

CHAPTER-I

INTRODUCTION

1.1 Background of the Study

Agriculture in Nepal

Nepal is one of the poorest countries in the world and was listed as the eleventh poorest among 121 countries in 2013. Estimates of its per capita income for 2013 . Various factors contributed to the economic underdevelopment-including terrain, lack of resource endowment, landlocked position, lack of institutions for modernization, weak infrastructure, and a lack of policies conducive to development.

In Nepal , the economy is dominated by agriculture. In the late 1980s, it was the livelihood for more than 90 percent of the population, although only approximately 20 percent of the total land area was cultivable, it accounted for, on average, about 60 percent of the GDP and approximately 75 percent of exports.Since the formulation of the Fifth Five-Year Plan (1975–80), agriculture has been the highest priority because economic growth was dependent on both increasing the productivity of existing crops and diversifying the agricultural base for use as industrial inputs

According to the World Bank, agriculture is the main source of food, income, and employment for the majority.

In trying to increase agricultural production and diversify the agricultural base, the government focused on irrigation, the use of fertilizers and insecticides the introduction of new implements and new seeds of high-yield varieties, and the provision of credit. The lack of distribution of these inputs, as well as problems in obtaining supplies, however, inhibited progress. Although land reclamation and settlement were occurring in the Tarai Region, environmental degradation and ecological imbalance resulting from deforestation also prevented progress.

Although new agricultural technologies helped increase food production, there still was room for further growth. Past experience indicated bottlenecks, however, in using modern technology to achieve a healthy growth. The conflicting goals of producing cash crops both for food and for industrial inputs also were problematic.

The production of crops fluctuated widely as a result of these factors as well as weather conditions. Although agricultural production grew at an average annual rate of 2.4 percent from 1974 to 1989, it did not keep pace with population growth, which increased at an average annual rate of 2.6 percent over the same period. Further, the annual average growth rate of food grain production was only 1.2 percent during the same period.

There were some successes. Fertile lands in the Tarai Region and hardworking peasants in the Hill Region provided greater supplies of food staples (mostly rice and corn), increasing the daily caloric intake of the population locally to over 2,000 calories per capita in 1988 from about 1,900 per capita in 1965. Moreover, areas with access to irrigation facilities increased from approximately 6,200 hectares in 1956 to nearly 583,000 hectares by 1990.

Production refers to the creation of utility which fulfills the human desires. A relationship between input and output is shown by production function. Production function is a technical relationship between input of a productive services and output of the product which includes all the technically efficient methods of production. If production of maximum amount of output by utilizing minimum amount of inputs under a given structure which is known as economic efficiency.

The status of production in developing countries has high importance because of their agrarian economy. As Nepal is an agriculture country, its economic development virtually means of development of agriculture (Boswoth, 1976).

Agriculture is the fundamental activity of the people. It plays an important role in the economic development of a country. It not only furnishes food for the people but also raw materials for the factory. Agricultural, labor and productivity, as measured by agricultural GDP, per capita is low and which is the main reason for widespread poverty. Most of the poor live in rural areas and are engaged in this sector directly. The contribution of agriculture sector in the total GDP is only 33 percent (Ministry of Finance, 2010). There fore, increasing production and productivity in this sector is essential for the development of the economy as a whole.

Agriculture is the key sector of Nepalese economy. It helps to increase national income of the country. Though, livestock keeping, commercial fruits farming, poultry farming and large quantity of the cereal production are other sectors of national income, it

provides the basic need for the existence of main kind and raw materials to agro-based industry. Agricultural products are cereal crops, cash crops and other crops. Paddy, maize, wheat, millet and barely are the main cereal crops. Oily seeds, jute, potato, tobacco etc are the main cash crops and other fruits and vegetables are other crops (Ministry of Agriculture, 2003). Among cereal crops paddy is one of the most popular and main cereal crop of Nepal and other country. Paddy is used as food and as a substitute to wheat in many hilly region of Nepal. Though the area under paddy cultivation and its productivity is much more below than required levels to feed the ever increasing population of the country, there is an urgent need to increase the production of paddy through the application of modern method of farming to meet the growing demand of the paddy.

In the world paddy production, Asia's share is more than 90 percent. Paddy is a primary food grain crop of India and occupies about 37 percent of the area food grains and contributed more than 40 percent of food grains production in the country during 2000. More than 50 percent of countries' population depends fully or partially on rice.

Saudiyar Village Development Committee is the largest productive area of Dang district for fruit and paddy production. Saudiyar is popular in crops where the process of paddy has been old historical era, however many farmers have not adopted the modern commercialized process of paddy production yet. The research site Saudiyar, a *bazar* oriented VDC is situated on the southwest of Narayanpur VDC of Rapti zone at Dang district in Mid–Western Region of Nepal. It is plain so for which reason it is known as Saudiyar and it has fertile land on the bank of Gurje and Sewarkhola. Lack of knowledge, governmental support, and traditional method of cultivations as well as the lack of commercial concept can be assumed for average amount of low production.

Now, at present time with the help of District Agriculture Office (DAO), establishment of Governmental Organizations (GOs), Non–Governmental Organization (NGOs) the amount of paddy production has been increased in Saudiyar. But the highway has not facilitated the paddy growers for transportation of their product. The highway is 2 km far away from the study area. It is found that paddy production has become a major source of income of many farmers here. It played an important role to uplift the socio–economic standard of local people of Saudiyar.

The study area has a long history of paddy cultivation and it has been an important and well famous area of Dang for paddy cultivation. Due to the well facility of well irrigation system, both women and men farmers in the study area have benefited a lot from the paddy and other fruits production. Good irrigation system has made farmers easy to grow other corps in all seasons. Due to the irrigation facility, most of the *bari* land has been changed into *khet* land which played a significant role in the socio–economic life of the local people.

1.2 Statement of the Problems

Saudiyar is located in the Mid-western part of Nepal almost 10 km. far away from the Ghorahi Bazar. This VDC is surrounded by Laxmipur VDC in the east, Narayanpur VDC in the west, Ghorahi Municipality in the north and Dharna VDC in the south. It is situated between Churehills, river, *Besi* and forest. In the VDC, there are famous temples, river, agricultural farm as well as the great scenery of wet lands and green forests. Saudiyar VDC is heading towards the urbanization. So, the population is also increasing day by day thereby raising the demand for rice, maize, wheat, potato, barley etc. Generally, the farmers are unknown about the relationship between the inputs and output for the productivity and production. Agricultural production has been taken as the function of land size, labor intensity, animal power, irrigation facility, experience of farmers, fertilizers, farm implements etc. (Nepal, 1988). But identification of major inputs and positive impact on output is necessary for the promotion of productivity of agriculture and expansion of it.

The main issue of this study is to examine inputs labor, farmyard manure, chemical fertilizer and seed in the paddy production. The farmers have been carrying their agricultural business in a traditional way. Most of the farmers use their own local seeds, old tools together with farmyard manure. But slower change can be observed in the agriculture techniques. So, the status of the paddy production is necessary for the improvement of productivity and growth of the economy. In this background, the study tries to answer the questions:

- i) Is the paddy production technique modern?
- ii) Does this paddy production fulfill the needs of the local people?

1.3: Objectives of the Study

The general objective of this study is to find out the status of the paddy production in Saudiyar VDC ,Dang District . The specific objective of the nature study are as follows:

- (i) To examine the structure of paddy production in Saudiyar VDC.
- (ii) To find out the total production trend of paddy in this VDC.
- (iii) To study the present economic status of the people using modern and traditional technologies in the paddy production in this VDC.

1.4: Significance of the Study

Since, it is a case study of paddy producing farmers of a Village Development Committee of Dang district. There are so many researches in the field of agriculture because agriculture is the backbone of our economy. It can help to have knowledge of the study about paddy production in other parts of the country. This study may provide valuable information about the use of farm resources. Also this study can be helpful for the student of research, development activities of agriculture, government, to formulate, policies, other financial institutions, NGOs and INGOs are working on agriculture sectors. This study is mainly concentrated to identify the status of different inputs on the production of paddy output on the empirical basis. Finally, this study is helpful guideline to encourage paddy farming in Saudiyar VDC and overall the paddy farming of Nepal.

1.5: Limitations of the Study

This study is confined to the survey of specific area as it would be feasible in a master's level thesis. So, all the results and conclusion drawn may not be universal and also cannot be generalized. Therefore, the limitations of the study are given below:

- (i) This study concentrates only on paddy production of Saudiyar VDC of Dang district.
- (ii) It is a micro level study, thus the study will not take the detail production activity of paddy.
- (iii) This study may not cover the whole universe of the study area.

1.6 Organization of the study

This thesis is organized in to five chapters. The first chapter deals with the introduction. It includes the general information of paddy production, statement of problem, objective of the study, significance of the study, limitation of the study, organization of the study. The second chapter presents the review of literature. The third chapter deals with the research methodology. It includes rational for the selection of study area, research design, data analysis .The fourth chapter presents the data presentation and analysis with profile of the study area. The last chapter of the study includes summary, conclusion and recommendation. Appendices and reference have been includes kept at the end of this report.

CHAPTER-II

REVIEW OF LITERATURE

Review of literature is one of the most important parts of thesis writing. It enables us to get information about existing methodology. It provides the foundation for further progress on production different methods and techniques have been applied by the various researches to measure and estimate the demand and supply response for different agricultural goods over period of time. These methods and techniques involve an econometric model therefore we must review the previous work done at first then we should put the model.

The launching of the World Trade Organization (WTO) has had a significant effect on world agricultural production and trade. The WTO system pursues trade liberalization for all agricultural products. It also aims at eliminating or reducing various domestic production supports which distort world trade. Implementing these agreements inevitably means a change in the structure of world agricultural production. More specifically, it will raise the production share of current exporting countries in the world's agricultural market, while reducing that of current importing countries.

If the role of agricultural production in each country is confined to providing commodities that are traded on the world market, then the principle of comparative advantage implies that implementing these agreements will enhance the well-being of each country. However, food-importing countries assert that agricultural production provides more than marketed commodities, and the effects of liberalizing world agricultural trade could be very complicated.

In March 1998, the OECD meeting of the Committee for Agriculture identified the benefits of agricultural production to the environment and rural development. These were termed the "multifunctionality" of agriculture. Since then, the OECD Committee has been carrying out an analytical study of the multifunctionality of agriculture. This paper summarizes some of the results.

Not only does agricultural production provide food, it also maintains rural amenities and preserves the natural environment by contributing to water resource management, soil conservation and biodiversity. Furthermore, agricultural production contributes to rural viability, and helps preserve traditional culture, food security and food safety. If these extra

functions are closely linked with agricultural production, then a reduction in agricultural production in any country may result in environmental degradation, a food crisis, and damage to the rural economy and the cultural heritage.

In general, multifunctional roles are formed by the external economies of agriculture. They have the characteristic of a public good. However, the general public that benefits from these multifunctional roles does not place a proper value on them. If these functions are not traded in the market, policy intervention may be required in order to maintain them.

This Bulletin estimates the economic value of the multifunctional roles of paddy rice farming, and suggests how to implement policies to protect them.

