ROLE OF AGRICULTURE IN LIVELIHOOD OF PEOPLE OF NEPAL: A FIELD STUDY OF GHYANGLEKH RURAL MUNICIPALITY, SINDHULI

A Thesis

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ROLE OF AGRICULTURE IN LIVELIHOOD OF PEOPLE OF NEPAL: A FIELD STUDY OF GHYANGLEKH RURAL MUNICIPALITY, SINDHULI SABITA SIJALI MAGAR 2025

DECLARATION

I hereby declare that the thesis titled **Role of agriculture in livelihood of people of Nepal: A study of Ghyanglekh Rural Municipality, Sindhuli** submitted to the Central Department of Rural Development, Tribhuvan University, is my original work prepared under the guidance and supervision of my supervisor. I have made due acknowledgments to all the ideas and information borrowed from different sources in the course of preparing the thesis. The results of this thesis have not been presented or submitted anywhere else for the award of any other purpose. It assumes that no part of the content of this thesis has been published in any form before.

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RECOMMENDATION LETTER

This is to certify that Ms. Sabita Sijali Magar has completed the thesis titled **Role of agriculture in livelihood of people of Nepal: A study of Ghyanglekh Rural Municipality, Sindhuli** independently, under my guidance and supervision, as part of the requirements for the Master of Arts in Rural Development.

To the best of my knowledge, this study is original and provides valuable insights into the Role of Agriculture in livelihood of people. Therefore, I am submitting this report for final evaluation.

……..

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APPROVAL SHEET

This is to confirm that Ms. Sabita Sijali Magar's thesis, **"Role of agriculture in livelihood of people of Nepal: A Field Study of Ghyanglekh Rural Municipality-5, Sindhuli,"** meets the established standards of scope and quality. The thesis has been thoroughly assessed, approved, and deemed acceptable as part of the requirements for the Master of Arts in Rural Development.

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Ms. Sabita Sijali Magar
CDRD, Feb 2025

ABSTRACT

This study explores the "**Role of agriculture in livelihood of people of Nepal: A field study of Ghyanglekh Rural Municipality, Sindhuli".** Agriculture is one of the oldest human activities and is critical to global economies and food security. It is a crucial sector in Nepal, employing a significant portion of the population and contributing to its economy. However, it faces several challenges that hinder productivity and sustainability. Due to the weakness in so many aspects, agricultural practices are becoming more challenging and subsistence, which affect directly or indirectly on livelihood of people in socio socio-economic sector. The specific objectives of the study were to identify the existing agricultural practices, roles in livelihood of people, and challenges in modernization and sustainability in the study area.

Using a mixed-methods approach, the study combines qualitative data collected through household surveys with qualitative insights obtained from key informant interviews.

More than 95% of household survey respondents were farmers. Due to the insufficient production of crops, 73% were unsatisfied with their farming systems. Study shows that almost 99% of farmers lack access to modern tools, technology and ideas. Where about 90% of the people used oxen as a plowing technology of the field. And 98.3% of farmers have no irrigation facilities. Due to the excessive and unscientific use of different pesticides, insecticides, and chemical fertilizers in crops, land productivity is decreasing by about 71% day by day. But different invasive species, pests, and insects were increasing on farms. The study reported that they had been experiencing crop failure due to inappropriate policies too. Income from agriculture is so poor that only 43% is enough to survive. They haven't found enough crop production which is disruptive conditions to go abroad for employment. So, people are separating from their traditional occupations and way of life, and they are seeking alternative professions.

It is concluded that there is no sustainable and commercial farming system to sustain the livelihood of rural people. Due to the different barriers factors of commercial farming people are leaving their agricultural practices. So, for the sustainability of this occupation, we should use modern tools and machinery, the Provision of improved seed varieties, advanced irrigation methods, and scientific methods should be accessible to all farmers.

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ABBREVIATIONS

ADB	:	Agriculture Development Bank
ADS	:	Agriculture Development Strategy
AoA	:	Agreement on Agriculture
APP	:	Agriculture Perspective Plan
ASDP	:	Agriculture Sector Development Program
FANSEP	:	Food and Nutrition Security Enhancement Project
FAO	:	Food and Agriculture Organization
FNSP	:	Agricultural Perspective Plan
G2G	:	Government -to- Government
GAP	:	Good Agricultural Practices
GHI	:	Global Hunger Index
GoN	:	Government of Nepal
HYV	:	High-Yielding Varieties
JICA	:	Japan International Cooperation Agency
JSR	:	Joint Sector Review
MoAC	:	Ministry of Agriculture and Cooperatives
MoAD	:	Ministry of Agricultural Development
MoALD	:	Ministry of Agriculture and Livestock Development
MoFA	:	Ministry of Foreign Affairs
NABARD	:	National Bank for Agriculture and Rural Development
NGO	:	Non-Governmental Organization
NLSIP	:	Nepal Livestock Sector Innovation Project
NPK	:	Nitrogen Phosphorous Potassium
NRs	:	Nepali Rupees
NSAF	:	Nepal Seed and Fertilizer Project
PAF	:	Poverty Alleviation Fund
REED	:	Rural Enterprise and Economic Development
RM	:	Rural Municipality
RRB	:	Regional Rural Bank

SAARC	:	South Asian Association Regional Cooperation
SAFTA	:	South Asian Free Trade Area
SLF	:	Sustainable Livelihood Framework
SRC	:	Sindhuli Road Corridor
UN	:	United Nations
USA	:	United States of America
VCDP	:	Value chain Development project
WB	:	World Bank
WDR	:	World Development Report GDP: Gross Domestic Product
WTO	:	World Trade Organization

CHAPTER I

INTRODUCTION

1.1 Background of the Study

Agriculture means all the way people grow plants and raise animals to provide food and other things for everyone on Earth. The word comes from Latin words that mean "field" and "to grow". “It originally talked about farming land, but now it also covers many things like growing plants, raising animals, and gardening. These farming methods are very different. They include moving crops, intense farming, raising animals, and growing crops alongside livestock. The differences depend on things like the type of soil, how often crops are grown, and how animals are raised. Some definitions say agriculture only means growing plants, but it usually includes both growing plants and raising animals. The Oxford English Dictionary describes it simply as "the science and art of farming," which means taking care of the land, growing plants, and raising animals. This shows that farming is a complex activity. In this situation, agriculture means everything related to farming, showing how important it is for human life and progress. The agriculture sector is crucial to Nepal’s economy, historically contributing significantly to GDP and employment. In 1975, agriculture made up 65% of the country’s GDP, but by 2022, this had decreased to 23.95%. While 75% of the population relied on farming in 2000, this dropped to 66% in 2022, with most engaging in subsistence farming rather than market-oriented production. Traditional methods are still dominant, including using livestock for land clearing and manure, as well as relying on old seeds and local labor. Rice is the main crop, with wheat and maize as secondary crops in the plains and hills, while higher-altitude regions focus on maize, millet, barley, and buckwheat. A major challenge is the lack of modern farming techniques, leading to 25% of the land remaining uncultivated. Improved seed availability could boost production by 15%-20%, but formal seed markets are underdeveloped, and most farmers continue using seeds saved from previous harvests. Less than 10% of farmers buy seeds for major cereal crops.

Even though many changes have been made to help farming in Nepal, research shows that a lot of people still have trouble getting enough food (Bishwokarma, 2017). In South Asia, Nepal is located between China to the north and India to the east, south, and west. It covers an area of 147,181 square kilometers and had a population of

29,192,480 people in the 2021 census. Nepal is a very poor country, and farming makes up one-third of its economy. Farming is very important for the growth of poor countries. It gives many people jobs and money, especially those living in the countryside. After being ignored in the 1980s and 1990s, industry gained attention again in the 2000s because it wasn't getting enough money and it plays a key role in dealing with big issues like food supply, climate change, and economic problems.

Reports like the World Development Report 2008 and Agriculture at Crossroads highlighted how agriculture can help improve economies and lessen poverty. This led to new promises from countries around the world, including a $22 billion commitment from G8 in 2009. However, the sector has big problems to deal with. It needs to help small farmers, especially in Sub-Saharan Africa, produce more food. It also must handle changing food prices that can go up and down because of things like extreme weather. To solve these problems, we need to spend money on research, better facilities, irrigation systems, and helping farmers sell their products. We also need rules that support people living in the countryside. For billions of people, especially those in rural areas who are poor, farming is not just a way to make money. It provides food, helps them earn a living, and gives them security. Because of this, farming is very important for sustainable development and reducing poverty. Finding a way to grow farming while also building industries is a difficult but important job for leaders all over the world.

Traditional agriculture is the most common type of farming practiced all over the world. Before the green revolution, farmers in Nepal used old farming methods and only used natural fertilizers in their fields. When the green revolution came to Nepal in the 1960s, it encouraged Nepali farmers to use traditional farming methods (Shrestha, 2010). The use of chemical fertilizers increased a lot, which helped the land produce more crops and increased overall production. Farmers made more money with new farming methods than with the old ones. Improving farming methods and making farming more efficient helps farmers earn a better living. Knowing about these different ways people make a living is important for improving farming practices and helping rural areas grow (Acharya, 2006).

In developing countries like India, many families, whether they work on farms or in other jobs, rely on agriculture for their income. So, we can't talk about keeping agriculture sustainable without also considering how people make a living. Livelihood

means having enough food and money for a person or family to take care of their basic needs. Livelihood security means having safe ownership of, or access to, resources and ways to earn money. This includes having backups and savings to help manage risks, deal with emergencies, and cover unexpected costs. Rural households can earn a living in four main ways. The first type of way to make a living is through producing things. Many small and low-income farmers earn a living by growing crops on small plots of land. For these families, having the right tools and better ways to produce things is very important for their living. The second is earning a living through work. Most small farmers and families without land make a living by selling their work. To earn a living, people rely on the need for workers, how much they get paid, and the cost of food. The third type is making a living by buying and selling in the market. Farms in the countryside that make extra food and other items, or goods not related to farming, make a living by selling these extra products in the market. The way these products are marketed and the prices of what they sell and buy impact how people make a living. The fourth type of livelihoods is help through transfers. Families that don't have any earning assets or people who can work rely on help from the government or other organizations to make a living.

Improving farming has become an important topic in discussions about better living conditions and environmental damage in Asia. Shifting cultivation was the most common farming method in South and Southeast Asia until the middle of the 20th century. It was the first type of farming to develop. More people and government rules about shared land were making it harder for farmers who move their fields to take breaks between crops. In the meantime, farmers who move from one place to another for growing crops deserve a better life, which they can't have because their farming doesn't earn them enough money. These conditions made farmers look for a better way to farm, or else people in Asia might have faced hunger and poor nutrition.

The main problems of farming in Nepal are low crop production, not enough motivation for farmers, issues with land management, serious shortages of supplies needed for farming, little investment to improve land, a basic and disorganized market, and poor transportation options. The new plan for growing farming focuses on carefully using resources to slowly increase the amount of food produced.

