

**PERFORMANCE EVALUATION OF DEVISTHAN AGRICULTURE
COOPERATIVE LIMITED OF KASKI DISTRICT**

A Thesis

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Degree of Master of Arts

In

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By

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DECLARATION

I declare that this thesis is entirely my own original work whereby all the references have been cited and acknowledged. None of the parts or the whole thesis has been submitted or published previously for any other purpose of degree beyond the Tribhuvan University and Faculty of Humanities and Social Sciences.



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Date: 15 December, 2019 (29/08/2076)

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CENTRAL DEPARTMENT OF RURAL DEVELOPMENT

ग्रामीण विकास केन्द्रीय विभाग



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RECOMMENDATION LETTER

The undersigned certify that I have read and recommended to the Central Department of Rural Development, Tribhuvan University for acceptance, a thesis entitled **Performance Evaluation of Devasthan Agriculture Cooperative Limited of Kaski District** by Ms. Bhawana Regmi in partial fulfilment of the requirement for the degree of Master of Arts in Rural Development.

Dr. Rajan Binayek Pasa

Thesis Supervisor

Date: 25 December, 2019 (09/09/2076)



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APPROVAL LETTER

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The undersigned certify that we have read, approved and recommended to the Central Department of Rural Development, Tribhuvan University for acceptance, a thesis entitled **Performance Evaluation of Devasthan Agriculture Cooperative Limited of Kaski District** by Ms. Bhawana Regmi in partial fulfillment of the requirement for the degree of Master of Arts in Rural Development.

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ABSTRACT

Cooperative “Coop” or Cooperative “Co-op” is an autonomous association of people who voluntarily cooperate for their mutual social, economic and cultural benefits. In the context of Nepal, the government, private sector and the cooperatives are regarded as three major pillars for economic development in general and agriculture development in particular. In this line, the study entitled “Performance Evaluation of Devasthan Agriculture Cooperative Limited of Kaski District” tried to evaluate the performance of cooperative and its cooperative vegetable farming. Thus, evaluation indicators such as relevancy, efficiency, effectiveness, impact and sustainability have been developed and analyzed. Further, this study applied quantitative approach and trend survey methodology. Required numerical data were collected from 138 sample respondents and subjective information was generated from 12 participants (4 female & 8 male). This study brought theoretical insights from social capital, financial management, agriculture transformation and agriculture modernization theories that are then supported by empirical findings in the study.

Empirically, the study was conducted in Hemja village of Pokhara Metropolitan City in which household survey questionnaire, observation and key informant interview techniques were applied for collecting data and generating information. The summative values of the performance measurement indicators such as relevancy, efficiency, effectiveness, impact and sustainability are 2.21, 2.58, 1.88, 2.01 and 2.13 respectively. All the values fall between agree and neutral. Similarly, mean, mode and standard deviation of merged variables value are 2.15, 2.20 and 0.33 respectively. This shows that the respondents were not satisfied on the performance of the cooperative and its cooperative vegetable farming. The cooperative effort has been generating rural economy and creating employment opportunities equally from commercial financing, micro credit financing and development financing sectors in general and agriculture modernization in particular.

Finally, knowledge generated from this study has greater implication on knowledge level (to the readers), practice level (to the experts and stakeholders who are working for rural development) and policy level (to the policy makers and planners working in central and local level).

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ABBREVIATIONS/ACRONYMS

ACAP	:	Annapurna Conservation Area Project
AD	:	Anno Domini
ADB	:	Asian Development Bank
ADS	:	Agriculture Development Strategy
AM	:	Agriculture Marketing
APA	:	American Psychological Association
APP	:	Agriculture Perspective Plan
CBS	:	Central Bureau of Statistics
CDRD	:	Central Department of Rural Development
DA	:	Document Analysis
DACLL	:	Devasthan Agriculture Cooperative Limited
DoC	:	Department of Cooperative
EU	:	European Union
FAO	:	Food and Agriculture Organization
GDP	:	Gross Domestic Product
GESI	:	Gender Equality and Social Inclusion
GFSI	:	Global Food Security Index
GHI	:	Global Hunger Index
GOs	:	Government Organizations
HHs	:	Households
ICA	:	International Cooperative Association
IFAD	:	International Fund for Agriculture Development
INGOs	:	International Non-government Organizations
IOFs	:	Investor Owned Firms
LiBird	:	Local Initiatives for Biodiversity Conservation, Research and Development
MA	:	Master in Arts
MoA	:	Ministry of Agriculture
MoAD	:	Ministry of Agriculture Development

MoC	:	Ministry of Commerce
MoF	:	Ministry of Finance
MoFALD	:	Ministry of Federal Affair and Local Development
MPI	:	Multi Poverty Index
NEFSCUN	:	Nepal Federation of Savings and Credit Cooperative Unions
NGOs	:	Non-Government Organizations
NPC	:	National Planning Commission
NRB	:	Nepal Rastra Bank
OECD	:	Organization for Economic Cooperation and Development
PMAMP	:	Prime Minister Agriculture Modernization Program
SHGs	:	Self Help Groups
SPSS	:	Statistical Package for Social Science
TNMSC	:	Tamil Nadu Medical Services Cooperation
TEPC	:	Trade and Export Promotion Center
UN	:	United Nations
UNDHR	:	United Nations Declaration of Human Right
UPAP	:	Urban Partnership for Agriculture Program
WFO	:	World Food Organization

CHAPTER I INTRODUCTION

1.1 Background of the Study

Cooperative “Coop” or Cooperative “Co-op” is an autonomous association of people who voluntarily cooperate for their mutual social, economic and cultural benefit. It is a formal institution of rural finance that aims to upgrade national economy through socio-economic development of the rural areas. A cooperative is a voluntary organization of persons with limited means of safeguard of their common needs and interest. “Unity in diversity” is the main motto of cooperative societies. The philosophy behind cooperative movement is “all for each and each for all”. A cooperative usually uplifts the living standard of low income family thus cooperative development is a backbone for the development of developing countries (Nepal Rastra Bank [NRB], 2017). Cooperative is a non-profit community organization and businesses that are owned and managed by the people who use its services or by the people who work there or by the people who live there (a housing cooperative), hybrids such as worker cooperatives that are also consumer cooperatives or credit unions, multi-stakeholder cooperatives such as those that brings together the civil society and local actors to deliver community needs and second and third tier cooperative whose members are other cooperatives.

Globally, about one billion people are involved in cooperatives in some way, either as members/customers, as employees, or both. Cooperatives employ at least 100 million people worldwide. The worlds’ 300 largest cooperative enterprises have collective revenues of USD 1.6 trillion (International Cooperative Alliance [ICA], 2011). From the local economic point of view, it is believed that some six million people are already affiliated in approximately 34,512 cooperatives and more than 60,517 people are employed directly in cooperative business. Out of total, 4072 cooperatives are managed by women (Female executives more than 8, 50,000 and members more than 21, 00,000 Male executive more than 1, 69,000 and members more than 24, 56,000) (DoC, 2018).

The first cooperatives formed in Nepal were cooperative credit societies with unlimited liability created in Chitwan district as part of a flood relief and resettlement program. They had to be provisionally registered under an executive order of the government and were legally recognized after the first Cooperative Societies Act of 1959

was enacted. The history of cooperatives in Nepal is closely related to the government's initiatives to use cooperatives as a part of its development programs. Modern cooperatives began in Nepal in 1954 when a Department of Cooperatives (DoC) was established within the Ministry of Agriculture to promote/assist development of cooperatives. Therefore, the development of cooperatives will be described in eight phases corresponding to eight plan periods (Munkner & Shrestha, 1998).

Cooperative efforts must perform commercial farming, agro-based entrepreneurship development. Farming is a respected occupation because farmer is the feeder of all human beings through the cooperative minimization of distance between farmers and consumers (Budha, 2017). Participation, coordination and cooperation among the members of cooperatives are the main key for the development of cooperative. The cooperatives are very old practice within different Nepalese people and culture; however, it is not treated as mainstream cooperatives activities. It is the time of redefining the roles of the state and the private sector while also fostering the third grass root actor of development, namely the cooperatives (Nepal, 2014).

The cooperative movement in Nepal has been supported by the government since first plan period (now to then). It has preferred to channelize credit and agricultural inputs through cooperatives to individual farmers or groups of farmers (Munkner & Shrestha, 1998). Considering the enormous task to educate and train over one million co-operators as well as tenth of thousands of committee members and managers of cooperatives, relatively little has been done in the field of member education, leadership training and the development of managerial and entrepreneurial skills among executives, members and administrative staffs (Department of Cooperatives [DoC], 2017). The cooperatives registered in the country in terms of broad divisions are multipurpose cooperative, single purpose cooperative, producers' cooperative and service providers cooperative (DoC, 2017).

Finally, from the agriculture development point of view, 188 multipurpose cooperative society, 144 cooperative credit society, 45 marketing society, 18 rural industries society, 23 consumers society and 860 small farmer agriculture cooperatives are directly or indirectly contributing to the agriculture development in Nepal. Recently, dependency on agriculture has declined from 90 percent to 63 percent due to specialized

agriculture system as the federal government has identified agriculture as lead sector of the national economy. It has emphasized on four types of production, processing and industrial centers determined by Pocket (10 hectares), Block (100 hectares), Zone (500 hectares) and Super zone (1000 hectares) in order to commercialize the agricultural sector under Prime Minister Agriculture Modernization Project (PMAP).

The Devisthan Agriculture Cooperative also has been implementing Kaski vegetable super zone project through the cooperative efforts of twelve cooperative that is unique and transformative among the cooperatives. Hence, this study tried to highlight the cooperation among the twelve cooperatives (three saving and credit cooperatives [Himalayan, Gauri Shankar, Hemja]; eight agriculture cooperatives [Devisthan, Multipurpose, Ex-Army, Anabarat, Tibrikot, Mulpani, Kalika, Diyalo] and one Bikalpa Jadibuti) collectively implementing cooperative vegetable farming. In this respect, this study has explained the overall performance¹ of Devisthan Agriculture Cooperative Limited that is located around Hemja area of Pokhara Metropolitan City, Kaski District. This cooperative is becoming popular in the country due to cooperative vegetable farming under pocket area.

1.2 Motivation/Rationale of the Study

Last year, I got a chance to hear about cooperative vegetable farming practice of twelve cooperatives of Hemja village located at Pokhara Metropolitan City (a power of cooperation among the cooperative told in *Sajha Sawal* by B. K. Tripathi, D. R. Bastola and S. R. Bastola inhabitants of Hemja with Narayan Karki: BBC Nepali Service [DA]).

I visited Hemja to observe modern vegetable farm (Figure 1). Upon return, I shared about cooperative vegetable farming with my family. I was delighted to know, the cooperative efforts of Hemjali people has been encouraging my father (Board member of cooperative) to establish cooperation among the cooperatives of Sahid Laxan Rural Municipality of Gorkha district. While linking



Figure 1. Devisthan Agriculture

¹ Overall performance has been developed based evaluation criteria such as Relevancy, efficiency, effectiveness, impact and sustainability of the cooperative and cooperative farming.

the cooperative efforts of Hemjali people with VYCCU Chitwan (Established in 1992, 43000 members with cash deposit of NRs. 2.5 billion) and Amul Dairy India (3.6 million farmers of 33 districts, per day 32 million liter milk producing), I have realized that Nepalese people (i. e. government officers, academicians, cooperative members and farmers) must understand the power of cooperation among the cooperatives for the better developmental outcomes and impact. This context motivated me to develop my MA thesis entitled “Performance Evaluation of Devasthan Agriculture Cooperative Limited of Kaski District”.

Cooperatives in Nepal are regarded as one of the major pillars for upgrading national economy. Thus, the federal government of Nepal has been planning to implement NRs. 98 Kharb budget within five years period for achieving 10 percent economic growth target (Gorkhapatra National Daily, 2019). In this budget, share of public sector will be 37.6 percent (36 kharb 74 arb 56 crore), share of private sector will be 58.1 percent (56 kharb 83 arb and 88 crore) and share of cooperative will be 4.3 percent (4 kharb 19 arb and 31 crore) as well. Cooperatives at present days are investing in commercial farming as well as vegetable farming. Therefore, the rationale of the study is to highlight the power of cooperation among the twelve cooperatives implementing Kaski vegetable super zone project in general and vegetable pocket area in particular.

1.3 Problem Statement

Surmounting problem of this study is to unpack minimal economic contributions of the cooperatives and poor practices of cooperative farming especially in Nepal. Cooperatives of Nepal are regarded as third pillar of the economy. There are about 35,000 cooperatives performing saving and credit activities but very few of them are performing better in terms of building social capital, financial management, agriculture transformation and modernization. The country has huge potentiality for agriculture development, but large amount of the Nepalese economy has been expensing for agricultural imports. Majorities of the Nepalese farmers are involved in agriculture based occupation but the agricultural imports have been increasing annually as compared to other countries (Appendix D). It was NRs. 44.43 billion in fiscal year 2009-2010 but reached to NRs. 138.32 billion in last fiscal year (MoF, 2018). During the first eight months of the FY 2017/18, trade deficit has increased by 23 percent to NRs. 713.94

billion. During the corresponding period of the previous fiscal year, such deficit had increased by 47.6 percent to NRs. 580.34 billion (Economic Survey, 2017/18). Large portion of Nepalese youths have been working abroad and because of inflation of consumer price, large portions of family income is invested for daily necessities. The country has remittance-based economy. The workers' remittance increased by 6.4 percent to \$ 3.9 billion in mid- February, 2018 and increased by 30.2 percent to NRs.443.36 billion in the review period of 2018/19 (MoF, 2018; NRB, 2019).

It is essential to transform agriculture system of the country through the mobilization of skilled and semi-skilled youths in rural areas. Agriculture sector is offering employment to the 1.34 billion people in which 70-80 percent of the world's agricultural land is managed by around 500 million family farms who produce more than 80 percent of the world's food (United Nations [UN], 2015). Even in Nepal, more than 78 percent of people living with subsistence farming and poverty, 21.6 percent of people living with extreme poverty and hunger and majority of rural people have little or no access to public service (International Fund for Agriculture Development [IFAD], 2015).

On the other hand, Devasthan Agriculture Cooperative Limited has been implementing vegetable super zone project under PMAMP since couple of years with the collective efforts of twelve cooperatives operating in Hemja located at Pokhara Metropolitan City. Their collective efforts not only motivate local farmers to involve in commercial vegetable farming and agriculture based entrepreneurship development but compelled to realize power of cooperation among the cooperatives throughout the country. However, the researcher understood that nobody has conducted evaluation research either from individual effort or from institutional efforts to analyze the overall performance of Devasthan Agriculture Cooperative Limited and its popular project cooperative vegetable farming. Finally, above mentioned positive/negative research problems encouraged the researcher to raise cooperative/farming related issues (Appendix A) of Hemjali people.

1.4 Research Questions

The purpose of the study is to evaluate the overall performance of Devasthan Agriculture Cooperative Limited and its popular project "cooperative vegetable farming" in the study area. In addition to that, the goal is also to showcase how and why Devasthan

Agriculture Cooperative Limited holds a significant example of cooperative effort to other communities. Below listed are the research questions designed in this study:

- What is the relevancy, efficiency, effectiveness, impact and sustainability of Devasthan Agriculture Cooperative Limited?
- What is the relevancy, efficiency, effectiveness, impact and sustainability of cooperative vegetable farming practices of Devasthan Agriculture Cooperative Limited?

1.5 Objectives of the Study

The general objective of the study is to evaluate the overall performance of Devasthan Agriculture Cooperative Limited and its popular project (cooperative vegetable farming). Similarly, the specific objectives are as follows:

- To evaluate the performance (relevancy, efficiency, effectiveness, impact, sustainability) of Devasthan Agriculture Cooperative Limited of the study area.
- To evaluate the performance (relevancy, efficiency, effectiveness, impact, sustainability) of cooperative vegetable farming practices.
- To analyze the relationship between the socio-demographic characteristics of the respondents and performances of Devasthan Agriculture Cooperative Limited.

1.6 Hypothesis Testing

Under the inferential statistics, this study has posed the following hypothesis:

- Hypothesis 1 (Socio-demography): Does the land holdings pattern of family matter with the category of beneficiaries?
- Hypothesis 2 (Relevancy): Does the gender matter in believing that cooperative activities helped to improve family economy?
- Hypothesis 3 (Relevancy): Does the category of respondents' (board member and general member) matter in believing that the cooperative vegetable farming is becoming popular in local, provincial and state level of the country?
- Hypothesis 4 (Efficiency): Does the category of respondents' (board member and general member) matter in believing that interest rate of the DACL is quite satisfactory (8 % in saving amount and 12 % in credit amount)?

- Hypothesis 5 (Effectiveness): Does the ethnicity of the respondents' matter in getting opportunity to participate in trainings related to cooperative, exposure visit and cooperative vegetable farming?
- Hypothesis 6 (Effectiveness): Does the ethnicity of the respondents' matter in their total saving amount in this cooperative?
- Hypothesis 7 (Impact): Does the category of respondents' (board member and general member) matter in perceiving that saving and credits activities of the cooperative members have been increased significantly after the establishment of cooperative?
- Hypothesis 8 (Impact): Does the economic status of respondents (in terms of food sufficiency) matter in perceiving that cooperative has helped to create self-employment and employment opportunities to the entrepreneurs and local people?
- Hypothesis 9 (Sustainability): Does the category of respondents' (board member and general member) matter in perceiving that there is appropriate mechanism to obtain grievances for increasing member's satisfaction?
- Hypothesis 10 (Sustainability): Does the educational status of the respondents' matter in perceiving that there is a provision of internal audit system by the cooperative members and set qualification to be a board members?

Similarly, this study also posed the following descriptive hypothesis:

- Cooperative effort has increased saving and credits habits of the entrepreneurs.
- Cooperative funds have been investing in productive sectors of the rural economy.
- Direct beneficiaries are earning more than indirect beneficiaries from cooperative.
- Skilled administrative staffs are offering more efficient services.
- Local entrepreneurs are supporting and offering job opportunities to the local youths.
- Skilled workers are planning to invest family earning in agro-tourism entrepreneurship.
- Role model members are investing equally in agriculture and non-agriculture sectors.
- Cooperative earning is also invested to fixed assets like land, gold and domestic animals.

1.7 Significance of the Study

“Cooperatives are sustainable enterprises that are owned and run by their membership, and are built on values that encourage cooperation, empowerment and solidarity, rather

than just profits. They are recognized as means of implementation for the 2030 Agenda for Sustainable Development Goals along with other private sector enterprises”
- (NEFSCUN, 2017)

In the reference of above mentioned texts inserted from NEFSCUN report, cooperative is one of the pillars for upgrading national and rural economy (Nepal Federation of Savings and Credit Cooperative Unions [NEFSCUN], 2017). The federal government thus has devolved cooperative management power/jurisdiction to the local levels (Ministry of Federal Affair and Local Development [MoFALD], 2017). It has given more focus on cooperation among the cooperative.

Hence, the contributions of this study include the review on power of cooperation among the cooperatives that is inevitable to upgrade rural and national economy of the country. The study through serving aforementioned objectives, aims at giving suitable policy recommendation that might be useful to the cooperative members, policy makers, students and researchers. It will have significant contribution to promote cooperative farming practices in the whole country.

1.8 Limitation and Delimitation of the Study

Due to various constraints, the researcher delimited this study in the following ways:

The following are the construct limitations of this study:

- The study is based on quantitative approach and trend survey methodology.
- Focus was given to evaluate the performance of Devasthan Agriculture Cooperative Limited and its popular project cooperative vegetable farming.
- This study tested the significant difference between the tested variables in which decisions are given based on alpha value is 0.05
- All descriptive hypotheses have been explained without any statistical testing by using descriptive and illustrative methods.

The construct delimitations associated with this study are as follows:

- This study covered saving and credit efforts of Devasthan Agriculture Cooperative Limited of Hemja located at Pokhara Metropolitan City.
- The study gave more focus on the relevancy, efficiency, effectiveness, impact and sustainability of Devasthan Agriculture Cooperative Limited and its cooperative vegetable farming practices.

- The researching issues related to the performance evaluation has been analyzed and interpreted from theoretical perspectives of social capital, financial management, agriculture transformation and agriculture modernization.
- Thus, this research study is based upon limited information that was collected from 138 respondents and 12 participants (Table 15 &16).

1.9 Organization of the Study

Based on its content, information and material, this study has been organized into five chapters. The first chapter deals with the introduction, the second chapter focuses on the literature review associated with this study and the third chapter presents the methodological design of the study based on specific research questions. Subsequently, the fourth chapter deals with the data analysis related to performance of the cooperative (research objective 1 to 3). Finally, the fifth chapter presents the gist of the study that includes the discussion of findings, theoretical reflections, meaning making, conclusions, possible implications as well as future direction.

CHAPTER II

LITERATURE REVIEW

2.1 Thematic Review

2.1.1 Historical Development of Cooperatives

The reasons for the emergence of cooperative are lack of viable financial structure across the country, continuing financial exclusion of many rural settings, difficult to access the public financial services, lack of self-sustainability of financial institutions and lack of credit support by the financial institutions (Venkatesh, 2009). The conceptual reason shows that most successful cooperatives have focused on credit for enterprise expansion through rural entrepreneurship development. There are about 10 lakh cooperatives performing financial activities among 85 crore members in the world. India and China have more population involved in cooperative. America, Canada European countries, Japan and South Korea are the example for the sustainable cooperative development (Venkatesh, 2009). In the context of Nepal, there are about 35,000 cooperatives doing different activities (i.e. saving and credit, multipurpose, agriculture, dairy products, tea, coffee, herbs, bee keeping, communication and others). Cooperatives are generating employment for about 24,000 women and 29,000 men (Department of Cooperative, 2018).

Principally, the basic values (self-help group, self-help responsibility, democracy, equity and solidarity) and the ethical values (honesty, openness, social responsibility, sharing & caring among the members) are couple of cooperative values practicing in the globe. The Rochdale Society of Equitable Pioneer is usually considered the first successful cooperative enterprises which was founded in 1844. The original Rochdale principles were officially adopted by the International Cooperative Alliance (ICA). The principles are voluntary and open membership, democratic member control, member economic participation, autonomy and independency, education, training and information, cooperation among cooperatives, concern for community (Birechall ICA, 2008 as cited in Buddha, 2017). The cooperative principles simply describe the essential and characteristic features of an organization known as the cooperative organization.

During the Jaisthithi Malla era around 600 years ago, Kutasa cooperative had run indigenous oil expeller mill in Khokana, Lalitpur (R. K. Shrestha, Informal

communication, 17th February, Sunday, 2019) though the first cooperative was established in Germany in 1844. The first Cooperative Act was enacted by the government in 1960, which was followed by the Agricultural Cooperative Act. In 1963, the capital of savings and credit cooperative societies was converted into a Cooperative Bank in 1963, and in 1968 it was also converted into the Agricultural Development Bank. Beginning in the 1980s, a new generation of community based savings and credit groups began to emerge in Nepal. In August 16, 1988, the Nepal Federation of Savings and Credit Cooperative Unions were formed. At present, the Department of Cooperatives is working under the Ministry of Agriculture and Cooperatives (DoC, 2017).