Agricultural Production and Environment

Agricultural production has both a positive and a negative effect on the environment. Thus, the overall effect needs to be assessed. Most studies, including those of OECD (2000) and Romstad et al. (2000), suggest that the effect is mainly positive when the level of production is low. When a large volume is produced intensively, the effect may be mainly negative. This relationship between the level of agricultural production and the positive externalities is shown in . Agricultural production generates positive environmental externalities if commodity output is lower than QO . However, it generates negative externalities if commodity output is higher than QO . Therefore, liberalizing the world's agricultural market could affect each country's welfare in two opposite ways. It might improve efficiency and increase each country's welfare by completely realizing the principle of comparative advantage. On the other hand, it might cause unexpected damage to some countries by reducing their domestic agricultural production, leading to a loss of multifunction's.

Because agricultural production generates so many and such varied environmental effects, positive and negative, an overall evaluation of the impact of agriculture on the environment needs a unit that can be applied to these effects. Kim (2000) evaluated the overall environmental impact of Korean agriculture by applying the System of Integrated Environmental and Economic Accounting. This was developed by the United Nations to construct a national account, which included the impact of economic activities on the environment and natural resource stocks. The common unit used in this work is their

monetary value. The impact of agricultural production on water pollution (N, P, BOD), greenhouse gases (CO₂, CH₄), acid rain (SO₂, NO_x, HC) and the levels of heavy metals (e.g. zinc and cadmium) in soil have been evaluated. The contribution of agriculture to soil conservation and gas absorption have also been evaluated. However, the two major environmental outputs of rice production, flood control and water resource management, have not been evaluated.

The contribution of rice to the GDP increases by 6% when the impact of rice production on the environment is taken into account. The results of Kim (2000) can be compared to those of Hong and Kim (1998), who applied almost identical methodologies to all agricultural and non-agricultural industries in Korea. They found that the overall GDP of Korea declined by more than 10% when the impact on the environment is accounted for. This evidence suggests that the contribution of agricultural production to environmental preservation is greater than that of other industries, and that the overall impact of agricultural production on the environment is a positive one.

Agricultural production affects environmental quality both positively and negatively. Thus, agricultural chemicals contaminate surface water, groundwater and soil if they are not used in a proper way. The intensive use of pesticides may damage biodiversity by threatening wildlife. Wastes from intensive livestock raising are the main source of water contamination in many countries. Fossil fuels used for agricultural purposes emit CO₂ and other gases that generate the greenhouse effect.

It is often asserted that rice farming in an Asian monsoon climate contributes to water resource management, because it conserves water over the rainy summer season and releases it during the dry season. Crops absorb CO₂ gas from the air as they grow, while crop rotation contributes to soil conservation.

Both the positive and negative effects on the environment of Korean paddy rice farming have been studied. Suh (2000) surveyed 1,742 urban households. They were asked to indicate which indirect benefits were most important to them. Food security was seen as more important than other functions. Urban inhabitants placed a positive value on flood control (54.6%), air purification (54.5%) and a pleasant environment (49.2%). At the same time, they recognized the negative functions of agricultural production, particularly the contamination of water (35.3%) and soil (about 33.4%).

Multifunction's of Paddy Rice Farming and Their Economic Value

Paddy rice is one of the most important crops in Korea. In 1999, it contributed 30.6% of the total agricultural value of production and occupied about 56% of total farmland. Three methods are often used to evaluate multifunctional roles: the replacement cost method, the contingent valuation method (CVM) and the travel cost method.

Contribution of Rice Farming to the Environment, and the Economic Value

The replacement cost approach assesses the value of a natural resource on the basis of how much it would cost to replace or restore it if it is damaged. The value of the damage is based upon:

-) The restoration or replacement cost;
-) Other use-values for which no market price is charged, and;
-) Any fees or other payments which would have been collected by the government.

Flood Control:

In Korea's monsoon climate, more than 60% of the year's precipitation falls during the three summer months (June, July and August). This is also the rice-growing season. Hence, many dams are required to manage surface water. However, flood damage occurs every year, as the result of sudden downpours.

Paddy fields help control flooding because they contain water over the wet season and release it over the dry season. They are estimated to store a total of 2,733 million mt of water.

Conserving Water Resources:

Rice production contributes to water management. Paddy fields are under water during the rice crop, and have the function of storing underground water. Some 55% of the water stored by paddy fields goes to rivers, while the other 45% is stored as underground water, accounting for 5,420 million mt annually. The value of this function is about US\$1,224 million each year.

Preventing Soil Erosion:

Paddy fields also contribute to soil conservation. Annual soil losses in Korea amount to about 1.17 million mt. A significant amount of cultivated soil is protected by the fact that it is used for paddy rice. The value of paddy fields in reducing soil erosion is estimated .

Air Purification:

Rice production helps clean the atmosphere by absorbing 14 million mt of CO₂, and emitting 10 million tons of O₂ annually. The value of rice crops in purifying air is about US\$1,613 million.

Water Purification:

The total amount of contaminated water which is purified in paddy fields each year is estimated at 704 million mt. This value from rice production of purifying polluted water.

Organic Waste Disposal:

Rice farming saves about 23 million mt of applied nitrogen by using organic wastes as fertilizer. The value of this function of organic waste disposal crops.

Preservation of Bio-Diversity:

An important aspect of preserving bio-diversity is to conserve the native species and varieties of each country. Substituting imported products for domestic ones may destroy native flora. For instance, three major agricultural crops of Korea until the 1940s were cotton, wheat, and soybean. As a result of massive imports of those products, native varieties of these plants have since disappeared from Korea. This means a huge loss of important genetic information over only a few decades.

Cranes are birds which are under the risk of extinction. Fifteen percent of the world's crane population choose Korea as a habitat during winter. In order to preserve cranes, there is a need, not only for a safe winter habitat, but also a winter food source.

Lee and Rhim noticed that the rice grains remaining in paddy fields after the harvest are a good source of food for the cranes. Protection of cranes is only one example of the contribution of agricultural production to bio-diversity.

In addition, paddy fields have the functions of preventing acidification etc. On the other hand, paddy fields also generate environmental pollution. Chemical fertilizers used in paddy fields may pollute water and soil, while growing rice emits about 400 thousand mt of methane gas annually in Korea alone.

Social and Cultural Benefits of Paddy Rice Farming:

In Asia, the sight of agricultural land growing healthy crops is a symbol of affluence, and is felt to be a very beautiful kind of landscape. In addition, rural areas provide people with various educational experiences, and preserve the nation's cultural heritage. This function is less controversial than some of the others. Most countries agree that rural areas provide amenities and cultural values. However, the importance placed on rural amenities and the value of the cultural heritage may differ from one country to another.

They are likely to be higher in a densely populated country where cities are close to rural areas, than they are in a lightly populated country where rural areas are geographically remote from urban ones. The cultural heritage may have a greater value in developing countries with rapid urbanization, where there is concern about preserving traditional culture.

There is no objective monetary value for rural amenities and the value of the cultural heritage from agricultural production. However, people in Korea want to see paddy fields being cultivated, not lying fallow. People also want to see rural communities where the traditional culture is preserved.

The Value of the Recreation Function:

Paddy fields and uplands provide, not only a beautiful rural landscape, but also a unique natural, cultural, and social environment. Urban people can visit rural areas to find leisure and relaxation.

One active way of using rural amenities is to visit farms used for homestays. At the end of 1999, there were 379 farms used as homestays in various parts of Nepal . However, homestays are a very small part of rural amenities. Most people in cities travel to rural areas

to visit their relatives or for some other purpose. The travel cost method uses the cost of traveling to a recreation site as a means of inferring the recreational benefits which that site provides. Questionnaire surveys are used to collect data on the number of visits that an individual or household make to a site, in relation to the travel cost.

Suh (2000) showed that Korean people visited rural areas on average 3.9 times each year for various purposes. The most common purpose was to visit relatives.

Food Security

FAO defines food security as access by all people at all times to the food needed for a healthy and active life. According to FAO, achieving food security means ensuring that sufficient food is available, that supplies are relatively stable, and that those in need of food can obtain it. OECD (1998) suggested that food security has three dimensions: availability, access and utilization. However, there is a tendency to measure the degree of food security only in terms of the availability dimension. OECD (2000b) suggests that there are two ways of achieving food security: self-sufficiency and self-reliance.

Indicators of food security can also vary, according to the strategy chosen to achieve it. When self-sufficiency is emphasized, the self-sufficiency rate (i.e. the ratio of domestic food to total consumption of food) is the main indicator of food security. If self-reliance is emphasized, various other indicators of food security are used. World cereal stocks may be compared to cereal consumption, or the ratio of supplies to requirements for five main exporting nations, or the level of cereal production in low-income countries with a food deficit (FAO 1999).

This is particularly the case with rice, since the trade volume is small compared with the total world output, and the export supplies are unstable. Over 90% of the world's rice is produced in Asia, while only 5% of global production is internationally traded. In this sense, the global rice market is a thin market, in which a small increase demand can cause the price to rise rapidly.

In 1980, cold weather damaged the Nepal crop. As a result, Nepal was forced to import a large amount of rice, at a price more than three times higher than the world market price. As a result, there is an emphasis today on maintaining domestic production for food security in Korea.

Other Functions

In addition, paddy rice farming contributes indirectly to the protection of forests and wildlife habitats. Rice straw and rice husk, the byproducts of the rice harvest, serve as a source of organic fertilizer and as a feedstuff for livestock, especially cattle. This not only helps prevent woods and forests from being overexploited, but also contributes to the protection of wildlife habitats.

Rice farming also maintains the economic viability of rural communities, through the revenue from rice. As a result, rural people are more likely to remain on their farms, thereby avoiding excessive concentrations of the population in urban areas. As described in the previous section, it also provides a scenic rural landscape and a context for traditional Nepal culture.

Policy Issues

It cannot be claimed that rice paddy farming is always friendly to the environment. On the contrary, the agricultural chemicals used can adversely affect the environment. However, these negative effects can be reduced by following Low Input Sustainable Agriculture (LISA). Examples are organic farming, integrated pest management and integrated nutrition management systems. An increasing number of rice farmers in Korea are in fact now adopting such methods.

The market system cannot fully reflect the positive external effects generated by rice paddy farming, in terms of the market prices paid for rice. This means a kind of market failure. To correct this market failure and ensure efficient resource allocation, the government can pay for the perceived benefits by means of appropriate policies. Since the positive functions of paddy rice farming are closely linked to production activities, policy measures should be directed toward maintaining the existing resource base for producing rice.

To some extent, the loss of multi-functionality is irreversible. Once agricultural resources, particularly arable land, are damaged or disrupted, their rehabilitation takes a long time. It may not be possible to reactivate the multiple functions. This is especially true of irrigated rice. Paddy rice farming, with its careful control of water, needs level fields and a complex system of ditches and dikes. These soon deteriorate if they are not used, and it may be expensive and difficult to restore them.

Some indirect benefits, such as flood control and water resource management, are not directly linked with rice production itself. Those outputs can be maintained if paddy fields are preserved, regardless of whether rice is being grown. However, it is extremely difficult to preserve uncultivated agricultural land in over-populated Korea, because there is a strong demand for land for industrial and residential uses.

Other environmental outputs, such as soil conservation, water purification and contributions to biodiversity, are directly linked with agricultural production. Suh (2000) has investigated the demand for rural landscapes and recreation in rural areas among Korean people. His study shows a very high level of willingness to pay for rural amenities, and proves that Korean people are willing to pay more for domestic agricultural products than the market price.

It seems that Korean people are willing to pay a substantial amount of money to subsidize rural communities and preserve agricultural land. This shows that the current prices of agricultural outputs and land do not represent their social value, and that a certain amount of market failure is involved in resource allocation.