1.2 Statement of the Problems

Nepal's economy depends mostly on farming, services, and jobs abroad, with few people working for themselves or in small businesses. More than 60. 5% of people work in farming. In the 2022/2023 financial year. Nepal is a country with many different plants, animals, and landscapes, but it is not very rich. It has different kinds of weather too. Because of which types of crops can be grown. The data shows that over 66% of the people in the area work in farming. The farmers are not getting the benefits they hoped for because they don't have modern technology, tools, and new ideas, and there are not enough good marketing options available. The productivity of these systems mainly relies on how fertile the soil is and the weather. Old farming methods are the main reason why farming in Nepal is not getting better. Nepal still uses old farming methods even in the 21st century. There are no insect sprays, chemical fertilizers, or better seeds used. Because of these old farming methods, the agriculture sector has not improved much. So, it is important to use new and scientific methods and tools to improve agriculture in Nepal. This is the best way to help rural development and improve the lives of people in those areas.

Ghyanglekh Rural Municipality (study area), located about 120 km from Kathmandu Valley, the capital city of Nepal, faces significant challenges due to rugged topography with a lack of basic infrastructure and development. Most of the people are engaged in farming, but several factors affect agricultural productivity and the growth of a commercial farming system. The area struggles with poor transportation, limited market access and low government investment, a lack of proper irrigation systems, and insufficient scientific tools and techniques. These challenges make it difficult for the local population to improve their livelihoods and fully utilize their agricultural products.

The government has been actively addressing major issues in agricultural systems through various initiatives. They have launched programs focused on improving food security and sustaining farmers' livelihoods. These efforts include integrating local resources, developing market linkages, and enhancing infrastructure like transport and health facilities. Additionally, the government provides educational training, financial compensation, and other forms of support to farmers. By implementing policies aimed at modernizing agricultural systems, they play a crucial role in boosting productivity and ensuring long-term sustainability.

In the hilly and mountainous areas of Nepal, farmers grow crops on steep land and small farms. These areas have a lot of potential to produce and supply vegetables, fruits, and animal products because of their varied weather and unique local features. However, in these places, the systems needed for growing and transporting crops, like water supply and farm roads, are not well developed. Also, getting to markets and having good supplies like fertilizers and seeds has been hard. In this situation, the building of the Sindhuli Road, which started in 1995, was hoped to help solve some of these problems. In the four districts of Kavre, Dolakha, Ramechhap, and Sindhuli, which are poor areas in the mountains and hills, finishing the road in 2015 was expected to make it easier for people to reach the main city, Kathmandu. Given the situation, JICA started a project called "Master Plan Study for High Value Agriculture in the Sindhuli Corridor (2011-2014)." The study showed that the connections between farmers and sellers/markets were not strong in the four districts. Farmers were growing only a little bit of low-quality food without knowing what buyers wanted. This made it hard for distributors to pick up the products easily.

The project wants to help farmers make more money by creating a system for growing and selling crops that people want to buy. It will teach farmer groups how to sell their products better and train government agencies. The goal is to connect everyone involved in farming and selling—like farmers, sellers, and middlemen—so they can all earn more along the Sindhuli Road Corridor. This will help farming families in that area improve their income through better business in agriculture.

If efforts are not made to raise awareness on subsistence agriculture and prioritize commercial agriculture in study areas, it could lead to several problems. Many people migrate to towns or even abroad in search of jobs to sustain their livelihoods, resulting in food insecurity, and expansions of barrens and uncultivated lands. Which in turn disrupts ecosystems and reduces biodiversity.

i. How do farmers in the study area currently manage agricultural activities, and what specific practices are being implemented?
ii. What is the role of existing agricultural practices in shaping the livelihood of farmers in the study area?
iii. What key challenges hinder the successful implementation of agricultural modernization in the study area?

1.3 Objectives of the Study

The specific objective of the study is to identify the potential and prospect of commercial agricultural production at the proposed site for the development and upliftment of subsistence farmers into commercial farmers.

The study covered the following specific objectives.

i. To identify the existing agricultural practices in the study area.
ii. To assess the role of existing agricultural practices in the livelihood of farmers.
iii. To explore the challenges of agricultural modernization in the study area.

1.4 Significance of the Study

The study aimed to find out the potential, prospects, and varieties of problems in the development of commercial farming systems in Ghyanglekh rural municipality of Sindhuli district. The study will be more important for the identification of living standards and the economic status of the farmers in Ghyanglekh Ward number 5. It is also more helpful for developing and ensuring traditional agriculture practices as soon as possible. The commercialization of agriculture and its products helps to enhance of living standard of local people by inducing job opportunities locally. This study visualizes and addresses Ghyanglekh Gaupalika as one of the unique places with great possibilities of making agriculture and livestock a good source of income for enhancing the lifestyle of people.

As well as it is also more significant to make a local government responsible for the smart implementation of plans, policies, and provision of agriculture.

1.5 Limitations of the Study

Every study has its limitations and shortcomings. This research is being conducted for the first time, with no prior experience, which may result in various deficiencies. Additionally, the increasing concern of the farmers towards subsistence farming presents a significant challenge. The study primarily relied on data gathered from field visits to the study area. Furthermore, while primary data was collected for the study, secondary data was utilized through desk reviews to complement the research findings.

Due to time and resource limitations, most of the people in this area are farmers so, the scope of this study has been restricted to a specific geographic area. The research was conducted exclusively in ward No.5 of Ghyanglekh gaupalika, located in

the Sindhuli district. Furthermore, the study primarily focuses on agricultural practices and does not extend to other aspects, such as economic activities, social dynamics, or environmental factors that might influence farming in the region.

1.6 Organization of the Study

The study is divided into five chapters, each with its topics. The first chapter contains introductory part. The second chapter is related to the literature review. The third chapter explains the methods used for research in the study area. The fourth chapter talks about how the data is analyzed and shown. The fifth chapter gives a summary of what was found, the conclusions made, and recommendations.

CHAPTER II

LITERATURE REVIEW

2.1 Conceptual Review

Agriculture is growing plants to make food, fuel, clothes, medicine, and many other things that people need. Agricultural products are divided into five categories: food, fabric, forestry, farming, and flowers (Marcin, 2021). The agriculture sector makes up 4% of the world's economy and supports jobs for 40% of people worldwide (WB, 2020). Countries like China and the USA, which are leaders in farming, are setting examples for many other nations. China has 7% of the land that can be farmed, but it provides food for 22% of the people in the world. Since 1990, farming in the USA has grown by 5% each year. Around 134 billion people around the world have jobs in farming, making it the biggest job provider globally. About 70-80% of the world's farmland is run by around 500 million family farmers. These families grow more than 80% of the food we eat (UN, 2015). Improving farming is one of the best ways to reduce extreme poverty, help people grow together, and feed an estimated 9. 7 billion people by 2050. Growth in farming is two to four times better at increasing incomes for the poorest people than growth in other industries.

The Food and Agriculture Organization (FAO) defines agriculture as growing crops, raising animals, and making food, clothing, and other things that people need to live. It involves farming, growing trees, fishing, and taking care of animals, focusing on being sustainable and ensuring there is enough food. Farming is a key part of Nepal's economy because it provides money, jobs, and food. The industry provides jobs for 60. 4% of people and makes up 25. 8% of the country's economy. Because many people work in farming, the Government of Nepal has created a plan called the Agriculture Development Strategy (ADS) that will last for 20 years. The goal of this plan is to improve farming and double the amount of food produced by 2030. The government gives a lot of financial help for farming supplies like seeds, fertilizers, farming machines, and water systems to boost crop production and efficiency. Every year, about 18 billion Nepali Rupees (which is around 1 US dollar equals 127 Nepali Rupees) is set aside for subsidies. For the fiscal year 2021/22, only NRs 12 billion is allocated for chemical fertilizer. A review of the budget from the last ten years showed that the Ministry of Agriculture and Livestock Development (previously known as the

Ministry of Agricultural Development) uses about 80% of its yearly budget, with one-third of that amount spent on chemical fertilizer. But, farming financial support has not been helping the farmers who really need it. In 2019, the Government of Nepal created rules for managing subsidies to make sure they are handled properly. Local governments now have more responsibility to monitor these subsidies.

The government and community groups have been working hard, but farming growth has stayed the same at about 3% for the last few decades. As a result, Nepal's farming growth is slower than in other South Asian countries. The decreasing share of agriculture in the economy is mainly because of low productivity, lack of competitiveness, outdated machinery, and not enough use of new technologies. The decrease is causing more money to be spent on imports, making Nepal rely more on imported food. In the last five years, the amount spent on food imports has gone up a lot, almost by 62%. In 2019, the government bought vegetables worth 33 billion rupees, mostly from India. Slow progress in farming is leading to hunger and poverty in Nepal. In 2019, 17. 4% of people in Nepal are poor in many ways. In 2011, there were 27. 04 million people living in the area. Out of them, 4. 6 million didn't have enough food. This included 20% of homes with a little bit of food insecurity, 22% with a moderate amount, and 10% with a serious lack of food. The 2022 Global Hunger Index (GHI) gives Nepal a score of 19. 1, showing that the country is just on the edge between moderate and serious hunger. The main reasons for the low GHI are that 5. 5% of people are not getting enough food, and many young children are affected: 12% are too thin (wasting), 31. 5% are too short for their age (stunting), and 2. 8% die before they turn five. These factors show that Nepal needs to boost its agriculture production. This can help cut down on imports of important foods like grains and vegetables, which could lead to better food security and help reduce poverty in the country.

Odum (1971) said, "Agriculture is a way of using nature where people take care of ecosystems to grow food, cloth, and other things we need to live. " He thought of farming systems as changed ecosystems where people affect how energy moves, how nutrients cycle, and the variety of living things. Unlike natural environments, farming needs people to help manage soil health, control pests, and use water. Odum highlighted how important it is to be sustainable. He supported farming methods that reduce harm to the environment while keeping the land productive for a long time. He looked at how sunlight is turned into plant material, which helps feed animals and

people. He also pointed out how farming depends on things like the health of the soil, the amount of water, the climate, and different types of plants and animals. He believes we need farming methods that protect nature instead of harming it.
Odum identifies four main types of farming systems: Traditional or Subsistence Farming, Industrial or Intensive Farming, Sustainable or Ecological Farming, and Agroecosystem-Based Farming. Odum's classification highlights how important it is to keep nature balanced in farming, encouraging sustainable practices instead of harmful ones.

Turning farming into a business has been very important for boosting food production in Nepal. Farming in the hills and mountains of Nepal mainly focuses on growing just enough food for local families. In contrast, farming in the lowland areas, known as the terai, is more about selling crops for profit. Both small-scale and large-scale farmers use a lot of chemical fertilizers, pesticides, and grow crops heavily. This harms the soil, the environment, and people's health. Even though farmers in Nepal use less chemical fertilizers and pesticides than those in other countries, research shows that using these chemicals carelessly can seriously harm agricultural growth. The vegetable industry has a big issue with using too many chemicals, which makes it hard to be environmentally friendly. This sector uses 80% of the pesticides in Nepal. Each year, the use of pesticides on vegetables grows by 10% to 20% in the country. In different areas, the increase varies: it's about 25% in the terai region, 9% in the mid-hills, and 7% in the mountains. Vegetables sold in stores are said to have leftover chemicals on them. This has concerned shoppers, the news, and the government. Many times, these vegetables were ruined in different markets in Nepal. Research has found that pesticide leftovers above the safe limit can harm the quality of vegetables. Farmers are aware that pesticides can have bad effects, but they do not use safe ways to handle them.