2.1.2 Contributions of Agriculture on National Economy

Agriculture has been an important sector in the national economy for most of the developing countries (Mongues, et al., 2012) while it plays an important role virtually in all social and economic activities of any country (Lawal, 2011). “It is the agricultural sector that the battle for long-term economic development will be won or lost”-Gunnar Myrdal, Nobel Laureate in Economics. Nepal is predominantly an agrarian economy. Agriculture is the main source of livelihood, 74 percent of Nepalese people still depend upon it. This sector contributes about 35 percent to the GDP. Nepalese economy has undergone a gradual structural shift in the recent years. The share of service sector has increased gradually and reached nearly half of the GDP.

Table 1: Annual Percentage Change of GDP

Years	Annual % change in GDP
2002/03	3.80
2003/04	4.40
2004/05	3.20
2005/06	3.70
2006/07	2.80
2007/08	5.80
2008/09	3.90
2009/10	4.30
2010/11	3.80
2011/12	4.60
2012/13	3.04
2013/14	4.14
2014/15	3.77
2015/16	3.80
2016/17	4.15
2017/18	3.75

(MoF, 2015/16, 2017/18)

The table 1 highlights the information on GDP contribution of the agricultural sector in Nepalese economy. The figure states that there was highest (5.8%) annual percentage change in 2007/08 and lowest (2.8%) annual percentage change in 2006/07. In an average, percent change in GDP contribution seems 4.03 percent only. There should be various corrective measures for transforming agriculture sector for mounting contributions of agriculture sectors on national economy.

Table 2. Public Financing in Agriculture Sector

Functional Expenditure Estimates (Rs. in '000)				Source		
Heading	2015/16 Actual	2016/17 Actual	2017/18 Estimation	Government	Grant	Loan
Economic affairs*	177379014	370291443	454603106	245019162	43922487	165661457
Agriculture forestry fishing and hunting	57251385	75981829	81326899	62938266	5965945	12422688
*General economic, commercial and labor affairs, agriculture, forestry, fishing and hunting , fuel and energy mining, manufacturing and construction , transport , communication, other industries						

(MoF, 2019)

The table 2 highlights the information of public financing in agriculture sector in Nepal. This table illustrates the actual and estimated expenditure from three different sources i.e. government, grant and loan. The expenditure is split in two different categories. First one is the economic affairs which include several economic activities. Second one is the agriculture, forestry, fishing and hunting. Similarly, if we look at the trend, it is evident that the economic affairs over the time period of 2015/16 to 2016/17 has increased significantly which led to a huge estimation of NRs. 454603106 for 2017/18. Similarly, the expenditure in the agriculture, forestry, fishing and hunting is also in an increasing order from 2015/16 to 2016/17 leading up to an estimation of NRs 81326899 for 2017/18. Whereas, for the major three sources of both these affairs, input from government is maximum followed by loan and grant respectively.

2.1.3 Food Security and Agriculture Development

“Hunger is on the rise: Food security is inevitable for rural prosperity and sustainability”. This slogan indicates that food security is becoming global agenda even in 21st century. There are more than 821 million hunger people in the world (World Food Organization [WFO], 2018). Even in our context, ensuring food security is a fundamental right of the citizens (New Constitution, 2015). Hence, the federal government is aiming to foster agriculture development and food security activities (Appendix C) through the collective efforts of public, private and cooperative sectors.

Food security is a condition when all people at all times have access to sufficient, safe and nutritious food to maintain a healthy and active life (FAO, 2003). The concept of food security has four pillars (availability, access, utilization and stability [Table 3]). Nearly billion people who work in agriculture and more than 500 million family farms, which produce more than 80 percent of the world’s food, have contributed to better health and nutrition of the global population (UNHDR, 2015).

Table 3. Major Pillars of Food Security

Pillars	Major Causes for Food Insecurity
Availability	<ul style="list-style-type: none"> • Low agricultural production/productivity • Population growth • Small land holdings, feudalism/labor use, misuse of food and dependency on food
Access	<ul style="list-style-type: none"> • Unequal food distribution, • Lack of road network and market in remote area, • Lack of emergency backup services • Poor purchasing capacity of people and social/geographical disparities
Utilization	<ul style="list-style-type: none"> • Lack of awareness on nutrition and food habit, high levels of malnutrition, • Poor basic services and high disease incidence
Stability	<ul style="list-style-type: none"> • Stability/Vulnerability to food • Low income, frequent disaster, social conflict, • Poor political and economic governance, • No functioning of traditional/indigenous community food safety net

(FAO, 2017)

The table 3 depicts the information about major pillars of food security. Based on causal information of food insecurity, food security prevails if both food supply and demand are sufficient to cover food requirements on a stable basis. Similarly, food

insecurity prevails if at any time; occasionally or permanently food supply or demand fall short of requirements.

Table 4. Top Agriculture Producer Countries

Year	Annual Percentage Change In GDP
Japan	Food export 611.7 billion annually
India	The second largest producer of milk and rice
France	World's fifth largest exporter and 18% EU food suppliers
China	Agricultural producer exporter at \$58 billion. However, 150 million Chinese still suffer hunger, mainly in rural areas.
USA	Largest agricultural exporter with exports estimated at \$110 billion annually
Brazil	Top five producers of milk, pork and beef
Mexico	Agricultural export is estimated at more than \$10 billion
Turkey	Every year 1.3 million tonnes of food ends up in bins.
Germany	Largest meat consumers (per person per year 60 kgs) of the world

(FAO, 2018)

The table 4 signifies importance of agriculture development in national economy. The top ten agriculture producing countries are producing sufficient crop, dairy and horticulture products (e.g. fruits, vegetables, flowers etc.), and supplying in global market.

Table 5. Share of Agro Imports in Total Imports

Year	Total Imports In Rs Billion	Agro Imports In Rs Billion	Percentage of Agro Imports in Total Imports
2009-2010	375.61	44.43	11.8%
2010-2011	397.54	54.47	13.7%
2011-2012	498.16	76.05	15.3%
2012-2013	601.21	99.35	16.5%
2013-2014	722.78	127.51	17.6%
2014-2015	784.58	137.12	17.4%
2015-2016	786.19	134.51	17.10%
2016-2017	774.71	136.56	17.62%
2017-2018	984.30	138.32	14.06%
Total	5925.08	538.93	100.00%

(Trade and Export Promotion Center [TEPC], 2015; MoF, 2016; 2017)

The table 5 indicates that large amount of the Nepalese economy has been expensing for agro imports. Majorities of the Nepalese farmers are involving in agriculture based occupation but the agro imports have been increasing annually. The import was NRs. 44.43 billion in fiscal year 2009/10 but reached to NRs. 138.32 billion

in fiscal year 2017/18. However, the trend of commercial farming in Nepal has been increasing due to specialized farming system.

Table 6. Agro Imports in 2014-2015, 2015-2016, 2016-2017

S. N.	Particulars	2014-2015 Rs Billion	2015-2016 Rs Billion	2016-2017 Rs billion
1	Cereals	35.12	36.17	37.22
2	Fats and Oil	22.51	23.41	24.81
3	Vegetables	15.93	17.63	18.19
4	Fruits and Nuts	10.54	12.74	12.94
5	Animal Fodder	10.02	11.92	12.02
6	Oil Seeds	9.11	9.81	10.11
7	Coffee, Tea, Species	4.27	5.17	4.57
8	Sugar, Confectionary	3.49	4.41	3.89
9	Beverages	2.92	3.12	3.12
10	Tobacco	2.55	2.75	2.95
11	Live Animal	2.42	2.62	2.92
12	Dairy Products	2.15	2.95	3.15
13	Fish	1.15	1.65	1.85
Total		122.18	134.35	137.74

(TEPC, 2015; 2016; 2017)

The table 6 highlights that agro based imports of the country has been mounting annually as compared to agro based exports. It has thus created trade deficit. During the first eight months of the FY 2017/18, trade deficit has increased by 23 percent to NRs. 713.94 billion. During the corresponding period of the previous fiscal year, such deficit had increased by 47.6 percent to NRs. 580.34 billion (Economic Survey, 2017/18). Agriculture sector can contribute to employment, food security and raw materials for agro-based industries. In Nepal, agriculture has been contributing to more than 70 percent households (CBS, 2013), 66 percent employment (MoAD, 2015) and 35.12 percent share to National Gross Domestic Product (GDP) (MoF, 2014).

Table 7. Status of Food Security: Global and Local Scenario

S.N.	Name of Country	Global Food Security Index	Rank
1	Switzerland	79.0	1
2	Ireland	78.9	2
3	Austria	78.0	3
4	USA	77.5	8
5	China	47	47
6	India	77	77
7	Nepal	82	82
(Economic Intelligent Unit,2018)			
Food Security Status in Federal Nepal			
Province	% of Food Secure HHs	% of Mildly Food Insecure HHs	% of Severely Food Insecure HHs

1	50	20	9
2	44	28	11
3	55	15	8
4	56	16	6
5	48	20	10
6	22	18	18
7	38	18	12
(NLSS, 2016)			

The table 7 shows the global and local scenario of food security. According to the Global Food Security Index (GFSI), Switzerland is in first rank, while our neighboring countries such as India and China are in 47 and 77 ranks respectively. Being an agricultural country, Nepal is in 82th rank in food security which symbolizes that only few people are involved in agriculture as their main profession.

In case of highly food secure, mildly and severely food insecure households in federal Nepal, the Province 4 has highest food secure household (i. e. 56%) with 16 percent mildly food insecure household followed by 6 percent household suffering from severe food insecurity. Likewise, Province 3 and 1 have either or above 50 percent of food security status followed by Province 5 and 2 with food secure household status at 48 percent and 44 percent respectively. The situation of Province 7 and 6 seems problematic. Province 7 has only 38 percent of food secure household with 18 percent mildly food insecure and 12 percent severely food insecure household. But the status of province 6 is extremely critical. It only has 22 percent food secure household followed by only 18 percent household being both mildly and severely food insecure.

In this line, Global Hunger Index (GHI) (2019) report states that hunger index of Nepal is improving. Nepal secured 73 ranks among 117 countries. The hunger index is becoming critical in 43 countries especially in South Asia and Africa and severely in 46 countries (Li-Bird, 2019).

Units	MPI	HHs (%)	National Average (%)
National	0.127	28.62	44.23

Province 1	0.085	19.67	43.22
Province 2	0.217	47.89	45.32
Province 3	0.051	12.24	41.86
Province 4	0.061	14.19	42.88
Province 5	0.133	29.92	44.33
Province 6	0.230	51.22	44.88
Province 7	0.146	33.56	43.51

Table 8. Multi Poverty Index in Federal Nepal

(NPC, 2018)

The table 8 shows that family earning is not sufficient for transforming livelihood because of that poverty is still prevailing throughout the country. In particular, recent data shows that Provinces 6 and 2 have the highest rate of multidimensional poverty with every second person being multidimensional poor (50%) followed by Provinces 5 and 7 (30%) . Whereas the multi poverty index in the provinces 1, 4 and 3 is still unsettling with 19.68 percent, 14.19 percent and 12.24 percent respectively. (Table 11).

2.2 Theoretical Review

Theoretical perspectives help researcher to explore battlefields of knowledge that shape the relations between local actors, stakeholders, beneficiaries including the researchers myself (Long & Long, 1992). Hence, in this study researcher will bring theoretical insights from social capital, financial management, agriculture transformation and agriculture modernization theories.

2.2.1 Social Capital

Social capital deals function of neighborhood's relationships in any particular communities that uplift group participation or collective cooperation (Sorheim, 2003; Ponthieux, 2004). Thus, social capital is a process of maintaining social networks, social connectedness, trust, reciprocity, sense of identity and norms (Table 1). The individual's amount of social capital depends on how large network of relations he or she effectively can mobilize, and on the amount of capitals (economic, cultural and symbolic), each member of the network possesses (Bourdieu, 1986). Reasoning that social capital is an attribute of individuals in a social context in which he or she can acquire social capital through purposeful actions/interactions. It has been defined in a variety of ways such as social capital in the reproduction of Inequality (Bourdieu, 1986); social capital and human capital (Coleman, 1993); social capital and economic and political development

(Putnam, 1988) and social capital as society (Evans, 1996). However, all of them have been linked to collective norms, values and relationships (McClenaghan, 2000).

Table 9. Types and Functions of Social Capitals

Social Capital	Types of Social Capital	Basic Functions
	Boding relationships	Productive and mutual relationships between and among members of same ethnic groups
	Bridging relationships	Productive and mutual relationship between and among members of multi ethnic groups
	Linking relationships	Supportive relationships between/among local community members and those who have power and prestige

(Coleman, 1988)

2.2.2 Financial Management

Financial management is the determination, acquisition, allocation and utilization of financial resources usually with the aims of achieving the goals of development. In brief, it is all about art and science for managing money executive and incidental financial functions (Table 10).

Table 10. Types of Financial Functions

Types	Functions
Executive financial function	Estimating and maintaining cash flow, deciding the sources of finance, proper utilization of acquired assets, negotiation with sources of finance and checking upon financial performance
Incidental financial function	Carried out by employer, supervision of cash receipts, safe guarding of cash, record keeping and reporting

↓ ↓

Components	Functions
Collection	Collection from institutional and non-institutional sources
Allocation	Allocating to the members involving in financial institutions
Utilization	Utilization for agro based entrepreneurship development
Mobilization	Mobilization of the local resources with commercial purpose
Administration	Impact analysis and member's satisfactions

↓ ↓

Financing Sectors	Functions
Commercial financing	Surplus production, expansions of agricultural trade and commerce
Micro credit financing	Empower to the voice less people, expansions of cottage industries and transfer of technology and skill development trainings
Development financing	Development of institutional capacity, accessibility of power, energy and electrification as well as human resource management

(Lekhi, 2008)

2.2.3 Theory of Agriculture Transformation

Nobel laureate economist (in 1979) Theodore William Schultz emphasized that key to agricultural transformation lies in emphasizing technological change in agriculture (Author & Lekhi, 2008). According to the conception of this theory, Schultz doctrine (Table 11) has given focus on following assumptions (Lekhi, 2008).

- Lack and availability of the capital is another reason and he thinks that peasants are more effective in producing output per additional unit of capital input.
- Given the enormous productive potential of agriculture, he stresses that poor countries with large agricultural sectors should allocate more resources to agriculture.
- Schultz does not belittle the importance of industrial sector but he wants the removal of those biases which stand in the way of transfer of resources from rural to urban areas.
- He further recommends that manufacturing and other urban sectors should not be subsidized with massive resource transfer of from rural to urban areas.
- Agriculture as a tool of employment-based strategy requires three elements (Accelerated output growth through technological, industrial and price incentive changes to raise the productivity of small farmers; raising domestic demand for agriculture output and diversified and non-agriculture labor-intensive rural development activities).

Table 11. Old and Modern Doctrine for Agriculture Transformation

Old doctrine of agriculture	Views of Schultz
Misallocation of land resource	Meaningless to provide sufficient land to the farmers who are bounded by traditions
Zero marginal productivity	It is because of traditional agriculture
Farmers do not accept change as they are handcuffed by traditional thoughts	Farmers are not change resistant only their yield can be connected by profits

(Lekhi, 2008)

This transformation is possible with the key transformation policies such as ability/skills of the farmers, access to credit capital, crop insurance to protect risk, expansion of marketing facilities, ensure direct payment to the farmers need stable price policy.

2.2.4 Theory of Agriculture Modernization

In the 1950s and 1960s, modernization theory provided a conceptual structure for the analysis and explanation of the way in which new and particular farming population would adopt improved agro-technologies. Agricultural modernization theory seeks to identify interdependent relationship between agricultural organization, transformation in agricultural industrial organization and agricultural technology as for industrialization in the country. Hence, the theory portrays that an outcome of economic development cannot be achieved within the agricultural sector only. Therefore, to facilitate agricultural modernization, we must transform the land system at the level of relations of production; promote the transformation of agricultural industrial organization and promoting the spontaneous revolution in agricultural production (Tang, 2011).

2.3 Policy Review

New constitution of Nepal envisioned cooperative sector as one of the third pillars for upgrading national economy. New constitution part 4 and clause 3 provisioned that economics of the state shall be to achieve a sustainable economic development while achieving rapid economic growth by the way of maximum mobilization of the available means and resource through participation and development of public private and cooperatives ante develop a socialism oriented independent and prosperous economy while making the national economy independent self-reliant and progressive in order to build an exploitation free society by abolishing economic inequality through equitable distribution of the gain (New Constitution, 2015). Furthermore, state policies (D) also provisioned policy regarding finance, industry and commerce: strengthening national economy through the participation and free development of public-private-cooperative sector. Below are the devolved power/jurisdictions to the federal, provincial and local government clearly mentioned in constitution:

- Federal power (28): Cooperative regulations
- Provincial power (2): Cooperative
- Concurrent power of federation and province (7)
- Local level's power (2 & 15): Cooperative
- Concurrent power of three tiered government (1)

To meet the international standard, the performance of Nepalese cooperatives are somehow guided by value-laden process. Principally, cooperatives are guided by basic values (i. e. self-help group, self-help responsibility, democracy, equity and solidarity) and ethical values (i. e. honesty, openness, social responsibility, sharing and caring among the members). However, NCDB has also followed seven core principles adopted by International Cooperative Alliance for making cooperative efforts more democratic and transparent which are inserted below:

- Voluntary and open memberships
- Democratic members control
- Members' economic participation
- Autonomy and independence
- Education, training and information
- Cooperation among cooperative
- Concern for community

Agriculture development and the cooperative farming practices are becoming global agendas even in the 21st century. Policy reforms and the economic growth across the globe have been changing demand and supply fundamentals sufficiently to turn agriculture into a more market-driven sector which provides investment opportunities, particularly in developing countries (OECD, 2013). In Nepal, agricultural development is widely acknowledged as a critical component in a strategy to boost livelihoods of the rural people and is now seen as an important part of any development strategy. Hence, the Government of Nepal has accorded top priority to agricultural growth for the improvement of living standards since the inception of a planned economy in 1956 (Thapa, 2009).

Agricultural Perspective Plan (APP) (1997-2017) is the first long term vision to increase agricultural productivity that stresses priority inputs (irrigation, rural roads, fertilizer and agricultural technology) to achieve priority outputs (increased production of fruits, vegetables, livestock, forestry and promotion of agri-business). The APP was designed to promote about 5 percent annual agricultural growth in order to achieve poverty alleviation goals set by the government. It has emphasized applying modern technology as major priority input in farming system of the country. Since many years,

there has been a surge of interest and debate in public forum about the need to increase public sector investment in agriculture, and policy reform for agricultural development in Nepal. Recently, the Government of Nepal has prepared Agriculture Development Strategy (ADS), a 20-year strategy paper for agriculture sector development jointly collaborating with technical assistance (TA) team, financial support mainly from ADB, co-financed by IFAD and contributions by EU, FAO, SDC, and JICA (MoA,2014).

The ADS aimed to allocate significant budget in agriculture sectors, intended to implement various capacity building, rural infrastructure development and research and agriculture development projects in coming future. Subsidies will be provided to small and marginal farmers. The government can draw other public and private sector investment by creating favorable investment climate to attract corporate investors in other sub-sectors in future. Large scale private investment transfer modern technologies in farming system as well as create forward and backward linkages between urban and rural areas. (MoA, 2012).

The ADS strategic frameworks are food and nutrition security, poverty reduction, agriculture trade competitiveness, higher and more equitable income and farmers' right. It ensures and strengthens through collective efforts of farmer organizations, cooperative organizations and private sector organizations (ADS, 2013). According to the strategic framework, ADS has developed and implementing Prime Minister Agriculture Modernization Program (PMAMP). It has emphasized on four types of production, processing and industrial centers determined by Pocket, Block, Zone and Super Zone. In order to commercialize the agricultural sector, the PMAMP has been conducted in total 143,300 hectare area including 69,600 hectare land area in the FY 2016/17 and 73,700 hectare land area in the first eight month of the current FY 2017/18. The federal budget for FY 2019 hence aims at expanding the "PMAM" (2016-2025) to boost agricultural productivity (ADB, 2018).

Table 12. Agriculture Development Programs in Different Plan Periods

Plan	Periods	Agriculture Development Programs in Nepal
1Plan	1956-61	<ul style="list-style-type: none"> • Tribhuvan village development program implemented in 150 blocks • NRs. 45 million (13.6% of total budget) was allocated and benefited to 2.25 million people from 3800 villages
2 Plan	1962-65	<ul style="list-style-type: none"> • Developed and implemented Land Reform Act 1964
3Plan	1965-70	<ul style="list-style-type: none"> • Diffusion of improved technology for agriculture development
4Plan	1970-75	<ul style="list-style-type: none"> • Prepared specific policy for agriculture development
5Plan	1975-80	<ul style="list-style-type: none"> • Implemented Integrated Rural Development Program (IRDP) • Agriculture development became first priority sector in IRDP
6Plan	1980-85	<ul style="list-style-type: none"> • Continuation of IRDP • Realized IRDP as strategy for rural development
7Plan	1985-90	<ul style="list-style-type: none"> • Realized role of women in agriculture development (WID) • Prepared and implemented irrigation policy for agriculture development
8Plan	1992-97	<ul style="list-style-type: none"> • Mobilized women in agriculture development (WAD) • Mobilized local government in agriculture development process
9Plan	1997-2002	<ul style="list-style-type: none"> • Promoted local technologies for agriculture development • Realized gender role of women in agriculture development (GAD)
10Plan	2002-2007	<ul style="list-style-type: none"> • Implemented OBOP for agriculture development • Promoted specialized and commercialized farming system
Interim Plan	2008-10	<ul style="list-style-type: none"> • Rural Urban Partnership Program • Commercialization of agriculture products
Interim Plan	2011-13	<ul style="list-style-type: none"> • Focus on agro-tourism development activities • Government offered vocational trainings to >2,00000 youths by mobilizing 16 training institutions
13 Plan	2013-16	<ul style="list-style-type: none"> • Upgrading country to developing country by 2022 and middle income country by 2030
14 Plan	2016-18	<ul style="list-style-type: none"> • Designed/implemented PMAMP • Agriculture production in pockets, blocks, zones and super zones • Agriculture as lead sector for economy (now to then and forever)
15 Plan	2019-21	<ul style="list-style-type: none"> • Continued PMAMP • Priority given to agriculture development strategy (2015-35) • Ensure food security and nutrition through agriculture development

(NPC, 1956, 1962, 1965, 1975, 1980, 1985, 1992, 1997, 2002, 2010, 2016, 2019)

2.4 Empirical Review

Many of the relevant previous research works have been presented in this section. During the course of review, focus was given to appraise the performance i.e. relevancy, effectiveness, efficiency, impact and sustainability of cooperatives reported in international and national context. The issues like weakness of producing high-quality products, role of cooperatives for market management, lack of women empowerment in programs focused for women in micro-finance are also addressed while reviewing the relevant and research issues related literatures.

The study conducted by UN (1927) in “*Cooperation as a World Movement*” explained the history of emergence of cooperatives in different countries which varied from country to country. The compilation reveals a remarkable achievement in cooperative effort in certain parts of the world. In this article, an attempt is made to bring together the statistics of cooperation for various countries.

The study conducted by UN (1944) on “*International Aspects of the Cooperative Movement*” is about the cooperative’s movement and formation of International Cooperative Alliance (ICA). The aim was to promote the spread cooperative movement and to bring about better and closer relationships among the movements of the various countries and among various branches of cooperation. Since the early 1970s, numbers of development practitioners, economists and academicians thus have raised concerns about micro-finance as a development tool (Copestake 1995; Rogaly 1996).