There are no empirical studies to show whether food security is positively linked with domestic food production. The experience of Korea suggests that it is. Food security implies preserving a minimum food production level in a situation of food crisis.

It is important to note that free trade agreements force importing countries to eliminate import restrictions, but cannot force exporting countries to export their food stocks, even in a food crisis.

If there is a market failure associated with no commodity outputs, then liberalizing trade and eliminating production supports may not be the best policies. The optimal policy mix must achieve gains from trade, and at the same time eliminate failures in the domestic market. In such a case, domestic subsidies may be required to internalize the externality. Alternatively, some level of trade restrictions may have to be imposed to ensure a sufficient level of domestic production.

The inseparable link between commodity and no commodity outputs must be evaluated in a comprehensive way. Production of a single no commodity output may be joined with the production of a commodity. At the same time, each no commodity may be

jointly produced with other outputs of the same kind. It is important that the value of multifunction's should be estimated according to a precise, scientific methodology. If we estimate each function separately and add them all together, there is likely to be too high a total value. Instead, we should derive the scientific, integrated value, while accurately assessing the value of each function.

According to Food and Agriculture organization FAO (2000) production year book, paddy is cultivated in more than 100 countries in the world. During 2000, paddy occupied an area of 156 million hectares in the world with production of 598,852 thousand tones. Paddy is mainly produced in Asian countries (91 percent). China is the largest producer of paddy accounting 31.76 percent of total world production followed by India 22.40 percent. Together these countries, accounted about half of world paddy area and production. Indonesia (8.52 %), Bangladesh (5.98 %), Vietnam (5.44 %), Thailand (3.91 %) and Myanmar (3.34 %) are the other major paddy producing countries. In case of productivity, Egypt ranks first with 9086 kg/ha followed by USA (7037 kg/ha), Japan (6072 kg/ha) and Korea (6592 kg/ha).

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RAO (1978) states that of basis indicators, structure of production and demand show agriculture as a dynamic sector in economic growth in developing countries, contributing greatly to growth in real income, employment and foreign exchange earnings as well as the alleviation of poverty.

Thakur (2000) says rice requires abundant rainfall ranging from 150cm to 200 cm. It is planted in muddy flooded soil. Standing water is necessary at the time of transplantation and early growth. Frequent showers before ripening help to increase the size of the grain.

Only from the theoretical concept we may not have the detail idea about the study. We need the concept of production function. Because production function has some advantages, such as its nature important in economic development using the production function, national product can be increased from the given resources stock. The function helps to determine optimum pattern of international inter-regional trade etc. Some economists have developed and used same production functions, such as Cobb–Douglas (C-D) production function, constant elasticity of substitutions (CES) production function etc.

Mathema (1969) concluded that Nepalese agriculture is under static stage. The major characteristic inherent in Nepalese agriculture is the availability of resources as land and labor for optimum use. The goal of produces in the hills is mostly for home consumption. There are certain areas in the plane where it is for marketing. However majority of tenants secure less than minimum for their existences. In this view, farming in Nepal is not purely of traditional type because something new of yesterday has become old today. The new of today to farmers may become obsolete tomorrow. However, it is the time lag requires in changing from one pattern to another that counts besides in adequate irrigation facility, chemical fertilizer improved seeds etc. have been responsible for agricultural backwardness. Therefore he has expressed his opinion that agriculture development process must be supported by availability of all their inputs for increasing productivity.

Adhikari (1996) has examined the temporal changes in cropping area, production, productivity, cultivation practices and identification of the controlling factors of production. He found that paddy was grown in all parts of this VDC; its productivity/production varieties from one ward to another. Among the various varieties of paddy, “Mansuli” has become most popular variety in Ratnanager VDC. Farming was still practiced in a traditional way. Paddy cultivation was still suffering from many problems such as irrigation, loan facilities, improved varieties the significant relationship between farm size and production.

Gautam and Pradhan (2000) have clearly highlighted the various factors of paddy production which effects the paddy cultivation. The basic factors are accessible below.

- Fertilizers: The economic condition of the Nepalese farmer is not so strong. In one hand, they don't know the proper use of fertilizer and in the other hand they don't know the use of sufficient farmyard manure which directly effects the paddy production.

- Traditional system of cultivation: Most of the Nepalese farmers are using traditional method to plough, cultivate and to harvest the paddy. Only some farmers use machine for threshing the paddy. This type of system does not give the good result of production of paddy in one hand and cost of the paddy will be high on the other hand.
- Modern equipment: The most of the farmers have not gotten modern equipment. They are using old traditional equipment for cultivation of paddy. This old equipment has made them difficult to cultivate and required more manpower to use for every process of paddy production.
- Improved varieties of seeds: Only the few farmers use improved seed and most of the farmers use local seeds. Use of local seeds tends to grow the lower of paddy.
- Trainings: Training about the paddy production must be provided to the farmers. They don't know the process for increasing the yield of production so to increase the yield of production.
- Other factors: Lack of credit to the farmers, low economic production, absence of JTA and other related persons about agriculture, non-availability of improved seeds, chemical fertilizer, lack of trained and well known manpower, high rate of increased on population than production are the limiting factors of paddy production.

Gauchan, et.al. (2011) argued that rice is the main staple food and major source of livelihood for over 400 million people in South Asia. The paper focused that the South Asia's total paddy production area has about 38 percent of the world and approximately 48 percent (28 million hectares) of the rice growing areas in south Asia has suffer from various abiotic stresses such as drought, floods and salinity. This report also shows that growth in yield has been sluggish during wet season under rain fed condition and unstable due to regular occurrence of abiotic and biotic stresses. Therefore, improving the productivity of rice through stress-tolerant technologies provide better option to enhance income livelihood of resource poor farmers in these stress prone environment. The report includes synthesis of the finding of the major results of the modern variety adoption, frame level yield effects and economies of rice production implemented in 19 representative locations covering 1900 households in the south Asia.

Bhandari(2007) argues that Bacterial Leaf Blight (BLB) is the most destructive disease of paddy. He has study in Bhairahawa and western Terai of Nepal. He explained that the main cause for Bacterial Leaf Blight is a bacterium *xanthomonasoryzae*. It reduces annual rice production of Asia by 6 to 60 percent in India, 26 percent in Nepal and other country. According to him, resistant cultivate, unbalanced nitrogen fertilizer, inefficient fungicides, continuous rainfall, high humidity, wounds in plant etc. are the main causes of Bacterial Leaf Blight. For this use of resistant genotypes, cultural management, seed treatment and foliar sprays of some antibiotics reduces the disease incidence. Also he suggested that blast disease management is necessary for raising healthy rice seeding and treatment of seed is more effective than others.

Yadav (2002) in his research report explained the effective factors of siraha district's paddy production which are presented as below.

- Field preparation: Lack of adequate advice relating to the number and depths of poling is the major factors which affects the paddy production.
- Seed Rate: The farmers of Siraha are still unaware of correct planting times and appropriate seed rate at particular varieties which are the important factors for paddy production.
- Germination Test: Lack of seed treatment is the important factor of paddy production in Siraha district. The reason for non-adoption for seed treatment cited by the farmers is that they use their own seed which they don't perceive to require further testing. However, ignorance as well as lack of proper instruction is another reason.
- Irrigation: Another important factor which affects the paddy production is the irrigation. Though, there has the facility of irrigation through kamala irrigation project, but because of the weakness of the management of this project farmers are not getting the water in proper time. So, they have to compel to wait for rainfall.
- Fertilizer Application: Fertilizer is the dominant factor which affects the paddy production in anywhere. There is hindrance in the application of chemical fertilizer because of its non-availability on time and in required quantities, the limiting purchasing capacity of the small farmers.

Bastola (1998) made a thorough analysis about paddy production function. The objectives of the study were to determine the contribution of human labor, farmyard manure, chemical fertilizer and seeds on paddy production, to estimate the Cobb- Douglas production function and to calculate returns to scale. To analyze the data, regression analysis was used. It was found from the study that the bullock labor was very significant. Farmyard manure had positive effect on the output. The use of chemical fertilizer was insignificant. Seeds in the production function seemed to be over used in an irrational way so it had adversely affecting the output.

K.C. (1982) also made a similar study and his specific objectives of the study were to fit the C-D production function, to test the response of input to the output of paddy on labor farmyard manure, seeds and labor to identify whether there exist disguised unemployment in the paddy production sector and to analyze allocate efficiency. Conclusion of the study was that farmyard manure played the significant role in the production process. Seed variable did not have significant effect on output. Similarly human labor had insignificant effect on the output. Bullock labor had good effect on the level output.

Mandal (2005) has made an economic analysis of paddy production. The objectives of the study were to estimate production function of paddy and to examine the response of the input variables on output. Data were collected and analyzed for the year 2004. In the study the production function had estimated in six different functional forms. He used in his study of paddy production were human labor, bullock labor, farmyard manure, chemical fertilizer and seeds as the input variable.

In the study, the multiple regression analysis was done to analyze the input–output relationship. In the study, Cobb–Douglas production function was also fitted. Conclusion of the study was that the average output of paddy was inversely related to farm size. The scene of agriculture in the study area was ruled by decreasing returns to scale. The production function analysis made for the paddy production showed that human labor was the most significant variable explaining the major changes in output. The bullock labor was negatively related to output. Farmers having small size farm chemical fertilizer were an essential variable for production. Seed seemed to be over used in an irrational way.

Chitrakar (2005) has made another attempt in his field (production function of paddy in Katunje, 1978). His study is concerned with the input output relationship of paddy farming

for katunje village development committee of Bhaktapur district. The data are cross sectional for the year 1978. He used Cobb–Douglas production with their independent variables, nitrogen, labor and farmyard manure. His major findings are:

- The coefficient of multiple determinations R square is found to be applicable. It indicates that there is a significant relationship between the yield of paddy and the inputs, nitrogen, labor and farmyard manure.

(ii) The regression coefficient of nitrogen is sufficiently significant at 5 percent level of significant and the coefficient of labor is significant. Thus, the labor coefficient indicates the higher degree of disguised unemployment or excessive labor supply.

Shrestha (2006) studied paddy production function in Sharadanagar village development committee of Chitwan district. Her conclusion was, though the magnitude of elasticity for farmyard manure was relatively low, that inputs have a positive effect on output. Both inputs farmyard manure and chemical fertilizer were essential elements to increase the output to paddy Cobb–Douglas production function was fitted and it showed that labor and capital both were equally important function for paddy production. The productivity of capital and labor was high; output could be increased by increasing capital and labor.

Dhakal (2000) used Cobb–Douglas production function is used for the estimation of the effect of chemical, fertilizer, human labor and animal labor on paddy production. The major findings of his study were:

- i) Human labor and animal labor are found to be the most significant variables in paddy farming.
- ii) There is a no effect of chemical fertilizer on output which could be due to its improper use.

Yadav (2004) made a study about estimation of paddy production. The study was paddy production in Aurahi Village Development committee of Saptari district. This study pointed out the significant relationship between the dependent and independent variables. The volume of paddy produced was related to the fact that the production of paddy might be more labor intensive. The finding of this study was that more labor means more production. The

capital investment was not significant for the reason that per high investment would be smaller for large farm size holdings.

Kaneal (1978) made a study on wheat production. He fitted Cobb–Douglas production function with three independent variables viz. farmyard manure, nitrogen and labor in the noted area of Bhaktpur district, to examine the response of the input to the output of wheat on soil type, land size, land with irrigation facilities and doses of nitrogen, to taste the significant of the effect of different inputs on output and to suggest appropriate policy measures.

