 83Rs grade B 78Rs in 2074 and grade A 85Rs grade B 80Rs in 2075. The value of parchment coffee grade A 105Rs in 2067 grade A 170Rs in 2068 grade A 200Rs in 2069 grade A 225Rs in 2070 grade A 285Rs in 2071 grade A 400Rs grade B 375 Rs in 20723 grade A 415Rs grade B 400Rs in 2073 grade A 415Rs grade B 400 in 2074 and grade A 425Ra grade B 410Rs in 2075.

### 4.22 Export Import Data of Coffee in Nepal (in Previous Years)

Most of the exporting coffee from the Nepal is green coffee beans the roasted and readymade coffee export in few quantity. The leading coffee exporting countries are Korea, Germany, USA, Canada and other European countries.

**Table No. 20 Exports Import Data of Coffee in Nepal, (in Previous Years)**

There is scope of increasing area bringing community forest under coffee cultivation. However, the Forest utilization policy is posing hindrance on use of perennial agriculture crops under community forest.

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| Fiscal Year | Export Qty (mt.ton) | Export Value (Rs. In millions) | ImportQty(mt.ton) | ImportValue (Rs. In millions) |
|---|---|---|---|---|
| 2071/072 | 63.80 | 249.91 | 99.59 | 991.76 |
| 2072/073 | 105.03 | 555.41 | 111.17 | 1079.01 |
| 2073/074 | 99.36 | 504.02 | 94.60 | 845.38 |
| 2074/075 | 84.22 | 937.25 | 163.38 | 658.91 |

**Source: NTCDB, 2019**

### 4.23 Recent Demand of Nepali Coffee in International Market

According to the Nepal Coffee Trade Union the recent demand of coffee in global market is very high because 95 percent Nepali coffee is Arabica known as organic certified. Most of the Nepali coffee product in high-land therefore its quality and taste is comparatively better than other low-land product coffee.

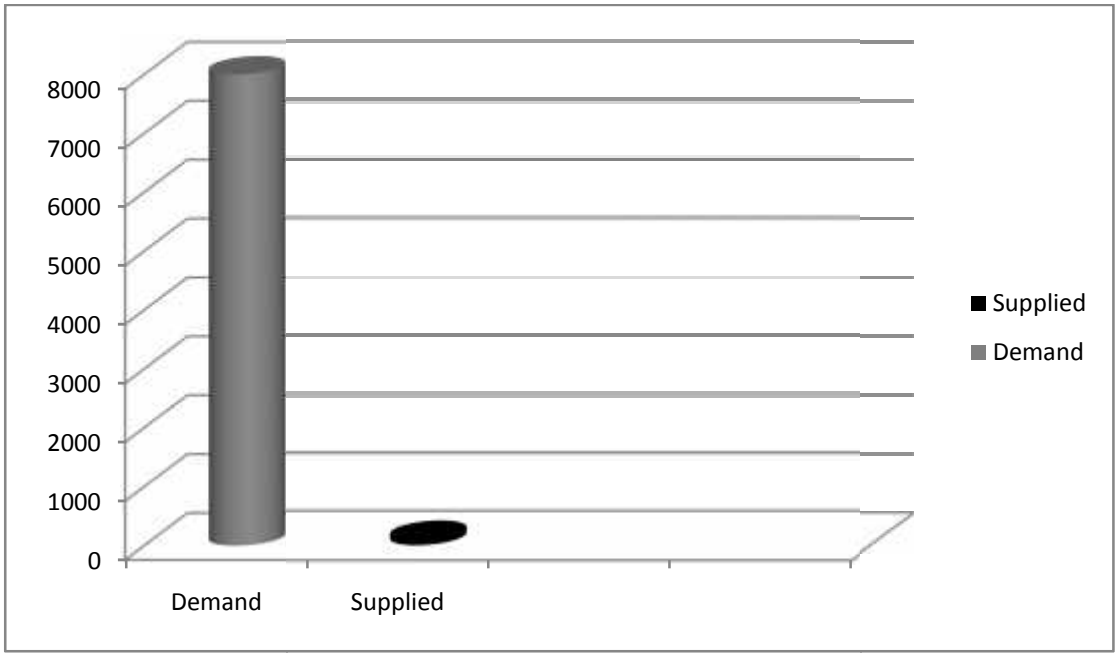
**Table No. 21 Recent Demand and supply of Nepali coffee in International Market in Figure**

| Demand ( in metric tons) | Supplied/fulfilled (in metric tons) | Supplied percentage |
|---|---|---|
| 8000 | 82.22 | 1.02 |

**Source: NTCDB, 2019**

The data in the table says that the recent total demand of Nepali coffee is 8000 metric tons but only demand has been meeting by 1.02 percent (82.22 metric tons) there is huge gap between demand and supply.

