

**LIVELIHOOD STRATEGIES OF LANDLESS RURALHOUSEHOLDS  
AND DETERMINANTS OF CHOICE OF STRATEGIES: THE CASE OF  
WOLMERA WOREDA OF OROMIA REGION OF ETHIOPIA**

**MA THESIS**

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**DECEMBER, 2019**

**ADDIS ABABA UNIVERSITY, ADDIS ABABA**

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AND DETERMINANTS OF CHOICE OF STRATEGIES: THE CASE OF  
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**A THESIS SUBMITTED TO CENTER FOR RURAL DEVELOPMENT,  
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**MILKESSA SHAFE ITANA**

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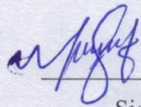
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Center for Rural Development

I hereby certify that I have read and evaluated this thesis entitled "Livelihood Strategies of Landless Rural Households and Determinants of Choice of Strategies: The Case of Wolmera Woreda of Oromia Region of Ethiopia" and have been prepared under my guidance by Milkessa Shafe Itana. I recommend that it be submitted as fulfilling the thesis requirement.

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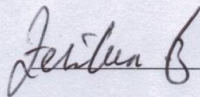
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As a member of the Board of Examiners of the MA Thesis Open Defense Examination, we certify that we have read, evaluated the thesis prepared by Milkessa Shafe Itana, and examined the candidate. We recommended that the thesis be accepted as fulfilling the thesis requirement for the degree of Master of Arts in Rural Development.

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## **DEDICATION**

I dedicate this thesis manuscript to my father SHAFE ITANA as well as to all my family for nursing me with affection and love and for their dedicated partnership in the success of my life.

## DECLARATION

I, Milkessa Shafe Itana, hereby declare that the thesis entitled “Livelihood Strategies of Landless Rural Households and Determinants of Choice of Strategies: The Case of Wolmera Woreda of Oromia Region of Ethiopia” submitted in partial fulfillment of the requirements for the degree of Master of Art of the Graduate Program of the Center for Rural Development, Addis Ababa University, is my original work and it has not been presented for the award of any other degree, diploma, fellowship or other similar titles to any other university or institution.

Milkessa Shafe

Signature ----- Date-----

## **BIOGRAPHICAL SKETCH**

The author was born on March 27, 1989 in Anfillo Woreda of Kellem Wollegga Zone of Oromia National Regional State, Ethiopia. He attended his elementary, high school and preparatory level education at Garjeda Elementary School, Anfillo Senior Secondary School and Kellem Preparatory School respectively. He then joined Hawassa University in 2007 and graduated with B.Sc Degree in Rural Development and Family Science in 2010. After graduation, he was recruited to serve Bure Woreda Agricultural Development Office of Ilu Ababor Zone as Agricultural Extension Expert starting from September 2010. He served Bure Woreda Agricultural Development Office for one year and five month and later transferred to Anfillo Woreda Agricultural Development Office of Kellem Wollegga Zone. He also served Anfillo Woreda Agricultural Development Office for three years and seven months on different positions. He then was recruited by Oromia Water Work Design and Supervision Enterprise in November 4, 2015 as Socio Economist. While serving this enterprise he joined Addis Ababa University to pursue MA degree study in Rural Development.

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## **LIST OF ABBREVIATION AND ACRONYMS**

CSA	Central Statistical Agency
DFID	Department for International Development
DHS	Demographic Health Survey
FAO	Food and Agriculture Organization
ILO	International Labour Organization
OXFAM GB	Oxfam Great Britain
SLF	Sustainable Livelihood Framework
SNNPR	South Nations, Nationalities and Peoples Representatives
UNDP	United Nations Development Program
WWFECO	Wolmera Woreda Finance and Economic Cooperation
WWRLA	Wolmera Woreda Rural Land Administration