The major findings were that two inputs farmyard manure and nitrogen were significant and labor as input did not have significant effect on output of wheat. Irrigated farms gave higher productivity than non–irrigation farms. Diminishing marginal productivity took place in wheat production.

Dhital (2001) made a case study and his objectives of the study were; to analyze the causes of majority population depending on paddy cultivation to find out the factors that led to the change in paddy production, to find out the problems of paddy production in the study area and to recommend the measures to increase paddy production. To meet the above mentioned objectives he used the regression analysis techniques, did the significance test (t-test) and fitted the C-D production function of the obtained data. Conclusion of the study was that the average output of paddy production was inversely related to farm size. The production function analysis for the paddy production showed that the human labor was the most significant variable explaining the major change in output as the coefficient of human labor was highly significant. The bullock labor was negatively related with output of paddy.

Chhetri (2002) in his thesis studied about the orange cultivation in Sikkim with specific objectives of identifying socio–economic status, farm size of orange production trend, problems and prospects of orange production. This study has found that the orange production as the major source of the economy, which comprises to cereal crops in the study area. This study was used primary data, population were 617, among them 97 households were selected as sample to meet the specific objectives. This study has concluded that the orange farming has a successful profession because orange production was more important fruit than cereal crops like maize, millet, orange growers were the best quality of the life each and every field like education, income, health, social status, nutrition. But non growers of orange were not so good in this field in each and every sector. This study stated that the orange growers have been attracted towards day by day. But the farmers have used the

traditional method to produce of orange in this area. There were lack of chemical fertilizer, lack of irrigation facility, lack of accessibility of main markets and organized market system. Besides of these problems, farmers have been produced to increase day by day. Farmers are interested to produce of orange and transformed from cereal crops to cash fruit field.

Sharma (1979) made a case study of Kusunti VDC. Cobb–Douglas production function was fitted with labor, farmyard manure and chemical fertilizer. The data used in this study was cross sectional for the year 1979. He concluded that there was significant effect of all factor inputs in the production of paddy. But in the case of superior land farmyard manure was found to be negatively insignificant. From the study he has recommended that there are some possibilities of shifting labor engaged in agriculture to some other occupations.

Laundari (2004) has made a study on Orange production. The main objectives of this study are to estimate the production function of orange. In linear and non-linear forms, labor, farmyard manure and chemical fertilizer are the main inputs of this study. This study based on the primary as well as secondary data. The raw data collected through the study are converted into logarithmic form and are presented in regression analysis, hypothesis testing. The production function gives mathematic expression to the relationship between qualities of inputs. A cobb-Douglas production function is fitted to analysis the data collected.

This study is concluded that the manure is found to be the most significant variable in orange farming. Human labor also has significant role and has positive effect in most of the models. There is positive as well as negative effect of the chemical fertilizer in orange farming. The negative effect can be attributed its improper dies. F–Statistics is positively significant in all models which indicates that the strong statistical relationship between inputs and output of orange. Among all models R square has a high value of 0.093 in model 1 which is similar to that of Model 2 and 4. This lowest R square is in model 4 and its value is 0.003. The some production elasticity is less than unity in model 1, 2 and 3 which indicated diminishing returns to scale. The major findings of the study were:

- The cultivation of orange in the study area is down in the traditional basis which was not been commercialized.
- The next profit from orange is higher than any other crops product in the study area.
- Manure was observed to be highly responsible to increase the productivity of orange in the study area.

CHAPTER-III

RESEARCH METHODOLOGY

This chapter presents a short discussion on the methodology used in the study. Section 3.1 provides an introduction of the study area, section 3.2 discusses the research design, section 3.3 discusses about the types of data used and source of data and 3.4 describes about the population and sample and sampling method used.

3.1: Study Area

Saudiyar VDC is the study area selected for this study. It is located in Dang district of Mid-western development region. This district extends between 28° 7' 0" N and 82° 18' 0" E. It is 213-2058 meter above the sea level. The total area of Dang district is 2955 sq.km. There are two parliamentary constituencies in this district. There is warm temperate and cool temperate climate in this district. In summer season, its maximum temperature reaches up to 43⁰centgrade and in winter season its minimum temperature reaches up to 4⁰ centigrade. It is surrounded by Rolpa, Pyuthan and Salyan district in the north, Uttaranchal Pradesh of India in the south, Arghakhanchi and Kapilbastu district in the East and Banke district in the West. There are Thirty nine VDCs and two Municipalities.

Among the thirty nine VDC, Saudiyar is one of them. It is 6 km far from Dang headquarter. It is located at the southern part of the Dang headquarter. The VDC borders with Laxmipur VDC at East, Narayanpur VDC at West, Ghorahi Municipality at North and Dharna VDC at south. According to VDC profile (census, 2011), the total population of the VDC is 12,101. Out of which 5547 are male and 6554 are female. There are altogether 2453 households in this VDC. The majority of the people living in this VDC are farmers. Mainly, the researcher has selected only One wards No. 6, purposely. There are a few people who go to outside mainly to India, Malaysia and Dubai for employment. Besides farming, some people are engaged in governmental and non-governmental services. Likewise, some people are engaged in trade, small firm industry etc. There are four primary schools, one lower secondary school, and one higher secondary school in this VDC. The majority of the people are Tharus, followed by Chhetris, Brahmins, Mager community living in this VDC.

3.2: Research Design

This study is a status of paddy production of Saudiyar VDC. This research is mainly based on primary data. This research has attempted to analyze the status of paddy production on local farmers on the basis of the specific objectives of this research. Status of paddy production, economic status of local people etc. are covered in this study. Mainly the analysis is based on the result of the collected data where the specific area is defined in the study. Hence, the researcher has adopted descriptive research design. Similarly, primary as well as secondary data are used to attain the objectives of this study.

3.3: Nature and Source of Data

The quantitative data is obtained from questionnaire and were analyzed using statistical tools. The collected qualitative information is presented in a descriptive way. The information obtained is presented in appropriate tables and figures. They are categorized and tabulated according to the objective of the research.

Both primary and secondary data are used in this study. Primary data are collected from the study area using structured questionnaire. Besides, some information were collected from asking question to the local people who are involved with paddy production and other activities of agriculture.

Similarly, secondary data is obtained from different secondary sources like books, different journals, VDC profile, DDC profile, Central Bureau of Statistics (CBS), District Agriculture Development Office, different concerned organizations and websites.

3.4: Population and Sample

In this VDC, there were around 2453 households in total wards. But, there are each 55 households selected from wards (Ward No. 6) who cultivate paddy production since a long time. From given, out of the total wards only one ward is consulted. Sample size of this study is 55 households. This figure represents around 20 percent of the total households of each ward. Simple random sampling method will be used for the research of this paddy production.

3.5 Data Analysis and Interpretation

Data collection had been used to describe a process of preparing and collecting data. The purpose of data collection is to obtain information to keep on record to make decisions about important issues, to pass information onto others. Primarily data has been collected to provide information regarding a specific topic. Various techniques like tables, graphs, charts, statistical tools, computer software etc. had been employed during the research study.

After the collection of data it was rechecked and verified at the field manually to reduce the error. Then the result is calculated. The final data are tabulated and interpreted by the use of frequency tables, simple and descriptive statistical methods.

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

In this chapter, the collected data is analyzed for fulfillment of objectives. The analysis is mainly based on questionnaires collected from local people,, key informants, government officer and staffs and intellectuals.

4.1Size of Family

In Saudiyar VDC, there are different castes such as Brahaman, Chhetri, Thakuri and Tharu ethnic groups. Different groups have different economic, social and educational background due to the size of the family. The average size of family and number of sample household is described with the help of table: 4.1

Table 4.1

Number of Sample Households and Their Average Size of Family

Caste	Number of sample households	Average size of Family
Brahaman	11	7.6
Chhetries	8	9.37
Thakuries	14	7.14
Tharu	22	10.23
Total	55	8.52

Source: Field survey, 2014

Table 4.1 shows that the maximum average size of the family is Tharu. Chhetri, Brahaman and Thakuri are in ascending order of magnitude which is 10.23, 9.37, 7.6 and 7.14 respectively. As a whole, all caste's average family size has 8.74 whereas country's average family size (CBS, 2011) has 5.44 per household. Thus, we can that the VDC's average family size is very high in the comparison to national level.

4.2: Education Level of Households Head

The level of education of household head determine the condition of the household. If the household head is educated, then their family may ahead in various sectors such as family education level, health adoptions of new technology of farm employment. If the household head is uneducated, this family will traditional and backward. In this VDC, Brahaman household head is highest position of education whose percentage is maximum all of other.

Table 4.2 Education Level and Average Number of Household Head

Caste	Number of sample HH	Education level of HHH			Percentage of Educated HHH
		Primary	Secondary	Higher	
Brahamans	11	2	3	5	90.91
Chhetries	8	5	2	-	87.5
Thakuries	14	4	3	1	57.14
Tharu	22	2	1	-	13.64
Total	55	13	9	6	50.91

Source: Field Survey, 2014

Table 4.2 shows that, Brahaman household head has higher level of education which is 90.91 percent. Similarly, Chhetri, Thakuri and tharu are in ascending order whose percentage is 87.5, 57.14 and 13.64 respectively. Since, the total percentage of all castes household heads education level is 50.91 percent It can be shown in the following figure:

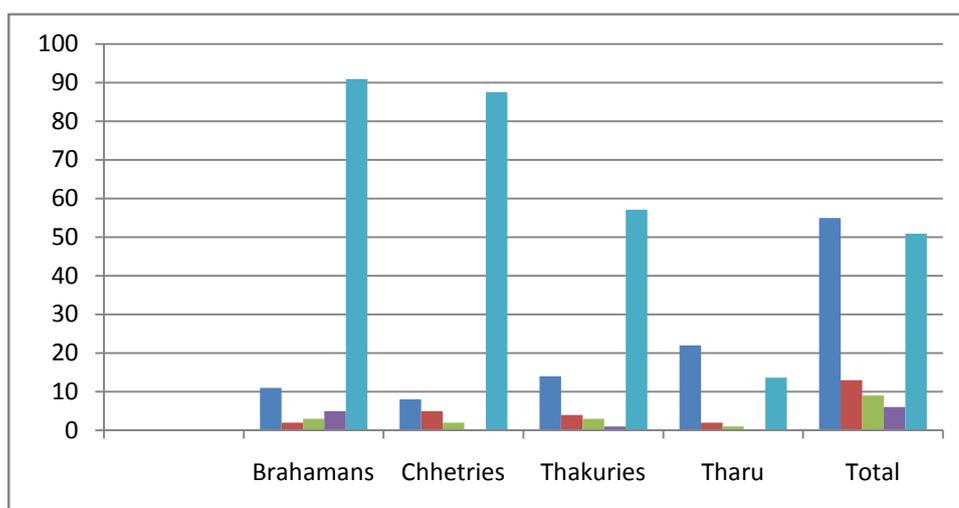


Fig 2: Education Level and Average Number of Household Head

4.3: Family Education Status

The level of education gained by all the members in a family is an important indicator of social development. The family education level is presented in table 4.3.