Farmers often deal with various risks in farming (Huirne, 2003). Risks can lead to bad results like lower harvests and incomes, and can also cause serious problems like losing money, food shortages, and health issues. However, taking risks can sometimes result in higher profits. Farmers deal with many risks at the same time, and these risks can make each other worse (van Winsen et al. , 2013; Wauters et al. , 2014)The combined effects can influence choices and results that go far beyond just the farmer. One main reason for the 2007/08 world food price crisis was that severe

droughts made it hard to grow food. The situation got worse when some governments decided to limit food exports (Headey, 2011). During this difficult time, farmers dealt with several problems: they had to worry about not enough rain (drought), sudden increases in prices (market risk), and unexpected changes in government rules (institutional risk) all happening quickly. This means that the results of risks can lead to other risks happening. For example, if there is too much rain during harvest time, it can cause problems like financial struggles because farmers might not be able to pay back their loans (Pelka, 2015).

The five general types of risk in agriculture are as follows:

Production risks come from the unpredictable growth of plants and animals. These risks usually come from factors like weather, such as temperature and rainfall, as well as pests and diseases. Other things that can limit or reduce how much we grow include risks like too many heavy metals in the soil or salty soil.

Market risks mostly deal with uncertainty about prices, costs, and getting into the market. The prices of agricultural products can go up and down for several reasons. Changes in the weather can affect how much we can grow. Sudden changes in energy prices also play a role. Plus, not everyone has the same information about the market, which adds more risk. Other causes of market risk include international trade, the opening up of markets, and protectionist policies. These can affect how easily businesses can access different markets. Farmers make decisions in a situation where many risks happen at the same time, like changing weather and sudden price increases or less access to markets.

Institutional risks are about unexpected changes in rules and regulations that impact farming. These changes can come from official organizations or unofficial groups. The government, as a structured organization, can cause risks by making sudden changes to rules and policies that farmers cannot easily control. Sources of institutional risk can also come from informal institutions. This includes sudden changes in the actions of informal business partners, local producer groups, or shifts in social norms that impact agriculture. Farmers are getting more help from and links to organizations, especially as they focus more on selling their products.

Personal risks are issues that affect a person directly, especially related to their health or personal relationships, and these can impact the farm or family on the farm. Personal risks can come from getting hurt by farm machines, losing family members

to diseases, health problems from using pesticides, and diseases that can spread from animals to people. Health problems can cause big changes in how much money farmers make and worry them a lot (Dercon et al., 2005) Farmers often deal with both personal and community problems. For example, getting divorced or losing a husband can result in losing land or animals because of community rules (Meinzen-Dick et al., 2014) In books and articles, the words "personal," "human," and "idiosyncratic" usually mean the same kind of "personal" risks we talked about.

Financial risk means the chance of losing money related to how a farm is funded. It is the extra uncertainty in the farm's cash flow because of the fixed payments that come with borrowing money. Some reasons for financial risk are changes in interest rates, how easy it is to get loans, or changes in loan rules.

Robert Chambers and Gordon Conway (1992) described livelihood as a mix of skills, resources (both things you own and social connections), and activities needed to earn a living. They stress that a way of making a living is sustainable if it can handle difficult times, stay strong, keep its value and skills, and provide chances for future generations. Their ideas show that a good life isn't just about money. It's also about being strong, managing resources well, and staying healthy and happy for a long time. They emphasize that a way of making a living should not harm the environment. It should keep natural resources safe while also providing financial security. This view helped create the Sustainable Livelihoods Framework (SLF), which is commonly used in development research and efforts to reduce poverty.

2.2 Theoretical Review

Theodore William Schultz (1902-1998) was an American expert in farming and economics. He disagreed with other economists who believed that farmers in developing countries were not smart for not wanting to try new things. Professor's important work. Schultz wrote a thesis in 1964 about how traditional farming changed. This work helped him win the Nobel Prize in Economics in 1979. Schultz's theory is about old-fashioned farming. Schultz's theory talks about old-fashioned farming. The term refers to a type of farming that relies only on the methods and tools that farmers have used for many years. This type of agriculture usually, but not always, leads to low earnings for the farmers. Schultz believes that three important things can change traditional farming: Investing in the tools and training farmers need, making sure all

modern farming supplies are available at a low cost, and regularly sharing information about the farming market.

The Boserup model of farming says that when the population grows, people start using land more efficiently, and this helps produce more food. This idea was suggested by Ester Boserup in 1965. Ester Boserup's idea about farming development, known as the Boserupian Theory, offers a different view compared to the Malthusian theory about people and resources. Boserup believed that when the population increases, it leads to new farming techniques and better ways to grow food instead of causing shortages and hunger like Malthus claimed.

Key Ideas of Boserup's Theory of Agrarian Change

Population Growth Drives Agricultural Innovation**:** As the population increases, food demand rises and farmers address their demand by improving their techniques, using irrigation, fertilizers, crop rotation, and improved seeds and tools.

Shifting from Extensive to Intensive Farming: In low-population areas, people practice extensive farming, as population growth increases, they must shift to Intensive farming by shortening fallow periods, increasing labor, and using advanced methods.

Necessity Drives Technological Advancement: People don't advance in agriculture unless they need and innovation happen when existing methods can't support the growing population.

Contradiction to Malthusian Theory:

Malthus: population grows faster than food, leading to famine.

Boserups: Food production rises because people find ways to increase products when pressured.

Agricultural Change is Not Always Smooth: Sometimes people resist change due to cultural traditions or lack of resources.

Boserup's Agricultural Development in five stages.

i. Forest-fallow cultivation (20-25 years fallow)
ii. Bush-Fallow Cultivation (6-10 years fallow)
iii. Short-Fallow Cultivation (1-2 years fallow)
iv. Annual Cropping (No fallow, continuous cultivation)
v. Multi-cropping (Several harvests per year)

Criticism of Boserup's Theory: Critics of Boserup's theory argue that it overlooks environmental limits, is overly optimistic about technological innovation, fails to account for economic and social barriers, does not adequately explain population decline or stability, is not consistently applicable to modern industrial agriculture, and contradicts instances where population growth leads to crises.

Despite these criticisms, Boserup's theory remains a significant contribution to understanding the dynamics between population growth and agricultural innovation, particularly in the context of developing regions. However, scholars recognize the need for a more context-specific approach to agricultural change.

2.3 Policy Review

a. National policy

The government of Nepal has been working to improve farming and related rules since the 1960s. The government has made many plans and rules for farming, forestry, climate change, land use, reducing poverty, and irrigation. For helping the economy grow, protecting the environment, and reducing poverty. In farming, there are rules for various crops, fertilizers, supporting farm businesses, protecting different plant and animal species, using machines, and managing grasslands. Farm policy is important for deciding how fast the economy grows and how well people live. Some policies, like spending on education, health, transportation, water systems, science and technology, and trade, can greatly improve how productive farming is. Other policies focus more on specific farming products or methods of how crops are grown. These policies outline a plan and actions needed to reach specific public goals. They also support and ensure certain rights and responsibilities for groups and individuals. Some people believe that good organizations and enough investment can help small farmers live better and earn more money (Khanal et al. , 2020)Since agricultural development involves many connected parts and works best when everything fits together, improving this sector quickly cannot happen through separate, uncoordinated efforts. To help this sector grow and work better, it's important to combine key parts of farming development. This includes things like water supply, technology, farming loans, better seeds and fertilizers, support services, physical infrastructure like roads and electricity, storage facilities, marketing for farmers, and handling crops after harvest. This can be done by creating good policies and plans. Productivity can improve if the resources needed for production and productivity are provided together in the right place and

mix. Some of the rules seem to focus on certain groups and communities, like helping people in poverty. They also focus on different areas, like forests, farming, poultry, and coffee. Additionally, they deal with important issues both worldwide and in the country, such as climate change and protecting different types of plants and animals. These specific policies are often better at reaching their goals because they focus on what is needed and adjust their actions to get better results. Policies use different tools to reach their goals. Instruments are tools that government leaders can change to affect the economy. They can include things like taxes, financial help, rules, payments for services, or even the government providing services and products directly. Policy tools offer good and bad reasons for producers and consumers to change their actions, aiming to make certain results happen as hoped. Targeting can make agricultural policies better, but one policy can't solve all problems (Page 214 Ganesh R Joshi; Binaya Joshi/Nepal Public Policy Review).

The Agriculture Development Strategy (ADS) (2015-2035) is the main plan created by the Government of Nepal. This is a follow-up document to the Agricultural Perspective Plan (APP), which lasted for 20 years from 1995 to 2015. Its goal is to improve the entire agricultural industry, with a spending plan of about NPR 510 billion. The ADS was supported with five main goals: improving food and nutrition security, reducing poverty, increasing competitiveness, providing higher and fairer income for rural families, and protecting farmers' rights. This plan focuses on improving farming by offering help to farming communities. The goal is for people to learn skills that they can use in factories and earn more money. Since starting the ADS, there have been many changes in rules and organizations, and new programs have begun. For example, the Food and Nutrition Security Plan of Action (FNSP) is an extra document designed to make sure that the poorest families, as identified by the Poverty Alleviation Fund (PAF), get help from the programs and rules in the ADS. Similarly, there have been improvements in creating helpful organizations like the National Farmers' Commission and the ADS Joint Sector Review (JSR) system. Program managers (from MoALD) were assigned to each of the four main ADS programs. Some tasks from each of the main programs were also carried out. Right now, main managers aren't very active, and there aren't any regular main programs happening. Some projects have begun after the start of ADS's plan and ideas. Some of the important projects are the Agriculture Sector Development Program, the Food and Nutrition Security Enhancement Project,

the Nepal Livestock Sector Innovation Project, the Rural Enterprise and Economic Development Project, and the Value Chain Development Project.

For the first time, the Nepalese government imported chemical fertilizer from Bangladesh directly between the two governments. They brought in a total of 50,000 metric tons of fertilizer. According to an agreement between the governments of Nepal and India made in March 2022, Nepal will import a large amount of urea and DAP chemical fertilizers each year. This will be between 150,000 and 210,000 metric tons. In the next five years, MoALD and AICL are expected to buy 935,000 metric tons of chemical fertilizers (urea and DAP) from India.

In September 2022, the NSAF project and the Fertilizer Association of Nepal (FAN) held a meeting in Kathmandu to talk about the problems with getting fertilizers in Nepal and to suggest possible solutions. During the discussions about the policy, people suggested different ways to improve how fertilizer is supplied in Nepal. This plan includes reducing the current fertilizer subsidy by 20-30% and using the saved money to buy more fertilizers and give help based on what is needed. It also suggests making a schedule to ensure fertilizers are available on time for important crops, importing about 30% of fertilizers through government-to-government agreements, creating a strategy to handle crises by keeping extra stock at 20% of total demand, and making sure that private companies have a fair chance to import and distribute fertilizers.

The Nepal government has rules about farming based on the country's Constitution (Article 51-e). These rules focus on helping farmers and making sure their rights are protected. The government aims to improve farming by using land wisely, increasing production, and making farming more modern and diverse. It also plans to ensure farmers have the tools they need and can sell their products at fair prices. Since the first five-year plan started in 1956, modern farming has begun in order to boost the country's economy. During that time, about 95 out of 100 people were working in farming. In the First Five-Year Plan, the most money went to transportation and communication, which got over 36% of the budget. Agriculture, including water supply for farming, was second with about 20% of the budget. Many attempts were made to improve farming, but making factories and industries was more important. Starting with the 5th plan (1975-1980), the Nepal government has focused a lot on farming to boost the economy and reduce poverty. The Fifth Plan has given it the highest priority

by setting aside 29. 8 percent to 30. 2 percent of the total budget for the public sector. Created by the Agriculture Policy Section in the Ministry of Agriculture Development in 2013, there are a total of 20 policies for farming. The Nepalese government regularly surveys the agriculture sector. Experts in economics, farming, and the environment are asked for help to create plans for farming, research about agriculture, and ideas for policies. We get information about policies from the Ministry of Agriculture and Livestock. This ministry is the main government body in Nepal that handles all rules and progress related to farming and cooperatives.