## TABLE OF CONTENTS

<b>DEDICATION</b> .....	i
<b>DECLARATION</b> .....	ii
<b>BIOGRAPHICAL SKETCH</b> .....	iii
<b>ACKNOWLEDGEMENT</b> .....	iv
<b>LIST OF ABBREVIATION AND ACRONYMS</b> .....	v
<b>ABSTRACT</b> .....	xii
<b>1. Introduction</b> .....	1
1.1. Background of the Study.....	1
1.2. Statement of the problem.....	4
1.3. Objectives of the study.....	6
1.3.1. General Objective.....	6
1.3.2. Specific Objectives.....	7
1.4. Research Questions.....	7
1.5. Significance of the Study.....	7
1.6. Scope and Limitations of the Study.....	7
1.7. Operational Definitions.....	8
1.8. Organization of the Thesis.....	8
<b>2. Review of Related Literature</b> .....	9
2.1. Concepts and Definitions.....	9
2.2. Sustainable Livelihoods Framework.....	11
2.2.1. Vulnerability Context.....	13
2.2.2. Assets/Capitals.....	13
2.2.3. Transforming Structures and Processes.....	15
2.2.4. Livelihood Strategies.....	15
2.2.5. Livelihood Outcomes.....	15
2.3. Livelihood Strategies of Landless Rural Households.....	16
2.3.1. Agricultural Intensification/Farming.....	18
2.3.2. Off farm.....	19
2.3.3. Nonfarm.....	20

2.3.4.	Migration.....	20
2.3.5.	Diversification.....	22
2.4.	Determinants of Landless Rural Households’ Choice of Livelihood Strategies.....	24
2.4.1.	Sex.....	25
2.4.2.	Household Labour Size .....	25
2.4.3.	Age .....	25
2.4.4.	Dependent Family Members .....	26
2.4.5.	Educational Level .....	26
2.4.6.	Access to Credit .....	26
2.4.7.	Access to Land .....	27
2.4.8.	Asset/capital Endowment.....	27
2.4.9.	Training.....	28
2.4.10.	Access to Infrastructure .....	28
2.4.11.	Urban and Market Proximity .....	28
2.4.12.	Inheritance of Livelihoods .....	29
2.4.13.	Institutions (Structures and Processes).....	29
2.4.14.	Livestock Resources .....	30
2.5.	Review of Empirical Literature.....	30
2.6.	Conceptual Framework.....	32
<b>3.</b>	<b>Research Methodology .....</b>	<b>33</b>
3.1.	Description of the Study Area.....	33
3.1.1.	Description of Sample Kebele .....	34
3.2.	Research Design.....	37
3.3.	Data Types and Sources .....	37
3.4.	Sample Size Determination and Sampling Techniques .....	38
3.5.	Data Collection Methods and Tools.....	40
3.6.	Data Analysis .....	42
3.7.	Multivariate Probit Econometric Model .....	42
3.8.	Dependent and Independent Variables .....	44
<b>4.</b>	<b>Results and Discussions .....</b>	<b>49</b>
4.1.	Socio-Economic and Demographic Characteristics of Respondents .....	49

4.2.	Vulnerability Context.....	51
4.3.	Transforming Structures and Processes .....	53
4.4.	Livelihood Assets of Respondents.....	54
4.4.1.	Natural Capital .....	54
4.4.2.	Human Capital .....	55
4.4.3.	Social Capital .....	58
4.4.4.	Financial Capital .....	59
4.4.5.	Physical Capital.....	64
4.5.	Landless Rural Households.....	66
4.6.	Livelihood Strategies of Landless Rural Households in the Study Area .....	68
4.6.1.	Farming Livelihood Strategies.....	69
4.6.2.	Nonfarm Livelihood Strategies .....	71
4.6.3.	Diversification of Livelihood Strategies .....	76
4.7.	Income Derived from Different Livelihood Strategies .....	79
4.8.	Means of Land Accessing in the Study Area.....	79
4.9.	Land markets.....	81
4.10.	Livelihood Outcomes.....	82
4.11.	Determinants of Households' Choices of Livelihood Strategies .....	84
4.12.	Challenges to Livelihood Strategies .....	89
<b>5.</b>	<b>Conclusion and Recommendation.....</b>	<b>92</b>
5.1.	Conclusion .....	92
5.2.	Recommendation .....	94
<b>6.</b>	<b>References.....</b>	<b>96</b>
<b>7.</b>	<b>Appendices.....</b>	<b>103</b>
	Appendix 7.1: Household Survey Questionnaire.....	103
	Appendix 7.2: Checklists for Focus Group Discussion .....	112
	Appendix 7.3: Checklist for Key Informant Interview .....	112
	Appendix 7.4: Observation Guide .....	113
	Appendix 7.5: Case Study Guide.....	113
	Appendix 7.6: Conversion factors to compute tropical livestock units' equivalents .....	114
	Appendix 7.7: Stata Outputs .....	114

Appendix 7.8: VIF for determinants of the choices of livelihood strategies ..... 118  
Appendix 7.9: Multivariate probit test..... 118  
Appendix 7.10: Normality test for the multivariate probit model..... 118