**Fig.20 Demand and Supply of Nepalese Coffee inInternational Market**




**Source: NTCDB, 2019**

# CHAPTER V

## SUMMARY, CONCLUSION AND RECOMMENDATION

### 5.1 Summary

Coffee is relatively new high value cash income generative crop. It's an alcoholic drinking crop. Its suitable altitude is from 800m to 1600m high from sea level in marginal loam and sandy loam lands. Average rainfall amount between 1500 mm to 1900 mm annually. Especially there are two species of Coffee found in the World. Robusta and Arabica. And more than 100 subspecies of Coffee under those two species. Among them Bourbon is the most suitable subspecies for Nepal.

Coffee carries huge possibility for Nepalese farmers, due to suitable humidity and climate, especially remote area of mid-hill site. Most of the coffee planted area is steep and barren land in research site.

The research site selected Maijogmai Rural Municipality Ward No. 4, Ilam District; that is remote area 15 km far from Ilam. There were altogether 45 farms situated in the altitude from 850m to 1200m high from the sea level. The average temperature is from 10 ◦c to 25 ◦c .They have been producing 20-30 metric tons fresh cherry every year, from about 10 hectors acreage. There is mix society with different cast. Most of the farmers are Indigenous people followed by Brahmin and kshetri in locality. About 80 percent farmers sell ripe cherry in local market (pulping centers) and rest of the farmers collect ripe cherry and export in National markets after processing. The whole produced coffee from research site is organic. They use only compost fertilizer and homemade pesticides.

All the coffee has been processing from wet processing method. The respondent said that the main challenges are irrigation, low area of land, training and financial support and quality maintain. The yield starts from $4^{th}$ years after planting. The coffee fruit is ripened from January to March. Mainly they use hands to pick fruit by sieve because it's different ripened stage. After harvesting they bring ripe cherry to the collecting centers as soon as for wet processing. But in dry processing they directly dry in the sun without pulping. Fermentation is immediately done after pulping. Then it should

be packed on clean jute/cotton bags and stored in well ventilated rooms. The main complaint from the respondents was that no any organizations or person is supporting to expand production, provide credit facilities to the farmers in this research area. After study I found that the farmers have been cultivating coffee as secondary farming.

The study is mainly based on primary data. Such data were taken from the coffee cultivators and other experts/stakeholders who directly connected with coffee farming. Both descriptive and exploratory methods were used to analyze data.

Coffee is eco-friendly farming, that effects on soil conservation; bio-diversity maintenance and watershed balance in the mid-hills of Nepal, because this plant need trees necessarily for shadow and itself support to soil from erosion.

### 5.2 Conclusion

The study findings show that there are different constraints like lack of irrigation, awareness and training, low quantity of land ownership and some diseases. Also farmers have very few technical knowledge and low financial access for scaling economic of production and product upgrading at farms. It is also observed that organic certified smallholders are more vulnerable due to production shocks mainly due to the epidemic of white stem borer pest and leaf/branch drying. Furthermore, a comparison of the mean value between the groups clearly indicated that yield of coffee, percentage of shade tree covers, wet process upgrading at farm, membership, shocks related to coffee production and farm gate price received show significantly different between certified and non-certified coffee farmers.

Findings of the study reveal that most Nepali coffee producers have little bargaining power and trust in trade due to the lack of adequate support in farm level upgrading activities, in addition asymmetric marketinformation. Regarding Group Organic Certification, certified smallholders received around 20% higher price premiums from per kg of fresh coffee and 6% from per kg of dry parchment through cooperativethan conventional coffee smallholders received in conventional market chain. However, the price premium to the certified smallholder seems to play less important role for improving their livelihood, instead, certification is seen as a passport to enter

international market and farmers experience environmental benefit as well as cost effective for the smallholders. Regarding barriers to entry, inconsistent quality and low quantity supply due to low scale of production are found majors to the international markets for Nepali Arabica Specialty coffee. Therefore, investment should be made in product and process upgrading by improved production management through extension and research. Furthermore, investment should be done in wet processing according to altitudes for marinating consistent quality of Nepali coffee in the global market.

In spite the lack of updated manpower and improved technologies to work in this regard. The annual income of respondents is 300 to 500% more than they had earned from other traditional crops. I also found that the living standard of farmers also has been improved and infrastructure of locality also has been improved along with expand in their income. The quality of Nepalese coffee in global market is higher due its organic feature, taste and high altitude production.