The Nepal Agriculture Perspective Plan (APP) from 1995 to 2015 was important for improving farming in the country. Its main goals were to boost growth in agriculture by using resources more efficiently and to promote a technology-driven green revolution in farming that benefits all regions fairly. (NPC and ADB, 1995).

National Agricultural Policy 2004: This policy was created to help carry out the Agriculture Perspective Plan (APP) and other related goals. The main goal of the policy is to make it easier for farming to help rural areas grow and develop. The policy wanted to split farmers into two groups: small farmers and large farmers. It plans to give more help to the small farmers. The goal of the policy is to improve people's quality of life by developing farming in a way that can last. This means changing small-scale farming into a more business-like and competitive system. The goal is to create steady and long-lasting economic growth by developing a business-focused farming system. This will help ensure there is enough food, reduce poverty, improve farming output, make agriculture more competitive locally and globally, and protect and use natural resources and the environment (Page 215 Ganesh R Joshi; Binaya Joshi/Nepal Public Policy Review).

Agro-business Promotion Policy, 2006: This policy focuses on helping agriculture grow by bringing in new ideas, encouraging farm businesses, and getting private companies involved in farming for profit. It stressed that farmers' quality of life will not get better until farming changes from just growing food for their own needs to a business that sells food for profit. The policy wants to help reduce poverty by promoting the production of farm products that can sell well in the market. It understands the importance of supporting both local and outside markets. This policy was created in the spirit of the nation. Agriculture Policy 2061 focuses on setting up business service centers to provide good quality farming supplies and services. The

cooperation between businesses and the government has been stressed for exporting good-quality products. Nepal's main goal after joining the WTO is to improve its market connections. The policy sees building infrastructure as a key part of making business happen. The policy aims to encourage teamwork between the government and private businesses. National Agroforestry Policy, 2019: This policy seeks to help our country grow by promoting and improving agroforestry, which combines agriculture and forestry. The goals are to produce more crops, livestock, and forest products by using land better and for different purposes. We want to protect the environment and wildlife by decreasing the stress on forests, keeping their quality, and building nature's ability to handle climate change. We aim to create jobs and income for local communities while ensuring they have enough food by promoting agroforestry. We also want to help the economy by encouraging investments in agroforestry and by doing studies and training in this area. Additionally, to make it work, it needs to create connections with other areas like farming, forestry, climate change, science and technology, reducing poverty, protecting wildlife, and more. Additionally, this needs a system set up at various levels to help with working together, sharing information, and cooperating.

National Agroforestry Policy, 2019: This policy wants to help the country grow by improving and promoting agroforestry, which is a system that combines farming and forestry. The goals are to grow more crops, animals, and forest products by making the land more productive and used in different ways. We want to protect the environment and plants and animals by easing the pressure on forests and keeping them healthy. We aim to create jobs and income for local communities while ensuring they have enough food by promoting agroforestry (growing trees and plants together). We also want to help the economy by promoting business opportunities in agroforestry and conducting research and training on this subject. To make it work, it needs to work together with other areas like farming, forestry, climate change, science and technology, reducing poverty, protecting biodiversity, and more. Also, this needs to create a system at various levels for working together, sharing information, and cooperating.

b. International Policy:

According to Agricultural Economics Research Review Vol. 26 (No.2) July-December 2013 pp 135-15. In India, the main policy measures in the agriculture sector were adopted in the mid-1960s. These included input subsidies, minimum support

prices, public storage, procurement and distribution of food grains, and trade protection measures. The gains from green revolution technologies continued through the mid1980s but slowed down thereafter. Unlike reforms in other emerging economies of the world (e.g. Brazil and China), a series of reforms instituted in India in the early 1990s, left its agricultural sector relatively untouched, except for the removal of export controls. While reforms in agriculture have been modest, the macroeconomic reforms of the 1990s had two important impacts. First, the reforms increased per capita income and strengthened the domestic demand. Second, they reduced industrial protection and improved agriculture's terms of trade to attain food self-sufficiency, ensure remunerative prices to farmers, and maintain stable prices for consumers. India's protectionist trade policies, introduced in the 1960s, continued virtually unchanged until the major economic reforms were introduced after signing the AoA (Agreement on Agriculture) under WTO.

Phase I: Pre-Green Revolution Period (1950-65) The main policy thrust in the first phase (after Independence) was on enhancing food production and improving food security through agrarian reforms and large-scale investment in irrigation and power. The first big farm law made by state governments after Independence was the Zamindari Abolition Act in the 1950s. The main goal of this policy was to remove middlemen in land transactions, give land ownership to the people who work on it, and make sure that the quality of the land improves over time. The government made more changes to land ownership rules to make it fairer for people in the countryside. These decisions included limiting how much land a person could own, the government taking control of unused land, and giving some of that unused land to poor rural people. Rules were put in place to make sure that people who get this land can't rent it out or sell it. Farmers were encouraged to combine their small and separate pieces of land so they could use machines more easily and make improvements to the land. Other actions taken during this time included helping farmers get loans, sell their products, and receive support and advice.

Phase II: Green Revolution Period (1965-80) was the second part of farming and food plans that began in the mid-1960s with the start of the green revolution. Using better farming methods and new types of seeds was the main way to increase production during this time. The Government of India decided to bring in and share high-yielding types of wheat and rice to grow in the country's irrigated areas. This was

along with more support services and a rise in the use of fertilizers, chemicals for farming, and watering systems. During the 1960s and 1970s, some important organizations were created. These include the Agricultural Prices Commission (now called the Commission for Agricultural Costs and Prices), the Food Corporation of India, the Central Warehousing Corporation, and State Agricultural Universities. Another important decision was to take over big commercial banks to improve the flow of loans to farmers. Other banks, like the National Bank for Agriculture and Rural Development (NABARD) and Regional Rural Banks (RRBs), were also created to reach this goal. The group credit unions got stronger too. This plan quickly boosted crop yields and, as a result, increased food production significantly. The effects of green revolution technology mostly happened with just two crops, wheat and rice, and mainly in areas where there is irrigation. People stopped growing old types of rice and wheat that didn't produce much and started using new types that make more food. Today, over 80 percent of the land used for growing grains is planted with high-yield types. The use of fertilizers (NPK) has increased a lot in the last thirty years, even though it started from a low level. In 2011-12, Indian farmers used about 144. 3 kilograms of fertilizer for each hectare of land they farmed. Pesticide use, including weed killers, went up until 1990 but has been decreasing since then. This change happened because people are moving away from using a lot of chemical pesticides and are choosing a more eco-friendly way to manage pests. The greatest success of the Green Revolution was being able to grow enough food grains for ourselves. The Green Revolution also affected farming supplies, leading to fast growth in the fertilizer, seed, and farm equipment industries. An Arora: Agricultural Policies in India: Looking Back and Ahead 137 There was a big rise in money given for farming research, helping farmers with their marketing, and providing loans to farmers.

Phase III: Post-Green Revolution Period (1980-91) began in the early 1980s. This phase focused on spreading green revolution technology to more crops and different areas. This led to a quick increase in farm production. During this time, the main rules were designed to promote investment in the industry. Additionally, the farming economy began to change by shifting focus to more valuable products such as milk, fish, chicken, vegetables, and fruits. The production of these goods increased faster. Finally, the research on pulses, oilseeds, and coarse grains is showing good results as these crops are being grown in drier areas. Phase IV: Economic Changes

(1991 and after) After many years of steady growth, since 1991, agricultural policy has focused on making markets work better, cutting down on too many laws, and opening up agricultural trade. The economic changes that started in the 1990s mostly ignored farming at first. The new trade policies have focused on making it easier to buy and sell farm products and food. This is being done by slowly removing the rules and controls that limit trade in these areas. In the last 10 to 15 years, India's part in global farming trade has been slowly growing, even though it started from a small level. India has been busy helping countries in South Asia work together on trade and economics through a group called the South Asian Association for Regional Cooperation (SAARC). In April 1993, a regional trading group was created when the SAARC Preferential Trading Agreement was signed. This agreement was updated in 2004 with the South Asian Free Trade Area (SAFTA) agreement, which replaced the earlier agreement. But there were many problems with the policies.

2.4 Empirical Review

Research must be based on past knowledge because it provides the foundation for the present study. To make the study more reliable and comprehensive, a few available articles, bulletins, reports, surveys, and books on the relevant studies have been reviewed.

Reviewing and analyzing the various literatures, research papers, various books, published and unpublished reports, and information were enough effective in conceptualizing the various aspects of the traditional agriculture system.

The study on conventional farming practices around the Kathmandu Valley, Kharel, & Marahatta, (2020), reveals a complex landscape of benefits and challenges faced by local farmers. While the use of chemical fertilizers and hybrid seeds has significantly increased crop yields and income, it has also led to new agricultural diseases and environmental concerns. Farmers reported a reliance on chemical inputs without adequate knowledge or training, which often results in improper use and adverse effects on soil health. Additionally, the younger generation shows little interest in agriculture, prompting concerns about the future of farming in the region. Many farmers expressed a desire for more support from the government, including subsidies and training programs to enhance their agricultural skills. Despite these challenges, there is a growing recognition of the potential for organic farming as a sustainable alternative to conventional methods. Overall, the findings highlight the need for a

balanced approach that combines modern techniques with traditional practices to ensure long-term sustainability and economic viability for farmers in the Kathmandu Valley.

Traditional agricultural practices in Meghalaya highlight indigenous farming systems' significant role, primarily shifting cultivation and terrace farming, in sustaining local livelihoods. With around 83% of the population engaged in agriculture, these practices are well-adapted to the region's unique topography and climate. The researchers found that bamboo drip irrigation is a crucial method for conserving water while promoting crop growth, and the integration of tree species with crops enhances soil fertility and biodiversity. However, the increasing pressure on land from population growth and short fallow periods threatens the ecological balance, leading to soil degradation and reduced productivity. The findings emphasize the need for recognizing and preserving these traditional methods, as they not only support food security but also maintain the region's rich cultural heritage. Overall, the study underscores the importance of sustainable agricultural practices that align with local ecological conditions and the values of indigenous communities (Jeeva, Laloo & Mishra, 2006).
"Crop Protection Practices in Traditional Agriculture in Mid-Hills of Western Nepal" focuses on the traditional techniques used by farmers in the Gulmi and Palpa districts to manage pests and diseases in horticultural crops. The researchers aimed to uncover how these age-old practices can help increase crop yields while also understanding farmers' attitudes toward adopting these methods. Many farmers are increasingly turning to traditional and indigenous pest control techniques to reduce the harmful effects of modern chemical pesticides on both the environment and their health. This shift reflects a growing awareness of the need for sustainable farming practices that honor local knowledge and contribute to healthier ecosystems (Gyawali, Khanal & Joshi, 2021).