## LIST OF FIGURES

FIGURE	PAGE
FIGURE 1: SUSTAINABLE LIVELIHOODS FRAMEWORK .....	12
FIGURE 2: CONCEPTUAL FRAMEWORK OF THE STUDY .....	32
FIGURE 3: LOCATIONAL MAP OF THE WOLMERA WOREDA. ....	34
FIGURE 4: LABOUR SIZE OF RESPONDENTS .....	58
FIGURE 5: PERCENTAGE OF RESPONDENTS TOTAL TROPICAL LIVESTOCK UNITS OF THE STUDY AREA .....	64

## LIST OF TABLES

<b>TABLE</b>	<b>PAGE</b>
TABLE 1: THE STUDY AREA POPULATION FROM SAMPLE KEBELE AND SELECTED SAMPLE SIZE .....	40
TABLE 2: DESCRIPTION OF VARIABLES USED IN MULTIVARIATE PROBIT REGRESSION .....	47
TABLE 3: SOCIO ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS OF THE STUDY AREA .....	50
TABLE 4: INCOME EARNING BY KEBELE AND SEX OF RESPONDENTS .....	51
TABLE 5: NATURAL RESOURCE CAPITALS OF RESPONDENTS .....	55
TABLE 6: HUMAN CAPITALS OF RESPONDENTS .....	56
TABLE 7: SOCIAL CAPITAL OF RESPONDENTS .....	59
TABLE 8: FINANCIAL CAPITAL OF RESPONDENTS .....	60
TABLE 9: RESPONDENT’S SAVING IN THE STUDY AREA BY KEBELE AND GENDER .....	61
TABLE 10: TROPICAL LIVESTOCK UNIT OWNED BY RESPONDENTS OF STUDY AREA .....	63
TABLE 11: PHYSICAL CAPITAL OWNED AND ACCESSED BY RESPONDENTS .....	65
TABLE 12: LANDLESS RURAL HOUSEHOLDS IN SAMPLE KEBELE OF THE STUDY AREA .....	67
TABLE 13: PERCENTAGE OF LIVELIHOOD STRATEGIES OF RESPONDENTS OF THE STUDY AREA .....	68
TABLE 14: CROPS PRODUCED, BY RESPONDENTS OF THE STUDY AREA .....	69
TABLE 15: DESCRIPTION OF FARMING INCOME, BASED ON KEBELE OF THE STUDY AREA .....	71
TABLE 16: LIVELIHOOD ACTIVITIES OF NONFARM LIVELIHOOD STRATEGIES .....	72
TABLE 17: INFORMATION OF RESPONDENT’S ON MIGRANTS’ HOUSEHOLD MEMBERS .....	73
TABLE 18: INCOME SHARE OF DIFFERENT LIVELIHOOD STRATEGIES IN DIVERSIFIED LIVELIHOOD STRATEGY .....	76
TABLE 19: MEAN INCOME OF RESPONDENTS BY LIVELIHOOD STRATEGIES .....	79
TABLE 20: LAND USE ARRANGEMENTS OF THE STUDY AREA .....	80
TABLE 21: INFORMATION ON INCOME AND FOOD SECURITY OF RESPONDENTS .....	83
TABLE 22: MULTIVARIATE PROBIT RESULTS OF THE DETERMINANTS OF HOUSEHOLDS’ CHOICES OF LIVELIHOOD STRATEGIES .....	86
TABLE 23: DESCRIPTION ON CHALLENGES OF CHOOSING PREFERRED LIVELIHOOD STRATEGIES .....	90

# **Livelihood Strategies of Landless Rural Households and Determinants of Choice of Strategies: The Case of Wolmera Woreda of Oromia Region of Ethiopia**