Table 4.3

Family Education Level

Caste	No. of sample HH	Average size of family	Percentage of educated family member
Brahamans	11	7.36	86.42
Chhetries	8	9.37	53.33
Thakuries	14	7.14	80
Tharu	22	10.23	24.44
Total	55	8.74	50.93

Source: Field survey, 2014

Table 4.3 shows that the Brahman caste family members education status is higher position among the all whose percentage is nearly 87. Similarly, Chhetri, Thakuri and Tharu are ascending order whose percentage is 53.33,80 and 24.44 respectively. Thus as a whole, all caste groups family members education is 50.93 percentage and average size of family is 8.74 whereas (CBS, 2011) countries literacy rate is 54.1 percent and average size of family is 5.44 per household. Thus, we can say that the VDC's average size of family is very high and literacy rate is very low in comparison to the national level

It can be shown in the following pie-digram:

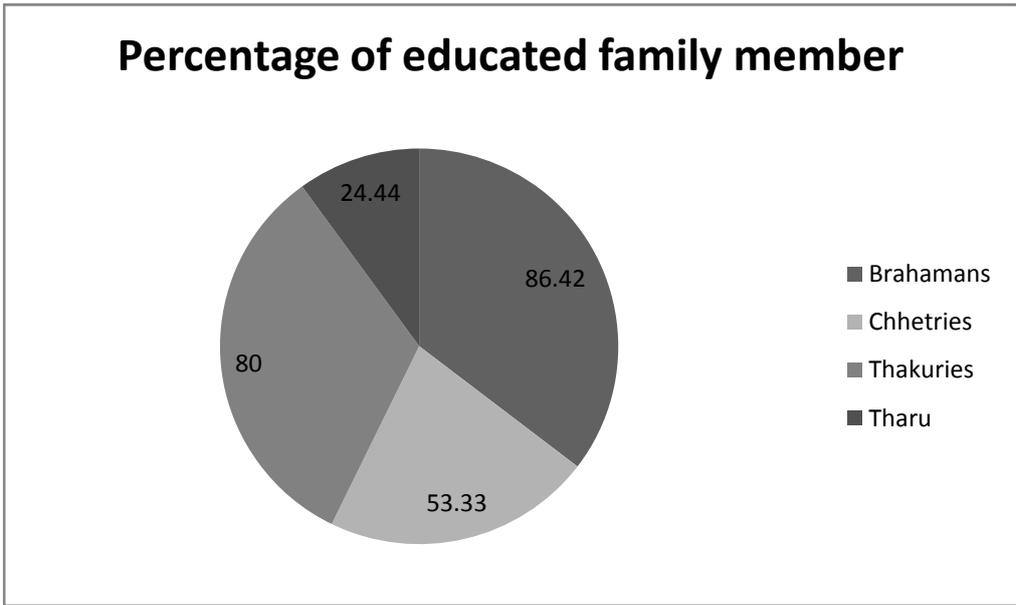


Fig 3: Family Education Level

4.4: Employment Situation In Saudiyar VDC

In the rural area, the main source of employment is agriculture. In the Saudiyar VDC, agriculture is the main occupation. Some young men have gone to India and other foreign country to earn money. Maximum population of this VDC is engaged in the agriculture products which is the main source of income. Besides them, people are engaged in teaching, labour works, domestic works etc. To find out the employment situation in Saudiyar VDC, the occupation of the members of the household was asked through the questionnaire and the results obtained are given in the below .

Table 4.4

Caste	Sample HH	Percentage of economically active family members	Source of employment (%)			
			Service	Foreign Employment	Trade	Agriculture
Brahaman	11	(33) 40.74	(12) 36.36	(2) 6.06	(4) 12.12	(15) 45.45
Chhetri	8	(37) 49.33	(5) 13.51	(4) 10.81	(2) 5.40	(26) 70.27
Thakuri	14	(44) 44	(10) 22.74	(7) 15.90	(3) 6.81	(24) 54.54
Tharu	22	(86) 38.22	(3) 3.48	(16) 18.60	(11) 12.74	(56) 65.12
Total	55	(200) 41.58	(30) 15	(29) 14.5	(20) 10	(121) 60.5

Source of employment for different castes of sample household in Saudiyar VDC

Source: Field survey, 2014

Table 4.4 shows the percentage of economically active number and source of employment of people who are directly or indirectly engaged in agriculture. The higher percentage of Brahaman caste group is engaged in service sector whose percentage is 36.36. On the foreign and trade sector, higher percentage of Tharu are engaged which is 18.60 and 12.74 percent respectively. Finally, on the agriculture sector, Chhetri caste has engaged in higher percentage. Since, all caste groups higher percentage of people are engaged in agriculture. So, agriculture is main source of employment for this VDC.

4.5: Land Ownership and Use

In Saudiyar VDC, there is irregularity of distribution of own land. Majority of households have little land and a few have majority of land. The land distribution was obtained by asking the owned, rented in and operated land size of each sampled household. The information is tabled in the following section for different caste group of sample (table 4.5).

Table 4.5

Average Land Ownership and Percentage of Agricultural Dependency.

Caste	Number of sample HHs	Average own land	Percentage of dependency in agriculture
Brahaman	11	1.60	45.45
Chhetri	8	2.81	70.27
Thakuri	14	1.97	54.54
Tharu	22	1.57	65.12

Source: Field survey, 2014

Table 4.5 shows that Chhetri caste has higher stage of average own land ownership whose dependency in agriculture is maximum which is 2.81 hactor of owned land and 70.27 percent of dependency in agriculture respectively. Similarly, Thakuri has sescond stage of average own land whose area is 1.97 hactor and whose dependency is 54.54 percent. Likewise, Brahaman and Tharu are third and fourth stage of average own land which is 1.60 hactor and 1.57 ha and whose dependency is 45.45 and 65.12 percent respectively. The table shows the unequal distribution of owned land which is Chhetri has covered maximum land and Tharu has covered minimum land.

it can be shown in the following figure:

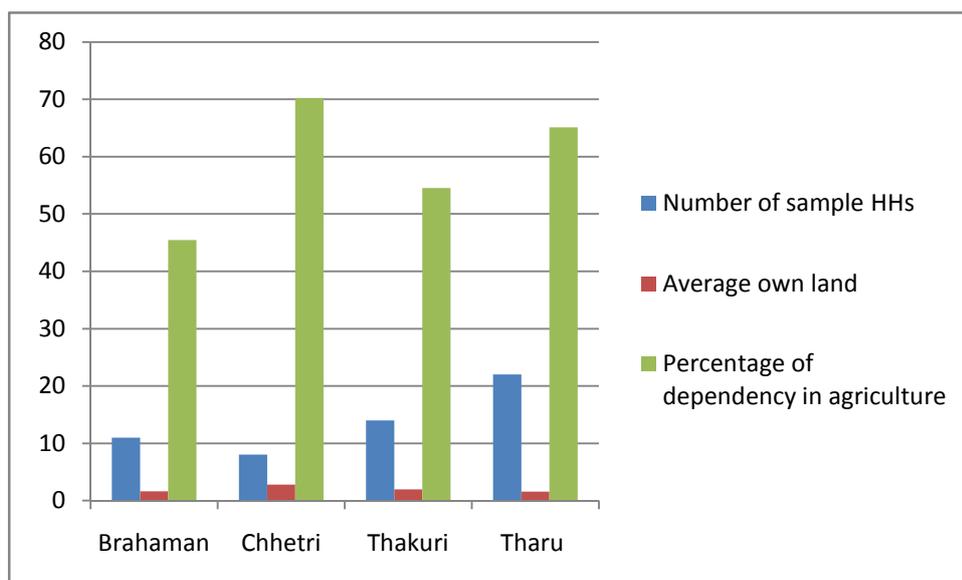


fig 5: Average Land Ownership and Percentage of Agricultural Dependency

4.6: Paddy Cultivation in Saudiyar VDC

In Saudiyar VDC, most of the VDC farmers cultivate paddy. The area of paddy cultivation was obtained from the respondents and the responses obtained are given in table.

Table 4.6

Cultivation of Paddy

Caste	Average own land (hectar)	Average area of paddy cultivation (hectar)	Percentage of land covered by paddy
Brahaman	1.60	0.83	14.54
Chhetri	2.81	1.5	19.13
Thakuri	1.97	1.33	29.68
Tharu	1.57	1.04	36.66
Total	1.85	1.14	100

Source: Field survey, 2014

Table 4.7 shows the Tharu caste has maximum percentage of land covered by paddy which is 36.66 percent. Similarly, Thakuri and Chhetri are second and third stage whose

percentage is 29.68 and 19.13 respectively. Likewise, Brahman has minimum percentage of land covered by paddy which is 14.54 percent.

4.7: Varieties of Paddy Production in Saudiyar VDC

In Saudiyar VDC, different varieties of paddy are cultivated by the different caste groups of farmers. The major varieties of paddy cultivated by the farmers in this VDC are “Masino”, “Basmati”, “Mansuli” and “Motto” (Radha-7& Ratana). Generally, the people who are economically strong cultivate the better qualities of paddy like Masino, Basmati or Mansuli and the people who are economically not strong cultivate the low qualities of paddy like Motto (Ratana & Radha-7). Farmers were asked to provide the area and production of different qualities of paddy. The information gained is presented in table 4.7

Table 4.7

Caste Wise Cultivated Area and Production of Different Varieties of Paddy Area in hector and production in metric Ton .

Caste	Sam ple HH	Total operated land	Paddy cultivation (Area of production)								Total production
			Masino		Motto		Basmati		Mansuli		
			Area	Prod	Area	Prod.	Area	Prod.	Area	Prod.	
Brahaman	11	9.12	2.3	4.1	2.42	5.1	3	5.5	1.4	2.6	17.3
Chhetri	8	12	3.2	6.4	5.1	12	0.90	1.2	2.8	4.92	24.52
Thakuri	14	18.62	3.9	7	8.11	18.6	1.3	2.1	5.31	10.3	38
Tharu	22	23	5.3	11	12.4 9	27.75	1.5	2	3.71	7.6	48.35
Total	55	62.74	14.7	28.5	28.1 2	63.45	6.7	10.8	13.22	25.42	128.17

Source: Field Survey, 2014

Table 4.7 shows that Dalit is higher stage to cultivate paddy which is 48.35mt. Similarly, Thakuri, Chhetri and Brahaman are second third and fourth stage which is 38, 24.52 and 17.3 mt. respectively. Among the different varieties of paddy Basmati is popular for Brahaman and *Motto Dhan* is popular for other Tharu, Thakuri and Chhetri castes. It is because, Brahaman caste's economic status is strong and other's economic status is lower condition.

Finally, this shows that the total paddy planted area is 62.74 hector and its total production is 128.17 mt. whereas (Gov,2068) country's total paddy planted area is 1556 thousands hector and its total production is 4524 thousands metric ton. So we can conclude that the VDC's production rate is quite less in comparison to the country level.

4.8: Productivity of Paddy

Productivity of paddy differs from one varieties to other as well as one to other caste groups. Since higher caste group are economically strong, their productivity of paddy is less than backward caste group. The lower caste groups productivity of paddy is higher than other because they have to totally depend on agriculture. Table 4.8 shows the average productivity of paddy from different caste groups.