"Agriculture in Decline" explored the troubling decline of Nepal's agricultural sector despite years of investment and planning. Historically a cornerstone of the economy, agriculture's contribution to GDP has dropped from 69% in 1974/75 to 31% in 2009/2010, with the workforce engaged in agriculture decreasing from 94% in 1971 to 60% in 2001. This decline is particularly pronounced among the poorest populations, who heavily rely on agriculture for their livelihoods. Key factors contributing to this trend include low productivity, urban migration, and inadequate infrastructure. The

paper suggests several strategies to address these issues, such as promoting agro-industry, diversifying agricultural production by leveraging Nepal's biodiversity, emphasizing vocational education, and improving rural infrastructure. Overall, revitalizing agriculture is crucial for ensuring food security and sustainable development in Nepal (Satyal, 2010).

The research on "Transforming Land and Livelihood" examines the alarming trend of agricultural land abandonment in the mid-hills of Nepal, driven by factors such as sociopolitical instability, reduced agricultural productivity, and enticing alternative opportunities. With significant youth outmigration contributing to labor shortages, many farmers abandon their lands, particularly those who have migrated for better prospects. The study highlights that abandoned lands, which can account for up to 36.8% in some districts, have serious implications for food security and local livelihoods. The authors argue that addressing this issue requires innovative approaches to enhance land productivity and support marginalized communities, emphasizing the need for a reimagined land tenure system to promote equitable land distribution and sustainable agricultural practices. Ultimately, the findings underscore the urgent need to tackle land abandonment to ensure food security and socioeconomic development in Nepal's rural areas (Paudel, 2014).

Paudel (2016) “Prospects and limitations of agricultural industrialization in Nepal” highlights both the potential and challenges of transforming the country's agriculture sector. While agriculture contributes significantly to Nepal's GDP and offers opportunities for commercialization, issues such as low investment, inadequate knowledge among farmers, and a reliance on chemical inputs hinder progress. The findings emphasize that many farmers struggle with new diseases and pests, resulting from improper use of fertilizers and pesticides. Additionally, there is a notable decline in interest from the younger generation in pursuing agriculture, leading to labor shortages. The study suggests that shifting towards organic farming and enhancing farmers' training and capacity can help address these challenges. By focusing on niche commodities and improving infrastructure, Nepal could reduce its trade deficit and enhance food security. Ultimately, the research calls for comprehensive agricultural policies that promote sustainable practices, support local farmers, and leverage the country's diverse agro-climatic conditions for economic growth.

The paper on strategies for agricultural development emphasizes the critical role of agricultural growth in driving economic progress, particularly in developing countries like Nepal. It identifies key models of agricultural development, including conservation, urban-industrial impact, diffusion, and high-payoff input models, which highlight the need for innovative practices and effective resource allocation. The findings indicate that while there is significant potential for agricultural industrialization, challenges such as low investment, inadequate farmer knowledge, and reliance on chemical inputs hinder progress. The study advocates for a shift towards sustainable practices, emphasizing the importance of public investment in research and development, improved infrastructure, and training for farmers. By fostering local production and focusing on niche markets, Nepal can enhance food security, reduce poverty, and improve its trade balance. Ultimately, the paper calls for comprehensive agricultural policies that support modernization and promote resilience in the farming sector, ensuring that it meets the demands of a growing population. The paper provides a comprehensive overview of agricultural policies and rural development in Nepal, highlighting the critical interconnection between agriculture and the rural economy. Despite agriculture's significant contribution to the national GDP, the sector faces numerous challenges, including low investment, outdated practices, and a lack of appeal to younger generations, leading to increasing urban migration. The findings reveal that over two-thirds of the population relies on subsistence farming, with many households experiencing food insufficiency. The government's efforts to enhance agricultural productivity through various policies have been ineffective due to poor implementation and lack of coordination. Furthermore, remittances, while substantial, are not sufficiently reinvested into agriculture. The paper emphasizes the need for sustainable agricultural practices, effective local governance, and supportive policies that include financial incentives and insurance for farmers. Ultimately, it advocates for a strategic overhaul of agricultural policies to foster rural development, reduce poverty, and harness the potential of Nepal's agricultural sector for economic growth (Ruttan, $ Hayami, 1972).

Paudel (2016) examines the challenges and prospects of agricultural industrialization in Nepal, highlighting its critical role in the national economy. While agriculture contributes significantly to GDP, the sector struggles with stagnation due to low investment, outdated practices, and a lack of appeal to the youth, leading to increased

urban migration. The findings indicate that food insecurity persists, with many households unable to produce enough for their needs, exacerbated by ineffective policies and implementation. Despite Nepal's favorable agro-climatic conditions for diverse crop production, the country heavily relies on imports, particularly from India, undermining its agricultural potential. The paper emphasizes the need for a strategic overhaul of agricultural policies, focusing on modernization, infrastructure development, and support for niche commodities to foster self-sufficiency and enhance economic growth. Paudel concludes that addressing these issues is crucial for poverty alleviation and sustainable rural development in Nepal (Paudel, 2016).

Kharel, Dahal & Raut (2022) highlight the critical importance of Good Agricultural Practices (GAP) for enhancing food safety and sustainability in Nepal's agricultural sector. Despite agriculture's significant contribution to the economy, challenges such as excessive agrochemical use, low soil organic matter, and climate change severely threaten productivity and food security. The authors emphasize that while GAP can boost crop yields and farmers' incomes, its adoption is hindered by barriers including limited awareness, inadequate technical support, and insufficient market incentives. The paper calls for a comprehensive approach to institutionalizing GAP in Nepal, stressing the need for technical capacity building, increased awareness among farmers, and the development of effective market systems. By addressing these challenges and promoting sustainable practices, Nepal can improve its agricultural productivity, ensure food safety, and enhance the livelihoods of its farming communities. Ultimately, the successful implementation of GAP is presented as essential for building resilience against climate change and achieving long-term agricultural sustainability. The review by Menila Kharel and colleagues highlights the critical importance of Good Agricultural Practices (GAP) for enhancing food safety and sustainability in Nepal's agricultural sector. Despite agriculture's significant contribution to the economy, challenges such as excessive agrochemical use, low soil organic matter, and climate change severely threaten productivity and food security. The authors emphasize that while GAP can boost crop yields and farmers' incomes, its adoption is hindered by barriers including limited awareness, inadequate technical support, and insufficient market incentives. The paper calls for a comprehensive approach to institutionalizing GAP in Nepal, stressing the need for technical capacity building, increased awareness among farmers, and the development of effective market systems. By addressing these

challenges and promoting sustainable practices, Nepal can improve its agricultural productivity, ensure food safety, and enhance the livelihoods of its farming communities. Ultimately, the successful implementation of GAP is presented as essential for building resilience against climate change and achieving long-term agricultural sustainability's.

"Sustainable Agriculture and Rural Livelihoods," emphasizes the inseparable link between agriculture and livelihoods in developing countries like India, where a large portion of the population relies on agriculture for their sustenance. He discusses the multifaceted nature of livelihoods—production-based, labor-based, market-oriented, and transfer-based—and highlights the persistent issue of poverty, particularly in rural areas. Acharya traces the concept of sustainable development from the 1972 UN conference to the Brundtland Commission's definition, stressing the need for inter-generational equity while grappling with the immediate needs of the poor. He argues for a balanced approach that prioritizes poverty alleviation and food security alongside environmental sustainability, urging the adoption of context-specific resource management practices. Additionally, the document calls for improved governance, investment in infrastructure, and support for migration as vital strategies for enhancing rural livelihoods and achieving sustainable agricultural growth (Acharya, 2006).

2.5 Research Gap

While various studies have explored agricultural practices and their impact on livelihoods, the world is rapidly advancing toward science and technology-driven farming. Modern Agriculture benefits from improved irrigation systems, better transportation, markets, and enhanced seed varieties.

However, many farmers still prefer traditional methods and local knowledge, including off-season farming and organic cultivation. Despite the availability of modern knowledge and technology, these farmers are satisfied with their agricultural practices. Additionally, they are increasingly consuming organic products independently and also contributing greatly to their education and health, due to the access to transportation, market, irrigation systems, etc.

In the research area, subsistence farming remains the primary agricultural practice. However, farmers face significant challenges, including a lack of irrigation facilities, poor transportation networks, and limited market access.

Additionally, the excessive and improper use of chemical fertilizers and pesticides has led to severe soil degradation, further, many impacting agricultural productivity. As a result, many farmers are dissatisfied with their occupations and seek job opportunities in cities and abroad to sustain their livelihoods.

CHAPTER III
RESEARCH METHODOLOGY

Research methodology is the methodology of scientific activity i.e. what makes social science scientific. It is a set/series of related methods and processes including why a researcher decides to use the given process/processes.

3.1 Research Design

The study carried out descriptive methods in which required data were collected from many different individuals at a single point in time. Descriptive research allows for documentation of existing agricultural practices, technologies, and techniques used by farmers. It provides clear pictures of farming systems without manipulating the variables. This method helps assess how agriculture contributes to income, employment, food security, and overall well-being. It uses both primary and secondary data sources, including questionnaires done by participants local leaders, and some intellectual people, in the study areas. It allows for gathering farmers' perceptions and experiences.

3.2 Rationale for the selection of study area

The study area will be Ghyanglekh Rural Municipality. According to the constitutional provision of the federal system of government, it is in the northwest of the Sindhuli district. As tropical, subtropical, and temperate types of air and water are available, flora and fauna are also diverse. The availability of both woody and woody vegetation is a feature of the forests of this region.

This area is the destination to enjoy different types of Environments, culture, and ethnic groups with agriculture significance. The rationale behind choosing the Municipality is that it is poor and backward geographically and economically. All of the people in this area are engaging in traditional and subsistence agriculture systems, although there is so much potential in commercial farming. So, this municipality represents the need for study.

3.3 Nature and Sources of Data

Qualitative and quantitative data is used for research study. Data collection is the systematic process of gathering and measuring information on variables of interest. There are two types of data. Both primary sources of data and secondary sources of data have been used to collect data and information, to achieve intended objectives.

3.3.1 Primary Sources of Data

This study is primarily based on primary sources of data. The primary data was obtained by interviews, questionnaires, household surveys, observation, and Key Informant Interviews (KII). Teachers, Business, people, leaders, elderly people, and farmers in the study area were taken as primary sources of data.

3.3.2 Secondary Sources of Data

Secondary sources of data were collected through published and unpublished books, journal articles, reports, theses, and dissertations. Also, the reflective diaries of biographers, literacy scholars, development experts, and policymakers will be the secondary sources of data.

3.4 Population Sample Size and Sampling Methods

The total population of Ghyanglekh Rural Municipality ward no. 5, the study area is about 3663 residing in 518 households according to the ward chairperson. For this research, simple random sampling methods are used and a random sample of 117 households was selected to represent the broader population. In research, studying an entire population is often impractical due to different constraints. Instead, researchers use sampling methods, which involve selecting a smaller group that represents the larger population. Carefully choosing a sample reflects the characteristics of the wide group, which helps to make meaningful conclusions of research. Data organization, management, and interpretation were carried out using SPSS.

3.5 Data Collection Techniques and Tools

The tools and techniques used for data collection are crucial to the research process, as they directly impact the accuracy and reliability of the information gathered. By using a variety of tools and techniques, data in the study area were collected. Two main approaches are Household surveys and Key informant interviews are used.