Gulli and Berger (1999) reviewed impact of Latin American micro-finance institutions to determine their impact in reducing poverty and concluded that conventional micro-credit programs provide loans to owners of micro-enterprises who are generally less poor than wage-employees in micro-enterprises and that "poorer strata of the population might be reached if a broader range of financial services, such as savings and consumer credit, is provided for both wage-employees and the self-employed, and if products are better tailored to client needs" (Gulli & Berger, 1999, p. 26).

Mumtaz (2001) examined the gender component of the Urban Poverty Alleviation Project (UPAP) initiated by the National Rural Support Programme (NRSP) in Rawalpindi and Islamabad. The project emphasis is on "boosting the household economy", rather than the empowerment of women. The findings of the study were the

essence of the need to concentrate on women is misunderstood by the UPAP. The opportunity to generate awareness, and sensitivity towards the plight of the most disadvantaged section of the population, and making efforts to overcome it, is thereby lost.

Kenneth and Tyler (2007) revealed social costs and benefits of micro-credit programs. The study found that provision of lending and non-lending assistance was found to significantly increase income. And social cost benefit analysis demonstrates that the benefits exceeded the costs of administering the program. The results suggest that micro-credit assistance to the smallest and youngest micro-enterprises can be an effective way of increasing incomes.

The study conducted by Rafat et al., (2009) on “*Performance Measurement of the Agricultural Marketing Cooperatives: The Gap between Theory and Practice*” is a review of the theoretical and empirical economic literature on the performance of agricultural marketing (AM) cooperatives. The objectives of this paper were to review economic literature on performance of AM cooperative, to review empirical studies on performance measurement of AM cooperatives and to make discrepancies between the conceptual models and the empirical studies on AM cooperatives. The study found that performance of the cooperative in isolation would be meaningless, since cooperatives represent a firm with a dependent nature. Thus, the appraisal of performance has to take into account the objectives of the cooperatives' owner patrons, as well as the marketing and processing of the cooperative's product in the supply chain.

The study conducted by Venkatesh (2009) is about micro-finance that refers to small savings, credit and insurance services extended to socially and economically disadvantaged segment of society. Therefore, in order to change the face of the socio-economic environment, micro enterprises and self-help groups (SHGs) played an important role in the self-employment generation and entrepreneurship by raising the level of income and standard of living among the people especially rural poor and the weaker sections. Forming SHGs is a valuable investment in human capital through training and capacity building measures. Earlier studies reveal that the rural poor gained access their own financial resources and to help themselves in their social, economic and political development. The emergence of small enterprises and its activities have made

not only considerable contribution in the socio-economic development but also make them self-reliance and protecting the rural poor in the society.

The study carried out by SNV Nepal (2011) on “*Value chain Analysis of Apples from Jumla*” focuses to provide a sufficient contextual analysis of apple in Nepal and especially from Jumla District in terms of present status (geographical distribution, area coverage and production) and future potentials and to identify the constraints and opportunities that can be exploited for promoting income and employment for the rural poor of Nepal. The methodology involved the collection and review of existing literature and secondary data on apples, followed by primary analysis through various checklists and rapid survey questionnaires, interviews and group discussions at various levels and functions of the apple value chain. This study comes up with conclusion that there must be a clear vision of how the value chain should work in the future, and this should be a shared vision of the primary value chain actors.

The study done by Shah (2012) on “*Remembering Verghese Kurien*” described about Kurien, who believed in putting the farmer in control of production, procurement, processing and marketing of farm produce was the only way to develop Indian agriculture. Based on the observations across the different states, the author opined that adaptation of the TNMSC model should come with a detailed and objective analysis of the existing state conditions and its ability (monetary and administrative) to create new structures. The head of the procurement cell plays a crucial role in managing and running the system smoothly, which implies immense political support and authority. Adopting the model without the necessary prerequisites would result in a state spending more money without necessarily improving outcomes.

The article carried out by Thabethe et al., (2012) on “*Micro-credit as a Community Development Strategy; A South African Case Study*” critically examines the development strategy utilized in a men’s micro-credit program that aims to tackle the vicious cycle of poverty and its impacts. The findings highlight the significance of social capital in the mobilization of skills, knowledge, and resources in one local community in the province of KwaZulu-Natal, South Africa. Evidence from the study suggests that micro-credit for microenterprise development contributes to social cohesion and greater co-operation in the community. However, the results also point to the gendered nature of

the project as a paradox that requires critical analysis. It is concluded that while the micro-credit program has succeeded in social development, achievements remain modest in terms of economic and women empowerment.

The study done by Liang and Hendrikse (2013) on “*Core and Common Members in the Genesis of Farmer Cooperatives in China*” addresses the genesis of farmer cooperatives in China in terms of the actors. Empirical results from a multiple case study indicate that the genesis of cooperatives in China is due to entrepreneurial farmers and the government, rather than a bottom-up, collective action process of small farmers.

The study conducted by Cechin et al., (2013) in “*Quality in Cooperatives versus Investor-owned Firms: Evidence from Broiler Production in Parana, Brazil*” explained about the organizational economics points to the weaknesses of cooperatives in producing high-quality products compared with investor-owned firms (IOFs). In the Brazilian broiler industry, suppliers delivering to a cooperative are performing better on quality than suppliers to an IOF. The data was collected through a survey among suppliers of one cooperative and two IOFs. Results show that there are important differences regarding relationship characteristics such as dependence, behavioral uncertainty, market risk reduction, and adaptation support, which could account for the higher quality products of the cooperative farmers.

The study done by Gallagher (2015) on “*Challenging Cooperative Decentralization*” examines the history of governing global capital flows and presented a framework for understanding the first two eras of modern global governance with respect to financial flows. His study emphasizes how power, interests, ideas, and institutions interacted in different combinations to shape each era and to yield different outcomes.

The study conducted by Leder et al. (2019) in “*Ambivalences of Collective farming feminist political ecologies from Eastern India and Nepal*” is about collective farming that has been suggested as a potentially useful approach for reducing inequality and transforming peasant agriculture. It reveals about 18 farmer collectives by an action research project in the Eastern Gangetic Plains. They analyzed ambivalences of collective farming practices with regard to (1) social relations across (2) intersectionality and (3) emotional attachment. Their results demonstrate how intra-household, group and community relations and emotional attachments to the family and neighbors mediate the

redistribution of labor, land, produces and capital. The study found that unequal gender relations, intersected by class, age, ethnicity and caste, are reproduced in collective action, land tenure and water management, and argue that a critical feminist perspective can support a more reflective and relational understanding of collective farming processes. Also, their analysis demonstrates that feminist political ecology can complement commons studies by providing meaningful insights on ambivalences around approaches such as collective farming.

Shrestha (2016) reported that increased income level of their family by hard work is changing the lifestyle and thinking pattern of women involving in cooperative of Khalanga Bazaar. She concluded that most of the women have to depend upon their family involved in to social and financial decision a number of women farmer are unaware of the new technology generated and using traditional technology which reflected by low productivity.

Jicalala (2016) also revealed on role of 38 saving and credit cooperatives of Swaziland, Africa. He concluded that saving and credit cooperatives in Swaziland failed to meet international standard of financial sustainability set for cooperatives. The social performance indicator revealed that saving and credit cooperatives utilize occupation common bond. It also transpired from the results that the major challenges faced by financial cooperatives in Swaziland included low levels of skill and competition from commercial banks.

Maharjan (2016) explained economic impact of Kirtipur multipurpose cooperative limited. She found that the investment pattern of cooperative is in disorder because there is no balanced investment in the entire sector of business. The cooperative provides business loan, hire purchase loan, construction loan, home loan etc. The interest rate of the cooperative is low as compared with other cooperative organization. So, it provides the huge amount of business loan to the business man for the creation of economic activities which ultimately helps to achieve the economic goal of the cooperative.

Table 13. Literature Gaps

Literature Gaps	Addressing the Gaps
Knowledge based	Explain power of cooperation among cooperatives and farming
Relationship based	Analyze the relationship between and among evaluation variables; relevancy, efficiency, effectiveness, impact and sustainability

Theoretical based	Theorize from social capital, financial management , agriculture transformation and agriculture modernization
Methodological based	Mix method study under survey and narrative inquiry methodologies
Analytical based	Descriptive, inferential and thematic analysis of overall performance

(Developed by the Researcher, 2019)

2.5 Conceptual Framework of the Study

Based on literature reviews, researcher developed mind map of this study. This mind map helped to develop study variables based on researching issues (Appendix B). On the top of the framework, researcher presented philosophical and methodological frame. In the center, researcher presented title of the study, research objectives and study variables. Subsequently, the researcher presented list of theories such as social capital, financial management, agriculture transformation and agriculture modernization to the bottom (Figure 3).

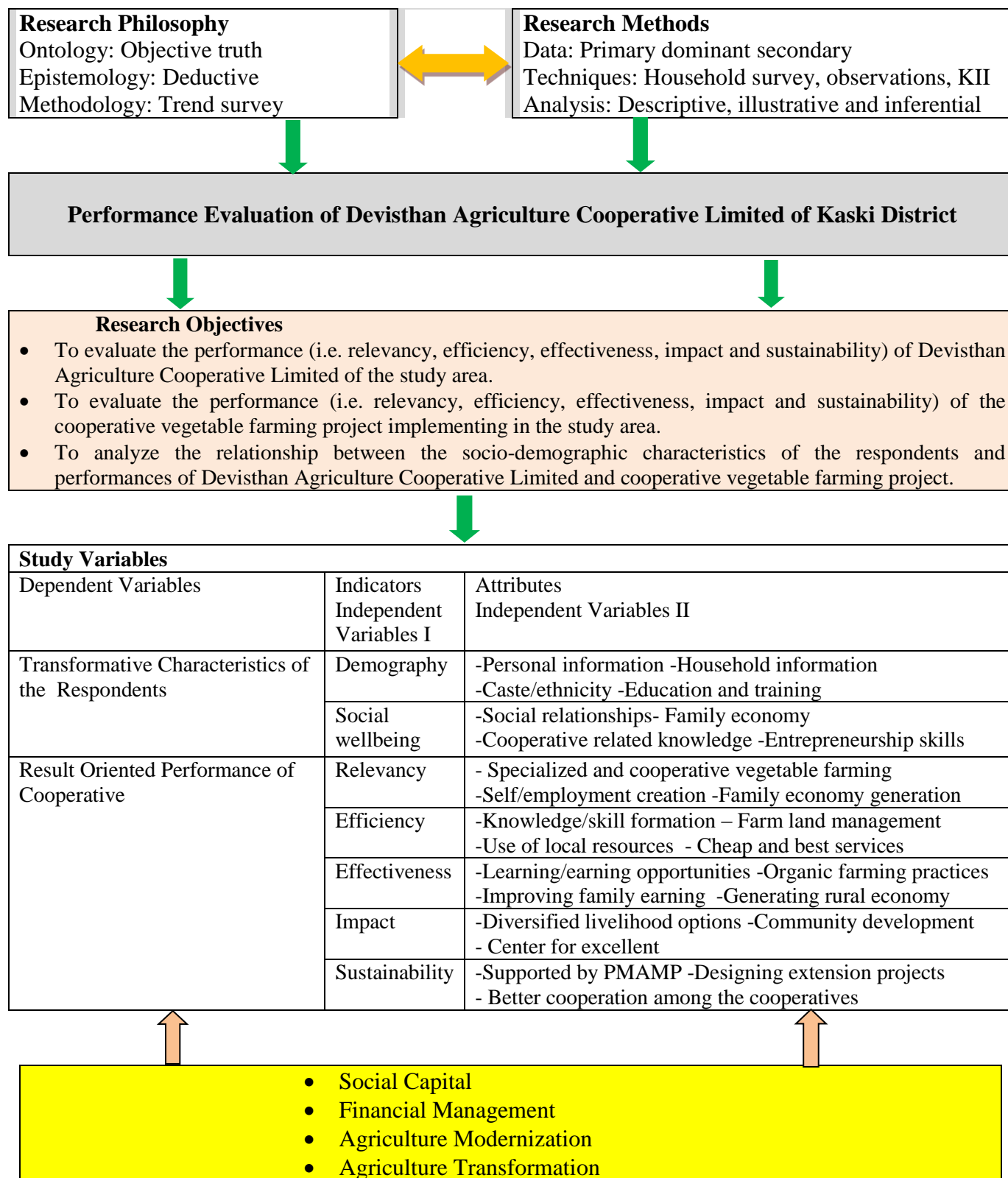


Figure 2: Conceptual Framework of the Study

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research Philosophy

The researcher understood that philosophy is a systematic study of our understanding on any researching issues from ontological premises that relates to the words of participants and provides evidences of different perspectives for exploring truth or truths (objective or subjective) perspectives (Moore & Bruder, 2007, p. 17). The philosophical assumptions consists of a stance towards the nature of reality (ontology), how the researcher knows what she or he knows (epistemology), the role of value in the research (axiology), the language of research (rhetoric) and methods used in the process (methodology) (Creswell, 2003 as cited in Creswell, 2007, p. 16). Philosophically, the purpose of the study is to explain overall performances of the cooperative and cooperative vegetable farming. Thereby, this study will apply positivist (objectivity) philosophical assumption (Table 14).

Table 14: *Philosophical Assumptions of the Research*

Assumption	Characteristics	Implication for Practice
Ontological	Objectivity	Data facts and narrative texts
Epistemological	Deductive	Outsiders stands
Axiological	Value laden	Personal reflection of the researcher
Rhetorical	In/formal writing	Descriptive and narrative
Methodological	Structured	Works with respondents & participants

(Developed by the Researcher, 2019)

3. 2 Research Paradigm

Research paradigm is philosophical lens for viewing researching phenomena. It is a fundamental set of beliefs for guiding the actions and interactions of researcher during field study (Creswell, 2009; 2012). Pragmatism more focuses on the outcomes of the research such as action, situation and consequences of the research. Being a positivist, researcher also has analyzed such researching issues from quantitative approach that follow post-positivism research paradigm for establishing relationship between study variables.

3.3 Research Design

Research design not only explains the methodology being applied in the study but also helps to construct appropriate method in order to address research questions that are established to examine social phenomena (Scotland, 2012). The study is designed under quantitative approach. However, the philosophical ethic is being going towards inter-subjectivity; mix method approach (Creswell & Plano Clark, 2010). Quantitative data are collected through survey methodology. Survey simply means numerical description of relevant aspects of a study population. It is a method of collecting data in which a specifically defined group of individuals are asked to answer a number of questions (Gupta & Gupta, 2015).

This study applied trend survey method that followed quasi-experimental research design which assumes the conditions of the true experiment in different setting without controlling and manipulating the studied variables (Sharma, 2007). As per triangulating qualitative information with quantitative data, this study also generated reflective narrations from 12 participants. The etymology of narrative (Latin derivation, meaning ‘to know’) purports to represent knowledge or ‘truth’. It is an expression of our lived experience that concerned; not with facts, but with plausibility turn is related to “to know” (Dawson, 2007, p. 82). The characteristics of narratives are that they have a plot and characters, they deal with specific situations rather than generalizations and they occur within a social and cultural context that is made explicit. A narrative should also reveal a sense of human agency and intention (Shulman, 1992 as cited in Dawson, 2007). Thereby, narrative research aims for its finding to be well grounded or verisimilitude, producing results that have appearance of truth or reality (Webster & Mertova, 2007, p. 10). In this attempt, the researcher focused on storytelling as lived experiences to understand how research participants narrate their experiences and what their stories are about or lived experience as social action. And researcher also focused on narrative practice and environment to understand relationship between people’s narrative practice and their local environment (Chase, 2011).

3.4 The Field and Rationale

Purposively, Hemja was selected as a field of the study (Appendix H). It is located in ward number 25 of Pokhara Metropolitan City, Kaski District. It has 12262

total populations with 70062 female and 5,200 male populations (Central Bureau of Statistics [CBS], 2011). This region is located nearer from Annapurna Conservation Area Project (ACAP), the largest protected area in Nepal, covering 7,629 Square Kilometer that is home to over 100,000 residents of different cultural and linguistic groups. The cultural, natural and religious attractions of the ACAP thus attracted the 158,578 foreign tourists in 2017 (ACAP, 2018).

Some of the tourist who visits ACAP also prefers to stay in Hemja that is equally famous from natural, cultural and religious perspectives. Naturally, Shangri-La views of northern side, valley view of southern side and greenery farmland around the village lure the visitors. Culturally, multi ethnic groups belonging to Brahmin, Chhetri, Janjati and Dalits are living with mutual relationships. Similarly; Rishi Ashram, Tibrikot, Rudra Mahadev Temple, Radha Krishna Temple and Hanuman Temple are famous religious sites of Hemja Village. The village is also offering homestay, adventures like bunjee jumping, rafting etc. and food festivals to the guests. This region is also famous for fresh vegetable, crop and dairy production. However, the brand production of this region is potato. Since the couple of years, cooperative vegetable farming practices performing by twelve cooperatives of Hemja has been popular cooperative project throughout the country. The cooperative farming has been performing vegetable pocket farming in 400 square meter leasehold land (22 Ropani) under Kaski vegetable super zone project of PMAMP.

The program has been conducted in total 143,300 hectare area including 69,600 hectare land area in the FY 2016/17 and 73,700 hectare land area in the first eight month of the current FY. The federal budget for FY 2019 hence aims at expanding the “PMAM” Project (2016-2025) to boost agricultural productivity (ADB, 2018). The total cost of the project is NRs. 125, 00000 in which PMAMP provided NRs. 75, 00000 amount and twelve cooperatives collected NRs. 48,00000 (NRs. 4,00000 each). This project has been producing cucumber, tomato and green vegetables in two modern high-tech tunnels. This cooperative effort also has been planning to extend commercial farming and establishing cooperative vegetable market in future. For that purpose, they are planning to register District level cooperative with joint efforts of 25 cooperative. (S. R. Bastola, told in

Informal communication, 25th March, Monday, 2019). In recent days, this cooperative is being popular for exposure visit center in the country.

3.5 Nature and Sources of Data

This study applied both primary and secondary sources of data. The primary data and information are collected from structured questionnaire, interview guideline and observation checklist as well as personal communication. Likewise, required secondary data are collected from books, international journals, published and unpublished reports, theses and seminar papers as well.

3.6 Sampling and Population

It is not always possible to reach to the population of the study, thus samples are proportionate subset of the population. Sample is a small representative proportion of population that will select for observation and analysis of data information (Best & Khan, 2004). Under quantitative approach, this study identified 224 sample populations (Appendix C). Out of that, only 138 sample numbers have been selected as respondents (Table 9 and Appendix B) that are generated with 95 percent confidence level and 5 percent marginal error by using sample size determination formula (Krejcie & Morgan*, 1970). In this regard, this study followed both purposive and stratified random sampling methods. Likewise, under qualitative approach, this study selected 12 participants (4 female and 8 male) who are the representatives of elected leaders, board members of cooperative (Appendix E), local intellectual, role model member of cooperative, administrative staffs, seasonal farm labor and product suppliers (Table 16 &17).

$$*\text{Sample size (n)} = \frac{\chi^2 * N * (1-P)^2}{ME^2 (N-1) + (\chi^2 * P * (1-P))}$$

Where,

n = required sample size

χ^2 = Chi square (Value* 3.841 for 5% confidence level with 1 degree of freedom)

N = Population size

ME = Desired Marginal error (expressed as a proportion)

P = Probability of success (0.5 value for unknown population)

Q= (1-P, i.e. 0.5 value for unknown population)

Table 15: Selection of the Respondents

Categories	Respondents	Sample Population	Total	Sample Numbers
Duty Bearers	Elected ward representatives	5	25	24
	Board members of cooperative	16		

	Local development stakeholders	4		
Direct Beneficiaries	Role model members of cooperative	178	198	114
	Administrative staffs	11		
	Product suppliers including labors	10		
Total		224		138

(Field Study, 2019)

3.7 Data Collection Techniques and Tools

This study applied household survey, observation and key informant interview techniques for data collection. Survey is a method of collecting data in which a specifically defined group of individuals are asked to answer a number of questions (Baker, 1994, p. 172). Questionnaire survey is the most commonly use method in every kind of research. It is used to gain primary information from the respondents who answer questions about themselves, their knowledge of particular subject and their opinion. The questions in the questionnaires are well structured so that each respondent answers exactly the same way. This method is applied to collect data from 138 selected respondents based on structured questionnaires (Appendix C).

Similarly, participant observation helps researchers to experience and observe first hand dimensions of the natural setting (Mason, 2002). Observation helped to collect both quantitative and qualitative data/information. Hence, this study applied observation technique in order to understand the researching issues. Likewise, key informant interview is an effective method for capturing the views of interviewees that can ultimately produce some parcel of knowledge. But an effectiveness of interview entails creating a shared concern between interviewer and interviewees to understand the contextual nature of the interview (Kvale, 2006). In this line, by following key informant interview (KII) guideline, KIIs were conducted with 12 participants playing leadership and active role in the study area (Appendix D).

Table 16. Selection of the KII Participants

Categories	Name	Designation	Female	Male	Total
Duty Bearers	T. Bishowkarma	Elected local representatives	1	2	3
	J. Karki				
	D. Kuwar				
	D.R Bastola	President of cooperative	-	1	1
	S. Timsina	Local development stakeholders	-	1	1
Direct Beneficiaries	P. Thapa P. Bastola	Role model members of cooperative	2	1	2

	I. Tripathi				
	K.S. Paudel M. Tripathi	Administrative staffs	-	2	2
Indirect Beneficiaries	S. BK	Seasonal farm labors	1	-	1
	S. Bastola	Employee in cooperative farm	-	1	1
Total			4	8	12

(Field Study, 2019)

3.8 Reliability, Validity and Quality Standard

Reliability refers to precision and accuracy in measurement during study. For achieving consistency in measurement, this study developed reliable data collection tools such as; questionnaire sheet, interview guideline and representative sampling procedures (Cohen et al., 2007). Moreover, this study applied internal consistency measure or cronbach alpha measurement that provides a coefficient of inter-item correlations that measures the internal consistency among the items (Cohen et al., 2007, p. 148). In this attempt, formula $\text{Alpha} = \frac{n r_{ii}}{1 + (n-1) r_{ii}}$, n = the number of items in the test or survey (e.g. questionnaires), r_{ii} = the average of all the inter-item correlations has been used.

Imagine that the number of items in the survey is ten, and that the average correlation is 0.73. This study used cronbach alpha test through pilot test in the research filed. Out of total 138 samples, the tool piloting was done for 14 (10%) samples. The calculated Cronbach's Alpha value was 0.70, which is larger than 0.7 (Table 12). Thus, the tool used for collecting data found reliable in terms of internal consistency.

Validity refers to apply valid process during whole research process. Validity can be improved through content, construct and criterion validity (Cohen, et al., 2007). Similarly, content validity helped researcher to attempt careful sampling and measure significance test between variables. Also, construct validity helped researcher to triangulate literature review, field data information and statistical tools like factor analysis. And finally, criterion validity helped researcher to use reliable tools for data collection.