## **ABSTRACT**

*Landlessness is very common in the study area. The objective of this study is to identify landless households' livelihood strategies and determinants of households' choice of strategies. To undertake this study, three rural kebeles of the Woreda and 174 sample landless household were selected randomly from the selected rural kebeles. Mixed method research approach was followed. Primary data was collected by household sample survey, focus group discussion, key informant interviews, field observation, and case study as well as secondary data was collected from different offices. The analysis of quantitative data was done by descriptive and inferential statistics (multivariate probit model). The qualitative data was analyzed following thematic analysis methods. According to the results of this study, landless rural households of the study area on average accounts to about 18.7 % of total households. Regarding livelihood assets, the important assets being utilized to pursue livelihood strategies are human capital and financial capital. Livelihood strategies pursued by landless rural household respondents were farming, engaging in nonfarm activities and diversification of livelihood strategies. When analyzed independently, without overlap of livelihood strategies, 18 (10.34%) of the landless households pursue only farming livelihood strategies. While 4(2.3%) of respondents pursue only nonfarm, 152 (87.36%) pursue diversified livelihood strategies. Regarding the determinants of households' choice of livelihood strategies, it was found that Land access, Credit, Livestock possession (measured in Tropical Livestock Unit), Distance from urban, Education, Inheritance of livelihood strategies and Skills, generally determine the choice of livelihood strategies in the study area. Although various studies identified other variables like sex, age, household labour size, dependent family member, institution, and training as determinants of the choices of livelihood strategies, this study found they are not determinants to the choice of livelihood strategies. Therefore, giving special support for skilled landless groups, giving emphasis on how to best pursue diversified livelihood strategies, improving the accessibility of capital, improving educational status, as well as improving infrastructures like road, electricity and water supply, are recommended by this study*

**Key words:** rural landless households, livelihood assets, livelihood strategies, determinants of choice, Wolmera Woreda

## CHAPTER ONE

### 1. Introduction

#### 1.1. Background of the Study

Household livelihood strategies are embedded in the natural and socioeconomic contexts in which people live. Analyzing, factors that influence household livelihood choice is beneficial for informing rural household policies (Peng, Zheng, Robinson, Li, and Wang, 2017). Livelihood strategies are shaped by the assets which people can claim and by various institutional factors (or ‘policies, institutions and processes’) (Levine, 2014). Accordingly, households with many livelihood assets are generally more resilient (able to withstand shocks) than households with fewer assets (FAO & ILO, 2009; CSA, 2013b). According to (DFID, 1999), livelihood strategies is a term used to denote the range and combination of activities and choices that people make/undertake in order to achieve their livelihood goals (including productive activities, investment strategies, and reproductive choices).

Nowadays, rural poverty reduction efforts stress the importance of lack of assets as both an indicator and cause for livelihood and food insecurity. Assets constitute a stock of capital, which can be stored, accumulated, exchanged or depleted and employed to generate means of living for household or a community (Scoones, 1998 and Ellis, 2000). There are about five types of capitals/assets/ that are useful for rural households to lead their living. They are natural capital, financial, physical, social and human capital (Scoones, 1998 and DFID, 1999). Other scholars emphasize on the political capital to be added in the capitals; because they believe that political situation of a given country may hinder or promote livelihood situation of its citizens (FAO and ILO, 2009).

So, this study emphasized on livelihood strategies of rural households who lack one of the important forms of natural capital, which is land. Land is an important asset of production for peoples living in rural areas, especially in developing countries that have agrarian economies.

The vast majority of rural households in developing countries hold very small size of land, which does not support their consumptions for the entire year. Many other households survive, or struggle for survival, without having any parcel of land; and hence try other means of earning income, like participating in non-farm activities, renting-in land from landholders, and migration

(McDowell and Haan, 1999). In some countries, land is essential for rural livelihoods possibly because of the limited opportunities for farmers to engage in non-farm activities. In such countries, farming is the only opportunity open to farmers and thus land shrinking severely threatens rural livelihoods. In other countries, land is becoming less important in terms of determining rural livelihood; most likely because people there have more chances to participate in nonfarm economic activities (Tuyen, 2012). Land-related problems are a major setback where agriculture is a major source of livelihoods for people, and that is a main reason why rural areas harbor large proportion of poor people and high level of poverty (Mphande, 2016).

The bulk of the population in most developing countries lives in rural areas (Lanjouw and Lanjouw, 2000), and this population continue to grow at a substantial rate. Given limits to arable land, this growth in the rural labor force will not be productively absorbed in the agricultural sector. Either migration to urban areas or the development of non-farm employment in rural areas is practiced by majority of the rural households.