Table 4.8

Total Size of Operated Land, Total Production and Average Productivity of Paddy

Caste	Total operated land	Total amount of prod.	Average productivity mt/ha
Brahaman	9.12	17.3	1.89
Chhetri	12	24.52	2.04
Thakuri	18.62	38	2.04
Tharu	23	48.35	2.10
Total	62.74	128.17	2.04

Source: Field survey, 2014

Table 4.8 shows that Tharu caste groups got the highest average productivity among all which is 2.10 mt/ha because Tharu has totally depend on agriculture. Similarly, the productivity of Chhetri and Thakuri is equal which is 2.04 mt/ha. Likewise, the productivity of Brahaman caste has lower stage among all because Brahaman have engaged on other sector.

As a whole, the average productivity of paddy in Saudiyar VDC is 2.04 mt/hector whereas countrie's average productivity of paddy (Gov, 2068) is 2.90 mt/per hector. Thus, we can conclude that the VDC's productivity of paddy is very low in comparison to country level due to the various problems and traditional technology.

4.9: Income of Family

The main source of income for the people of VDC Saudiyar is agriculture. They also get their income from non-agriculture sources including the remittance, service, trade and others. Farmers were asked to describe their sources of income and the amount received from source to identify the contribution made by agricultural sector. The data obtained for different caste groups are provided in the following table.

Table 4.9

Average Income of Different Caste Group Households

(Per year)

Caste	Average farm income		Average non-farm income				Total
	Crops	Livestock	Remittance	Service	Trade	Other	
Brahaman	95818.18	8909.09	2727.27	55000	7272.72	1090.90	170818.16
Chhetri	256250	13750	4000	9375	6250	1700	291325
Thakuri	191428.57	5714.28	3714.28	6571.42	4428.57	500	212357.12
Tharu	148409.09	5454.54	4318.18	2045.45	2045.45	772.72	163045.43
Total	691905.84	33827.91	14759.73	72991.87	19996.74	4063.62	837545.71

Source: Field survey, 2014

Table 4.9 shows that average income of Chhetri caste has higher position which is Rs. 291325 per year. Similarly, the average income of Thakuri caste has second position which is Rs. 212357 per year. Likewise average income of Brahaman and Tharu have third and fourth position which is Rs. 170818.16 and Rs. 163045.43 per year respectively. Since, the average yearly income of people of Saudiyar VDC is Rs. 837545.71. So, we can conclude that the average income of farmers of Saudiyar VDC is very low in the comparison to national level.

4.10: Income Through Paddy Production

Agriculture is one of the main source of the people of Saudiyar VDC. The income received from agriculture sector is divided into different activities such as paddy, maize, wheat or livestock etc. But how much is contributed by paddy in total agricultural income can be determined from total agricultural income and income from paddy cultivation. The production, consumption and sale of paddy are given below:

Table 4.10

Paddy Production, Consumption, Sale and Average Cash Income

Caste	Average paddy production (mt)	Average self consumption (mt)	Average paddy sell (mt)	Average income from paddy (Rs)
Brahaman	1.57	0.68	0.89	89000
Chhetri	3.06	0.74	2.32	232000
Thakuri	2.71	0.96	1.75	175000
Tharu	2.19	1.08	1.11	111000
Total	9.20	2.8	6.17	641727.26

Source: Field survey, 2014

Table 4.10 shows the average paddy production, average consumption, sale and average cash income from paddy of different castes. It seems that the Chhetri caste produced higher level of paddy. So, the average income from paddy of Chhetri caste is very high. Similarly, the Brahaman caste has produced minimum level of paddy. So, the average income from paddy of Brahaman caste is very low. The production of Tharu and Thakuri caste has higher than the Brahaman but their average self consumption is very high. So, they can't earned more money from the paddy. The income is calculated multiplying the quantity sold by the average price received by the farmers. Thus the total average income from paddy of people of Saudiyar VDC is low in the context of national levels farmers income.

4.11: Cost of Production

Although there are many factors of input for paddy production only higher labour. This sector is directly paid in cash by the farmers. The information was sought by asking farmers in the interview. The information is presented in the following table after converting it into per hector basis.

Table 4.11

Cost of Paddy Production of Different Caste Group.

Caste	Total operated land of Paddy	Total required labour	Labour quantity per hector	Labour cost per hector
Brahaman	9.12	740	81.14	11359.6
Chhetri	12	900	75	10500
Thakuri	18.62	1640	88.07	12329.8
Tharu	23	1426	62	8680
Total	62.74	4706	76.55	10717.35

Source: Field Survey, 2014

Table 4.11 shows the cost of paddy production of different caste group of Saudiyar VDC. It seems that forward caste group Brahaman and Thakuri have taken maximum size of labour. So, their labour cost is very high. Similarly, Tharu caste and Chhetri caste have taken minimum size of labour than other. So, their labour cost is minimum than other caste. This cost is calculated by multiplying the quantity of per hector required labour by the equal rate (140 per day) of all farmers. Hence, all farmers average labor cost per hector is 10717.

4.12: Use of Fertilizer

There are two types of fertilizer used in paddy production one is farmyard manure (compost mal) and another is chemical fertilizer (urea) in Saudiyar VDC. According to surveyed, almost 95 percent farmers used farmyard manure and only 5 percent farmers used urea in field. To calculate the total quantity of farmyard manure in per hector, we have taken farmyard manure quantity in *doko*. Supposed that, one *doko* = 20 kg and its price is Rs. 10 per *doko*. The classification of all groups use of fertilizer is shown by table.

Table 4.12**Use of Fertilizer in Different Caste.**

(Area in hector and Farmacyard in Doko)

Caste	Total land of paddy planted area	Farmacyard manure in Doko	Quantity per hector
Brahaman	9.12	1214	133.11
Chhetri	12	1820	151.67
Thakuri	18.62	2594	139.31
Tharu	23	4000	173.91
Total	62.74	9628	153.45

Source: Field Survey, 2014

Table 4.13 shows that higher caste Brahaman has uses 133.11 Dokos in per hector but lower caste Tharu has uses 173.91Dokos in per hector. It means higher caste has busy in other sector and lower caste farmers are not engaged in other sector and they work hard. Average of all farmers uses 153.45 Dokos in per hector in this VDC.

4.13 People having Television in their home

Television is one of the important means of communication. In the study area we had found out that the people who are using television have good knowledge of cropping pattern and agriculture. The people havin television an not having television is illustrated un the table and digram given below:

S.N	Respondant by caste	Having T.V	Not having T.V	Total	Percentage %
1	Brahaman	6	5	11	20
2	Chhetri	5	3	8	14.55
3	Thakuri	11	3	14	25.45
4	Tharu	5	17	22	40

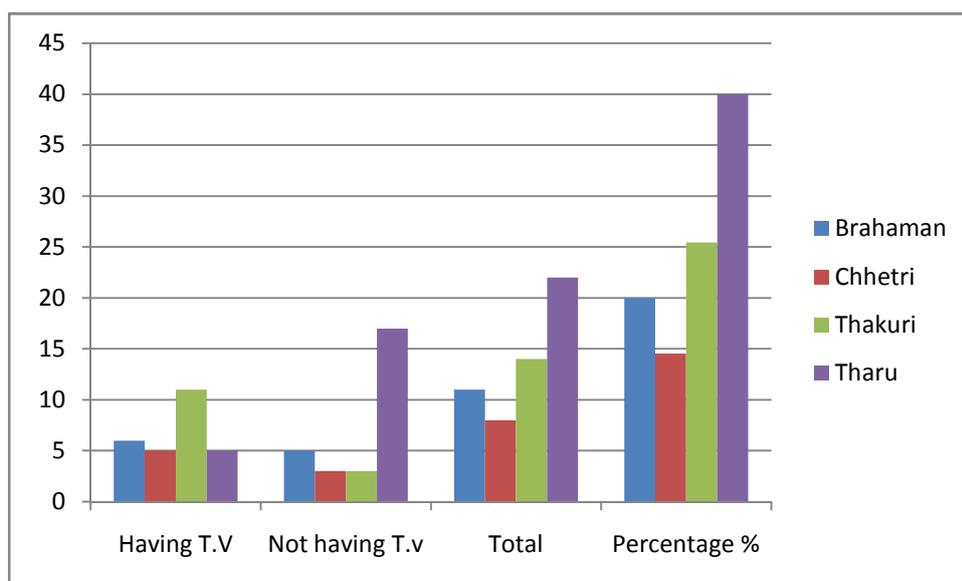


Fig 6: People having T.V by caste

In the above figure we can see tht among 11 Brahmins only 6 have televisions and rest 5 havent television. Among 8 chhetri only 5 have televisions and rest 3 havent television. Among 14 thakuris 11 have televisions and rest 3 havent television. Among 22 tharu only 5 have televisions and rest 17 havent television. From this we can conclude that among four castes thakuris have more television which have helped them in agriculture.

4.14 Good Sanitation Facility

Sanitation is one of the important factor that maintains the health of the people. In the study area we had found out that most of the families uses toilet. It is further more clarified with the help of following table :

S.N	People by caste	Having Toilet	Not having Toilet	Total	Percentage %
1	Brahaman	11	0	11	20
2	Chhetri	8	0	8	14.55
3	Thakuri	14	0	14	25.45
4	Tharu	14	8	22	40

4.15 Means of Transportation used in Daily Life by Different Castes

S.N	Means of transportation	Brahmin	Chhetri	Thakuri	Tharu
1	Bull cart	2	1	0	8
2	Motor cycle	3	2	6	3
3	Cycle	4	4	5	10
4	Others	2	1	3	1
	Total	11	8	14	22

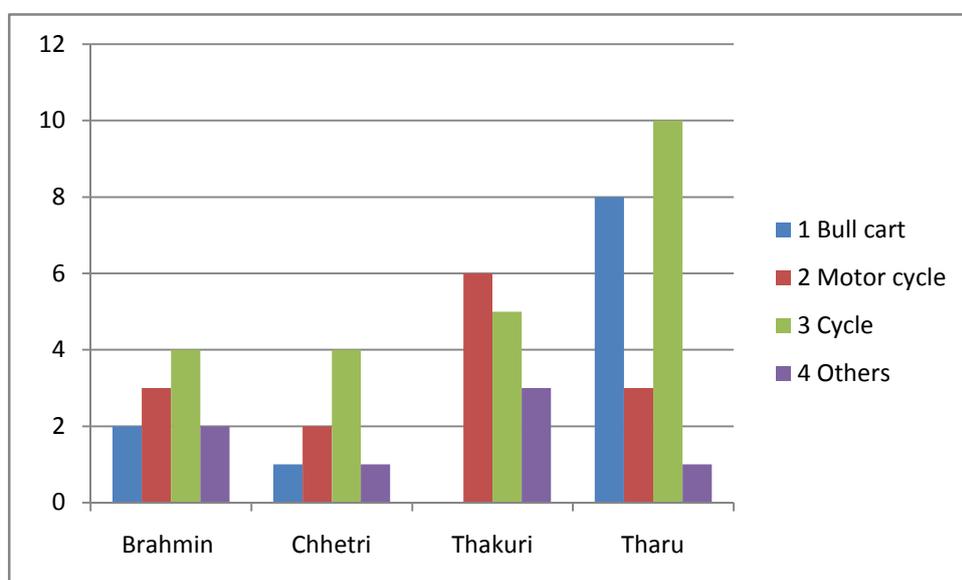


Fig: means of transportation used by the different castes of people

In the above figure it is shown that different castes of people use different means of transportation. Among 11 brahmin 2 use bull cart, 3 use motor cycle, 4 use cycle and 2 use others means of transportation. Among 8 chhetris 1 use bull cart, 2 use motor cycle, 4 use cycle and 1 use others means of transportation. Among 14 thakuris no one use bull cart, 6 use motor cycle, 5 use cycle and 3 use others means of transportation. Among 22 tharus 8 use bull cart, 3 use motor cycle, 10 use cycle and 1 use others means of transportation.