Table 17. Reliability Test of the Study

Cronbach's Alpha		Cronbach's Alpha Based on Standardized Items		N of Items	
0.70		0.73		5	
Item-Total Statistics	Scale Mean if Item	Scale Variance if	Corrected Item-Total	Squared Multiple	Cronbach's Alpha if

	Deleted	Item Deleted	Correlation	Correlation	Item Deleted
Efficiency	7.44	1.79	0.54	0.66	0.62
Effectiveness	8.13	1.94	0.55	0.67	0.62
Impact	7.64	2.74	-0.02	0.30	0.85
Sustainability	7.61	1.74	0.82	0.78	0.50
Relevancy	7.56	2.10	0.66	0.51	0.60

(Pilot Study and Field Survey, 2019)

3.9 Method of Data Analysis

This study adopted descriptive, illustrative and inferential statistical methods of data analysis. In this regard, SPSS version 20 has been used to organize, summarize, describe and generalize the collected data. In the same way, descriptive and likert scale analysis methods are used in single and multiple variables. Similarly, descriptive and inferential statistics methods were applied for analyzing the significant relationships between study variables. All the data are categorized and presented according to the objectives of the study. During data analysis, this study applied description, analysis, and interpretation method. Description of data helped to understand meaning of the data, analysis of data helped to identify underlying meanings of data and interpretation of data help to understand processes and meanings in the theoretical context (Yin, 2014).

3.10 Ethical Consideration

The researcher heartily maintained all the forms of ethical aspects of researcher viz. sharing the research propose upfront, maintaining the privacy of respondents, informed consent for information collection, and rapport build-up with respondents. In this process, the researcher introduced with gatekeepers first and shared the purpose of field visit and objective of the study. Then, the researcher got permission letter from concerned stakeholders of this study (Appendix A).

The researcher understood that during data collection there will not be any compulsion to the respondents at any point if they prefer to decline to respond. For maintaining ethical consideration in the study, researcher reflected upon the issue of privacy and consent to ignore any kind of biasness (Creswell, 2012). Thereby, privacy of respondents and their attitude towards income, employment and work environment and benefits are confidential. Finally, reflecting upon the ideas of Kvale, the researcher will be more guided by mainly two ethical aspects: (i) scientific responsibility; that help

researcher to commit with my academic and professional career in order to yield body of knowledge and, (ii) independence of research that encourage and motivate researcher to conduct study independently (Kvale, 2006).

CHAPTER IV
DATA ANALYSIS AND INTERPRETATION

4.1 Social Demography

This section presented social demographic characteristics related variables (Q. N. 1-13) such as sex, marital status, caste and ethnicity, religion, age group, land holdings pattern, food sufficiency situation, formal education, family occupation and informal education as well as non-formal training status of the respondents (Table 18 to 20).

Table 18. Social Demographic Related Information

Socio-demographic characteristics	Headings	Board member of DACL	Member of DACL	Total Members	Percent (%)
Respondents' category		24 (17.4%)	114 (82.6%)	138	100
Sex	Male	23	44	67	51.4
	Female	1	70	71	48.6
	Others	0	0	0	0.0
Marital Status	Unmarried	1	3	4	2.9
	Married	23	111	134	97.1
	Separated	0	0	0	0.0
	Single	0	0	0	0.0
Caste and ethnicity	Brahmin	19	68	87	63.0
	Chhetri	5	31	36	26.1
	Janjati	0	12	12	8.7
	Dalits	0	3	3	2.2
	Others	0	0	0	0.0
Religion	Hindu	24	114	138	100
	Buddhist	0	0	0	0.0
	Christian	0	0	0	0.0
	Kirat	0	0	0	0.0
	Muslim	0	0	0	0.0
Age group	18-29	1	5	6	4.3
	30-39	5	33	38	27.5
	40-49	8	40	48	34.8
	50+	10	36	46	33.3
Land holdings pattern	<5 Ropani	11	65	76	55.1
	6-14 Ropani	8	35	43	31.2
	15-24 Ropani	1	5	6	4.3
	>25 Ropani	4	4	8	5.8
	Not any	0	5	5	3.6
Food	3- 6 months	4	25	29	21.0

Socio-demographic characteristics	Headings	Board member of DACL	Member of DACL	Total Members	Percent (%)
sufficiency situation	6-9 months	1	17	18	13.0
	9-12 months	10	55	65	47.1
	Surplus production	8	12	20	14.5
	No production	1	5	6	4.3
Formal educational status	Illiterate	0	19	19	13.8
	Primary	4	32	36	26.1
	Secondary	14	37	51	37.0
	BA/MA	5	26	31	22.5
	MPhil/PhD	1	0	1	0.7

(Field Survey, 2019)

The table 18 highlights that 82.6 percent are member and 17.4 percent are board members of cooperative that includes 51.4 percent male and 48.6 percent female. The data indicates that the issue of gender equality is also prevailing in cooperative sector. Converging with the literature, gender equality and social inclusion are not yet addressed properly by the cooperatives functioning around Eastern Gangetic Plains. Therefore, critical feminist perspective can support a more reflective and relational understanding of collective farming processes (Leder et al., 2019).

Similarly, the data represents age group of people ranging from 30-50 above actively participated in farming and cooperative works. This highlights that all the members were from the active age group. The respondents comprised of 63 percent Brahmin, 26.1 percent Chhetri, 8.7 percent Janjati and 2.2 percent Dalits. The data confirms that collective efforts of local people help to establish and operate this cooperative and cooperative farming practices in Hemja village. Conversing with the literature, Venkatesh (2009) also reveals that micro enterprises and self-help groups (SHGs) played an important role in the self-employment generation and entrepreneurship by raising the level of income and standard of living among the people especially rural poor and the weaker sections.

Being an agrarian village, only 47.1 percent have enough food for the year whereas 13 percent have for 6-9 months, 21 percent have for 3-6 months. Eventually, they have to depend upon local market for the remaining months. Among them, 14.5 percent have surplus production whereas 4.3 percent does not have any production. From the view point of social capital theory,

the data depicts that status of family wellbeing of the respondents is still critical that is creating cultural reproduction and inequality in the village (Bourdieu, 1986).

Education is another variable to analyze the commercial farming practices and cooperative knowledge as educated farmers use modern agriculture tools, technologies and their knowledge and skills for agriculture. The data clearly shows that literate respondents have actively been participating in cooperative which comprised of about 37 percent having secondary level education, 26.1 percent having primary level education and 22.5 percent having bachelors/masters level education. Whereas, 13.8 percent were illiterate but had various informal knowledge and experiences related to commercial farming.

Table 19. Primary Family Occupation of the Respondents

Types of family occupation	Frequency	% out of 138 responses
Business	40	29.0
Private jobs	20	14.5
Foreign employment	20	14.5
Police/army	3	2.2
Government jobs	11	8.0
Pension	11	8.0
Agriculture/daily wages	109	79.0

(Field Survey, 2019)

The table 19 highlights the distribution of family occupation of the respondents and their involvement in different activities with the help of cooperatives. 79 percent are involved in agriculture/daily wages, 29 percent in business activities, 14.5 percent in private jobs and foreign employment and 8 percent in government jobs and pension. The data demonstrates that agriculture is primary occupation in Hemja.

Table 20. Information about Capacity and Skill Development Training

Skill trainings recipient	Frequency	% out of 138 responses
Capacity development	40	29.0
Saving and cooperative	28	20.3
Commercial vegetable farming	72	52.2
Handicraft making	6	4.3
Embroidery/ Tailoring	18	13.0
Parlor	6	4.3

(Field Survey, 2019)

The table 20 demonstrates that 52.2 percent have taken skill training on commercial vegetable farming. It states that majority of people are involved in agriculture using their

knowledge and skills for farming. Similarly, 29 percent received capacity development training, 20.3 percent on savings and credit, 13 percent on embroidery/tailoring whereas only 4.3 percent took handicraft- making and parlor training.

4.2 Performance Evaluation of Cooperative

For performance evaluation, this study considers five-scale Likert measurements (Subedi, 2016), which quantify the perceptions: strongly agree (1), agree (2), neutral (3), disagree (4) and strongly disagree (5). Descriptive and summative (Likert scale) analysis methods have been applied for evaluating performance of cooperative. Calculated average values are presented in five different sub sections (i.e. relevancy, efficiency, effectiveness, impact and sustainability) of the cooperative and summative value are presented in Appendix F.

Although it was raining heavily in the morning, the researcher reached Hi-tech Greenhouse located nearby Ghatte Khola. The researcher interacted with the president of Devasthan Agriculture Cooperative Limited, Hemja. Meanwhile, the flow of full time workers increased. The researcher got a chance to interact with them. Workers shared their experiences and knowledge on cooperative vegetable farm operated by cooperation among the 12 cooperatives. The researcher realized that the economic support provided by the central government was not sufficient enough which led to financial, technical and marketing problems. They were growing seasonal vegetables such as tomato, spinach, beans, cabbage, capsicum, carrot, coriander. But due to lack of marketing strategy, plenty of vegetables mainly cucumbers were thrown around paddy fields. Such problems could be addressed with the establishment of cold stores (Observation, 23rd June, 2019, 10.15AM-2:00 PM)

4.2.1 Relevancy

The indicator relevancy has been measured with the help of eight different variables (Q. N. 14-21) i.e. access to saving and credit facilities, investment trend in productive sectors, role of cooperative on improving family economy, cooperation among cooperatives, cooperative vegetable farming, Prime Minister agriculture modernization program, vegetable super zone program, production and distributions of fresh vegetables and popularity of cooperative vegetable farming (Table 21 to 24). More precisely, Devasthan Agriculture Cooperative Limited effort found more relevant to the cooperative members offering financial management practices in local level. Literature also says that the reasons for the emergence of cooperative are lack of viable financial structure across the rural settings and lack of credit support by the financial institutions (Venkatesh, 2009). However, cooperative effort in China started with joint efforts of entrepreneurial farmers and the government rather than collective action process of small farmers (Liang & Hendrikse, 2013).

Table 21. Average Value of Relevancy Statistics

Statistics		Relevancy
N	Valid	138
	Missing	0
Mean		2.21
Median		2.18
Mode		2.00 ^a
Std. Deviation		0.46
Skewness		0.45
Std. Error of Skewness		0.20
a. Multiple modes exist. The smallest value is shown		

(Field Survey, 2019)

The data in table 21 revealed that the average value of eight different variables of relevancy is 2.21. It means the perception of the respondents' on this indicator is between "agree and neutral" scale. The response to "Kaski vegetable super zone project of central government encouraged people to perform cooperative vegetable farming" has got the highest mean value of 2.71 which is close to neutral. The data signifies that ADS strategic framework has been ensuring farmers' right and strengthens through collective efforts of agriculture cooperative and cooperative farming (ADS, 2013).

The following remark of the participant also signifies the importance of this project:

The coordination among 12 cooperatives helped to run cooperative vegetable farming in our village. Most of the members seem satisfied with this innovative effort. Cooperative farming project has been helping farmers to work cooperatively and has also encouraged individuals to involve in farming (I. Tripathi, 26 June, 2019 [KII]).

Among other indicators, the supportive environment from the government agencies to the cooperative vegetable farming is very weak. While appraising the same theme, critical reflections of the participant also has been inserted below:

Cooperative is a collective effort of people. It has helped a lot to the farmers by providing loan in low rate. Few years back, farmers used to pay 36 percent to 60 percent interest to the money lenders but now the situation has improved. Cooperative farming has generated more employment in local level and people are benefitted by it but has not achieved much (J. Karki, 24 June, 2019 [KII]).

Table 22. Cross Tabs: Investment and Family Economy

		Cooperative activities has helped to improve family economy of cooperative members			Total
		Strongly agree	Agree	Disagree	
The trend of investing in productive sectors have been increased with cooperative effort	Strongly agree	14	10	3	27
	Agree	19	76	3	98
	Disagree	0	9	4	13
Total		33	95	10	138

(Field Survey, 2019)

The table 22 signifies the interrelationship between investment and family economy in which 27 strongly agreed, 98 agreed and 13 disagreed that the trend of investing in productive sectors has increased with the cooperative effort. Similarly, 33 strongly agreed and 95 agreed that cooperative activities have helped to improve family economy of the cooperative members whereas only 10 respondents disagreed with the statement. The data reveals that family economy of the respondents depends on investment pattern that varied from member to member of cooperative. Literature also says that investment pattern of Kirtipur multipurpose cooperative found disorder. Huge amount of loan is provided to the businessman to invest in economic activities (Maharjan, 2016). All those facts can be justified by the subjective expressions of the participants given below:

Cooperative is a group of people who cooperate for their social and economic benefit. The principles of cooperative are concern for community, cooperation among cooperatives, open membership, economic participation, education, training, and information etc. that are integral part for improving rural life and livelihoods (S. Bastola, 23 June, 2019 [KII]).

Cooperative is an organization which collects scattered capital for the mutual benefit of people. It has helped female to work in a group as well as improved economic status of family in particular. Educated ones are getting employment according to their educational status (T. Bishowkarma, 25 June, 2019 [KII]).

In my opinion, cooperatives are the voluntary association among the people. There are various kinds of cooperatives i.e. saving and credit cooperative and agriculture cooperatives. Cooperatives has reached to those places where there are no banking and financial institutions (D. R. Bastola, 28 July, 2019 [KII]).

Table 23. Cross Tabs: Vegetable Super Zone Project and Seasonal Products

		Devisthan Agriculture Cooperative has been supplying fresh vegetables in all season				Total
		Strongly agree	Agree	Neutral	Disagree	
Vegetable super zone project of central government encouraged people to perform cooperative vegetable farming	Strongly agree	6	7	1	0	14
	Agree	7	48	2	6	63
	Neutral	1	6	3	1	11
	Disagree	5	24	4	16	49
	Strongly disagree	0	0	1	0	1
Total		19	85	11	23	138

(Field Survey, 2019)

The table 23 demonstrates the relationship between vegetable super zone project and seasonable products. 14 responders strongly agreed and 63 only agreed that this project encouraged people to perform cooperative vegetable farming whereas 23 disagreed with the statement. Likewise, 19 strongly agreed and 85 agreed that Devisthan Agriculture Cooperative Limited has been supplying fresh vegetables in all season whereas 23 disagreed with it. There were also few who neither agreed nor disagreed that the influence of vegetable super zone project in supplying seasonal products throughout the year.

Table 24. Cross Tabs: Local Products and Popularity of Cooperative Farming Project

		This cooperative vegetable farming project is popular in local, provincial and state level of the country					Total
		Strongly agree	Agree	Neutral	Disagree	Strongly disagree	
Devisthan Agriculture Cooperative has been supplying fresh vegetables in all season	Strongly agree	9	9	0	1	0	19
	Agree	9	60	6	10	0	85
	Neutral	1	3	4	2	1	11
	Disagree	4	11	6	2	0	23
Total		23	83	16	15	1	138

(Field Survey, 2019)

The table 24 depicts the supply of local products has gained popularity of cooperative farming project. 19 respondents strongly agreed and 85 only agreed on Devasthan Agriculture Cooperative Limited supplying fresh vegetables in all season whereas 23 disagreed with it. Similarly, 23 strongly agreed, 83 only agreed about the popularity of this cooperative vegetable farming project in local, provincial and state level of the country whereas 16 were neutral and 15 disagreed with it. Linking this fact with agriculture transformation theory, it can be claimed that cooperative farming project has brought transformation in vegetable farming practices particularly in Hemja. It is possible with the key transformation policies such as ability/skills of the farmers, access to credit capital (Lekhi, 2008). In the same theme, one of the participants expressed that:

The number of cooperatives has been increasing a lot and doing good job. There are several kinds of cooperatives i.e. saving and credit cooperatives, agriculture cooperatives, dairy cooperatives, women's cooperatives, herbal cooperatives etc. at local level. Among them cooperative farming is becoming popular in the district and provincial level that helped the people with low income get interest at lower rate (K. S. Poudel, 2 August, 2019 [KII]).

4.2.2 Efficiency

The item variables (Q. N. 22-29) were developed for measuring indicator efficiency of the cooperative efforts. The variables included rules and regulations of cooperative, affordable rate of interest to the members, financial support provided from central government to implement cooperative farming, technical support provided from central government to implement cooperative farming, time periods for providing financial and technical supports were/are provided on time and investment of subsidy amount for constructing hi-tech green house and irrigation technology (Table 25 to 27).

Table 25. Average Value of Efficiency Statistics

Statistics		Efficiency
N	Valid	138
	Missing	0
Mean		2.58
Median		2.66
Mode		2.50
Std. Deviation		0.45
Skewness		-0.39
Std. Error of Skewness		0.20

(Field Survey, 2019)

The data in table 25 revealed the average value of efficiency is 2.58. It means the perception of the respondents on this indicator is between "agree and neutral" scale. The response to "Devasthan Agriculture Cooperative Limited got sufficient technical support from central government to implement vegetable pocket under Kaski vegetable super zone project" has got the highest mean value 3.12 which is close to the neutral. The data represents that agriculture transformation is possible with large portion of government expenditure in agriculture sector (Lekhi, 2008). The following statements of the participants also highlighted supportive environment of central government:

We were doing good job in coordination between 12 cooperatives that has improved vegetable farming situation. It has encouraged people for cooperative farming. Board members of all the cooperatives are performing well. The director of this vegetable super zone project is president of Devasthan Agriculture Cooperative Limited (M. Tripathi, 24th June, 2019 [KII]).

Previously, cooperative used to work solely but now coordination and cooperation among cooperatives has encouraged people to do cooperative farming. People are not much satisfied by the coordination among 12 cooperatives. PAMP is a program which is developed by government with an aim to increase agricultural production (J. Karki, 24th June, 2019 [KII]).

The board members of 12 cooperatives running cooperative farming project are well experienced. Shareholders are also active and interactive for proper management of cooperative efforts. Rural life and livelihood of Hemjali people have changed because of cooperative efforts (P. Bastola, personal communication, 1st August, 2019).

Among other indicators, the supportive environment from the local government agencies to the cooperative in promoting this project is very weak. This means that government still need to make the project more systematic. Also, the participants expressed that:

The implementation part of Vegetable Super zone Project is too loose, so central government should monitor it. Various training and skill should be provided to the farmers at the local level. Due to the lack of technology and market management, it is not progressing much as it should have. The government had given grant of NRs. 85, 00,000. The monthly operating cost is more than NRs. 1, 00,000 which is limited to monthly income (J. Karki, 24th June, 2019 [KII]).

Table 26. Cross Tabs: Financial Support of Government and Time Efficacy

		All the financial supports are provided on time					Total
		Strongly agree	Agree	Neutral	Disagree	Strongly disagree	
Devisthan Agriculture Cooperative got sufficient financial support from central government to implement vegetable super zone project	Strongly agree	1	0	1	3	0	5
	Agree	6	14	13	23	2	58
	Neutral	2	4	23	3	0	32
	Disagree	3	4	11	21	1	40
	Strongly disagree	0	0	0	2	1	3
Total		12	22	48	52	4	138

(Field Survey, 2019)

The table 26 depicts the financial support of government and time efficacy. 5 respondents strongly agreed, 58 only agreed that Devisthan Agriculture Cooperative Limited got financial support on right time from the central government to implement this project whereas 40 disagreed and 32 were neutral with it. Similarly, 12 strongly agreed, 22 only agreed and 52 disagreed that all the financial supports were/are provided on time whereas 48 were neutral and 4 strongly disagreed with it. It clearly states that government has not been providing financial support on time. However, the cooperative farming project implemented by government support has been motivating the farmers to some extent. While theorizing this fact, interdependent relationship between agricultural organizations, transformation in agro based industrial organization and agricultural technology is inevitable for modernizing agriculture even in Nepal (Tang, 2011).

The following statements also proved the transformative role of cooperative:

The state has also focused and promoted to invest for agriculture modernization. We have coordinated with 12 cooperatives and invested for operating vegetable pocket. We are producing seasonal vegetables and people are also satisfied with this cooperative farming effort (D. Bastola, 28 July, 2019 [KII]).

PAMP has launched project in all 7 provinces. Collective efforts of our 12 cooperatives helped to operate vegetable super zone project in this Gandaki Pradesh. It is becoming

popular in central and local level. The number of farmers, students and researchers visiting our farm is increasing day by day (M. Tripathi, 24th June, 2019 [KII]).

Under the working components of Prime Minister Agriculture Modernization Program, here in our village we are operating vegetable pocket under Kaski vegetable super zone project. It becomes possible with collective effort of twelve cooperatives operating in Hemja. Government had supported NRs. 72, 00,000 excluding VAT and we 12 cooperatives collected NRs. 4, 00,000 each (S. Bastola, 23rd June, 2019 [KII]).

The government should mainly invest more in tools, technology, equipment, and technical knowledge. Those who are real farmers must be in agriculture and it should not be traditional. The government supported NRs. 72, 00,000/ excluding tax and the investment was done much in the structure. Our major concern now is not having any technicians for Hi-tech greenhouse. The monthly operation cost for the Hi-tech greenhouse is NRs. 75, 000 and the income is NRs. 1, 50, 000 (D. Bastola, 28 July, 2019 [KII]).

In the initial period, the government invested NRs. 1, 00, 00, 000 but now the income is too less even to support the people who work there. One of the major advantages of the greenhouse is off season production; however, they are producing seasonal vegetables which are easily available in the market. This is the main reason for slow progress of the greenhouse (S. Timilsina, 1st August, 2019[KII]).

Devasthan Agriculture Cooperative Limited has been helping the farmers and also has been providing seeds, fertilizers, insecticides and pesticides to farmers. People were excited during the initial phase and all the members from 12 cooperatives thought they would get profit soon despite of their investment. Lately, they knew that most of the project would only give permanent profit or result and they should invest more till the final result or until they meet their objectives. Also, they are still waiting for the good result. (D. Kuwar, personal communication, 2nd August, 2019).

Table 27. Cross Tabs: Technical Support of Government and Time Efficacy

		All the technical supports were/are provided on time					Total
		Strongly agree	Agree	Neutral	Disagree	Strongly disagree	
Devasthan Agriculture Cooperative got sufficient technical support from central government to implement this vegetable super zone project	Strongly agree	7	2	0	1	0	10
	Agree	3	14	4	12	0	33
	Neutral	0	3	26	3	0	32
	Disagree	2	3	17	32	2	56
	Strongly disagree	0	0	1	4	2	7
Total		12	22	48	52	4	138

(Field Survey, 2019)

The table 27 shows the technical support of the government and time efficacy. 10 strongly agreed, 33 only agreed that Devasthan Agriculture Cooperative Limited got technical support on right time from central government to implement this project whereas 56 disagreed, 32 were neutral and 7 strongly disagreed with it. Likewise, 12 strongly agreed, 22 agreed that all the technical support were/are provided on time whereas 52 disagreed, 48 were neutral and 4 strongly disagreed with it. It demonstrates that government has not been providing technical support on time. In the same theme, the research participants also expressed that:

The international principles of cooperatives are democratic control, cooperation among the cooperatives, and economic upliftment among the people. In the context of Nepal, there are only saving and credit cooperatives, however in other international countries, cooperatives focus on production (maximum production). I have had chance to visit some of them. Also, the leadership skill of our board members is good so far, but we do not have technical skills for Hi-tech, we have grown the vegetables by our own experience till date (D. Bastola, 28 July, 2019 [KII]).

Cooperatives are very helpful for us. The board members visit the Hi-tech time to time, and they do some monitoring and also provide some suggestions and try helping people. There should be air conditioner in order to balance the temperature, because people are complaining that the temperature range is not stable, and it is difficult to do the farming during the summer and winter because of the temperature fluctuation (S. Bishwokarma, personal communication, 1st August, 2019).

During the implementation of vegetable pocket, the construction of two Hi-tech was given to foreign technicians. As a technical support we were provided with 2 technicians but we never got proper support from them. The support provided by PAMP was not enough, it only provided the system but it lacked resources, skill and training. Only system won't help the vegetable super-zone project (S. Bastola, 23rd June, 2019 [KII]).