The major reason for landlessness is because of population pressure. Nowadays population of the world is dramatically increasing. According to Todaro and Smith (2012) global population has skyrocketed since the beginning of the industrial era, from just under 1 billion in 1800 to 1.65 billion in 1900 and to over 6 billion by 2000. Adding to these global populations according to the results of the 2017 revision is nearly about 7.6 billion as of mid-2017 (United Nations, 2017). Worldometers (2019) estimated populations currently living on this planet as 7.71 billion peoples. In case of Ethiopia the population is grown from 73.9 million in 2008 to 94.4 in 2017. Among this rural population is about 72,265,000 (80 %) of total population having 37,870,000 and 37,395,000 males and females respectively (CSA, 2013b). However; Ethiopian populations according to (United Nations, 2017) differs from Central Statistical Agency which is about 104.96 millions. The reason for this difference may be due to projection inaccuracy and the cancelation of planned population census in 2017; which is normally done by 10 years term.

Ethiopia is a country of smallholder agriculture. In the 2000 cropping season, 87.4 % of rural households operated less than 2 hectares; whereas 64.5 % of them cultivated farms less than one hectare; while 40.6 % operated land sizes of 0.5 hectare and less (CSA, 2002; Negatu, 2005) as quoted by (Samuel, 2006). Furthermore comparing the percent of land holder in the year 2009/10 and 2010/11 alone, one can understand how fast the number of people having reduced size of

land is increasing. According to CSA (2010, 2011), as quoted by (Zemen, 2013) the people who had less than 0.1 hectare in 2009/10 were estimated at 7.32 percent, but this figure increased to 9.13 percent in 2010/11. About 1.8 percent increase means a total of 250,000 landholders have joined the category of less than 0.1 hectare in a year. A five year interval comparison between 2005/06 and 2010/11 shows dramatic increase of peoples with small landholdings. Furthermore the percentage of people having 0.5 hectare and less increased by 5.6 percent in five years bringing down about 1.7 million landholders to this category. At the same time, the number of people with over 0.5 and below 5 hectare decreased by about 6 percent. Hence this process can in turn increase the number of landless rural households in the long run.

Land, which is the direct source of livelihood for over 80% of the Ethiopian population, has become a scarce resource, although the degree of shortage varies across regions as well as from one locality to another (Degefa, 2003). Land scarcity is very common in the parts of the highlands where population densities have become very high and farm sizes are very small. As a result, land as a safety net is eroding and landlessness is emerging among productive age groups, making them not to stay on their parents' land because of scarcity (Sosina and Holden, 2013). Furthermore, access to land is an important issue for the majority of Ethiopian people who, in one way or the other, depend on agricultural production for their income and subsistence. However, agricultural land is becoming very scarce, fragmented and increasingly less productive (Mezgebu, 2014).

Research done on landless households is very rare. However, different studies tried to put landless households available in different study areas. For instance, according to (Corsi and Abab, 2017) in Ethiopia 95.8% of rural households has less than 2 hectares of lands, while the rest 4.2% are landless. The majority of landless are between the ages of 20 – 40 who are active working group in the population. Furthermore, as reported by (Degefa, 2003), study undertaken in three Peasant Associations of Munessa Woreda revealed that; about 44 % to 53 % of the households are landless. In the study area alone landless rural households are about 2564 (13%) of total rural households (WWRLA, 2017).

Although there is a shortage of study related to livelihood strategies of landless rural households; different empirical study shows that farming as an strategy, is still practiced by landless rural households through renting in land or share cropping (Degefa, 2003;Mezgebu, 2014). Others

pursue other livelihood strategies like diversification into: off-farm, nonfarm income generating activities, and migration to sustain their living (Degefa, 2003; Gebru & Beyene, 2012; Mezgebu, 2014).

Furthermore, different study was undertaken in different parts of Ethiopia, regarding determinants of livelihood strategies of rural households; however there is no study undertaken on determinants of overall livelihood strategy choice of landless households. Some studies tried to examine livelihood activities rather than the choice of livelihood strategies; although they are not exhaustive enough to investigate the subject. Generally, in Ethiopia and particularly in study area land holding is too small and overall the number of landless households is increasing from time to time as population increases. Hence the fate of these landless households depends on other means of earning incomes as means of livelihood strategy. On the other hand, to improve living standard of landless rural households of the study area it is important to identify the determinant factors of the most remunerative livelihood strategies choices. Therefore, this study was tried to investigate landless households' livelihood strategies as well as their determinants of households' choices of livelihood strategies.