4.16 Main Problems in Paddy Production of Different Castes

There are many problems during paddy production such as inappropriate facility of irrigation, lack of proper knowledge about agriculture. In the study rea there were many problems. It is shown with the help of following table and digram

S.N	problems	Brahmin	Chhetri	Thakuri	Tharu
1	Fertilizer	2	2	3	7
2	Labour	3	1	6	6
3	Ploughing	2	2	2	2
4	Tractor	4	3	3	7
	Total	11	8	14	22

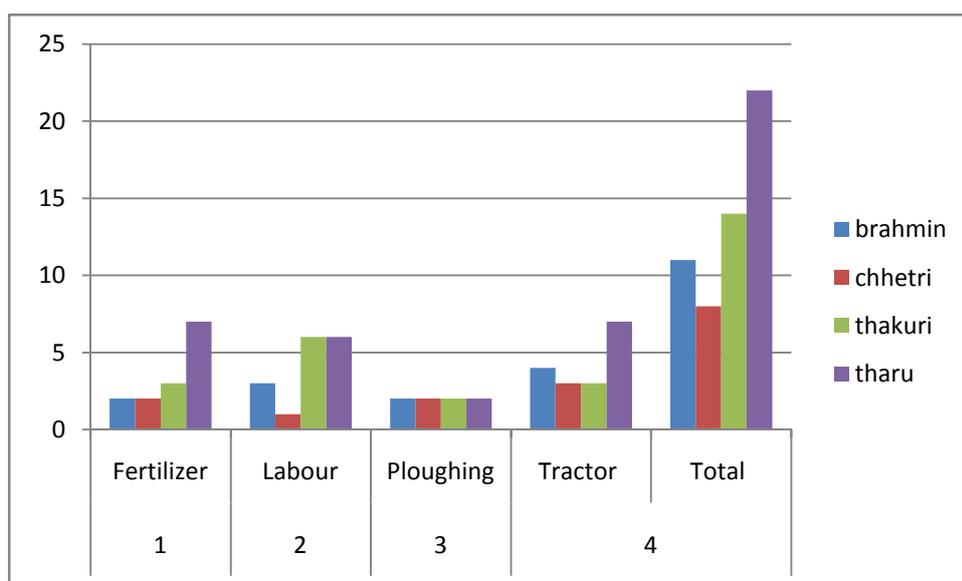


Fig: problems in paddy production

In the above figure we can see that most of the people are suffered from the problem of tractor and after that people are suffered from fertilizer problem. And very few people are suffered from ploughing

4.17 Types of Post-harvest Technology used by Different Caste

Post harvest technology are very important in the field of agriculture. In the study area different people have used different technologies. It can be shown with the help of following table and figure:

S.N	technologies	Brahmin	Chhetri	Thakuri	Tharu
1	Threshing	6	4	4	12
2	Manual	3	3	7	7
3	Others	2	1	3	3
	Total	11	8	14	22

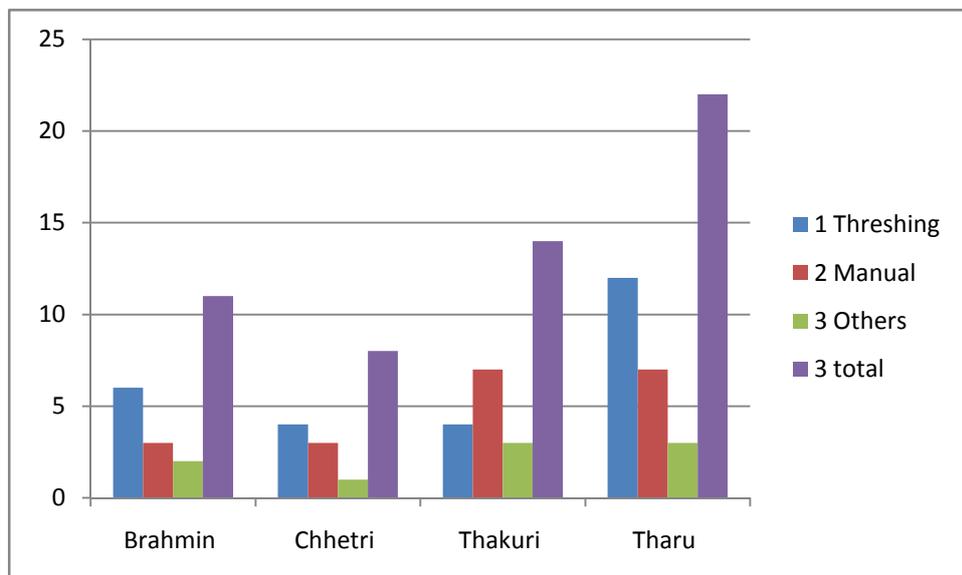


Fig: post harvest technologies used by different castes

In the above figure we can say that most of the people are using threshing technology and then after manual and the least number of people use other methods.

4.18 Time Period of Selling Paddy Product

Time period of selling paddy product refers to the selling the crops in different intervals of time. In the study area most of the people sell their product on season. It can be elaborated with the help of following table and digram:

S.N	Time period of selling	Brahmin	Chhetris	Thakuri	Tharu
1	Within 3 months	6	4	5	15
2	6 months	3	3	4	4
3	Other periods	2	1	5	3
	Total	11	8	14	22

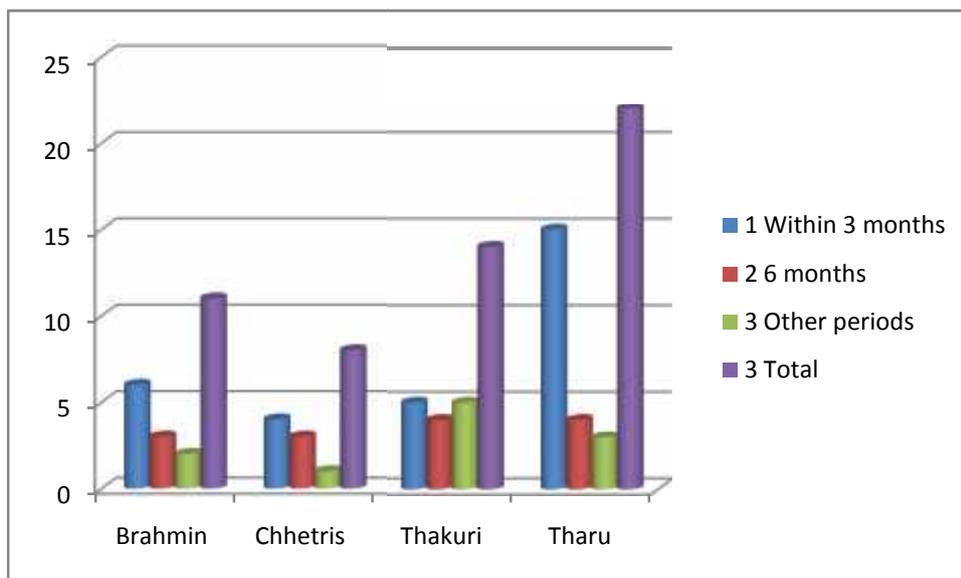


Fig: time period of selling

In the above figure it is shown that most of the people sell their product within 3 months. And some of them sell their product within 6 months and very less number of people sell their product in other periods.

4.19: Problems And Prospects of Paddy Production in Saudiyar VDC.

4.19.1: Problems

There are some problems in the Saudiyar VDC which prevents to make high production of the paddy. These problems are as follows.

-) Irrigation: In this VDC, irrigation facility is available but due to the lack of proper mangement of water resoruce,a large soil of cropping land is far away from the irrigation facility. So, the irrigation depends on rain fail. Thus in Saudiyar VDC, only these farmers have got irrigation facilities which stream no dry in winter season and whose field is near the stream .
-) Fertilizer: The economic condition of the farmers of Saudiyar VDC is not so strong. In one hand, they can not buy sufficient chemical fertilizer according to their needs. Although they used farmyard manure but don't know how to make compost fertilizer.

-) Traditional System of Cultivation: The farmers of the village use ox-plough in the field and labour for cultivating and harvesting of the paddy. This type of system does not give the good result for production of paddy on the one hand and cost of the produced paddy will be high on the other hand.
-) Lack of Improved Varieties of seeds: Among the 55 sample household of this VDC, only 11 households farmers were found to have used improved seeds. Other was found to have used only local seeds. Use of local seeds tends to grow the lower quantity of paddy. It means that 80 percent of farmers used local seeds.
-) Lack of Modern Equipment: The farmers of Saudiyar VDC have not got modern equipment. They are using old and traditional equipment for cultivation of paddy. This old equipment has difficult to cultivate and more manpower to use for the every process of paddy production.
-) Lack of Training: In this study area, the farmers of the village have not got any type of training about agricultural process. They don't know the process for increasing the yield of production. So to increase the yield of production, training has been necessary to produce to the farmers in the VDC.
-) Problems of Disease and Pests: About 60 percent households of the study area have pointed out that paddy plants are suffering from various diseases and pests which is the root problem of paddy cultivation. As per the reports of the respondents, paddy are mostly effected by disease like Trunk Bore, Kurmulo, Dadhuwa etc. Majority of the farmers complained that they are ignorent of the measure to be adopted against the diseases and insects pests. As a result, they get low return from the land.
-) Problems of Market: Lack of marketing facility is another vital problem faced by the paddy growers in Saudiyar VDC. This types of problem is pointed out almost 60 percent of the sampleld households. There is no special type of marketing facilities and organized co-operative bodies. Main market center is only Ghorahi Bazar of Dang District which is only 10 km from study area. far from the study area. It clearly says that the transportation cost is so high. 60 percent of sampled households use the market of Dang . Due to inaccessibility of market enters, lack

of experience about marketing system, local paddy growers are not so much interested to sell higher product by themselves in the market centers. Thus, most of the paddy growers are compelled to sell their products to their middle man and brokers at very low price.

) Technical Problems: Cereal farming appears to be more technical than other field crops respect to their particularly in the factorial requirement such as soil, climate and cultivation practices. People, in the study area do not have specific knowledge. i.e. how much fertilizer is necessary for one kattha of land. What should be the distance from one paddy plant to another? Also, there are so many disease in paddy plants but people in the study area are unable to recognize them, that is why the life period of paddy plant is going to be low. People in the study area do not get any type of help of JTA. So, according to sampled households, 95 percent of them have been facing such type of technical problems.

) Problems of Transportations: Among the measure problems of paddy cultivation in Saudiyar VDC, lack of transportation is dominant one. There is no any road in the study area but they use horses and other labours to carry the paddy from study area to 10 km Dang Ghorahi Bazar. People should pay Rs 3 per kg from study area to the main market. And it takes 3 to 4 hours per trip.

) Other Obstacles: Lack of credit to the farmers, low economic condition, absence of JTA and other related person about agriculture, non-availability of improved seeds, chemical fertilizer, lack of trained and well known human resource, lack of plain land, difficult on transportation are the recent and effective obstacles of the Saudiyar VDC in the process of paddy production.