4.2.3 Effectiveness

The indicator effectiveness has been measured by eight different variables (Q.N. 30-37). All the variables except 31 (Board member and members have been participating in different capacity/skill development trainings related to cooperative and cooperative vegetable farming) were nominal data so the summative value of effectiveness has not been mentioned in Appendix. However, average value and descriptive values are presented (Table 28-31).

Table 28. Average Value of Effectiveness Statistics

Statistics		Effectiveness
N	Valid	138
	Missing	0
Mean		1.88

Mode	2
Std. Deviation	0.69
Skewness	1.48
Std. Error of Skewness	0.20

(Field Survey, 2019)

Calculated data in table 28 revealed the average value of efficiency is 1.88. It demonstrates the perception of the respondents' on this indicator is close to "agree" scale. The response, "All members are getting opportunity to participate in trainings related to cooperative, exposure visit and cooperative vegetable farming" has got the mean value 1.88. This signifies the insufficiency on availability of various capacity development and exposure visit program to the cooperative members. While diverging with this fact, it is found that in the Brazilian broiler industry, suppliers delivering to a cooperative are performing better on quality than suppliers to investor-owned firms (Cechin et al., 2013).

On contrary with the fact, one of the participants shared:

The principles of cooperatives are cooperation among cooperatives, open membership, democratic member control and so on. In my cooperative, illiterate male and female are made literate by coordinating with Ministry of Education for informal education (M. Tripathi, 24 June, 2019 [KII]).

The above narrations signify that women are becoming empowered with literacy classes. They are involving in cooperatives and performing social, economic and political role in the community and society. In this regard, other empirical findings also proved that thinking pattern of women involving in cooperative of Khalanga Bazaar becoming productive that help to increase their family income and change their life style (Shrestha, 2016).

Table 29. Cross Tabs: Duration of Membership and Saving Amount

		Total saving amount of respondent in this cooperative					Not any	Total
		<49,000	50,000-1,49,000	1,50,000-2,49,000	2,50,000-3,49,000	>3,50,000		
Duration of membership in Devasthan Agriculture Cooperative	<1 Year	6	7	2	0	0	0	15
	2-3 Years	12	5	6	2	2	3	30
	>4 Years	42	31	7	5	6	2	93
Total		60	43	15	7	8	5	138

(Field Survey, 2019)

The table 29 highlights the duration of membership and saving amount. 93 respondents were members for more than 4 years and 15 had recent membership below 1 year. Likewise, 60 had minimum saving amount (i. e. less than fifty thousand) whereas only 8 had maximum saving amount (i.e. more than three lakh and fifty thousand) and 5 do not have had any saving in Devisthan Agriculture Cooperative Limited. The following statement of the participant also proves that cooperative members are investing their savings in productive sector:

People have learned to save and get interest as they wanted to start a new business - farmers get seed to grow, money to buy insecticides and pesticides and also they get money to start on their own (entrepreneurship). Few years prior, people used to save their income but now they have started to invest in agriculture too, which sounds great (D. Bastola, 28 July, 2019 [KII]).

Table 30. Cross Tabs: Credit Capital and Investment Scenario

		Total investment amount of respondent in business and commercial farming						Total
		<99,000	1,00000-1,49000	1,50, 000-2,49,000	2,50, 000-3, 49,000	>3,50,000	Not any	
Total loan or credit amount of respondent received from Devisthan Agriculture Cooperative and other financial institutions	<99000	11	11	2	0	1	1	26
	1,00000-1,99000	8	6	0	0	1	0	15
	2,00,000-2,99,000	2	0	2	1	2	1	8
	3,00000-3,99000	0	0	1	2	5	0	8
	>4,00000	2	0	1	2	6	3	14
	Not any	27	11	6	5	8	10	67
Total		50	28	12	10	23	15	138

(Field Survey, 2019)

The table 30 illustrates the credit capital and investment scenario of the respondents in which 26 had loan amounting less than NRs. 99,000, 8 had loan NRs. 3, 00,000- 3, 99,000 and 14 had loan of more than NRs. 4, 00000 that was invested in business and commercial farming whereas 67 do not have any loan or credit amount received from Devisthan Agriculture Cooperative Limited and other financial institutions. Moreover, 50 had invested less than NRs. 99,000 and 10 had invested between NRs. 2, 50,000-3, 49,000 in businesses and commercial farming whereas 15 do not have any investment in these sectors. In fact, cooperative effort has been motivating local people to invest in farming and business sectors. In the same theme, the research participants shared that:

Cooperative has helped a lot to improve the people's economic status and it has also created employment in local level. The vegetable super zone project operating by cooperation among 12 cooperatives offering seasonal and permanent job opportunities to the local people. However, all the local people are not yet investing in agriculture sector. That could generate more self-employment options (S. Bastola, 23rd June, 2019[KII]).

Cooperative effort has created job opportunities at local as well as national levels. This can help for the economic upliftment in family. Although they have been depositing a small amount, they also can invest or take the loan whenever they need. It has also helped the low-income people by limiting the unwanted expenses (D. Kuwar, personal communication, 2nd August, 2019).

Table 31. Cross Tabs: Credit Capital and Educational Investment Scenario

		Total investment amount in education of your own and your child						Total
		<900	1,000-4,900	5,000-9,999	10,000-19,000	>20,000	Not any	
Total loan or credit amount of respondent received from Devasthan Agriculture Cooperative and other financial institutions	<99000	4	5	2	8	4	3	26
	1,00000-1,99000	0	3	2	6	3	1	15
	2,00,000-2,99,000	0	2	3	0	2	1	8
	3,00000-3,99000	0	0	2	1	3	2	8
	>4,00000	1	0	2	2	7	2	14
	Not any	2	8	10	11	21	15	67
Total		7	18	21	28	40	24	138

(Field Survey, 2019)

The table 31 shows the credit capital and educational investment scenario of the respondents. The data highlights 26 respondents had loan less than NRs. 99,000 whereas 67 do not have loan or credit amount received from Devasthan Agriculture Cooperative Limited or any other financial institutions. Likewise, 40 had invested more than NRs. 20,000 in a month for their child, 7 only invested less than 900 per month and 24 do not have had any investment in education.

4.2.4 Impact

The impact evaluation indicator has been measured by eight different variables (Q.N.38-45). The details of variables are about saving and credits activities of the cooperative members, role of cooperative for creating self-employment and employment options, supplying fresh vegetables by cooperative farm, cooperative vegetable and increasing capital amount of

cooperative, seasonal employment opportunities creating by cooperative and cooperative becoming learning centers to the farmers, students and elected representative of local government (Table 32 to 35). More specifically, Devisthan Agriculture Cooperative Limited has brought positive impact in the lives of local people and their collective relationships. Converging with literature, micro-credit or microenterprise development contributes to social cohesion and greater co-operation in the local community of KwaZulu-Natal, South Africa (Thabethe et al., 2012).

Table 32. Average Value of Impact Statistics

Statistics		Impact
N	Valid	138
	Missing	0
Mean		2.01
Median		2.00
Mode		2.17
Std. Deviation		0.44
Skewness		0.30
Std. Error of Skewness		0.20

(Field Survey, 2019)

Calculated data in table 32 revealed that the average value of impact is 2.01. It means the perception of the respondents' on this indicator is close to "agree" scale. The response to "Cooperative vegetable farm has helped to increase capital amount of Devisthan Agriculture Cooperative Limited" has got the highest mean value 2.77, which is close to neutral. Among other indicators, the role of vegetable farming in adding the capital money on cooperative seems weak. Meaning that cooperative and cooperative vegetable farming practices must provide equal earning opportunities to all the members. The remarks of the participants on this theme are mentioned below:

Cooperative is cooperation among people. It helps people work easily. Local farmers who got memberships from cooperatives are getting loan without the mortgage in low rate of interest. They are investing loan amount in commercial farming and business activities (I. Tripathi, 26th June, 2019 [KII]).

Cooperatives have helped farmers for fertilizers and seeds; they are easily accessible to the farmers. It has also helped to uplift the economic condition of people living in rural areas. Devisthan Agriculture Cooperative Limited (also referred as "Devisthan") is the main leader among the 12 cooperatives. The board members are experienced and possess a good leadership skill (P.Thapa, 28th July 2019 [KII]).

I saw some gaps in cooperative farming project of 12 cooperatives lead by Devasthan. They should improve the types of seasonal and off-seasonal seeds. It is great that they have felt the shortcoming and are still working to improve in it. Hi-tech greenhouse has not shown the progress compared to the investment because of the lack of management team. They are not experienced, and hopefully, they will progress more in near future (S. Timilsina, 1st August, 2019 [KII]).

Table 33. Income and Expenditure of the Respondents

Headings	NRs.	Count	% Out of 138 Responses
Monthly family income of the respondent	<19,000	26	18.8
	20,000-29,000	37	26.8
	30,000-39,000	25	18.1
	40,000-49,000	12	8.7
	>50,000	38	27.5
Total		138	100.0
Monthly family expenditure of the respondent	10,000-19,000	65	47.1
	20,000-29,000	29	21.0
	30,000-39,000	19	13.8
	>40,000	25	18.1
Total		138	100.0

(Field Survey, 2019)

The table 33 depicts the information about income and expenditure of the respondents which illustrates 27.5 percent earned more than NRs. 50,000 and 8.7 percent earned in between NRs. 40,000-49,000. Similarly, the data depicts 47.1 percent expended in between NRs.10, 000-19,000 and 13.8 percent of the respondents expended in between NRs.30, 000-39,000. From development perspective, the data highlighted that the status of family economy has been improving with the financial management practices of the respondents. Also, the literature says that since the early 1970s, number of development practitioners, economists and academicians thus have raised concerns about micro-finance as a development tool (Copestake, 1995; Rogaly, 1996).

Table 34. Trend of Investment after Cooperative Efforts

	Frequency	Percent
Strongly agree	27	19.6
Agree	98	71.0
Disagree	13	9.4

Total	138	100.0
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(Field Survey, 2019)

The table 34 depicts the views on trend of investment after cooperative efforts. It highlights that 27 strongly agreed, 98 only agreed on the trend of investment after cooperative efforts whereas 13 disagreed with it. It clearly states that the trend of investment has increased after the cooperative efforts.

Table 35. Cooperative is Creating Employment to the Local People

	Frequency	Percent
Strongly agree	22	15.9
Agree	108	78.3
Neutral	1	0.7
Disagree	7	5.1
Total	138	100.0

(Field Survey, 2019)

The table 34 shows the opinion on creating employment to the local people by cooperative. 22 strongly agreed, 108 agreed that cooperative has been creating employment to the local people whereas only 7 disagreed with it. It reveals that cooperative has been creating employment in the local level. The research participants also suggested to the duty bearers for grabbing excessive positive impact. They reflected that:

Cooperative should focus on growth of local production. Local farmers are investing their family income as well as credit amount in commercial farming and business activities. A cooperative has helped a lot to uplift the living standard of farmers (I. Tripathi, 26th June, 2019 [KII]).

The trend of investing in business, entrepreneurship is increasing in our village. Still most of the local people are not involving in commercial farming. That could generate employment and self-employment chance in local level. However, cooperative has helped a lot to uplift the economic condition of the local people investing in farm and business activities (M. Tripathi, 24th June, 2019 [KII]).

4.2.5 Sustainability

The eight different variables (Q. N. 46-53) have been developed for measuring sustainability indicator. The variables are related to satisfaction level of the members, mechanism to obtain grievances of the members, information about regular meeting, and general assembly of cooperative, internal audit system by cooperative members, future planning for extension cooperative farm, planning for operating animal husbandry farm and vegetable shops, sufficient technical and financial support of the central government (Table 36 to 39).

Table 36. Average Value of Sustainability Statistics

Statistics		Sustainability
N	Valid	138
	Missing	0

Mean	2.13
Median	2.12
Mode	2.13
Std. Deviation	0.42
Skewness	0.03
Std. Error of Skewness	0.20

(Field Survey, 2019)

Calculated data in table 36 revealed that the average value of sustainability is 2.13. It means the perception of the respondents' on this indicator is close to "agree" scale. The response to "Member's satisfaction level also have been increased after coordination between twelve cooperatives" has got the highest mean value 2.86, which is close to neutral. Among other indicators, the status of member satisfaction after the coordination with other cooperatives seems poor. In this line, saving and credit cooperatives in Swaziland, Africa also failed to meet international standard of financial sustainability set for cooperatives (Jicalala, 2016). Beyond doubt, agriculture modernization in general and spontaneous revolution in agricultural production is possible with sustainability of agriculture cooperative and cooperative farming in Nepalese context (Tang, 2011)

The reflective views of the participants also have been inserted below:

PMAMP encourage people more in agriculture and take more benefit from it. This project has increased the agro-tourism; a lot of people visit it every day. For the increment of tourism activities in Hemja it is inevitable to run cooperative farming project in a sustainable manner. This demands formulation and implementation of farm management activities properly (D. Kuwar, personal communication, 2nd August, 2019)

The 12 cooperatives have done a good job, everyone is satisfied with it. Vegetable pocket project has encouraged to the active farmers. I do not have any knowledge regarding the Hi-tech but people from different districts come to visit. For the sustainability, experienced trainer/technicians should be provided by the government (R. Gautam, personal communication 2 August, 2019).

In order to run this project smoothly, government should provide seeds and technology, skill, resource, training as well as market management should be focused. We should do farming by drip irrigation system and plastic moulding. About two hundred Ropani land should be taken and also we should work in a proper and systematic way (S. Bastola, 23rd June, 2019 [KII]).

I do not have any knowledge about the income and expenses of vegetable super zone project. The government had supported 80 percent and 20 percent were invested by the 12 cooperatives. In my opinion, government should support more for the sustainability of this project. The influence of market intermediaries should be stopped and some plans are also being made for the market management (I. Tripathi, 26th June, 2019 [KII]).

Table 37. Information about Extension of Green Houses

	Frequency	Percent
Strongly agree	30	21.7
Agree	72	52.2
Neutral	17	12.3
Disagree	19	13.8
Total	138	100.0

(Field Survey, 2019)

The table 37 shows, 30 respondents strongly agreed and 72 agreed that the number of hi-tech greenhouses must be increased for the extension of vegetable farming in the future whereas 17 were neutral and 19 disagreed for the extension of vegetable farming in the future. Reflecting upon agriculture transformation theory, that is highly possible with insurance to protect risk, expansion of marketing facilities, ensure direct payment to the farmers need stable price policy (Lekhi, 2008). In this respect, the narration unpacked how research participants are appraising extensions of the cooperative farming project:

For the sustainability, we have not made any plans, but we are providing NRs. 4, 00, 000 to the farmers through the farmers web/group. Hi-tech greenhouse does not have much technical support from the government. There are only few job opportunities generated by the cooperative. Although this project is good for the farmers, the progress is not satisfying due to the lack of technical support. We occasionally supervise the greenhouse (S. Timilsina, 1st August, 2019 [KII]).

Table 38. Government Supports for Sustaining Vegetable Super Zone Project

	Frequency	Percent
Strongly agree	57	41.3
Agree	66	47.8
Neutral	6	4.3
Disagree	9	6.5
Total	138	100.0

(Field Survey, 2019)

The table 38 illustrates the views on government support for sustaining vegetable super zone project in which 57 strongly agreed, 66 only agreed whereas 9 disagreed and 6 of them were neutral in it. Even in case of India, Shah (2012) believed in putting the farmer in control of production, procurement, processing and marketing of farm produce was the only way to develop Indian agriculture that is possible with state spending more money without necessarily improving outcomes. However, the project site is becoming learning centers to the others but provincial and local government needs to provide technical and financial support to sustain this project. In the same subject, the research participants expressed that:

Farmers from different districts have visited till date i.e. 50-60 teams yearly and it is a good sign that we are renowned for agro-tourism though we have not generated much profit this super zone project. We've talked with our municipal level for its sustainability; let's see what will happen (J. Karki, 24th June, 2019 [KII]).

This year 99 groups visited the Hi-tech greenhouse. For the sustainability of this project, we have planned to add livestock and use their manure for the vegetable farming. Also, we also have planned to expand our areas in future (D. Bastola, 28 July, 2019 [KII]).

After the coordination between 12 cooperatives, we are implementing vegetable super zone project. Local people are not yet satisfied highly with government support on this project but farmers from Mechi-Mahakali come to visit here. We are delegating to the provincial and local government to make Hemja as model village for vegetable farming (T. Bishowkarma, 25th June, 2019 [KII]).

A lot of school students, visit the Hi-tech every day. We have planned to coordinate people from various cooperatives with the ward (local level) and extend the area for the sustainability of this project. Lack of market policy is a great problem to us. We have also planned to build collection centre so that we can supply vegetables to the provincial areas too. If we get the technical support, seeds and fertilizers by the governments we can do a lot of progress (K. Poudel, 2 August, 2019 [KII]).

Table 39. Future Plan of Vegetable Super Zone Project

	Frequency	Percent
Strongly agree	42	30.4
Agree	80	58.0
Neutral	8	5.8
Disagree	8	5.8
Total	138	100.0

(Field Survey, 2019)

The table 39 illustrates the respondent's views on future plan of vegetable super zone project where 42 strongly agreed, 80 only agreed whereas 8 disagreed about the extension of project in the future and 8 were neutral in it. It means that there is need of extension of the

cooperative farming project as agriculture has been an important sector in the national economy for most of the developing countries like Nepal (Mongues, et al., 2012). The statements of the research participants on same theme have been presented below:

Existing green house should be focused rather than extending the number of green houses and they should own shop and add commercial animal husbandry. It has multiple benefits on doing so for eg. Manure can be used for growing of organic vegetables. Devasthan and other respective cooperatives should work for the sustainability rather than waiting for the government's support (R. Gautam, personal communication 2 August, 2019).

In my opinion, cooperative is a joint effort of people for mutual benefit. Government has set criteria for cooperatives i.e. one house one member in one cooperative which is good normatively. In practice, some people involve in cooperative just to take loan. That is the challenging task for cooperative to run smoothly (M. Tripathi, 24th June, 2019 [KII]).

4.3 Relationships between Social Demography and Overall Performance

This section presents inferential statistical analysis or relationships between studied variable related to socio-demography, relevancy, efficiency, effectiveness, impact and sustainability. In this response, the values of chi-square test have been inserted in analysis text and case processing values are presented in appendices part (Appendix G).

Inferential Hypothesis 1 (Socio-demography): Does the land holdings pattern of family matters with the category of beneficiaries? Land holdings signifies the economic status of the respondent in our rural settings. In order to assess the relationship between variables, a chi-square test was done. Hereof, the alternative hypothesis was set as there is significant difference between the category of the respondents' and their economic status (i.e. having more land means good economic condition).

Table 40. Value of Chi-Square Test for Hypothesis 1

Test Statistics	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.47 ^a	4	0.11
Likelihood Ratio	6.86	4	0.14
Linear-by-Linear Association	1.06	1	0.30
N of Valid Cases	138		
a. 5 cells (50.0%) have expected count less than 5. The minimum expected count is 0.87			

(Field Survey, 2019)

Upon this analysis, this study got p value = 0.11, which is more than alpha value = 0.05 (Table 40). Hereof, we fail to reject null hypothesis and can interpret that there is no significant difference between the category of the beneficiaries and their land holdings status. It proves that

there is no any significant difference in land holdings (or economic status of the respondents') whether being board or general members. The following remark of the participant also supports this fact:

Cooperatives are for the betterment of farmers. PAMP has been working since two and half years and established Hi-Tech in 18-20 Ropani in our village. They have been extending their area by leasing more land. This project is very fruitful to the farmers. Moreover, farmers should be provided with seeds and support. We have been supporting them by giving some feedbacks and also, we have felt they will progress in coming years (S. Timilsina, 1st August, 2019[KII]).

Inferential Hypothesis 2 (Relevancy): Does the gender matter in believing that cooperative activities helped to improve family economy? In order to assess the relationship between variables, a chi-square test was done. On this, the alternative hypothesis was set as there is significant difference between male and female; and their belief on cooperative activities helped to improve family economy.

Table 41. Value of Chi-Square Test for Hypothesis 2

Test Statistics	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.06 ^a	2	0.07
Likelihood Ratio	5.33	2	0.07
Linear-by-Linear Association	4.80	1	0.02
N of Valid Cases	138		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.86.

(Field Survey, 2019)

Upon analysis, this study got p value = 0.07, which is more than alpha value = 0.05 (Table 41). On this, this study fail to reject null hypothesis and can interpret that there is no significant difference between the gender of the respondents' and their belief in the view that cooperative activities helped to improve family economy. It clarified that whether the respondents are male or female; their family income has been improved through cooperative. However, divergence with literature gaze shows that the Urban Poverty Alleviation Project initiated by the National Rural Support Program in Rawalpindi and Islamabad could not address the issue of women empowerment. The sensitivity towards the plight of the most disadvantaged section of the population is thereby lost (Mumtaz, 2001). The following remark of the participant also supports this:

Cooperative is a collective effort of people and it is guided by the values i.e. cooperation, support, self-help but these days cooperatives are profit motive. However, it has helped to improve family economy and has created employment opportunities in local level. People

are satisfied after the coordination between 12 cooperatives for implementing vegetable super zone project (R. Gautam, personal communication 2 August, 2019).

Inferential Hypothesis 3 (Relevancy): Does the category of respondents' (board member and general member) matter in believing that the cooperative vegetable farming is becoming popular in local, provincial and state level of the country? In order to assess the relationship between variables, a chi-square test was done. On this, the alternative hypothesis was set as there is significant difference between the category of the respondents' and their perception on the cooperative vegetable farming is becoming popular in local, provincial and state level of the country.

Table 42. Value of Chi-Square Test for Hypothesis 3

Test Statistics	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.65 ^a	4	0.15
Likelihood Ratio	5.30	4	0.25
Linear-by-Linear Association	0.01	1	0.89
N of Valid Cases	138		

a. 5 cells (50.0%) have expected count less than 5. The minimum expected count is .17.

(Field Survey, 2019)

Upon analysis, this study got p value = 0.15, which is more than alpha value = 0.05 (Table 42). On this, we fail to reject null hypothesis and can interpret that there is no significant difference between the category of the beneficiaries and their perception about the cooperative vegetable farming is becoming popular in local, provincial and state level of the country. It means whether being board or general members, there is no any significant difference in believing that the role of cooperative vegetable farming is gaining popularity across the country. The following remark of the participant also supports this fact:

PMAMP is led by Devasthan Agriculture Cooperative Limited. The government had supported 70 percent of the total budget and 30 percent i.e. 48, 00,000/- was invested by us. We get the technical support from District Agriculture Development Committee but they want the greenhouse to be maintained by the local people here in Hemja (K. Poudel, 2 August, 2019 [KII]).

Inferential Hypothesis 4 (Efficiency): Does the category of respondents' (board member and general member) matters in believing that interest rate of DACL is quite satisfactory (8 % in saving amount and 12 % in credit amount)? In order to assess the relationship between variables, a chi-square test was done. On this, the alternative hypothesis was set as there is significant difference between the category of the respondents' and their perception on believing

that rate of interest of DACL is quite satisfactory (8 % in saving amount and 12 % in credit amount).