3.5.1 Household Survey

The household survey method gathers detailed information about the Agricultural practices, Impacts on livelihoods, and challenges of Commercial farming in the study area. By examining income status, access to transportation, market, advanced agricultural tools and techniques, and impacts of agriculture on health services and education, the survey provides a compressive view of community issues.

3.5.2 Key Informant Interviews

It is a complementary tool to the household survey. It is used to gather in-depth information from individuals who have specialized knowledge about the existing agriculture practices, their impact on livelihood, and the several challenges faced by locals in the commercialization of the agriculture system. A total five Interviewees are ward chairperson and community leaders, businessman, teacher, and agriculture technician.

3.6 Data Analysis and Interpretation

Statistical tools and techniques are primarily employed to analyze and interpret research results. The presentation style is descriptive rather than focusing on mathematical expression, and the collected data is rationally described and analyzed to come to the research conclusion. Before analysis, Pré-coded questionnaires used during the field surveys are organized into computer-generated tables with each question marked with a specific code. For information that can't be measured by the number, self-made tables help organize and list details clearly, making it easier to explain and understand the data.

CHAPTER IV

DATA ANALYSIS AND PRESENTATION

4.1 Socio-Demographic Information

Table 1: Detail Analysis of Demographic Characteristics

		Frequency	Percentage
Sex	Female	16	13.7
	Male	101	86.3
Marital status	Unmarried	6	5.1
	Married	111	94.9
Caste	Janajati	110	94
	Dalit	7	6
Family System	Nuclear	104	88.9
	Joint	13	11.1
Religious	Hindu	23	19.7
	Buddha	82	70
	Christian	12	10.3
	Total	117	100

Source: Field Survey 2024

Table 1 shows the demographic profile of the respondents in respect of sex, marital status, caste, family system, and religious status of the study area. The respective distribution shows that out of 117 participants, a large number, 86.3% of them, i.e., 101 were male, and the remaining 13.7%, i.e., 16, were females. As for marital status, the majority, constituting 94.9%, i.e., 111, reported being married, while 5.1%, i.e., 6, reported being unmarried. The distribution showed that the majority belonged to the Janajati community 94%, and a small fraction of 6% identified as Dalit. Regarding family structure, the vast majority of 88.9% or 104 individuals were found to be in nuclear families, while 11.1% or 13 were in joint families. The religious status shows that 70% or 82 identified themselves as Buddhists; Hindus constituted 19.7% or 23; Christians, 10.3% or 12. This table demonstrates a predominantly male, married, and Buddhist population with many respondents belonging to nuclear families. Most people in the community are engaged in farming, but despite their efforts, food

production and sustainability remain poor due to various challenges. As a result, many families must buy crops and grains from the market to meet their needs. The situation highlights the continued dominance of subsistence farming in the study area, (KII).

Table 2: Education of Respondents

		Frequency	Percentage
Education	Illiterate	63	53.8
	Primary	34	29.0
	Secondary	13	11.3
	Bachelor	7	5.9
	Total	117	100

Source: Field Survey 2024

Table 2 provides an overview of the educational levels of 117 respondents. A significant proportion, 63 respondents (53.8%), are illiterate, which indicates that there is only limited access to education. About 34(29%) have completed primary education, while about 11.3% of them have got a secondary education. Only 7(5.9%) had a bachelor's degree. This data reflects a predominantly low level of education among the respondents according to the field survey 2024 in the study area.

Here, only a limited number of people have access to education and professional opportunities, primarily due to financial constraints. Many parents are uneducated, and a significant portion of the population is illiterate due to the minimal role that agriculture plays in supporting education within my community. The lack of a strong connection between education and agriculture suggests that limited education opportunities may be a barrier to overall development KII).

4.2 Agricultural Practices

Table 3: Types of Crops Cultivating

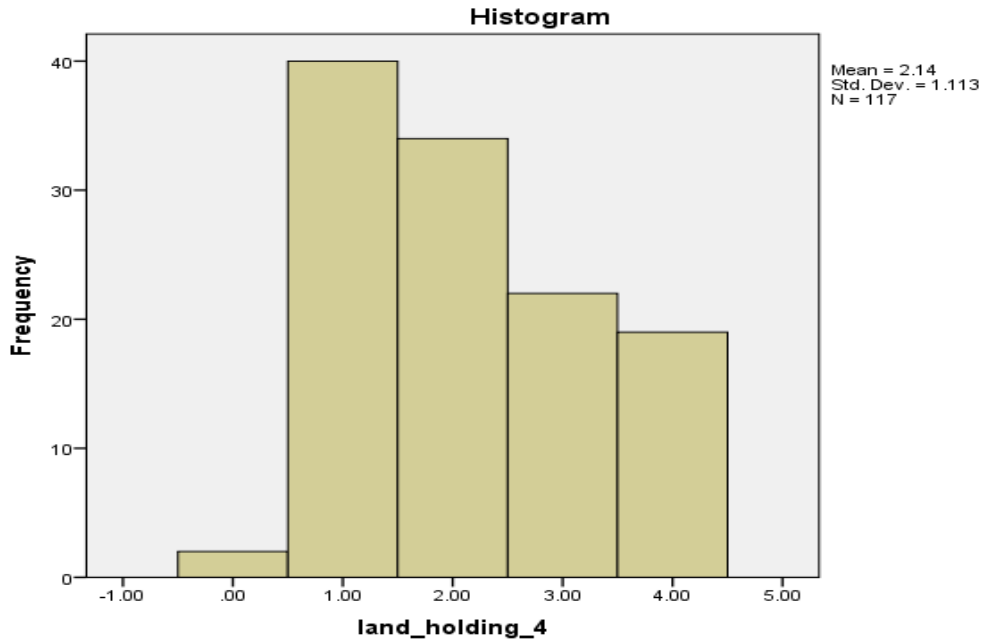
	Crops cultivating	Frequency	Percentage
Main Crops	Paddy	6	5.2
	Maize	111	94.8
	Potato	27	23.0
Cash Crops and Vegetable	Tomato	1	0.9
	Onion and Garlic	2	1.7
	Amriso	52	44.4
	Coffee	16	13.7
	Turmeric	7	6.0
	Others	12	10.3
	Total	117	100

Source: Field Survey 2024

Table 3 provides data on the types of crops grown, categorized into Main Crops, Cash Crops, and Vegetables, based on a field survey conducted in 2024. Among the main crops, maize is the most dominant, with a frequency of 111, accounting for 94.8% of respondents. Other main crops include potato 27 respondents with 23%, and paddy 6 respondents.

In the category of Cash crops and vegetables, the most widely cultivated crop is Amrisho, reported by 44.4% of respondents, Coffee follows with 13.7%, while turmeric is cultivated by 10.3% of respondents.

Figure 1: Analysis of Land Holding Pattern



The histogram of "Land Holding" shows how land is distributed among a group of people. On the x-axis, we see various ranges of land holdings, while the y-axis shows how many individuals fall into each range. It's evident that most people own between 1 and 3 units of land, with the highest number of respondents having around 1 to 2 units. The average land holding is about 2.14 units, indicating that, overall, people tend to own just a little more than two units of land. There's some variation in the data, as shown by a standard deviation of 1.113, meaning that while many land holdings are close to the average, there are also some that are quite different. Overall, this histogram paints a vivid picture of land ownership, highlighting the typical sizes that people own and showing the diversity in land holdings within the group.

Table 4: Types of Soil in Study Area

		Frequency	Percentage
Soil Types	Sandy Soil	71	60.7
	Silt Soil	10	8.5
	Clay Soil	35	29.9
	Loamy Soil	1	0.9
	Total	117	100

Source: Field Survey 2024

Table 4 illustrates the different kinds of soil present in the area are categorized based on the answers given by the respondents. The results show that sandy soil is the most common type with 60.7% (71 respondents) having reported its existence. The presence of clay soil is recognized by 29.9% (35 respondents), and the least common is silt soil with only 8.5% (10 respondents). A very low percentage of the respondents (0.9%, equivalent to 1 respondent) reported the existence of loamy soil. This table suggests the wide occurrence of sandy soil in the region, which may have lasting impacts on farming activities and yields.

Table 5: Types of Crops Cultivating

Types of Cultivating	Crops	Frequency	Percentage
Main Crops	Paddy	6	5.2
	Maize	111	94.8
	Potato	27	23.0
Cash Crops and Vegetable	Tomato	1	0.9
	Onion and Garlic	2	1.7
	Amriso	52	44.4
	Coffee	16	13.7
	Turmeric	7	6.0
	Others	12	10.3
	Total	117	100

Source: Field Survey 2024

The table 5 provides data on the types of crops grown, categorized into Main Crops, Cash Crops, and Vegetables, based on a field survey conducted in 2024. Among the main crops, maize is the most dominant, with a frequency of 111, accounting for 94.8% of respondents. Other main crops include potato 27 respondents with 23%, and paddy 6 respondents.

In the category of Cash crops and vegetables, the most widely cultivated crop is Amrisho, reported by 44.4% of respondents, Coffee follows with 13.7%, while turmeric is cultivated by 10.3% of respondents.

Table 6: Types of Farming

Types of Farming		Frequency	Percentage
Crops Rotation	Yes	1	0.9
	No	116	99.1
Integrating Farming	Yes	1	0.9
	No	116	99.1
Tunnel Farming	Yes	4	3.4
	No	113	96.6
Organic Farming	Yes	3	2.5
	No	114	97.5
Off-season Farming	Yes	2	1.8
	No	115	98.2
Commercial	Yes	3	2.5
Farming	No	114	97.5
	Total	117	100

Source: Field Survey 2024

Table 6 provides insight into the prevalence of different farming practices based on a field survey conducted in 2024. The survey categorizes farms into four main types: Crop rotation, Integrating Farming, Tunnel Farming, and Organic Farming. For crop rotation, a small fraction of 0.9 percent of farms, which translate to one out of 117, reportedly practice it, while the vast majority, 99.1 percent or 116 farms, do not. Moving on to Integrating Farming, a solitary farm, which is 0.9 percent, has adopted this approach, leaving 116 farms, or 99.1 percent, that do not.

When it comes to Tunnel Farming, the table shows that 3.4 percent of the surveyed farms, specifically 4 out of 117, utilize this technique, and the remaining 113 farms, which is 96.6 percent, do not engage in it. Organic Farming is observed in 2.5 percent of the farms, meaning 3 out of the 117 surveyed are practicing it, with the other 114 farms, or 97.5 percent, not doing so. Lastly, Off-season Farming is carried out by 1.8 percent of the farms, with 2 out of the 117 farmers embracing this method, and 98.2 percent, or 115 farms, refraining from it. The survey results highlight that Commercial Farming is the most reported type, with 2.5 percent (3 farms) indicating they are involved in it, and 97.5 percent (114 farms) stating that they are not. In total, the survey included 117 farms.

Table 7: Season of Crop Cultivation

	Frequency	Percentage
Season of Monsoon Winter	82	70.1
Cultivation	35	29.9
Total	117	100

Source: Field Survey 2024

Table 7 compares the respondents' seasonal cultivation trends. Interestingly, 70.1% (82 people) indicated cultivating during the monsoon season, while 29.9% (35 people) indicated cultivating during the winter season. The seasonal trend indicates reliance on monsoon rains for cultivation, which can affect crop yields and food security.