## **1.2. Statement of the problem**

Landlessness in rural areas is a cause of; food insecurity, unemployment and impoverishment as non-farm income generating activities are not well developed. According to Devereux (2000) there is little spare arable land in rural Ethiopia, and the extent of landlessness or near landlessness is increasing. Land pressure is worse in some areas than others, and many farming households have already left rural areas. According to (CSA, 2013a) in Ethiopia, more than 90 percent of farm households own the land they cultivate. On the other hand 10 percent of households do not have land on which they undertake agricultural activities. There are some slight regional variations. Households who own land are about 93 percent in Amhara and Oromiya regions, they are about 95 percent in Tigray region and about 98 percent in SNNP region.

Furthermore, according to Corsi and Abab (2017), in Ethiopia 95.8% of rural households has less than 2 hectares of lands, while the rest 4.2% are landless. The majority of landless are between the ages of 20 – 40 who are in active working group in the population. As reported by Degefa,

(2003), a study undertaken in three PA's of Munessa Woreda revealed that about 44 % to 53 % of the households are landless.

According to (WWFECO, 2015), there is high shortage of farmland for crop production and grazing land for livestock production. On the other hand there are about 2564 (13%) landless rural households out of total rural households (WWRLA, 2017). Hence, this shortage of farmland and complete landlessness may affect food security at household level and hinder the development of the country. As population increases the number of landless households also increases, and if other options of livelihood strategies were not open to them it is difficult to improve the living standard of the communities.

Landlessness and lack of assets add to their miseries as they do not have other alternative sources of earnings except hiring out their labour. Employment in wage labour does not produce sufficient income for the households that in turn help to meet their basic needs. Furthermore in rural areas there are fewer employment alternatives and low income produced while undertaking a given activity. Low and stagnant income along with fewer alternative employment opportunities has become a major reason for increasing indebtedness among the rural masses as these households find it hard to meet their consumption needs through their meager income. Further, the pattern of consumption expenditure is also an important indicator of a family's standard of living. A greater proportion of the income being spent on food items reveals a lower level of expenditure on important non-food items such as education, health, entertainment etc. Since these items are helpful in raising human capabilities, a lower expenditure on these non-food items lowers human capital formation and so lowers the earning capacity of the households.

In Ethiopia, high unemployment rate, combined with a lack of access to arable land among rural youth, contributes to greater food insecurity and limits their ability to generate income from farming activities (Corsi and Abab, 2017). Furthermore, there is a high dependency ratio in the Ethiopian population. As reported by CSA and ICF (2017), nearly half (47%) of the Ethiopian population is under age 15. Hence, viable livelihood strategies that produce high or enough output (income) are very important to ensure households' food security, well-being, and economic improvement.

Livelihood strategies are shaped by the assets which people can claim and by various institutional factors (or ‘policies, institutions and processes’) (Levine, 2014). Accordingly, households with many livelihood assets are generally more resilient (able to withstand shocks) than households with fewer assets (FAO & ILO, 2009; CSA, 2013b). Among the various assets the very important natural one is land. So, it is very important to understand how landless rural households make their living by using other kinds of assets they have and how they are being affected or constrained by different processes.

On the other hand until now the lacunae of knowledge with regard to determinants of livelihood strategies choice of landless rural households does not filled. In the previous study, greater emphasis was only given to livelihood diversification strategies than overall livelihood strategies. Furthermore, in previous study emphasis was given to livelihood activities or means of earning income than livelihood strategies which is very more specific. Although there are many studies undertaken on livelihood strategies of rural households; studying livelihood strategies of landless rural households is very rare in Ethiopia and totally not available in this study area. In general there is no study undertaken yet, to find out the determinants of livelihood strategies choices of landless rural households in Ethiopia and in particular in the study area. Hence it is very important to give greater emphasis independently, on the study of landless rural households’ livelihood strategies; because the trend of landlessness will increase in the future. So the gap filled by this study is; finding out the determinants to the choice of livelihood strategies. Considering the foregoing, this study aimed to find answers to: what livelihood strategies are pursued by the different segments of the landless rural households of the Woreda? What are the determinants of choice to those strategies? This study provided answers to these questions.

### **1.3. Objectives of the study**

#### **1.3.1. General Objective**

The main objective of this study is to find out determinants of households’ choices of livelihood strategies in Wolmera Woreda of Oromia National Regional State of Ethiopia

### **1.3.2. Specific Objectives**

The specific objectives of this study are:

- To examine landless rural households access to and ownership of livelihood assets.
- To identify livelihood strategies of landless rural households in the study area;
- To find out determinants of landless households' choice of livelihood strategies.