Table 43. Value of Chi-Square Test for Hypothesis 4

Test Statistics	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.75 ^a	4	0.01
Likelihood Ratio	17.08	4	0.002
Linear-by-Linear Association	11.59	1	0.001
N of Valid Cases	138		

a. 6 cells (60.0%) have expected count less than 5. The minimum expected count is 0.17

(Field Survey, 2019)

Upon analysis, this study got p value = 0.01, which is less than alpha value = 0.05 (Table 43). On this, calculated value reject null hypothesis and can interpret that there is significant difference between the category of the beneficiaries and their perception on believing that rate of interest of DACL is quite satisfactory (8 percent in saving amount and 12 percent in credit amount). In this line, descriptive statistics also clarifies that 100 percent of the board members are satisfied (either strongly agreed or agreed) with the prevailed provision of interest rate and only 71.9 percent of the general members are satisfied (either strongly agreed or agreed) with such provision. Even though, nearly 30 percent of the general members have some dissatisfaction over the policies on the interest rates of the loan and deposits. The following remark of the participant also supports this fact:

Our cooperative is mainly known for the Hi-tech greenhouse these days; many groups came to visit the greenhouse within these 2 years. For sustainability, new cropping system like multi-cropping should be adopted, arable land should be expanded and the productive land should not be developed into residential area; in addition, cooperative farming should be prioritized (P.Thapa, 28th July 2019 [KII]).

Inferential Hypothesis 5 (Effectiveness): Does the ethnicity of the respondents' matter in getting opportunity to participate in trainings related to cooperative, exposure visit and cooperative vegetable farming? In order to assess the relationship between variables, a chi-square test was done. On this, the alternative hypothesis was set as there is significant difference

between the ethnicity of the respondents' and their perception on getting opportunity to participate in trainings related to cooperative, exposure visit and cooperative vegetable farming.

Table 44. Value of Chi-Square Test for Hypothesis 5

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.68 ^a	12	0.47
Likelihood Ratio	9.51	12	0.65
Linear-by-Linear Association	2.19	1	0.13
N of Valid Cases	138		

a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is 0.02

(Field Survey, 2019)

Upon analysis, this study got p value = 0.47, which is more than alpha value = 0.05 (Table 44). On this, we fail to reject null hypothesis and can interpret that there is no significant difference between the ethnicity of the beneficiaries and their capacity building status. It means respondents with various caste groups had an equal opportunity to participate in the trainings related to cooperative, exposure visit and cooperative vegetable farming. The following remark of the participant also supports this fact:

Cooperatives are similar to the warehouse in house these days. Mainly, it has encouraged people for saving. It is always available to help people. The principles of cooperatives are good and also helpful to the farmers for banking work, vegetable farming. It has helped for employment and entrepreneurship development at local level. It has also encouraged people to deposit, get loan at minimal interest rate, female income and their capacity building and enhancement (R. Gautam, personal communication 2 August, 2019).

Inferential Hypothesis 6 (Effectiveness): Does the ethnicity of the respondents' matter in their total saving amount in this cooperative? In order to assess the relationship between variables, a chi-square test was done. On this, the alternative hypothesis was set as there is significant difference between the ethnicity of the respondents' and their saving habits.

Table 45. Value of Chi-Square Test for Hypothesis 6

Test Statistics	Value	Df	Asymp. Sig. (2-sided)
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Pearson Chi-Square	15.46 ^a	15	0.41
Likelihood Ratio	13.83	15	0.53
Linear-by-Linear Association	0.39	1	0.52
N of Valid Cases	138		
a. 17 cells (70.8%) have expected count less than 5. The minimum expected count is 0.11			

(Field Survey, 2019)

Upon analysis, this study got p value = 0.41, which is more than alpha value = 0.05 (Table 45). On this, we fail to reject null hypothesis and can interpret that there is no significant difference between the ethnicity of the beneficiaries and their saving habits in DACL. It means people with various caste groups have been saving their earnings at the cooperative. However, it is found that local entrepreneurs are comparatively getting more benefits from the cooperative efforts. Even in case of Latin America, micro-finance programs also provide loans to owners of micro-enterprises who are generally less poor than wage-employees in micro-enterprises (Gulli & Berger, 1999). The following narrations of the participant also justified this fact:

Cooperatives means cooperation among the people of same level/group with an aim of helping each other. It also helps for commercialization and industrialization. During 2050s, cooperatives were about to collapse but after 2062/ 2063 revolution; they are back in good condition. It has helped in creating entrepreneurship and upliftment at local level. It has helped big/small business, foreign employment, and abroad studies/employment, social actives (marriage, bratabandha, and death rituals) though there was the availability of local banks (K. Poudel, 2 August, 2019 [KII]).

Inferential Hypothesis 7 (Impact): Does the category of respondents' (board member and general member) matter in perceiving that saving and credits activities of the cooperative members have been increased significantly after the establishment of cooperative? In order to assess the relationship between the variables, a chi-square test was done. On this, the alternative hypothesis was set as there is significant difference between the category of the respondents' and saving and credits activities of the cooperative members have been increased significantly after the establishment of cooperative with collective efforts of the local people.

Table 46. Value of Chi-Square Test for Hypothesis 7

Test Statistics	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.57 ^a	4	0.23
Likelihood Ratio	4.63	4	0.32
Linear-by-Linear Association	1.11	1	0.29
N of Valid Cases	138		

a. 5 cells (50.0%) have expected count less than 5. The minimum expected count is 0.17
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(Field Survey, 2019)

Upon analysis, this study got p value = 0.23, which is more than alpha value = 0.05 (Table 46). On this, we fail to reject null hypothesis and can interpret that there is no significant difference between the category of the beneficiaries and saving and credits activities of the cooperative members have been increased significantly after the establishment of cooperative. It means whether being board or general members, there is no any significant difference in believing that saving and credits activities of the cooperative members have been increased significantly after the establishment of cooperative. Social capital forming with cooperative effort also has been supporting to the economic and political development scenario of Hemjali people who are now establishing good relationships with elected representatives or village assembly and top level politicians and bureaucrats (Putnam, 1988).

The following narration of the participant also justified this fact:

Cooperatives has helped the economic condition of family households, although, the economic condition of a country/whole nation is going worse day by day. People are being benefitted more than country. The 12 cooperatives are working together for this project but they are still testing on what can be the perfect seeds to grow in there. The eleven cooperatives are helping Devasthan Agriculture Cooperative Limited for the agricultural production. Before a year, we were on a loss i. e. production and also time. Two of our production went in vain and also the time invested to produce it (K. Poudel, 2 August, 2019 [KII]).

Inferential Hypothesis 8 (Impact): Does the economic status of respondents' (in terms of food sufficiency) matter in perceiving that cooperative has helped to create self-employment and employment opportunities to the young entrepreneurs and local people? In order to assess the relationship between the variables, a chi square test was done. On this, the alternative hypothesis was set as there is significant difference between the economic status of respondents' (in terms of food sufficiency) and their perception that cooperative has helped to create self-employment and employment opportunities to the young entrepreneurs and local people.

Table 47. Value of Chi-Square Test for Hypothesis 8

Test Statistics	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.47 ^a	12	0.21
Likelihood Ratio	9.71	12	0.64
Linear-by-Linear Association	1.26	1	0.26
N of Valid Cases	138		

a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is 0.04

(Field Survey, 2019)

Upon analysis, this study got p value = 0.21, which is more than alpha value = 0.05 (Table 47). On this, we fail to reject null hypothesis and can interpret that there is no significant difference between the economic status of respondents' (in terms of food sufficiency) and their perception that cooperative has helped to create self-employment and employment opportunities to the entrepreneurs and local people. It means whether the respondents' belong to high economic class or low, their view about that cooperative has helped to create self-employment and employment opportunities to the entrepreneurs and local people is similar. Further, this cooperative effort need to establish cooperation with market channels, private sector and local government mechanism to sustain cooperative effort. It is because the literature says that performance of the cooperative in isolation would be meaningless. It is better to establish proper cooperation among cooperatives' owner patrons as well as the marketing and processing of the cooperative's product in the supply chain (Rafat et al., 2009).

The following narrations of the participant also justified this fact:

The monthly operating cost of vegetable super zone project is NRs 1, 50,000 including land rent and staff's salary. At first, we were in loss, however we've earned NRs. 2, 00,000, and if our latest production gets good market, we will be in much profit. Likewise, we have also gained popularity so students, farmers and researchers come here to visit our farm. 120 groups of farmers and students have visited within this 2 year due to its popularity in provincial and national level (S. Bastola, 23rd June, 2019[KII]).

Inferential Hypothesis 9 (Sustainability): Does the category of respondents' (board member and general member) matter in perceiving that there is appropriate mechanism to obtain grievances for increasing member's satisfactions? In order to assess the relationship between the variables, a chi-square test was done. On this, the alternative hypothesis was set as there is significant difference between the category of the respondents' and their perception on "There is appropriate mechanism to obtain grievances for increasing member's satisfactions".

Table 48. Value of Chi-Square Test for Hypothesis 9

Test Statistics	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.77 ^a	3	0.05
Likelihood Ratio	8.11	3	0.04
Linear-by-Linear Association	6.73	1	0.009
N of Valid Cases	138		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 2.26.

(Field Survey, 2019)

Upon analysis, this study got p value = 0.05, which is more than alpha value = 0.05 (Table 48). On this, we fail to reject null hypothesis and can interpret that there is no significant difference between the category of the beneficiaries and their perception on there is appropriate mechanism to obtain grievances for increasing member's satisfaction. It means whether being board or general members, there is no any significant difference in believing that there is appropriate mechanism to obtain grievances for increasing member's satisfactions, however, nearly 92 percent of board members and only 70 percent of the general members agreed (strongly agreed and agreed) with this view. The following narration of the participant also justified this fact:

The coordination and cooperation among 12 cooperatives helped to operate cooperative vegetable farming in our village. It is becoming popular that is why you also have visited our village with research purpose. For the sustainability of the project, there should be active participation of management team and strong coordination between them as well (P. Bastola, personal communication, 1st August, 2019).

Inferential Hypothesis 10 (Sustainability): Does the educational status of the respondent's matter in perceiving that there is a provision of internal audit system by cooperative members and set qualification to be a board member? In order to assess the relationship between the variables, a chi-square test was done. On this, the alternative hypothesis was set as there is significant difference between the category of the respondents' and their perception on there is a provision of internal audit system by cooperative members and set qualification to be a board members.

Table 49. Value of Chi-Square Test for Hypothesis 10

Test Statistics	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.43 ^a	12	0.75
Likelihood Ratio	7.40	12	0.83
Linear-by-Linear Association	0.50	1	0.47
N of Valid Cases	138		

a. 13 cells (65.0%) have expected count less than 5. The minimum expected count is 0.05

(Field Survey, 2019)

Upon analysis, this study got p value = 0.75, which is more than alpha value = 0.05 (Table 49). On this, we fail to reject null hypothesis and can interpret that there is no significant difference between the educational status of the respondents' and their perception on there is a provision of internal audit. Also, there is no such qualifications needed to be a board member. On Contrary to this fact, the proposition of social capital theory claims that there is a relationship

between formation of social capital and human capital (Coleman, 1993). Thus, a highly educated and skilled human capital can provide institutional agent role for the betterment of economic and social life of the Hemjali people. The following narrations of the participant also justified this fact:

It has separated pocket area for vegetable farming. This is completely a new project for us. We, 12 cooperatives invested NRs. 48, 00,000 for this project. The technicians were brought from foreign countries for the construction of Hi-tech green house. The monthly operational cost for this farm is 1, 15,000/- excluding manure and seed. We are not in loss and also not in profit, our monthly income is balanced. We are planning to extend other 10 green houses for maximizing profits (M. Tripathi, 24th June, 2019 [KII]).

CHAPTER V

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

The average value of the evaluation indicators (i.e. efficiency, effectiveness, impact and sustainability) of the cooperative and cooperative farming are satisfactory (Table 50). More specifically, the efficiency component has highest mean value 2.58, which is between neutral and agree. Alternatively, the effectiveness component has mean value 1.88 which is close to agree. The other indicators impact has mean value 2.01 and sustainability has mean value 2.13. These imply that the efficient service delivery has been largely expected by the cooperative members.

Table 50. Indicators wise Value of Performance Evaluation

Statistics	Relevancy	Efficiency	Effectiveness	Impact	Sustainability
N	Valid	138	138	138	138
	Missing	0	0	0	0
Mean	2.21	2.58	1.88	2.01	2.13
Median	2.18	2.66	2.00	2.00	2.12
Mode	2.00 ^a	2.50	2.00	2.17	2.13
Std. Deviation	0.46	0.45	0.69	0.44	0.42
Skewness	0.45	-0.39	1.48	0.30	0.03
Std. Error of Skewness	0.20	0.20	0.20	0.20	0.20
a. Multiple modes exist. The smallest value is shown					

(Field Survey, 2019)

Likewise, the average value of merged indicators of the performance evaluation (i.e. efficiency, effectiveness, impact and sustainability) is 2.15 (Table 51). It shows that the average perception of the respondents' on the performance of the DACL is close to the "agree" scale. Also, the median 2.19 (in round figure 2) indicates that 50 percent of the respondents view the performance status as strongly agree and 50 percent view it as neutral, disagree and strongly disagree). It shows a large number of respondents are satisfied with the performance of the cooperative. In addition, the mode value 2.20 (in round figure 2) indicates that the largest repeating view regarding the performance evaluation is "agree", which show their satisfied perception towards the cooperatives service and deliveries.

Table 51. Merged Value of Performance Evaluation

Statistics		Values
N	Valid	138
	Missing	0
Mean		2.15
Median		2.19
Mode		2.20 ^a
Std. Deviation		0.33
Skewness		0.004
Std. Error of Skewness		0.20
a. Multiple modes exist. The smallest value is shown		

(Field Survey, 2019)

5.2 Meaning Making and Theorization

This section tried to making meaning of the researching issues from different theoretical perspectives. Hence, the process of theorization is based upon reviewed theories that are briefly presented below:

Social capital: There is no significant difference between the ethnicity of the beneficiaries and their saving habits in the DACL. It means respondents from various caste groups are saving their earnings at the cooperative. Also, there is no significant difference between the category of the beneficiaries (board members and general members) and saving and credits activities of the cooperative members have been increased significantly after the establishment of cooperative. Similarly, there is no significant difference between the economic status of respondents (in terms of food sufficiency) and their perception that cooperative has helped to create self-employment and employment opportunities to the entrepreneurs and local people. In this line, Bhandari and Yasunobu (2009) has pointed that social capital is centered on social relationships and its major element includes social networks, civic engagements and generalized trust.

In this regard, the DACL members have expressed their social harmony and mutual coordination on the development of their cooperative and securing their livelihood. However, the provisions of different skill development trainings (farm and off-farm) should be fairly provided to all caste group people for their inclusive development.

Financial management: People have some dissatisfaction over getting opportunity to participate in trainings related to cooperative, exposure visit and cooperative vegetable farming as well as the interest rate of DACL is quite satisfactory (8 % in saving amount and 12 % in

credit amount). Nearly 30 percent of the general members have some dissatisfaction over the policies on the interest rates of the loan and deposits. Similarly, whether being board members or being general members, there is no any significant difference in believing that there is appropriate mechanism to obtain grievances for increasing member's satisfactions, however, nearly 92 percent of board members and only about 70 percent of the general members agreed (strongly agreed and agreed) with this view. Also, in regards to the qualification of the respondent, there is no any significant difference in believing that there is a provision of internal audit system by cooperative members and set qualification to be board members. The financial management also helps the policy makers to decide the considerable areas (capital structural decisions, dividend policy, investment techniques, working capital and performance assessment) at the time of financial decisions (Hunjra, Butt and Rehman, 2010). Thus, DACL needs to revise its investment techniques to address the grievances of the stakeholders through mass consultation, basically in the sector of interest rate of deposits and loan.

Agriculture transformation: Agricultural development is a sub-set of rural development. Rural areas cannot attain development without its agriculture being developed because majority of the rural dwellers are engaged in agricultural practices as their major source of income (Udemezue & Osegbue, 2018). In this respect, the farmers from the study area are performing transformation in traditional farming system. They are performing commercial farming and becoming skillful with capacity and skill development trainings offered by government and non-government agencies. However, access to credit capital, crop insurance to protect risk, expansion of marketing facilities, ensure direct payment to the farmers for avoiding the role of mediators and maintaining stable price policy are still questionable. For this, the role of all tiers of government (local, provincial and federal) is very important to promote the agriculture development through the motivation of cooperatives. This could be either through appropriate plans and policies or subsidized farm materials of promoting agriculture-marketing channels.

Agriculture modernization: About cooperative initiatives in agriculture transformation, there are some dis-satisfied concerns of the respondents' on encouraging people by the vegetable super zone program of the central government to perform cooperative vegetable farming. There is no any significant difference among the members (either board or general) in believing that the role of cooperative vegetable farming is gaining popularity across the country. People have some dissatisfaction on getting sufficient technical support from central government to implement this

vegetable super zone project. The supportive environment from the government agencies to the cooperative in promoting the vegetable super zone is very weak. People have expressed some reservations regarding the role of cooperative vegetable farm in increasing capital amount of Devasthan Agriculture Cooperative Limited. Interestingly, there is no any significant difference in land holdings size (or economic status of the respondents') whether being board or general members. Finally, below table presented the gist of meaning marking and theorization (Table 52).

Table 52. Outcomes of the Study

Theory	Major Outcomes
Social Capital	<ul style="list-style-type: none"> Established mutual relationship between/among same ethnic group, multi ethnic groups and with politicians, bureaucrats and development experts
Financial Management	<ul style="list-style-type: none"> Collecting, allocating, utilizing and mobilizing family income by cooperative in commercial farming, local business and tourism
Agriculture Transformation	<ul style="list-style-type: none"> Transforming traditional farming into commercial, ability and skills of the farmers have been improving, marketing facilities and price policy are still questionable
Agriculture Modernization	<ul style="list-style-type: none"> Specialized and mechanized farming system has been performed by cooperative vegetable farm but need to extend both crop and vegetable farming practices for household food security and market commercialization
Evaluation	Expected Outcomes
Relevancy	<ul style="list-style-type: none"> Cooperative effort found relevant for improving family economy and creating employment and self-employment in local level Cooperative farming has been promoting market oriented vegetable farming system for cooperative agriculture development
Efficiency	<ul style="list-style-type: none"> Cooperative effort has been utilizing and mobilizing resources in efficient manner Practicing modern technological based vegetable farming system
Effectiveness	<ul style="list-style-type: none"> Cooperative efforts has been improving the live and livelihood of role model members involving in various cooperatives Producing and supplying seasonable and off-seasonable vegetable
Impact	<ul style="list-style-type: none"> Cooperative efforts have brought community well-being in Hemja. Cooperative vegetable farm becoming popular in provincial and national level
Sustainability	<ul style="list-style-type: none"> Planning to perform crop/animal husbandry and establish cooperative shops for more sustainability Planning to establish cooperation among 24 cooperatives operating in Kaski District

(Developed by the Researcher, 2019)

5.3 Conclusions

The study came up with the conclusion that the overall performance of Devasthan Agriculture Cooperative Limited in general, and its cooperative vegetable farming in particular seems to be satisfactory. It is possible because of the cooperation among the twelve cooperatives and the collective efforts of its members.

Regarding the relevancy indicator of performance evaluation, the average perception of the respondents' is between "agree and neutral" scale. There are some dis-satisfied concerns of the respondents' on the vegetable super zone program of central government which encouraged people to perform cooperative vegetable farming. Likewise, the statistical test points that regardless of the gender of the respondents', the view about the improved family livelihood through the cooperative farming has been so-far positive. Similarly, it appears that higher percentage of female believe that their family income has significantly improved through cooperative effort. In addition to that, being in the board or general member of the cooperative, there is no any significant difference in believing that the role of cooperative vegetable farming is gaining popularity across the country.

Regarding the efficiency indicator of the performance evaluation, the average perception of the respondents' is between "agree and neutral" scale. People have some dissatisfaction on getting sufficient technical support from central government to implement this vegetable super zone project. The support to the cooperatives from the government agencies in promoting the vegetable super zone appears to be very weak. The statistical test reveals that there is significant difference between the category of the beneficiaries and their perception in believing the interest rate of DACL is quite satisfactory (8 % in saving amount and 12 % in credit amount). Nearly 30 percent of the general members were quite dissatisfied over the policies on the interest rates of the loan and deposits.

Similarly, about the effectiveness indicator of the performance evaluation, the average perception of the respondents' is close to "agree" scale. People were quite dissatisfied over getting opportunity to participate in trainings related to cooperative, exposure visit and cooperative vegetable farming. The availability of various capacity development program and exposure visit to the cooperative members are available in insufficient frequencies. Likewise, the statistical test highlights that there is no significant difference between the ethnicity of the beneficiaries and their saving habits in the DACL. It means the respondents belonging to various

caste groups are saving their earnings at the cooperative as well as they have received the similar opportunity to participate in trainings related to cooperative, exposure visit and cooperative vegetable farming.

Regarding the impact indicator of the performance evaluation, the average perception of the respondents' is close to "agree" scale. People have expressed some reservations regarding the role of cooperative vegetable farm in increasing the capital amount of Devasthan Agriculture Cooperative Limited. The statistical test reveals that there is no significant difference between the category of the beneficiaries and saving and credits activities of the cooperative members have been increased significantly after the establishment of cooperative. Likewise, there is no significant difference between the economic status of respondents' (in terms of food sufficiency) and their perception that the cooperative has helped to create self-employment and employment opportunities to the entrepreneurs and the local people.

Concerning the sustainability indicator of the performance evaluation, the average perception of the respondents' is close to "agree" scale. After coordination between twelve cooperatives, the satisfaction level of the dissatisfied members has been increased. The statistical test reveals that being board or general members, there is no any significant difference in believing that there is appropriate mechanism to obtain grievances for increasing members' satisfactions. However, nearly 92 percent of board members and only about 70 percent of the general members agreed (strongly agreed and agreed) with this view. In regards to the qualification of the respondent, there is no any significant difference in believing that there is a provision of internal audit system by cooperative members and set qualification to be board members.

In a nutshell, the cooperation among twelve cooperatives has brought transformation and modernization in agriculture and Devasthan Agriculture Cooperative Limited has set a significant example of cooperative farming in Hemja, Pokhara. Also, it has become a center for exposure visit among the tourists, researchers, farmers from various cooperatives and universities. Though the performance of Devasthan Agriculture Cooperative Limited and its vegetable farming is satisfactory, it would have been more effective if there were no any knowledge gaps regarding PMAMP among all the members of twelve cooperatives.

5.4 Possible Implications

Beyond doubt, the findings of the study have possible implications to the cooperatives collectively implementing Kaski vegetable super zone program, other cooperatives operating in the country, local government, provincial and central government as well as private sectors. Some of those possible implications are listed separately at knowledge level, practical level and policy level (i. e. seven points for each level).

5.4.1 Knowledge Level Implications

- The readers can acquire knowledge about power of co-operation among cooperatives and cooperative vegetable farming especially in Nepalese context.
- The readers can gain in-depth knowledge about Prime Minister Agriculture Modernization Program that is in fact major component of agriculture development strategy of Nepal.
- Thematically, the readers can also obtain knowledge related to historical development of cooperatives, contributions of agriculture on national economy and connection between food security and agriculture development.
- This study theorized performance of cooperative from social capital, financial management, agriculture transformation and agriculture modernization theoretical viewpoints that can be some academic references to the researchers.
- The performance evaluation criteria such as relevancy, efficiency, effectiveness, impact and sustainability applied in this study can be a methodological reference to the researcher.
- Summative or likert scale analysis method as well as illustrative, descriptive and inferential tools applied in this study can be methodological references to the novice researcher.
- The novice researcher also can understand how quantitative findings can be triangulated with narrative information.