Table 8: Use of Technology, Manure, and Irrigation in Agriculture

		Frequency	Percentage
Ploughing	Oxen	107	91.4
Technology	Tractor	4	3.4
	Both	6	5.2
Use of Fertilizer	Compost	36	30.8
	Chemical	12	10.2
	Both	69	59
Irrigation	No irrigation	98	83.7
	Stream	13	11.2
	irrigation	6	5.1
	Total	117	100

Source: Field Survey 2024

Table 8 examines farming practices in terms of technology use, types of manure, and irrigation systems employed by the respondents. More than half (91.4%, or 107 people) used oxen to plow, while the others employed tractors (3.4%, or 4 people) or both (5.2%, or 6 people). In the application of fertilizers, 59% (69 people) applied both compost and chemical fertilizers, while 30.8% (36 people) applied compost. Surprisingly, a very high 83.7% (98 persons) did not utilize any method of irrigation, and only 11.2% (13 persons) utilized stream irrigation methods. This statistic

shows dependence on traditional methods of farming, with little use of modern technologies and irrigation systems.

Table 9: Annual Agriculture Production

		Frequency	Percentage
Grain Crops	<10 Muri	27	23
	10-20 Muri	56	47.9
	20-30 Muri	18	15.4
	>30 Muri	7	6
	<100 Kg	9	7.7
Cash Crops	100-200 Kg	76	64.9
	200-300 Kg	23	19.7
	300-400 Kg	18	15.4
	Total	117	100

Source: Field Survey 2024

Table 9 examines the agricultural production levels, focusing on how much grain and cash crops the respondents had produced. For the grain crops, 47.9% (56 individuals) said they created 10-20 Muri and 23% (27 individuals) made less than 10 Muri. For the cash crops, a whopping 64.9% (76 individuals) said their production was 100-200 Kg. The information paints a picture of diversity in the community in terms of production quantities, with the reliance of the community heavily on grain crops for sustenance and cash crops for revenue.

4.3 Socio-economic Impact of Agriculture on Livelihood

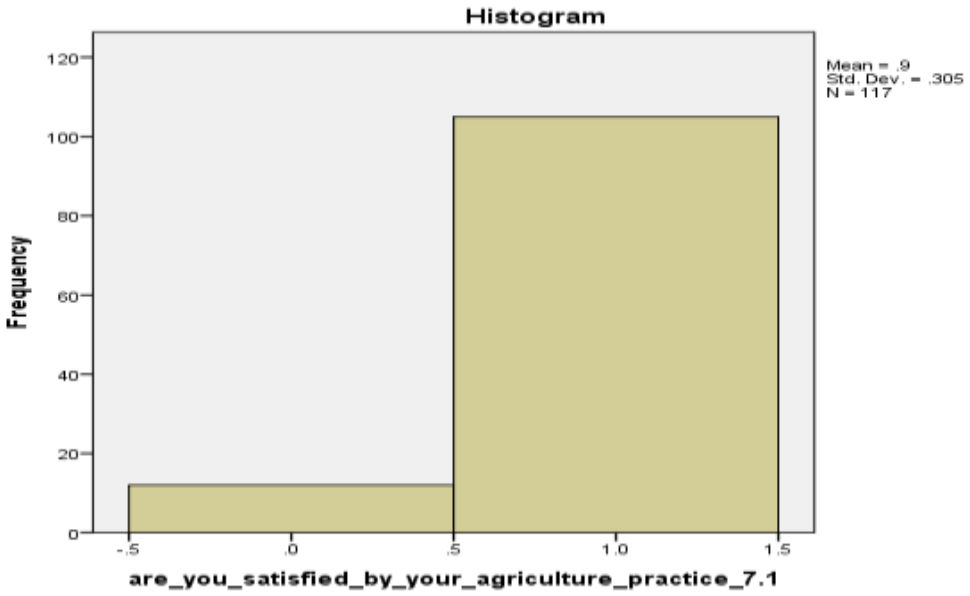
Table 10: Farmer's Requirement Fulfillment Condition

		Frequency	Percentage
Getting Respect	Yes	29	24.8
	No	88	75.2
Enough to Survive	Yes	51	43.5
	No	66	56.5
Fulfillment Requirement Through Farming	Easily Possible	23	19.6
	Hardly Possible	61	52.2
	Impossible	33	28.2
	Total	117	100

Source: Field Survey 2024

Table 10 provides an evaluation of respondents' social status. In surveyed areas, there is a lack of modernization in agriculture. People are dependent on others for crops and vegetables even though they do work on farmland. The current situation in Agriculture is so terrifying and shocking. Most of the people have their land, which they are engaging in agricultural activities but also, they can't afford their daily needs from agriculture. So, there is the dominance of subsistence farming.

Figure 2: Assessment of Farmer Satisfaction



The histogram titled "Satisfaction with Agriculture Practice" gives us a clear look at how people feel about their farming methods. On the x-axis, we see different levels of satisfaction, while the y-axis shows how many respondents fall into each category. The tall bar on the left tells us that most people have a satisfaction score close to zero, indicating they feel neutral or only slightly satisfied with their practices. There aren't many people who feel either very dissatisfied or very satisfied, as shown by the smaller bars on either side. With an average satisfaction score of around 0.9, it seems that, overall, people have a somewhat positive outlook on their agricultural practices. The standard deviation of 0.305 suggests that most opinions are similar, clustering around that average. In summary, the histogram reveals that while many people feel moderately satisfied with their farming, there isn't a wide range of feelings in the group.

Farmers are dissatisfied with the current farming systems because it does not provide them with the means to afford quality education, proper healthcare, or even enough food. They lack access to scientific tools and techniques, irrigation facilities,

and markets to sell products. Additionally, there is not sufficient encouragement from the government to support their efforts. If these challenges were addressed, farmers would not have to seek alternative jobs for survival (KII).

Table 11: Impact of Agriculture in Education

		Frequency	Percentage
Admission in	Yes	88	75.2
School	No	29	24.8
Type of School	Community	101	86.4
	Private	16	13.6
Attendance in School	Regular	96	82
	Irregular	21	18
	Total	117	100

Source: Field Survey 2024

Table 11 evaluates the educational experience of the respondents and shows that a vast majority (97.5%, or 114 respondents) had experienced formal education, while a very small percentage (2.5%, or 3 respondents) lacked this experience. Attendance patterns showed that 92.3% (108 respondents) had regular attendance, while 7.7% (9 respondents) had irregular attendance. This data demonstrates the significance of education in the community and shows the need for continued intervention to enhance education levels.

Additionally, even a single portion of the role has been lacking in Education, Health, and Employment from Agriculture. About 70% of people are migrating to city areas with their children for better education and health. They should have to take a loan for their children's basic to higher education (KII).

Table 12: Challenges Impacting School Attendance

		Frequency	Percentage
Causes	Financial problem	12	10.3
	No School Near Home	27	23
	Help in farming	78	66.7
	Total	117	100

Source: Field Survey 2024

Table 12: shows the causes of students' non-regular school attendance. The highest reported reason was economic hardships at 3.4% (or 4 individuals), followed by poor access to local education services at 0.9% (or 1 individual), and working for farming purposes, which was 95.7% (or 112 individuals). This data highlights the key barriers to education in the community, particularly the economic challenges that require children's labor for farming.

Table 13: Food Sufficiency

		Frequency	Percentage
Grain Crops	<6 Moths	21	17.9
	6-12 Months	63	53.9
	>12 Months	33	28.2
	Total	117	100
	Total	117	100

Source: Field Survey 2024.

Table 13 examines the time taken for the respondents to consume their agricultural produce. The majority, precisely 53.9% (63 persons), cited that their consumption of grain crops is within the period 6 to 12 months, while 28.2% (33 persons) had a consumption period exceeding 12 months. Only 17.9% (21 persons) consumed their produce within 6 months. This spread suggests a reliance on stored grain, depicting possible problems in food availability or a surplus in production.

Table 144: Annual Monetary Value of Production, Buying and Selling

		Frequency	Percentage
Annual Production	< 1 Lakh	75	64.1
	1-2 Lakh	41	35.0
	>2 lakh	1	0.9
Annual Buying	< 1 Lakh	68	58.2
	1-2 Lakh	46	39.3
	>2 lakh	3	2.5
Annual Selling	< 1 Lakh	81	69.3
	1-2 Lakh	34	29
	>2 lakh	2	1.7
	Total	117	100

Source: Field Survey 2024.

Table 15 considers the financial aspects of farm production, purchasing, and selling of respondents. Surprisingly, a significant majority, 64.1% (75 individuals) reported an annual production value of less than 1 Lakh, while 35% (41 individuals) reported production values between 1 to 2 Lakhs. Only 0.9% (1 individual) reported production of over 2 Lakhs. From the expenditure point of view, 27.3% (32 individuals) spent between 1 to 2 Lakhs, and 62.4% (73 individuals) made transactions at a lower rate of less than 1 Lakh. This demonstrates the financial woes of farmers and the limited profitability of agricultural work.

Table 155: Perception of Land Productivity

		Frequency	Percentage
Land productivity	Increasing	33	28.2
	Decreasing	84	71.8
	Total	117	100

Source: Field Survey 2024

Table 16 compares the views of land productivity as stated by the respondents. A very large 71.8% (84 respondents) stated a decline in land productivity, while 27.4% (32 respondents) stated an increase. The perception of declining productivity is worrying in terms of the sustainability of agriculture and calls for intervention in the form of better land management practices.

Table 166: Factors Contributing to Decreasing Land Productivity

		Frequency	Percentage
Factors	Pesticides and fertilizer	61	52.2
	Lack of water	24	20.5
	Lack of manure	2	1.7
	Total	117	100

Source: Field Survey 2024

Table 17 shows the causes of low land productivity. The most common cause mentioned was the application of pesticides and fertilizers, mentioned by 52.1% of the respondents (61 individuals), followed by lack of water supply (20.5%, or 24 individuals). The results highlight the complex interdependence between agricultural practices and environmental conditions that underlie productivity.

Table 177: Food Availability Period

		Frequency	Percentage
Foods availability time	Three months	34	29
	Six months	11	9.4
	Twelve months	3	2.6
	Missing	69	59
	Total	117	100

Source: Field Survey 2024

Table 18: examines the period within which the respondents can sustain themselves on food stocks. Most (59%, 69 respondents) said that they had no food stocks, while 29.1% (34 respondents) could sustain themselves for three months and 9.4% (11 respondents) for six months. The evidence indicates food insecurity in the population and the need to rush efforts to increase food availability.

Table 188: Ways to Overcome Food Shortage

		Frequency	Percent
Ways	By taking loan	17	14.5
	Going abroad for work	3	2.5
	Selling livestock	53	45.3
	Working on other's farm	33	28.2
	Selling land	10	8.5
	Total	117	100

Source: Field Survey 2024

Table 19 looks at coping behaviors the respondents used in response to food scarcity. Selling livestock was the most prominent with 45.3% or 53 people, followed by farm work on other farms (28.2%, or 33 people) and taking loans (14.5%, or 17 people). These practices are indicative of financial risks facing the community and the utilization of livestock and labor as principal tools of food acquisition. The tables presented collectively present a comprehensive analysis of the demographic, economic, and agricultural profile of the community, as well as the strengths and key challenges of the respondents in the study area.