4.19.2: Prospects

Though there are several problems in the paddy cultivation, there are still sufficient possibilities to promote the paddy production in Saudiyar VDC of Dang district. The farmers local varieties of paddy are much more interested towards to cultivate. Although for the good achievements or production, it is necessary that both government and private sector should be interested to develop this sector. Cultivation of other cash crops resulted in the decline of soil fertility and increasing population pressure on marginal land creates various environmental

imbalances resulting so many kinds of natural disasters like land slide, flood, desertification, soil-erosion etc. Thus, paddy production plays an important role in balancing the declining environmental condition in one hand due to irrigation and on the other hand it has found more beneficial as compared to the cash crops giving a good source of cash income.

Moreover, the cultivation of paddy may generate additional employment opportunities establishing subsidiary industries i.e. plucking, packaging, rice mill and distributing etc. It will provide new employment opportunities to the people, which can help to reduce the problem of migration. But farmers have to practice judical use of chemicals, to control the pest and also to use manure and fertilizer for further production in a balance way. Besides, these farmers need training in paddy cultivate management including planting, harvesting, weeding, threasing, storing and use of scientific tools to enable them to produce more and fetch high price.

A days, continuously increasing population has encouraged the demand of rice. In the context of paddy cultivation it has better prospect not only in the study area but in the whole part of the district of Dang.

Particularly, in case of Saudiyar, the whole sampled paddy growers have agree with its good future prospect. And non-growers are also interested to cultivate it. Moreover, they have informed that they will try as soon as possible.

CHAPTER-V

SUMMARY, CONCLUSION AND RECOMMENDATION

Among various cereal crops, paddy is one of the most important cereal crops and it becomes first preferences in the world. In the context of Nepal, paddy is the principle and selected cereal crop. Paddy plantation in Saudiyar VDC has started a very long time ago and at present, it has become one of the main agriculture activities in the study area.

The present study analysis is based on primary data with farmers of Saudiyar VDC of Dang district. It has shown the relationship between farmer's income from paddy production and three inputs land, labor and capital which are based on cross sectional data through the agriculture year 2011/012. The samples were taken on the basis of systematic random sampling method. The major findings of the entire study are summarized as below.

5.1: Summary

- The main objectives of the study was to find out the Total paddy production in Saudiyar VDC and the specific objectives were to find out the applied technology in this VDC area, total production of paddy, productivity of the paddy and average income gained from paddy production.
- To fulfill these objectives, 55 samples HHs were randomly selected. This sample size has been distributed proportionately main 1 wards of Saudiyar VDC. The research mainly depended upon primary data.
- Information collect from questionnaire was transformed into a master sheet and raw were tabulated on the basis of four different ethnic groups. To analyze have been used. Besides these, tables were also used for presentation of information.
- The family size of Saudiyar VDC is quite more in comparison to the national level. The average family size of national level (CBS, 2011) has 5.44 per households whereas the VDC's average family size has 8.74.
- The average productivity of paddy in this VDC has 2.04mt/ha in fiscal year 2068/069 whereas the countries productivity of paddy (Economic Survey 2067/068) has 2.90mt/ha. So the productivity of paddy of Saudiyar VDC is quite less due to the various problems.

- The average family size of lower caste (Tharu) group has higher than other caste group and the average family size of higher caste (Brahman and Thakuri) has lower than other caste group of Saudiyar VDC.
- The average owned land of the people of Saudiyar VDC is more in comparison to national level because the average owned land of this VDC is 1.75 ha whereas the country level average owned land is 0.79.
- The forward caste group's household heads have higher percentage of education level and lower caste (Tharu) group's household heads have lower percentage of education level.
- The forward caste group's percentage of educated family member's has higher (6.42) and the lower caste group's percentage of educated family members has lower (24.24).
- About 60.5 percent of the people of this VDC are involved in agriculture and other are involved in service, foreign employment and trade.
- There is irregularity of distribution of land i.e. 11 household of Brahman and 22 household of Tharu has taken 9.12 and 23 hector land of paddy respectively but 8 household of Chhetri caste has taken 12 hector land of paddy.
- In Saudiyar VDC, 60.87 percent of total farm land is cultivated with paddy and more than 60 p
- The most popular varieties of paddy in this VDC is "Basmati Dhan" and "Motto Dhan" because of its high productivity and taste.
- The Chhetri caste group has the better yearly average income because maximum people of this group involve in paddy production and livestock and the Brahman caste group has less average income in this VDC.
- In Saudiyar VDC, 60.5 percent people are engaged in farm sector whereas 87.81percent income is gained from this VDC.
- Chhetri, Tharu and Thakuri caste group gets maximum average income from paddy production and the forward caste (Brahman) group gets the minimum average income in Saudiyar VDC.
- Average labor cost per hector and average farmyard manure cost per hector for paddy production is very low whereas average income from paddy production is very high it is because the farmers use many works themselves.

- Saudiyar VDC is facing the many problems. The standard of living of people of this VDC is not good .Heavy indebtness is the other problem. It is because; the employment opportunity is very low in the VDC.
- In this VDC, near 50 percent people are uneducated. They cannot go to search for new employment opportunity. Remaining people are trying for the job but they are not success. So, they go to India for seasonal employment for 6 to 9 months. They earn some money there and return to home.
- Tharu, Chhetri and Thakuri are at lower stage in context of labor cost per hector respectively in comparison to the Brahman.
- In this VDC, 95 percent farmers use farmyard manure whereas only 5 percent farmers use chemical fertilizer.

5.2: Conclusion

- In Saudiyar VDC, agriculture is the major profession of the people in the study area which covers above the half of total income.
- Tharu are dominated in all respect by other higher caste group as Brahman, Chhetri and Thakuri.
- Tharu are less educated in comparison to other caste groups: Brahman, Chhetri and Thakuri.
- Tharu are more labours for paddy production so their average income from paddy production is very high.
- Tharu average family size is very high in comparison to the other caste group. So they consume more paddy than others.
- The dependency of Tharu and Chhetri are more in comparison to other caste group in context of agriculture.
- The lower castes average labor cost per hector and average farmyard manure cost per hector is very low in comparison to the higher caste (Brahman).
- Due to the lack of agriculture trainer people are unaware to increase the paddy production.

- Saudiyar VDC is facing many problems. The standard living of people of this VDC is not good. Employment opportunity is very low in this VDC.
- There is no any research programme, agricultural training and other subsidies for agriculture to the local people from the government of Nepal
- Similarly, for the paddy production farmers are using more farmyard manure than chemical fertilizer, this has made the production low in the VDC. The result of the production or productivity is only 2.04mt/ha but country's productivity is only 2.90mt/ha. More use of local seeds, traditional system of agriculture, dependent upon monsoon, lack of agriculture infrastructure, non-irrigated land, lack of modern technology and equipment, lack of improved seeds etc. are also responsible for low production of paddy in Saudiyar VDC.
- In Saudiyar VDC, population is increasing day by day and land is decreasing by erosion, or river flow etc. All of the above reason, the productivity of the paddy is low in this VDC.

Finally it can say easily, the method of paddy cultivation is traditional. So, the productivity is low. Farmers are not aware of modern techniques of paddy cultivation. Lower caste group Tharuand Thakuri put their all efforts and energy in the farming of paddy. So their productivity is high and on the other hand higher caste group Brahman and Chhetri don't put their full capacity, hence their productivity is low. Similarly, farmers seem to be able to improve their economic condition and purchasing power at this rate of paddy production because there is adequate surplus. And cause of the ignorance, they are not aware of modern technology and chemical fertilizer. It is necessary that they should change in method of paddy in SaudiyarVDC.

5.3: Recommendation

The following recommendations are made for improving paddy (cultivation) productivity in Saudiyar VDC.

- ✓ The farmers should be encouraged for the use of improved variety of seeds through agricultural extension services and other agricultural support services.

- ✓ Most farmers of the study area are ignoring about the technology and inputs. So the government should encourage the local people for paddy cultivation by JTA which brings good qualities of paddy.
- ✓ Weeding, harvesting, planting, and insects controlling methods are to be provided by agricultural experts.
- ✓ Package training program related to paddy cultivation has to be given to groups of farmers regularly.
- ✓ Similarly, most of the farmers are unknown about the use of chemical fertilizer, irrigation in time, seed quality and store. Therefore, training should be necessary to improve the production of paddy.
- ✓ Compost fertilizer preparation method is to be made more scientific to reduce cost of production.
- ✓ Paddy grower's co-operations should be encouraged so that they can organize themselves for construction of irrigation facility.
- ✓ Organized market for paddy is also necessary to protect farmer's economic interest which will be encouraging them to grow more paddies

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Questionare

"The status of Paddy production in Saudiyar V.D.C of Dang District"

1. Name of the head of the family.....

- a) Age..... b) Sex..... c) Education.....
 d) Occupation.....

2. Family information

S.N	Name	Age	Sex	Education	Employment situation			
					Service	FE	Trade	Agri
1								
2								
3								
4								
5								
6								
7								

3. What are the various varieties of Paddy that you plant?

S.N	Varieties of Paddy	Area planted (Kattha)	Total production
1	Masino		
2	Motto		
3	Basmati		
4	Radha-7		
5	Mansuli		
6	Bindeshwoary		
7	Others		

4. Why this varieties are in the dominant one?

- a) Because of the highly returnable. b) Because of the taste. c) Others reasons.

5. How much income do you have year round?

Income from farm sector		Income from non- farm sector				
Crops	Livestocks	Remettance	Service	Trade	FE	others
Rs.....	Rs.....	Rs.....	Rs.....	Rs.....	Rs.....	Rs.....

6. How much different types of land do you have?

S.N	Types of land	khet (Kattha)	Bari (kattha)
1	Own land		
2	Rented		

7. From where do you get the seeds?

a) From your own production b) From market c) Help from district agricultural development office

8. How much money do you spend for paddy farming annually?

S.N.	Items	Rate(Rs)	Total cost(Rs)
1	Human labour		
2	Preparing the land		
3	seed bed		
4	Irrigation		
5	Ploughing		
6	Planting		
7	Weeding		
8	Harvesting		
9	Threshing/Clearing		
10	storing		
	Total		

9. What types of fertilizer you use ?

Fertilizer	Total land	Total quantity	Quantity in per kattha
Compost manure			
Urea			
Potash			
Phosphorous			

10. Which instrument do you use in ploughing the field?

a) Traditional plough b) Modern plough c) Tractor

10 a. What is the wage rate for the labour for paddy cultivation?

a) Male Rs..... b) Female Rs.....

11. What are the common diseases in paddy farming?

a)..... b)..... c)..... d).....

12. What are the main problems of paddy production?

- a) Fertilizer b) Labour c) Ploughing (bulls) d) Tractor

13. What types of post-harvest technologies have you applied?

- a) Threshing b) Manual c) others

14. When you sell the paddy product?

- a) Immediately within 3 months b) 6 months c) other periods

15. What types of storage technologies have you applied?

- a) Local mud beans b) metal beans

16. Do you have food sufficient from the production?

- a)6> b)6-12> c)12<

17. How much paddy did you sale in a year?

.....quintal.

18. How far is the health post\ hospitals for your family?

- a) Near 500 meter b) More than 500 meter

19. Do you have school near your home for your children?

- a) Within 500 meter b) more than 500 meter

20. What means of transportation do you use for daily life?

- a) Bull Cart b) Motorcycles c) Cycles d) Others

21. Do you have toilet in your home?

- a) Yes b) No

22. Do you have TV in your home?

- a) Yes b) No

23. How many mobile phones are using by your family?

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THANKS