5.4.2 Practice Level Implications

- All the seven principles of cooperative developed by NCDB must be followed for the better performances and outcomes.
- GESI should be followed in the board and at the same time capacity development of the board members should be emphasized.

- The focus should be given to empower voiceless people, expansions of cottage industries and transfer of technology and saving /credit as well as vocational skills related trainings.
- Provision of credit capital to the young farmers in single digit interest particularly for agro based entrepreneurship development.
- Awarding with appreciation letters to the role model farmers and local investors for attracting educated/skilled youth in the process of rural entrepreneurship development.
- Conducting member satisfaction appraisal study for the better performance of cooperative and cooperative farming.
- For the sustainability of the cooperative and cooperative farming project, there should be internal monitoring system with the involvement of members of cooperative, local intellectuals, local government and concerned stakeholders.

5.4.3 Policy Level Implications

- The cooperative philosophy “*one of all and all for one*” must be implemented in practice.
- As per constitutional provision, cooperative association must be formed in provincial and local levels.
- Development and implementation of strategic plan must be mandatory to the cooperative functioning in the country.
- Sufficient technical and financial support must be provided to the cooperatives implementing cooperative farming under Prime Minister Agriculture Modernization Program.
- Constructions of cold storage as well as collection and distribution centers are essential for promoting cooperative farming practices.
- Market channels and price policy must be developed and determined by the government for making marketing activities more effective and efficient.
- There must be reward and punishment policies for the cooperatives performing better by following all the seven principles and vice versa.

5.5 Future Direction

This study evaluated the performance of Devasthan Agriculture Cooperative Limited of Kaski District. The focus of the study was to analyze relevancy, efficiency, effectiveness, impact and sustainability of the cooperative and cooperative vegetable farming projects collectively

implemented by the twelve cooperatives. This study applied trend survey method in which quantitative data were collected from 138 members of Devisthan Agriculture Cooperative Limited. From the research view point, this study could not cover all the members (500 plus) of Devisthan Agriculture Cooperative Limited and also the duty bearers and cooperative members belonging to twelve different cooperatives implementing cooperative farming project. Thus, the further study should extend the coverage area of the study area so that a complete picture could be understood of the current issues related to the cooperatives. This could help to understand and analyze the comparative views of the respondents based on other various indicators involving the twelve cooperatives of the Hemja community.

REFERENCES

- Agriculture Development Strategy (ADS). (2013). *Preparation of the agriculture development strategy (ADS) - Assessment Report*.
- Asian Development Bank (ADB). (2018). *Macroeconomic update Nepal*, (Volume 6, [2]). Author.
- Baker, T. L. (1994). *Doing social research*. United States: McGraw-Hill, Inc.
- Best, J. W. & Kahn, J. V. (2004). *Research in education*. Englewood Cliffs, NJ: Prentice Hall.
- Bhandar, H. & Yasunobu, K. (2009). *What is social capital? A comprehensive review of the concept*. Retrieved from https://www.researchgate.net/publication/233546004_What_Is_Social_Capital_A_Comprehensive_Review_of_the_Concept
- Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), *handbook of theory and research for the sociology of education*. Westport, CT: Greenwood Press.
- Budha, R. (2017). *Impact evaluation of cooperative on rural development* (Unpublished MA Thesis, Tribhuvan University). Kathmandu: Central Department of Economics.
- Bureau of Labor Statistics (1927). Cooperation as a world movement. *Monthly Labor Review*, 24(6), 28-40. Retrieved from <https://www.jstor.org/stable/41860500>
- Bureau of Labor Statistics (1944). International aspects of the cooperative movement. *Monthly Labor Review*, 58 (6), 1159-1168. Retrieved from <https://www.jstor.org/stable/41817443>
- Cechin, A. Bijman, J. Pascucci, S.Zylbersztajn, D &Omta, O. (2013). Quality in cooperatives versus investor-owned firms: Evidence from broiler production in Parana, Brazil. *Managerial and Decision Economics*, 34(3/5), 230-243. Retrieved from <https://www.jstor.org/stable/23464303>
- Central Bureau of Statistics (CBS) (2011). *National census of agricultural raw statistical estimate*. Thapathali, Kathmandu: Central Statistics Department.
- Chase, S. E. (2011). Narrative inquiry: still a field in the making. In N. K. Denzin & Y.S., Lincoln (Eds.), *handbook of arts in qualitative research* (117-125). London: Sage Publications.
- Cohen, L. Manion, L. & Morrison, K. (2007). *Research method in education* (6th ed.) London: Taylor & Francis Group.
- Constitution (2015). *New constitution of Nepal, 2072 BS*. Kathmandu: Lumbini Pustak Pasal.
- Copestake, J. (1995). Conference report on finance against poverty. *Development in Practice*, 5, 264-265.

- Creswell, J. W. (2007). *Qualitative inquiry and research design*. California: Sage Publication.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative and mix methods approaches* (3rd ed.). University of Nebraska-Lincoln: Sage Publication.
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). USA: Pearson Education Inc.
- Creswell, J. W. & Plano Clark, V. L. (2010). *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage.
- Dawson, V. (2007). Exploring students' learning experiences through narrative tales. In P.C. Taylor & J. Wallace (Eds.), *Contemporary qualitative exemplars for science and mathematics research educators* (83-91). Australia: Curtin University of Technology.
- Department of Cooperative (DOC). (2017). *Annual report, 2016*. Author.
- Department of Cooperative (DOC). (2018). *Annual report, 2017*. Author.
- Department of National park and Wildlife Conservation (DNPWC). (2017). *Annual report Chitwan national park-2017 conservation outlook assessment*. IUCN World Heritage Outlook: <https://www.worldheritageoutlook.iucn.org>
- FAO (Food and Agriculture Organization of United Nations) /UNDP (United Nations Development Programme). (2003). *Agricultural policy and strategy for poverty alleviation and food security*. FAO, Rome.
- Food and Agriculture Organization (FAO). (2017). *Agricultural policy and strategy for poverty alleviation and food security*. FAO, Rome.
- Gallagher, K. P. (2015). *Challenging cooperative decentralization. In emerging markets and the reregulation of cross-border finance*. Cornell University Press.
Retrieved <https://www.jstor.org/stable/10.7591/j.ctt1287ds5.6>
- Gorkhapatra Daily (2019). *Gorkhapatra national daily news*, March 7th Thursday.
- Gulli, H. & Berger, M. (1999). "Microfinance and poverty reduction: Evidence from Latin America. *Small Enterprise Development*, 10(3), 16-28. Author.
- Gupta, C. B. & Gupta, V. (2015). *An Introduction to statistical methods* (23rd ed.). Delhi: Vikas Publishing House.
- Hunjra, A. I. Butt, B. Z. & Rehman, K. (2010). *Financial management practices: Theory and application*. Retrieved from

https://www.researchgate.net/publication/252931751_Financial_Management_Practices_Theory_and_Application

- International Cooperative Alliance (ICA). (2011). *Global 300 report, 2010: The world's major cooperatives and mutual businesses*. Geneva: International Co-operative Alliance (ICA), Switzerland.
- International Fund for Agricultural Development (IFAD). (2015). *Building a poverty-free world: Enabling poor rural people to overcome poverty in Nepal*.
- Johnson, R. B., Onwuegbuzie, A. J. & Turner, L. A (2007). Toward a Definition of Mixed Methods Research. *Journal of Mixed Methods Research*, 1(2), 112-133.
- Kenneth, D. V. W. & Tyler J. V. W. (2007). Micro-Finance Impact Assessment: Evidence from a Development Program in Honduras. *Savings and Development*, 31(2), 161-192. Giordano Dell-Amore Foundation.
- Krejcie & Morgan in (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, (30), 607-610.
- Kvale, S. (2006). *Interviews: An Introduction to qualitative research interviewing*. Thousand Oaks, California: Sage Publications.
- Leder, S. Sugden, F. Raut, M. Ray, D. & Saikia, P. (2019). Ambivalences of collective farming feminist political ecologies from Eastern India and Nepal. *International Journal of the Commons*, 13(1), 105-129. Retrieved from <https://www.jstor.org/stable/26632715>
- Lekhi, R. K. (2008). *The economics of development and planning* (11th ed.). New Delhi: Kalyani Publishers.
- Liang, Q. & Hendrikse, G. (2013). Core and common members in the genesis of farmer cooperatives in China. *Managerial and Decision Economics*, 34(3/5), 244-257. Retrieved from <https://www.jstor.org/stable/23464304>
- Local Initiatives for Biodiversity Research and Development (Li-Bird). (2019). *Global hunger index 2019*. Nepal.
- Maharjan, P. (2016). *Economic impact of cooperative in Nepal: A case study of Kirtipur multipurpose cooperative limited* (Unpublished MA Thesis, Tribhuvan University). Kathmandu: Central Department of Economics.
- Mason, J. (2002). Qualitative interviewing: Asking, listening and interpreting. In T. May (Ed.), *Qualitative Research in Action* (pp. 225-241). London: Sage Publications.

- McClenaghan, P. (2000). Social capital: Exploring the theoretical foundations of community development education. *British Educational Research Journal*, 26(5), 565-582. Retrieved from <http://www.jstor.org/stable/1501991> Accessed: 29-06-2018 15:51 UTC
- Ministry of Agricultural Development (MoA). (2017). *Agri-business promotion and statistics*. Kathmandu: Government of Nepal.
- Ministry of Cooperative and Poverty Alleviation (MoCPA). (2017). *Cooperative Act, 2017*. New Baneshwor, Kathmandu: Government of Nepal.
- Ministry of Federal Affair and Local Development (MOFLD) (2017). *Local self-governance act, 2017*. Kathmandu: Government of Nepal.
- Ministry of Finance (MoF). (2018). *Economic survey, 2017/18*. Singh Durbar, Kathmandu: Government of Nepal
- Ministry of Finance (MOF). (2018). *Macroeconomic update Nepal*, (Volume 6 [1]). Kathmandu: Government of Nepal.
- MOA (2014). *Twenty years agriculture development strategy (2014-34)*. Kathmandu: Ministry of Agriculture.
- Moore, B. N. & Bruder, K. (2007). *Philosophy: The power of ideas* (6th ed.). New York, NY: The McGraw-Hill Companies.
- Mumtaz, S. (2000). Targeting women in micro-finance schemes: Objectives and outcomes. *The Pakistan Development Review*, 39(4), 877-890.
Retrieved from <http://www.jstor.org/stable/41260303>
- National Cooperative Development Board (NCDB). (2019). *Annual report, 2019*. Author.
- National Planning Commission (NPC). (2016). *Annual household survey, 2015/16 (Major Findings)*. Kathmandu: Government of Nepal.
- Nepal Federation of Savings and Credit Cooperative Unions (NEFSCUN). (2017). *Annual report, 2016*. Author.
- Nepal Rastra Bank (NRB). (2017). *Current macroeconomic and financial situation of Nepal* (Based on Six Months' Data of 2017/89). Kathmandu: Research Department.
- Nepal Rastra Bank (NRB). (2019). *Current macroeconomic and financial situation of Nepal* (Based on Six Months' Data of 2018/19). Kathmandu: Research Department.
- Nepal, C. (2014). *Report of first national cooperatives congress*. Kathmandu: National Cooperatives Congress.

- Netherland Development Cooperation (SNV). (2011). *Value chain analysis of apples from Jumla*. DADO JUMLA, Nepal: Author.
- NPC (1995). *Nepal agricultural perspective plan*. Kathmandu: National Planning Commission.
- OECD-FAO (2013). *Agricultural outlook, 2013-2022*. Corrigenda OECD Publication.
- Polkinghorne, D. E. (1988). *Narrative knowing and the human sciences*. Albany, NY: State University of New York Press.
- Ponthieux, S. (2004). *The concept of social capital: a critical review*. 10th ACN Conference. Paris: 21-23 January. Author.
Retrieved from: <http://www.jstor.org/stable/25830959>. Accessed: 22-02-2018 08:48 UTC
Retrieved from: <http://www.jstor.org/stable/26166042>
- Rogaly, B. (1996). Micro-finance evangelism, destitute women, and the hard selling of a new anti-poverty formula. *Development in Practice Journal Oxfam*, 6(2):100-113
- Scotland, J. (2012). Exploring the philosophical underpinning of research: Relating ontology and epistemology to the methodology and methods of the scientific, interpretive and critical research paradigm. *English Language Teaching*, 5 (9), 13-16. Author.
- Shah, T. (2012). *Economic and Political Weekly*, 47(39), 29-31.
Retrieved from <https://www.jstor.org/stable/41720185>
- Sharma, P. (2007). *A handbook of social science research methodology* (3rd ed.). Kathmandu: Kriti Prakashan.
- Shrestha, N. (2016). *Socio economic impact on women of cooperatives in Khalanga* (Unpublished MA Thesis, Tribhuvan University). Kathmandu: Central Department of Economics.
- Soboh, R. A. M. E., Lansink, A. O., Giesen, G. & Dijk, G. V. (2009). Performance measurement of the agricultural marketing cooperatives: The gap between theory and practice. *Review of Agricultural Economics*, 31(3), 446-469.
Retrieved from <https://www.jstor.org/stable/40588507>
- Subedi, B. P. (2016). Using likert type data in social science research: Confusion, issues and challenges. *International Journal of Contemporary Applied Sciences*, 3(2), 36-49.
- Tang, K. (2011). Industrial-Organization-Transformation-Oriented agricultural modernization with Chinese characteristics: From the perspective of industrial and agricultural interaction. *International Journal of Business and Management*, 6 (5), 211-216.

- Tashakkori, A. & Teddlie, C. (Eds.) (2003). *Handbook of mix methods in the social and behavioral sciences*. Thousand Oak, CA: Sage.
- Thabethe, N. Magezi, V. & Nyuswa, M. (2012). Micro-credit as a community development strategy a South African case study. *Community Development Journal*, 47(3), 423-435. Published by: Oxford University Press.
- Thapa, S. (2009). *Three essays on Nepalese development: Technology adoption, agricultural risk and the effects of remittances on recipient households* (Unpublished Doctoral Dissertation, University of Trento). Canada: Doctoral School of Economics and Management.
- Udemzue, J. & Osegbue, E. (2018). *Theories and models of agricultural development*. Retrieved from: <https://juniperpublishers.com/arr/pdf/ARR.MS.ID.555574.pdf>
- United Nations (2015). *The 2030 agenda for sustainable development*. Retrieved from <https://sustainabledevelopment.un.org/post2015/transformingourworld>
- Venkatesh, R. (2009). Micro finance and self-help groups: Catalyst for rural transformation. *The Indian Journal of Political Science*, 70(1), 131-138. Retrieved from: <http://www.jstor.org/stable/41856501>
- World Bank (WB). (2015). *Work for human development report, 2015*. Author.
- Yin, R. K. (2014). *Case study research: Design and method* (3rd ed.). Thousand Oaks, CA: Sage.

APPENDICES

Appendix A: Permission Letter to the Institutions

Date.....

To The Chair Person

Devasthan Multipurpose Cooperative (DACL)

Hemja, Pokhara Metropolitan City, Gandaki Province

Re: Permission to conduct research work in your institution

Dear Sir,

I am a Master's Degree Candidate of Tribhuvan University, Central Department of Rural Development, Faculty of Humanities and Social Science. Currently, I am preparing to write my thesis entitled "Performance Evaluation of Devasthan Agriculture Cooperative Limited of Pokhara Metropolitan City". The purpose of the study is to analyze the overall performances such as relevancy, efficiency, effectiveness, impact and sustainability of cooperative and cooperative vegetable farming. I value the unique contribution that this institution make and I am excited about the possibility of kind support during my study.

The study is designed under survey methodology in which researcher is curious enough to analyse and understand positive contributions of Devasthan Agriculture Cooperative Limited on the lives of members including their family members and villagers. Finally, researcher values your participation and thank you for the commitment of time, energy, and effort.

Regards,

Bhawana Regmi (The Researcher)

Cell Number: 9840094463

Email: regmeebhawana@gmail.com

पान नं.: ३०५०४७३१५

दर्ता नं.: ७२७/०६७/०६८



सहकारी ऐन २०४८ अन्तर्गत स्थापित
देविस्थान कृषि सहकारी संस्था लिमिटेड
DEISTHAN AGRICULTURE CO-OPERATIVE LIMITED

पोखरा-२५, हेमजा, मिलनचोक, फोन: ०६१-४००४१५
 E-mail: devisthanagriculture27@gmail.com

२०७६/०३/०५

पत्र संख्या: ०१

चलानी नं: ८८/०६४/०६६



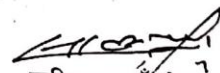
मिति:

श्री, भावना रेग्मी

विषय :- अनुमति स्वीकृती सम्बन्धमा ।

महोदय,

उपरोक्त सम्बन्धमा यस श्री देविस्थान कृषि सहकारी संस्था लि. पो.म.न.पा.२५, हेमजा, मिलनचोक बाट सञ्चालित हाई टेक ग्रीन हाउसमा त्रिभुवन विश्व विद्यालयमा अध्ययनरत विद्यार्थी भावना रेग्मीले आफ्नो स्नोकोत्तर सोध वृद्धि गरी आफ्नो शैक्षिक स्तरमा सहयोग पुग्ने प्रस्तावना राखेको र अनुसन्धान गर्ने इच्छा राखेको हुनाले उक्त चाहना र आवश्यकता बुझि उनीलाई हाम्रो हाई टेक बाट उनीलाई आवश्यक पर्ने सुचनाहरू र हामिले दिन मिल्ने सुचनाहरू उनीलाई दिइने छ भनी उनको अनुमति स्वीकृत गरिएको छ ।


 सालिकराम बाँस्तोला
 अध्यक्ष

देविस्थान कृषि सहकारी संस्था लि.

Appendix B: Study Variables

Dependent Variables	Indicators Independent Variables I	Attributes Independent Variables II	Item Variables Independent Variables III
Characteristics of the Respondents	Demography	<ul style="list-style-type: none"> • Personal information • Household information • Caste/ethnicity • Education and training 	Three item variables have been developed to measure each attributes of the study
	Social wellbeing	<ul style="list-style-type: none"> • Social relationships • Family economy • Tourism related knowledge • Entrepreneurship skills 	
Well managed performance of cooperative and cooperative vegetable farming	Relevancy	<ul style="list-style-type: none"> • Specialized Farming • Cooperative vegetable farming • Self/employment creation • Family economy generation 	Three item variables have been developed to measure each attributes of the study
	Efficiency	<ul style="list-style-type: none"> • Knowledge/skill formation • Farm land management • Use of local resources • Cheap and best services 	
	Effectiveness	<ul style="list-style-type: none"> • Learning/earning opportunities • Organic farming practices • Improving family earning • Generating rural economy 	
	Impact	<ul style="list-style-type: none"> • Diversified livelihood options • Community development • Center for excellent 	
	Sustainability	<ul style="list-style-type: none"> • Supported by PMAMP • Designing extension projects • Cooperation of cooperatives • Extension farming programs • Extension cooperative efforts 	

Appendix C: Survey Questionnaires to the Respondents

PERFORMANCE EVALUATION OF DEVISTHAN COOPERATIVE LIMITED OF POKHARA METROPOLITAN CITY

प्रिय उत्तरदाताहरू ! नमस्कार !!

यो अध्ययन नितान्त अनुसन्धानमूलक प्रयोजनका लागि गरिएको हो । यो अध्ययन तपाइका महत्वपूर्ण उत्तरहरूमा निर्भर गर्नेछ । यस अध्ययनका क्रममा तपाइबाट प्राप्त सूचना अध्ययन बाहेक अन्य प्रयोजनका लागि प्रयोग गरिने छैन । तपाइका उत्तरहरू तथ्याङ्क ऐन २०१८ बमोजिम गोप्य रहनेछन् । थप जानकारीका लागि सिधै अनुसन्धानकर्ता (भावना रेग्मी) सँग फोन नं. ९८४००९४४६३ मा सम्पर्क गर्न सक्नुहुनेछ ।

Survey Questionnaires to the Respondents

कोड नं.