To overcome food shortages, we must cultivate farmland efficiently, but sometimes, our crops and grains are insufficient for the entire year. When food shortages arise, people often sell livestock, seek jobs nearby, or migrate to cities to sustain their livelihoods. If the government prioritizes improving agricultural productivity, it can help us to prevent food shortages and enhance the socio-economic stability of our community (KII).

4.4 Challenges of Agricultural practices

Table 199: Identification of Farming Challenges

		Frequency	Percentage
Challenges	lack of good Manure	25	21.3
	Lack of irrigation	9	7.7
	lack of labor	13	11.1
	Inappropriate Policies	32	27.4
	Lack of modern technology	27	23.1
	Lack of subsidy	11	9.4
	Total	117	100

Source: Field Survey 2024

Table 14 illustrates the different complicated challenges faced by the farmers in the region. A major 27.4% (32 respondents) stated poor policies as a major challenge, followed by 21.4% (25 respondents) mentioning a shortage of quality manure. Other challenges mentioned were a lack of irrigation facilities (7.7%), poor labor supply (11.1%), and a shortage of modern technology (23.1%). The table illustrates the challenges facing agricultural productivity and sustainability.

The rugged topography and poor investment of government in Agriculture, lack of scientific techniques, tools, and irrigation are major challenges in transforming subsistence into commercial farming. According to the Agriculture technician, although there are some organization plans and programs related to farming and framing most of them don’t show their interest in it and lack active participation in agriculture-enhancing programs. Due to this we are leaving our land barren and deciding to go to city areas and abroad for job opportunities (KII). If the Government promotes agricultural development programs, farmers will benefit effectively. The government needs to implement various policies to support agricultural growth and

encourage farmers in agricultural activities. By conducting soil tests and applying scientific methods, farmers can increase better crop yields. This also can help improve soil quality and boost overall agricultural productivity (KII).

CHAPTER V

SUMMARY OF FINDINGS, CONCLUSION AND SUGGESTIONS

From the above results and discussions, different conclusions are made, and some recommendations are listed on the agricultural practices and their barrier factors, challenges, and impacts of agriculture on the livelihood of the farmer.

5.1 Summary of Findings

The thesis titled" Agricultural Practices and Their Impact on Livelihood: A Study of Ghyanglekh Rural Municipality, Ward No. 5," explores various agricultural practices, challenges, and their effects on livelihoods. The findings highlight that despite numerous government and NGO-led initiatives aimed at enhancing agriculture, the region's rugged terrain has posed significant barriers to their successful implementation. A major issue identified is the lack of coordination among different stakeholders and government bodies, hindering effective agricultural policies. Furthermore, agriculture does not play a significant role in improving education, health, or employment for local communities. Household survey data suggests that while the area has potential for crop diversification due to its fertile soil and adaptability to environmental conditions, poor management of resources has led to worsening socioeconomic conditions. As a result, people's livelihoods are deteriorating day by day.

Agriculture is one of the oldest and main occupations of the people and it plays a vital role in global economies, societies, and ecosystems. Agriculture faces different challenges that impact productivity, sustainability, and global food security. In my study area, the farming system is primarily traditional, and subsistence based while most people own land, they lack proper irrigation facilities, which forces many to leave their land uncultivated. As a result, they migrate to towns, cities, or even abroad in search of jobs to meet their daily needs. Instead of producing their food, they purchase agricultural products and vegetables from markets.

The major crops grown in the study area include maize, paddy, millet, and some vegetables such as potato, tomato, onion, turmeric, and garlic. Farmers cultivate these crops mainly for personal consumption rather than commercial purposes. Some also grow cash crops, but they do not sell in large quantities-only small amounts are sold if

they find a market. Due to these harsh conditions, Farmers are dissatisfied with their traditional farming system.

Due to various challenges, it is difficult to point out a specific and satisfactory contribution of agriculture to farmer's livelihoods. In many families, more than one member seeks employment abroad to sustain their household. Climate change, soil degradation, water scarcity, pests and diseases, limited access to technology, labor shortages, and lack of appropriate policy and governance are the major challenges in the Agricultural system.

This study tries to assess and evaluate the agricultural practices and their impacts on livelihood in rural communities of Ghynglekh Rural Municipality ward no.5 of Sindhuli district. The purpose of this study is to find out the generally practiced agricultural activities and patterns of farming system and their socio-economic impacts on livelihood.

5.2 Conclusion

The study concludes that, despite great environmental conditions like fertile land and natural resources, farmers struggle to grow various crops and vegetables. The main reason is the lack of strong government policies and support, which forces them to stick to traditional and subsistence farming. There's also no proper integration of agriculture with other essential sectors like education, health, and employment. On top of that, agriculture hasn't taken a strong enough role in the improvement of rural communities' livelihood. Farming in the study area faces significant challenges in moving basic subsistence farming to modern, commercial agriculture.

5.3 Recommendation

Based on this study, the following recommendations have been made

i. Provide advanced agriculture technology and tools, training, and awareness to farmers.
ii. Implement plans and policies related to Agriculture smartly by local government.
iii. Establish a participatory governance mechanism to involve farmers in the
iv. decision-making and planning process.
v. Establish pest surveillance centers to detect outbreaks early.
vi. Offer incentives for organic farming and alternative pest control methods.

vii. Implement regular soil testing programs to guide farmers on appropriate fertilization.
viii. Improve rural-market infrastructure to establish better roads, storage facilities, and market linkage.
ix. Stay updated with agricultural research and innovations.

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APPENDICES

Appendix I: Questionnaire for the Household Survey

Personal profile of the Respondents.

Name: Contact number:

Permanent address: Province:

Marital status: Sex:

1. Demographic characteristics

1.1. What is your ethnic background?

a. Janajati
b. Dalit

1.2. Which religion do you follow?

a. Hindu
b. Buddha
c. Christian

1.3. Which is your family structure?

a. Nuclear
b. Joint

1.4 What is the main occupation of the family members?

Occupation	Farmer	Foreign/remittance	Teacher	Business	Government service
Male					
Female					
Total					

1.5 What is your qualification of education?

a. Illiterate
b. Primary
c. Secondary
d. Bachelor

2. Agricultural practices

2.1. Do you have your land?

a. Yes
b. No

2.2. If yes, how much land do you own?

a. <3 Ropani
b. 3-6 Ropani
c. 6-9 Ropani
d. 9-12 Ropani
e. >13 Ropani

2.3. Which type of soil does your land belong to?

a. Sandy soil
b. Silt soil
c. Clay soil
d. Loamy soil

2.4. Which are the main crops that you cultivate?

a. Paddy
b. Maize
c. Millet
d. Buckwheat

2.5. What are the main vegetables that you use to cultivate?

a. Potato
b. Tomato
c. Cauliflower and cabbage
d. Onion and garlic

2.6. What are the main cash crops you are cultivating?

a. Amrisho
b. Coffee
c. Turmeric and ginger
d. Potato

2.7. Do you have an irrigation facility for farming?

a. No irrigation
b. Stream irrigation
c. Others

2.8 Do you have a tunnel for the vegetable farm?

a. Yes
b. No

2.9. Are you practicing a crop rotation system?

a. Yes
b. No

2.10. Have you ever practiced an integrated farming system?

a. Yes
b. No

2.11. Which types of farming do you practice?

a. Organic farming
b. Off-season farming
c. Commercial farming
d. None of the above

2.12. What is the annual production of grain crops?

a. <10 Muri b.10-20 Muri c.20-30 Muri
d. >30 Muri e.100 kg

2.13. What is the annual production of cash crops?

a. 100-200 kg b. 200-300kg c. 300-400kg

2.14. How many months do you consume grain crops?

a.<6 Months b.6-12 Months c.>12 months

3. Socioeconomic situations

3.1. Does your children go to school regularly?

a. Yes
b. No

3.2. If not, why couldn't they go to school regularly?

a. Financial problem
b. Lack of food
c. No school near home
d. All the above

3.3. Do others respect your job?

a. Yes
b. No

3.4. Are you satisfied with your agricultural practices?

a. Yes
b. No

If not, then why?

a. Lack of good market
b. Insufficient food
c. Lack of labor
d. Negligence of local government on agriculture modernization

3.5. Does your farming system fulfill your needs?

a. Enough to survive
b. Fulfillment is easily possible
c. The requirement is hardly possible
d. Through farming impossible

3.6. Is there a policy of local government to enhance the modern farming system?

a. Yes
b. No

If yes then, how is the local government helping?

a. Providing an agricultural grant

b. Providing hybrid seeds

c. Providing agriculture equipment

3.7. Does your local government have an agriculture technologist?

a. Yes

b. No

If yes how is that person facilitating?

a. Training

b. Visiting agricultural field

c. Time to time consultation

3.8. How much is your monthly income?

a. <Rs.20000

b. Rs.20000-40000

c. Rs.40000-60000

d. Rs.60000-100000

e. >Rs.100000

3.9. Do you buy crops and agricultural products?

a. Yes

b. No

3.10. Do you sell vegetables?

a. Yes

b. No

3.11. What is your annual income from selling vegetables?

a. <10000

b. >10000

c. <30000

d. >30000

3.12. Annual income from cash crops?

a. <10000

b. >10000

c. <30000

d. >30000

3.13. Can you sell agricultural products or food?

a. Yes

b. No

If no, then why?

a. Lack of good market

b. Lack of transportation

c. Both

3.14. How many times do you harvest crops yearly?

a. One

b. Two

c. Three

d. Four

3.15. Which is the best season to cultivate crops?

a. Monsoon

b. Winter

3.16. Which fertilizer do you use on your crops?

a. Compost only

b. Chemical only

c. Both

3.17. Do you use pesticides and insecticides on crops?

a. Yes

b. No

If yes then, organic or chemical?

a. Organic

b. Chemical

c. Both

3.18. Is there accessibility to fertilizers and hybrid seeds?

a. Yes

b. No

3.19. Do you use modern agricultural equipment?

a. Yes

b. No

3.20. What equipment do you use for digging?

a. Oxen

b. Tractor

c. Both

3.21. What factors affect crop cultivation?

a. Technology

b. Modern tools and equipment

c. Hybrid seeds

d. Irrigation

e. Workers

f. All of the above

3.22. What factors affect crop harvesting?

a. Lack of workers

b. Inappropriate tools and technology

c. Unfavorable weather

d. All of the above

3.23. Do you feel your land productivity is increasing?

a. Yes

b. No

If decreasing, what are the factors?

a. Pesticides and fertilizer

b. Lack of water

3.24. What are the main challenges of modern farming?

a. Modern tools and technology

b. Irrigation

c. Both

3.25. Do you need to pay for foodstuffs?

a. Yes
b. No

3.26. How many months do you face back of food?

a. Three months
b. Six months
c. Nine months
d. Twelve months

3.27. What will you do in a lack of food?

a. To take a loan
b. Go abroad for a job
c. Selling livestock
d. Search work in home area

Appendix II: Checklist for Key Informant Interviews

1. What are your thoughts on the current state of Agricultural practices?
2. How do you think we can improve our Farming system?
3. Can you describe the major challenges of Commercial farming?
4. Give your opinion and experience on the role of Agriculture in Education and Employment generation in your community.
5. How is the Farming System Impacting the livelihood of people?

Appendix III: Map of Ghyanglekh Rural Municipality