### **1.4. Research Questions**

This study was provided answer to the following questions:

- What is the magnitude and cause of landlessness in the Wolmera Woreda?
- What dominant livelihood strategies do households in the study area pursue?
- How do landless rural households pursue farming livelihood strategies?

### **1.5. Significance of the Study**

Nowadays the numbers of landless rural households are increasing. In an agrarian economy like Ethiopia who was more dependent on agriculture and in which more than 80% of the populations derive their income from agriculture; should have to provide an alternative strategies given the increment of landlessness. To do this it is important to understand that what livelihood strategies are pursued by landless rural households and determinants of livelihood strategies choice. While understanding this it is possible to develop appropriate policy that will help landless rural households in ensuring their livelihood security. Hence this study is very important for policy makers and decision makers if multiplied in different contexts.

The research findings will also serve as a source of information and literature review for other researchers interested to conduct their study on livelihood strategies of landless rural households in the study area and other locations. More importantly, the research will narrow the knowledge gap that exists on the different livelihood strategies pursued. On the other hand, this study was undertaken for partial fulfillment of Master of Art degree in Rural Development.

### **1.6. Scope and Limitations of the Study**

The scope of this study is only limited to Wolmera woreda rural landless households. More importantly the study is only confined to households living in rural kebeles, and those

households who have no farm lands. In regard to land, households may have small parcel of lands used for houses and this do not identify them as a land owners. Hence this study regarded these households as landless households if they have no farm lands.

On the other hand regarding limitations; shortage of budget and unavailability of enough time as well as lack of collaboration of some sample household respondents at the time of data collection is a limitation to this study. Furthermore lack of well-trained enumerators as well as lack of collaboration of different office of Wolmera Woreda experts for collection of secondary data is also a limitation to this study.

### **1.7. Operational Definitions**

**Farming Livelihood Strategies:** Includes activities like rain fed crop production and irrigation based crop agricultural production and livestock rearing. If households diversify their sources of income within this sector or earn incomes from different crop production and livestock rearing, it means that these households are pursuing farming livelihood strategy.

**Nonfarm Livelihood Strategies:** Includes a bunch of activities undertaken on other farm in the form of wage labour or skilled labour or self-employment in rural non-farm activities. Generally it includes all activities that are non-agriculture.

**Diversification Livelihood Strategies:** Integrates farming or agriculture based livelihood strategies with nonfarm or non-agriculture types of livelihood strategies. If a given households undertake farming as well as non-agricultural activities to earn income as well to lead living it is said to be diversified livelihood strategy.

### **1.8. Organization of the Thesis**

Following to the above brief introduction, the remaining parts of the thesis is organized as follows. Chapter two presents review of literature on livelihood strategies and determinants of choices. Subsequently, description of the study area and methodologies are presented in Chapter three. In Chapter four, both descriptive and econometric results are presented and discussed in detail. Chapter five draws conclusion of the main findings of the study and provide the way forward to concerned bodies.

## CHAPTER TWO

### 2. Review of Related Literature

#### 2.1. Concepts and Definitions

This part of the paper mainly deals with important concepts with their definitions of the subject under the study that are available in the literature.

There are various definitions of livelihood available in the literature. Some of the more commonly available definition in the literature was as follows; for example, as described by Chambers and Conway (1992) livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stress and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base. Loubser (1996) also defined livelihood as the means by which people make a living, that is, have or acquire, in one way or another, the requirement for survival and satisfaction of needs as defined by the people themselves, in all aspects of life.

Furthermore according to Ellis (1999), livelihood is defined as ‘the activities, the assets, and the access that jointly determine the living gained by an individual or household.’ On the other hand Livelihood is defined as ‘the means of gaining a living’ (Chambers, 1995) or a combination of the resources used and the activities undertaken in order to live (Scoones, 2009).

FAO(2007) on the other hand cited the definition of livelihood given by scholars as follows:

*Livelihoods are the “ways in which people access and mobilize resources that enable them to pursue goals necessary for their survival and longer-term well-being, and thereby reduce the vulnerability created and exacerbated by conflict” (Young. H et al, 2002). Also Oxfam stated that “A livelihood comprises the capabilities, assets and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from shock, maintain itself over time and provide the same or better opportunities for all, now and in the future.”*

The definition of livelihood given by (Chambers and Conway, 1992) has been used by many stakeholders with minimum improvement and in turn can be disaggregated to highlight different

sub-components. Scoones(1998) recognized and described five key elements of the definition, each relating to a wider literature with, in some cases, established ways of assessing outcomes. The first three focus on livelihoods, linking concerns over work and employment with poverty reduction with broader issues of adequacy, security, well-being and capability. The last two elements add the sustainability dimension, looking, in turn, at the resilience of livelihoods and the natural resource base on which, in part, they depend.