क : नाम :	ठेगाना :	फोन नं :	मिति :
ख : नाम :	ठेगाना :	फोन नं :	मिति :
ग : नाम :	ठेगाना :	फोन नं :	मिति :

प्र.नं.	सामाजिक तथा जनसांख्यिक सूचना (चलहरू १ देखी १३)	सम्भावित उत्तरहरू	उत्तर		
			क	ख	ग
१	उत्तर दाताको बर्गिकरण	देवीस्थान सहकारीको बोर्ड सदस्य	१	१	१
		देवीस्थान साधारण सदस्य	२	२	२
२	तपाई अन्य संस्थामा पनि सदस्य हुनुहुन्छ ?	अन्य सहकारी हरुमा	१	१	१
		सामाजिक संस्थाहरुमा	२	२	२
		वार्ड समितिमा	३	३	३
		राजनितिक पार्टीमा	४	४	४
		माथिका सबैमा	५	५	५
३	तपाईले कति वर्ष पुरा गर्नु भयो ?	१८ - २९	१	१	१
		३० - ३९	२	२	२
		४०- ४९	३	३	३
		५० माथि	४	४	४
४	तपाइको लिंग कुन हो?	पुरुष	१	१	१
		महिला	२	२	२
		अन्य	३	३	३
५	तपाइको वैवाहिक अवस्था के हो?	अविवाहित	१	१	१
		विवाहित	२	२	२
		अलग बसेको	३	३	३
		सम्बन्ध विच्छेद	४	४	४
		विधवा / विदुर	५	५	५

प्र.नं.	सामाजिक तथा जनसांख्यिक सूचना	सम्भावित उत्तरहरू	क	ख	ग
६	तपाइको जात र सम्प्रदाय कुन हो?	ब्राम्हण	१	१	१
		क्षेत्री	२	२	२
		जनजाति	३	३	३
		दलित	४	४	४
		अन्य	५	५	५
७	तपाइको धर्म कुन हो ?	हिन्दु	१	१	१
		बौद्ध	२	२	२
		क्रिश्चियन	३	३	३
		किराँत	४	४	४
		मुसलमान	५	५	५
८	तपाइको परिवारिक व्यवसाय के हो?	कृषी / दैनिक ज्यालादारी	१	१	१
		व्यापार	२	२	२
		निजी रोजगार	३	३	३
		बैदेशीक रोजगार	४	४	४
		प्रहरी, सेना	५	५	५
		सरकारी सेवा	६	६	६
		पेन्सन	७	७	७
९	तपाइको परिवार संख्या छोरा छोरी सहित कति छन्?	≤ ४	१	१	१
		५- ७	२	२	२
		८ - ११	३	३	३
		≥ १२	४	४	४
१०	तपाइको परिवारको नाममा कति जमिन छ?	≤ ५ रोपनी	१	१	१
		६- १४	२	२	२
		१५ - २४	३	३	३
		≥ २५	४	४	४
११	परिवारमा खाद्य सुरक्षाको वार्षिक अवस्था कस्तो छ ?	३ - ६ महिना	१	१	१
		६ - ९ महिना	२	२	२
		९- १२ महिना	३	३	३
		अतिरिक्त उत्पादन	४	४	४
१२	तपाइको शैक्षिक विवरण भन्नुहोस ।	अशिक्षित	१	१	१
		प्राथमिक तह	२	२	२
		माध्यमिक तह	३	३	३
		स्नातक वा स्नातकोत्तर	४	४	४
		एम फिल वा पि एच डी	५	५	५
१३	तपाइले अनौपचारिक तथा व्यवसायिक तालिम के के लिनु भएको छ ?	क्षमता अभिवृद्धि सम्बन्धी	१	१	१
		ऋण तथा बचत सम्बन्धी	२	२	२
		व्यवसायिक तरकारी खेती	३	३	३
		हस्तकला सम्बन्धी	४	४	४
		सिलाइ बुनाइ सम्बन्धी	५	५	५
		व्युटीपालर सम्बन्धी	६	६	६

प्र.नं.	Relevancy (चलहरू १४ देखी २१)	सम्भावित उत्तरहरू	क	ख	ग
१४	सहकारी सदस्यहरूको ऋण तथा बचत सेवाको पहुँचमा अभिवृद्धि भएको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
१५	सहकारी सदस्यहरूले उत्पादनमुलक क्षेत्रहरूमा लगाजी गर्ने प्रवृत्तिमा पनि अभिवृद्धि भएको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
१६	सहकारीको क्रियाकलापले गरी सहकारी सदस्यहरूको पारिवारिक आर्थिक अवस्थामा सुधार आएको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
१७	१२ सहकारीहरूको सहकार्य पश्चात सहकारी सदस्यहरूको संख्यामा अभिवृद्धि भएको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
१८	प्रधानमन्त्री कृषी आधुनिकीकरण कार्यक्रम को प्रभावकारी कार्यान्वयन बाट मात्र कृषिमा रुपान्तरण सम्भव छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
१९	प्रधानमन्त्री कृषी आधुनिकीकरण कार्यक्रम अर्न्तगत को तरकारी सुपरजोन परियोजनाले नै यो सहकारी तरकारी खेती गर्न उत्प्रेरणा गरेको हो।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
२०	यो सहकारीले हरेक सिजनमा ताजा तरकारी हरू बजारमा पुर्याउने गर्दछ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
२१	यो सहकारी तरकारी खेतीले यतिबेला स्थानिय तह प्रदेश हुँदै केन्द्रीय स्तरमा समेत छयाती प्राप्त गरेको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५

प्र.नं.	Efficiency (चलहर १४ देखी २१)	सम्भावित उत्तरहरु	क	ख	ग
२२	सम्पूर्ण सहसहकारी, सदस्यहरुलाई चुस्त र दुरुस्त सेवा प्रदान गर्न यो सहकारीले आपनै निति नियम र निर्देशिका तयार गरेको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
२३	यो सहकारीले कायम गरेको बचतमा ८ प्रतिशत र ऋणमा १२ प्रतिशत व्याजदर अत्यन्तै सन्तुषजनक छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
२४	यो सहकारीको मासिक प्रशासकिय खर्च सरदर कति हुन्छ ?	≤ ४९००० ५०००० - १००००० म भन्न सकिदैन	१ २ ३	१ २ ३	१ २ ३
२५	सहकारी फार्मको मासिक खर्च (तलब, दैनिक ज्याला, बिउ बिजन, मल, भिटामिन खरिद तथा जग्गाको भाडा सहित) सरदर कति हुन्छ ?	≤ ९९००० १००००० - ३००००० म भन्न सकिदैन	१ २ ३	१ २ ३	१ २ ३
२६	यो सहकारीले तरकारी सुपरजोन परियोजनाका लागी प्रयाप्त आर्थिक सहयोग प्राप्त गरेको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
२७	यो सहकारीले तरकारी सुपरजोन परियोजनाका लागी प्रयाप्त प्राविधिक सहयोग प्राप्त गरेको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
२८	सम्पूर्ण आर्थिक तथा प्राविधिक सहयोगहरु सहि समयमा प्राप्त गरिदै आइरहेको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
२९	अनुदानको ठुलो हिस्सा हाइटेक ग्रीनहाउस निर्माण का लागी लगानी गरिएको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५

प्र.नं.	Impact (चलहरू १४ देखी २१)	सम्भावित उत्तरहरू	क	ख	ग
३८	तपाइको परिवारको मासिक आम्दानी सरदर कति हुन्छ ?	≤ १९००० $२०००० - २९०००$ $३०००० - ३९०००$ $४०००० - ४९०००$ ≥ ५००००	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
३९	तपाइको परिवारको मासिक खर्च सरदर कति हुन्छ ?	$१०००० - १९०००$ $२०००० - २९०००$ $३०००० - ३९०००$ ≥ ४००००	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
४०	सहकारीको स्थापना संगै यसका सदस्यहरूको ऋण तथा बचत सम्बन्धी क्रियाकलापहरू हवात्तै बढेको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
४१	सहकारीको स्थापनाले गर्दा स्वरोजगार तथा रोजगारको अवसर स्थानीय तहमै सिर्जना भएको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
४२	यस सहकारी कृषि फार्मले स्वस्थकर तरकारीहरू उत्पादन गरि स्थानिय बजार तथा शहरी केन्द्रहरूमा निर्यात गर्दै आइरहेको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
४३	यस सहकारी कृषि फार्म परियोजनाले गर्दा सहकारीको पूँजी रकममा पनि वृद्धि भएको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
४४	यस सहकारी कृषि फार्मले मौसमी रोजगारीको अवसर पनि सिर्जना गरेको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
४५	यो सहकारी कृषि फार्म किसान विद्यार्थी अनुसन्धानकर्ता तथा स्थानिय सरकारका प्रतिनिधिहरूलाई समेत अवलोकन तथा अध्ययन गर्ने केन्द्रको रूपमा परिचित हुँदै आइरहेको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५

प्र.नं.	Sustainability (चलहर १४ देखी २१)	सम्भावित उत्तरहरू	क	ख	ग
४६	हाम्रा १२ सहकारीहरूको सहकार्य पश्चात हामी सदस्यहरूको सन्तुष्टिको तह हवात्तै बढेको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
४७	सदस्यहरूको सन्तुष्टि यथावत कायम राख्ने हेतुले आवश्यक राय सल्लाह सुझाव तथा गुनासो हरूको संकलन तथा कार्यान्वयन गर्न राम्रो संयन्त्रको व्यवस्था गरिएको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
४८	यो सहकारीले वर्षमा कमसेकम १२ पटक सदस्यहरूको नियमित बैठक बसाल्ने गरेको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
४९	यो सहकारीको वार्षिक साधारण सभामा कमसेकम ९० प्रतिशत सदस्यहरूको उपस्थिती रहने गरेको छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
५०	यो सहकारीले वार्षिक रूपमा सम्पूर्ण सदस्यहरूको उपस्थितीमा आन्तरिक लेखा परिक्षण गर्ने गर्दछ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
५१	सहकारी फार्मको निरन्तरताको लागि निकट भविष्यमै हाइटेक ग्रीनहाउसको संख्या बढाउनु आवश्यक देखिन्छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
५२	यो सहकारीले निकट भविष्यमा सहकारी तरकारी पसल खोल्नु पर्ने तथा व्यवसायिक पशुपालन पनि सुरुवात गर्नु पर्ने देखिन्छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५
५३	यस तरकारी सुपरजोन परियोजनाको निरन्तरताको लागि केन्द्रिय सरकारले प्रयाप्त मात्रामा आर्थिक तथा प्राविधिक सहयोग गर्नु पर्ने हुन्छ।	पूर्ण सहमत सहमत पूर्ण असहमत पूर्ण असहमत म भन्न सकिदैन	१ २ ३ ४ ५	१ २ ३ ४ ५	१ २ ३ ४ ५

उत्तरदाताको तर्फबाट कुनै टिप्पणी भए कृपया छोटकरीमा तलको बाकस भित्र लेखिदिनुहोला ।

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सर्वेक्षकको तर्फबाट कुनै टिप्पणी भए कृपया छोटकरीमा तलको बाकस भित्र लेखिदिनुहोला ।

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<u>सर्वेक्षकको तर्फबाट</u>	<u>उत्तरदाताको तर्फबाट</u>
नाम :	नाम :
दस्तखत :	दस्तखत :

हजुरहरूको अमूल्य समयको लागि धेरै धेरै धन्यवाद !

Appendix D: Key Informant Interview Guideline

- Introduction
- Personal reflection on cooperative
- Principles of cooperative
- Leadership skills of board members
- Contributions of cooperative on family economy
- Role of cooperative for creating employment opportunities
- Performance of cooperative before and after merging twelve cooperatives
- Member's satisfaction level before and after merging twelve cooperatives
- Personal reflections on Prime minister agriculture modernization program
- Initial cost for implementing vegetable super zone project
- Financial support of government for implementing vegetable super zone project
- Technical support of government for implementing vegetable super zone project
- Monthly cost for operating cooperative vegetable farming
- Monthly income from cooperative vegetable farming
- Number of farmers and students visited cooperative vegetable farm
- Future plan for sustaining cooperative vegetable farming
 - Descriptive note:
 - Reflective note:
 - Thematic note

Appendix E: Sampling Determination Table

Required Sample Size				
Confidence =		95.0 %	3.84	
Population Size	Degree of Accuracy/Margin of Error			
	0.05	0.04	0.025	0.01
10	10	10	10	10
20	19	20	20	20
30	28	29	29	30
50	44	47	48	50
75	63	69	72	74
100	80	89	94	99
150	108	126	137	148
200	132	160	177	196
250	152	190	215	244
300	170	217	251	291
400	196	265	318	384
500	217	306	377	475
600	234	340	432	565
700	248	370	481	653
800	260	396	526	739
900	269	419	568	823
1,000	278	440	606	906
1,200	291	474	674	1067

The recommended sample size for a given population size, level of confidence, and margin of error appears in the body of the table.

For example, the recommended sample size for a population of 1,000, a confidence level of 95%, and a margin of error (degree of accuracy) of 5% would be 278.

Change these values to select different levels of confidence.

Change these values to select different maximum margins of error.

Change these values to select different (e.g., more precise)

Statistical Data for Relevancy								
	Access to saving and credit facilities have been increased	The trend of investing in productive sectors have been increased with cooperative effort	Cooperative activities has helped to improve family economy of cooperative members	Number of cooperative members have been increased after coordinating twelve cooperative	Agriculture development is possible with better implementation of Prime Minister Agriculture Modernization	Vegetable super zone program of central govt. encouraged people to perform cooperative vegetable	Devasthan Agriculture Cooperative has been supplying fresh vegetables in all season	This cooperative vegetable farming is popular in local, provincial and state level of the

Appendix F: Variables for Measuring Indicators of Evaluation

Appendix G: Inferential Hypothesis Testing

Hypothesis 1

Case Processing Summary	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Land holdings pattern * Respondent's Category	138	100.0%	0	0.0%	138	100.0%

Land holdings pattern * Respondent's Category Cross Tabulation			Respondent's Category		Total
			Board member of DACL	Member of DACL	
Land holdings pattern	<5 ropani	Count	11	65	76
		% within Land holdings pattern	14.5%	85.5%	100.0%
	6-14 ropani	Count	8	35	43
		% within Land holdings pattern	18.6%	81.4%	100.0%
	15-24 ropani	Count	1	5	6
		% within Land holdings pattern	16.7%	83.3%	100.0%
	>25 ropani	Count	4	4	8
		% within Land holdings pattern	50.0%	50.0%	100.0%
	Not any	Count	0	5	5
		% within Land holdings pattern	0.0%	100.0%	100.0%
	Total	Count	24	114	138
		% within Land holdings pattern	17.4%	82.6%	100.0%

Hypothesis 2

Case Processing Summary	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Sex of respondent * Cooperative activities has helped to improve family economy of cooperative members	138	100.0%	0	0.0%	138	100.0%

Sex of respondent * Cooperative activities has helped to improve family economy of cooperative members			Cooperative activities has helped to improve family economy of cooperative members			Total
			Strongly agree	Agree	Disagree	
Sex of respondent	Male	Count	13	46	8	67
		% within Sex of respondent	19.4%	68.7%	11.9%	100.0%
	Female	Count	20	49	2	71
		% within Sex of respondent	28.2%	69.0%	2.8%	100.0%
Total		Count	33	95	10	138
		% within Sex of respondent	23.9%	68.8%	7.2%	100.0%

Hypothesis 3

Case Processing Summary	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Respondent's Category * This cooperative vegetable farming is popular in local, provincial and state level of the country	138	100.0%	0	0.0%	138	100.0%

Respondent's Category * This cooperative vegetable farming is popular in local, provincial and state level of the country			This cooperative vegetable farming is popular in local, provincial and state level of the country					Total
			Strongly agree	Agree	Neutral	Disagree	Strongly disagree	
Respondent's Category	Board member of DACL	Count	6	12	3	2	1	24
		% within Respondent's Category	25.0%	50.0%	12.5%	8.3%	4.2%	100.0%
	Member of DACL	Count	17	71	13	13	0	114
		% within Respondent's Category	14.9%	62.3%	11.4%	11.4%	0.0%	100.0%
Total	Count		23	83	16	15	1	138
	% within Respondent's Category		16.7%	60.1%	11.6%	10.9%	0.7%	100.0%

Hypothesis 4

Case Processing Summary	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Respondent's Category * Rate of interest is quite satisfactory (8 % in saving amount and 12 % in credit amount)	138	100.0%	0	0.0%	138	100.0%

Respondent's Category * Rate of interest is quite satisfactory (8 % in saving amount and 12 % in credit amount)			Rate of interest is quite satisfactory (8 % in saving amount and 12 % in credit amount)					Total
			Strongly agree	Agree	Neutral	Disagree	Strongly disagree	
Respondent's Category	Board member of DACL	Count	7	17	0	0	0	24
		% within Respondent's Category	29.2%	70.8%	0.0%	0.0%	0.0%	100.0%
	Member of DACL	Count	11	71	3	28	1	114
		% within Respondent's Category	9.6%	62.3%	2.6%	24.6%	0.9%	100.0%
Total		Count	18	88	3	28	1	138
		% within Respondent's Category	13.0%	63.8%	2.2%	20.3%	0.7%	100.0%

Hypothesis 5

Case Processing Summary	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Caste and ethnicity of the respondent * All members are getting opportunity to participate in trainings related to cooperative, exposure visit and cooperative vegetable farming	138	100.0%	0	0.0%	138	100.0%

Caste and ethnicity of the respondent * All members are getting opportunity to participate in trainings related to cooperative, exposure visit and cooperative vegetable farming			All members are getting opportunity to participate in trainings related to cooperative, exposure visit and cooperative vegetable farming					Total	
			Strongly agree	Agree	Neutral	Disagree	Strongly disagree		
Caste and ethnicity of the respondent	Brahmin	Count	24	58	2	2	1	87	
		% within Caste and ethnicity of the respondent	27.6%	66.7%	2.3%	2.3%	1.1%	100.0%	
	Chhetri	Count	6	28	0	2	0	36	
		% within Caste and ethnicity of the respondent	16.7%	77.8%	0.0%	5.6%	0.0%	100.0%	
	Janjati	Count	2	9	0	1	0	12	
		% within Caste and ethnicity of the respondent	16.7%	75.0%	0.0%	8.3%	0.0%	100.0%	
	Dalits	Count	1	1	0	1	0	3	
		% within Caste and ethnicity of the respondent	33.3%	33.3%	0.0%	33.3%	0.0%	100.0%	
	Total		Count	33	96	2	6	1	138
			% within Caste and ethnicity of the respondent	23.9%	69.6%	1.4%	4.3%	0.7%	100.0%

Hypothesis 6

Case Processing Summary	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Caste and ethnicity of the respondent * Total saving amount of respondent in this cooperative	138	100.0%	0	0.0%	138	100.0%

Caste and ethnicity of the respondent * Total saving amount of respondent in this cooperative			Total saving amount of respondent in this cooperative					Total	
			<49,000	50,000-1,49,000	1,50,000-2,49,000	2,50,000-3,49,000	>3,50,000		Not any
Caste and ethnicity of the respondent	Brahmin	Count	37	28	8	4	7	3	87
		% within Caste and ethnicity of the respondent	42.5%	32.2%	9.2%	4.6%	8.0%	3.4%	100.0%
	Chhetri	Count	14	11	6	3	1	1	36
		% within Caste and ethnicity of the respondent	38.9%	30.6%	16.7%	8.3%	2.8%	2.8%	100.0%
	Janjati	Count	7	4	1	0	0	0	12
		% within Caste and ethnicity of the respondent	58.3%	33.3%	8.3%	0.0%	0.0%	0.0%	100.0%
	Dalits	Count	2	0	0	0	0	1	3
		% within Caste and ethnicity of the respondent	66.7%	0.0%	0.0%	0.0%	0.0%	33.3%	100.0%
Total		Count	60	43	15	7	8	5	138
		% within Caste and ethnicity of the respondent	43.5%	31.2%	10.9%	5.1%	5.8%	3.6%	100.0%

Hypothesis 7

Case Processing Summary	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Respondent's Category * Saving and credits activities of the cooperative members have been increased significantly after the establishment of cooperatives	138	100.0%	0	0.0%	138	100.0%

Respondent's Category * Saving and credits activities of the cooperative members have been increased significantly after the establishment of cooperatives			Saving and credits activities of the cooperative members have been increased significantly after the establishment of cooperatives					Total
			Strongly agree	Agree	Neutral	Disagree	Strongly disagree	
Respondent's Category	Board member of DACL	Count	5	16	0	2	1	24
		% within Respondent's Category	20.8%	66.7%	0.0%	8.3%	4.2%	100.0%
	Member of DACL	Count	24	82	2	6	0	114
		% within Respondent's Category	21.1%	71.9%	1.8%	5.3%	0.0%	100.0%
Total		Count	29	98	2	8	1	138
		% within Respondent's Category	21.0%	71.0%	1.4%	5.8%	0.7%	100.0%

Hypothesis 8

Case Processing Summary			Cases					
			Valid		Missing		Total	
			N	Percent	N	Percent	N	Percent
Food sufficiency situation of the respondent * Cooperative has helped to create self-employment and employment opportunities to the entrepreneurs and local people			138	100.0%	0	0.0%	138	100.0%
Food sufficiency situation of the respondent * Cooperative has helped to create self-employment and employment opportunities to the entrepreneurs and local people			Cooperative has helped to create self-employment and employment opportunities to the entrepreneurs and local people				Total	
			Strongly agree	Agree	Neutral	Disagree		
Food sufficiency situation of the respondent	3- 6 months	Count	6	21	1	1	29	
		% within Food sufficiency situation of the respondent	20.7%	72.4%	3.4%	3.4%	100.0%	
	6-9 months	Count	2	15	0	1	18	
		% within Food sufficiency situation of the respondent	11.1%	83.3%	0.0%	5.6%	100.0%	
	9-12 months	Count	10	53	0	2	65	
		% within Food sufficiency situation of the respondent	15.4%	81.5%	0.0%	3.1%	100.0%	
	Surplus production	Count	3	16	0	1	20	
		% within Food sufficiency situation of the respondent	15.0%	80.0%	0.0%	5.0%	100.0%	
	No production	Count	1	3	0	2	6	
		% within Food sufficiency situation of the respondent	16.7%	50.0%	0.0%	33.3%	100.0%	
	Total		Count	22	108	1	7	138
			% within Food sufficiency situation of the respondent	15.9%	78.3%	0.7%	5.1%	100.0%

Hypothesis 9

Case Processing Summary	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Respondent's Category * There is appropriate mechanism to obtain grievances for increasing member's satisfactions	138	100.0%	0	0.0%	138	100.0%

Respondent's Category * There is appropriate mechanism to obtain grievances for increasing member's satisfactions			There is appropriate mechanism to obtain grievances for increasing member's satisfactions				Total
			Strongly agree	Agree	Neutral	Disagree	
Respondent's Category	Board member of DACL	Count	5	17	1	1	24
		% within Respondent's Category	20.8%	70.8%	4.2%	4.2%	100.0%
	Member of DACL	Count	8	72	12	22	114
		% within Respondent's Category	7.0%	63.2%	10.5%	19.3%	100.0%
Total		Count	13	89	13	23	138
		% within Respondent's Category	9.4%	64.5%	9.4%	16.7%	100.0%

Hypothesis 10

Case Processing Summary	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Formal educational status of the respondent * There is a provision of internal audit system by cooperative members and set qualification to be a board members	138	100.0%	0	0.0%	138	100.0%

Formal educational status of the respondent * There is a provision of internal audit system by cooperative members and set qualification to be a board members			There is a provision of internal audit system by cooperative members and set qualification to be a board members				Total	
			Strongly agree	Agree	Neutral	Disagree		
Formal educational status of the respondent	Illiterate	Count	4	12	2	1	19	
		% within Formal educational status of the respondent	21.1%	63.2%	10.5%	5.3%	100.0%	
	Primary	Count	4	28	2	2	36	
		% within Formal educational status of the respondent	11.1%	77.8%	5.6%	5.6%	100.0%	
	Secondary	Count	12	35	2	2	51	
		% within Formal educational status of the respondent	23.5%	68.6%	3.9%	3.9%	100.0%	
	BA/MA	Count	5	23	1	2	31	
		% within Formal educational status of the respondent	16.1%	74.2%	3.2%	6.5%	100.0%	
	MPhil/PhD	Count	1	0	0	0	1	
		% within Formal educational status of the respondent	100.0%	0.0%	0.0%	0.0%	100.0%	
	Total		Count	26	98	7	7	138
			% within Formal educational status of the respondent	18.8%	71.0%	5.1%	5.1%	100.0%

Appendix H: Location Map of the Field

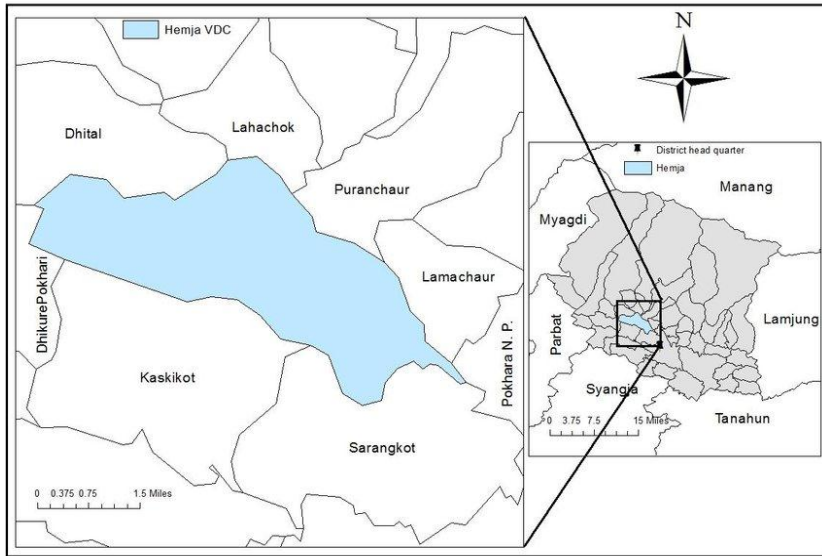


Figure 3. Political Map of Hemja before Restructuring



Figure 4. Resource Map of Hemja Village of Kaski District

Appendix I: Photographs of the Field



Figure 5. Devasthan Agriculture Cooperative Limited Office



Figure 6. Details of Vegetable Pocket



Figure 7. Female Workers in Hi-tech



Figure 8. Hi-tech Green House