According to the recent data of NTCDB green bean coffee has produced 513 metric tons from 2650 hectors area. Around 1.02 percent of Nepalese coffee is exported to the overseas countries mainly USA, Germany, Korea and other European countries and the rest amount of coffee is processed and supplied in the domestic market.

Thedemand and the consumption of coffee are higher in national and international market. According to the data of NTCDB total recent international market demand is 8000 metric tons but total production of the country in fiscal year 2074/075 is 513 metric tons. The export quantity of fiscal year 2074/075 is 84.22 metric tons; the data reveals that global market demand is meeting only by 1.02 percent from Nepalese production. 163.38 metric tons coffee have imported during the last fiscal year. It shows that National product even has not been sustaining the local National market. The coffee iseco-friendly farming, because trees are necessary for shadow. Thus, it conserves the soil and has positive impact on environment. Farmers can harvest duel crops in coffee farming fruits like avocado, titiry,rudraksha orange etc.

The coffee farming also carries a great possibility in ruralagritourism; people can run home stay, park, resort, where people come to drink local organic coffee to enjoy and the researcher from national and international Institutes to study about the coffee.

In this context we can proudly say that the possibility and the opportunity in the sector of coffee cultivation is highest in mid-hill sides. It can play vital positive role in generating income, infrastructure development and change life standard of rural people, for community development. One thing is that farmers are fear and being harassment for farming coffee due to its late refund. At list we have to wait until 4 years to get refund from plant. If the whole stakeholders work seriously in the promotion of farming coffee there will be no need to search other alternative cash crop in agriculture.

### 5.3 Recommendations

Since coffee can be successfully grown in marginal steep/sloppy and unproductive barren lands in hills, Government should design programs to expand coffee area in the community forests of hilly regions of Nepal through group approach.

Based on the findings of this study, the following recommendations are made which might prove significant for policy implications for the development of coffee industry in Nepal.

1. The main priority should go on provision of irrigation and trainings as well as technical supports.
2. The emphasis should go on provide loan a facility to group in subsidized interest rates, for coffee production and processing, as group collateral.
3. Conduct adequate research and extension services in coffee production, processing and marketing.
4. Coffee Development Board should be separated from NTCDB, to make free coffee from domination of Tea Development Board.
5. Infrastructures should be developed like transportation, communication, etc. in coffee growing areas. Develop storage facilities in the group.
6. The NTCDB should take the initiatives or support private sector with technical advice. Awareness and skill development
7. One thing is that the Organization/ Stakeholders which have been working in the field as facilitator should provide the side job to the farmers until the coffee will not refund, to sustain their life.

8. The possibility of Agritourism related to coffee farming like; Home stay Park, Picnic sport, Resort, Research area and so on. Should be studied and prepare strategies for its development.
9. NTCDB and DADO should concentrate on organize previous disorganized farms and extension of coffee plantation in new areas as well which are identified potential by various studies.
10. In the existing areas, density of plantation should be increased in order to Increase the productivity along with strategic plans for plant protection against white stem borer and coffee leaf rust.
11. Large-scale investment from private sector should be attracted to promote large coffee estates and policy to integrate scattered existing coffee producersby institutional development of FG and cooperatives should be adopted
12. Development of infrastructure at processing centers should be supported forquality production and mechanical sorting technologies should be importedto replace existing hand sorting which contribute 51 % to the cost ofprocessing excluding the cost of raw materials
13. Marketing efficiency should be increased by exploiting comparative advantage in production, improving processing technology and bydeveloping central collection system with an aim of reducing transportationcosts.

### 5.3.1 Suggestion of Further Study

The research attempted to analyse the coffee value chain of central Nepal with more focus on three actors of coffee value chain - coffee producer, pulper operator and secondary processors. However, there are coffee café house, nursery men and other input suppliers in the value chain which were beyond the scope of our research for detail study. Hence, suggestion for further study are as follow:

1. Study of economics of coffee seeds and seedling production.
2. Study of value addition and economic analysis of coffee café house.
3. Study of consumers' behavior against various available brewed coffee.
4. Study of impact of development agencies working in coffee sub-sector.
5. Study of value chain of other commodities like tea, cardamom and so on

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# ANNEX-I

**The Questionnaire is Prepared Under the Title 'Contribution of Coffee Cultivation on Rural Community Development' for the House Hold Survey.**

**Questionnaire-2075**

Personal identification:

Name: ……....

Address: .....

Age: .....

Sex: Male ( ) Female ()

1. For how many years, you have been farming coffee?
   ……..
2. From how many years the coffee trees start to give fruitafter planted?
   a) year b) 3year c) 4year
3. How many coffee tress you have planted in your farm?
   …….
4. In how much area do you have cultivated coffee?

…….

5. How much Coffee do you produce in a year?

.....

6. How much money did you invest in your coffee farm? In starting?
   .....
7. How much ripe cherry do you get from a Coffee tree? In average.

.....

8. How many Coffee trees do you plant per Ropani/Hector?
   ……
9. Have you employed other workers too?
   a) Yes b) No
10. If yes, how much do you pay for them? Every year?

.....

11. Is any organization supporting you in farming coffee?

a) Yes b) No

12. If yes which organization is supporting you?

a) Government b) NGOS/ INGOSc) Person

13. Which fertilizer do you use?

a) Chemical b) Carbonic (compost) c) Both

14. Do you have also other source of income?
    a) Yes b) No
15. If yes, how much do you save from other sources of income?

…….....

16. Has really changed your living standard after starting coffee farming?

(a) Yes (b) No (c) In some extent

17. The coffee cultivation can play positive role in rural infrastructuredevelopment. Do you agree with this statement?

a) Agree b) Strongly agree c) Disagree d) I don't know

18. Which school do your children study?
    a) Government /publicb) Private boarding
19. Do you have personal vehicles?
    a) Yes b) No
20. If yes, which vehicle do you have?
    a) Motorcycle b) Car c) Other
21. How much price do you get per kg of fresh cherry?

……..

22. Are you satisfied with the price of ripe cherry?

    a)Yes b) No

23. If no, how much should be increased?

    a)10% b) 15% c)20%d) More than 20%

24. Is it easy to sell the coffee?

    a)Yes b) No

25. If no, what are the problems in selling coffee?

    a)Market b) Transportation c) Price d) Quality
26. What are the challenges you are facing, in farming coffee?

……

27. If somebody supports you in farming coffee, what kinds of support youwill

ask?

a) Financial b) Technical

c) Infrastructure developmentd) Both financial and technical

28. Does coffee farming really support to be an entrepreneur and economicSelf-help

(a) Yes (b) No (c) I don't know

29. How much extra income we can take from coffee comparing with the Non-coffee farming?

a)100% b) 200% c) 300% d) 400% e) More than 400%

30. Can it be the strong basis of generating income?

a) Yes b) No c) Only for subsistence

31. Are you satisfied with your job?

(a) Yes (b) No

32. Tell me your sources of income and expenditure in a year.

| Income ( In Rupees) | Expenditure (In Rupees) |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| Total | Total |
| | Yearly Saving: |

# ANNEX-II

**The Questionnaire is Prepared Under the Title "Contribution of Coffee Cultivation on Rural Community Development" for the Key informants**

Questionnaire-2075

Personal Identification

Name: ……

Address: ……....

Age: ……

Sex Male ( ) Female ( )

Organization/Occupation……

1.How much do you pay for per (1 kg.) of ripe cherry to the farmers?

……..

2. How much does it cost pulping per 100 kg of coffee?

……

3. How much extra profit you are getting from parchment bean comparing to fresh cherry?

…….

4. What is the ratio of fresh cherry to parchment bean?

……..

5. What is the price of this pulping machine?

……

6. What is the capacity of this machine?

……

7. How machines do you have?

a) One b) Two c) Three d) More than three

8. Within how many hours should we pulp fresh cherry after plucked?

……..

9. Where do you sell parchment bean?

a) Collector b) Processing center c) International market

10. What is the price that you get from selling coffee?

a) Parchment bean…….

b) Green bean ……

11. Are you satisfied with your job?

(a) Yes (b) No

12. What is the suitable moisture of parchment bean?

……

13. Tell me method of processing parchment bean?

……

14. How much coffee bean has produced last year in the country?

……

15. What is the number of family that involved in farming coffee in the country?
……..
16. How many processing centers are running in the country?
……..
17. Would you tell me how much population are directly and indirectly depend on coffee?
……
…….
18. How much coffee has exported last year to the international market? Tell me it's estimated worth.
……..
19. How much GDP from coffee? That supports to the country.
……..
20. What is the estimated price of coffee? Sold in local market last year.
……..
21. How much coffee the country imported last year? Equal price.
……..
22. What types of climate, soil structure, and altitude is most suitable for farming coffee?
……
……
23. Does the Nepalese coffee production meet the demand of local and international market?
a) Yes b) No
24. If no, what are the causes and weaknesses?
……...
25. Is cultivation of coffee is being promoted and developed as we hope?
……...

# ANNEX-III

Photo No.1, Coffee Fruits

Photo No. 2, Parchment Beans Drying in the Sun

Photo No. 3, A Coffee Farmer from Research Site

Photo No. 4, Me/Researcher Studying Coffee Farm