The five elements or components of livelihood definition given by Scoones are elaborated as follows:

- (1) **Creation of working days** – This relates to the ability of a particular combination of livelihood strategies to create gainful employment for a certain portion of the year. This may be on or off-farm, part of a wage labour system or subsistence production,*
- (2) **Poverty reduction** – The poverty level is a key criterion in the assessment of livelihoods,*
- (3) **Well-being and capabilities** – The notions of ‘well-being’ and ‘capability’ provide a wider definitional scope for the livelihoods concept,*
- (4) **Livelihood adaptation, vulnerability and resilience** – Relates to the ability of a livelihood to be able to cope with and recover from stresses and shocks is central to the definition of sustainable livelihoods, and*
- (5) **Natural resource base sustainability** – Which implies to avoiding depleting stocks of natural resources to a level which results in an effectively permanent decline in the rate at which the natural resource base yields useful products or services for livelihoods.*

On the other hands different international organization both Multilateral and Bilateral organization like DFID, OXFAM GB, CARE, UNDP and the like was working to eliminate poverty through livelihood approach from 1990 onwards. They all believe in the working definition of livelihoods given by Chambers and Conway, and currently working on the improvement of livelihood learning processes (Carney, et al., 1999). Loubser(1996) suggested within the context of jobless growth and unemployment increment; alternative strategies should be considered to meets the needs of large number of skill less, land less, and asset less, for continuous job creation there by to improve their living. On the other hand Maxwell (1996) regarded livelihood hold special places in improving and ensuring food security. This is true in

the case of paradigm shifts of food security thinking; which is the shift from food first perspectives to livelihood perspectives.

Hence for better understanding of how people develop and maintain livelihoods, the UK Department for International Development (DFID), built on the work of practitioners and academics, developed the Sustainable Livelihoods Framework (SLF) (DFID,1999). This framework is an analysis tool, useful for understanding the many factors that affect a person's livelihood and how those factors interact with each other. The SLF views livelihoods as systems and provides a way to understand:

- the assets people draw upon
- the strategies they develop to make a living
- the context within which a livelihood is developed and
- those factors that make a livelihood more or less vulnerable to shocks and stresses (IRP and India, 2006)

Generally in order to understand livelihood concept as required, knowing other related concepts like; livelihood assets, livelihood strategies as well as activities, vulnerability context, transforming structures and livelihood outcome is very important. In the forthcoming section we look at all these concepts under the umbrella of sustainable livelihood framework (SLF).

## **2.2. Sustainable Livelihoods Framework**

The concept of “Sustainable Livelihoods” was elaborated in 1990s, in the Institute of Development Studies in Sussex, Great Britain. Since then it has been increasingly important in the development debate (Licoska-Jaegerman, 2015). The sustainable livelihoods framework is an effort to conceptualize livelihoods in a holistic way, capturing the many complexities of livelihoods, and the constraints and opportunities that they are subjected to (DFID, 1999). These constraints and opportunities are shaped by numerous factors, ranging from global or national level trends and structures over which individuals have no control, and may not even be aware of, to more local norms and institutions and, finally, the assets to which the households or individual has direct access. Even though all individuals within a household do not have equal decision-making power, or benefit equally from household assets or income (Rutherford, 2009;

Armendariz and Morduch, 2010), it is important to identify which unit of analysis is appropriate. Some scholars use the household as a unit of analysis.

Since understanding of livelihoods and livelihood strategies is preliminary for this study; Sustainable Livelihood framework aids us to better understand the concept. Sustainable Livelihood Framework (SLF) has various components (DFID, 1999). Understanding these components is very essential when undertaking any study regarding livelihoods. Hence in the coming section we look at sustainable livelihood framework and its components.

There are many types of SLF that different organization utilize for improving learning process of livelihoods as well as to undertake projects that aimed to improve livelihood of poor and peoples affected with poverty and food insecurity. Some of these organizations are OXFAM, CARE, UNDP, and DFID to name a few (Carney, et al., 1999). Although the framework differs from one organization to other; for this study it is beyond the interest of looking at all the practices of SLF in each organization. Hence this study is only interested to present SLF of DFID (Department for International Development of United Kingdom).

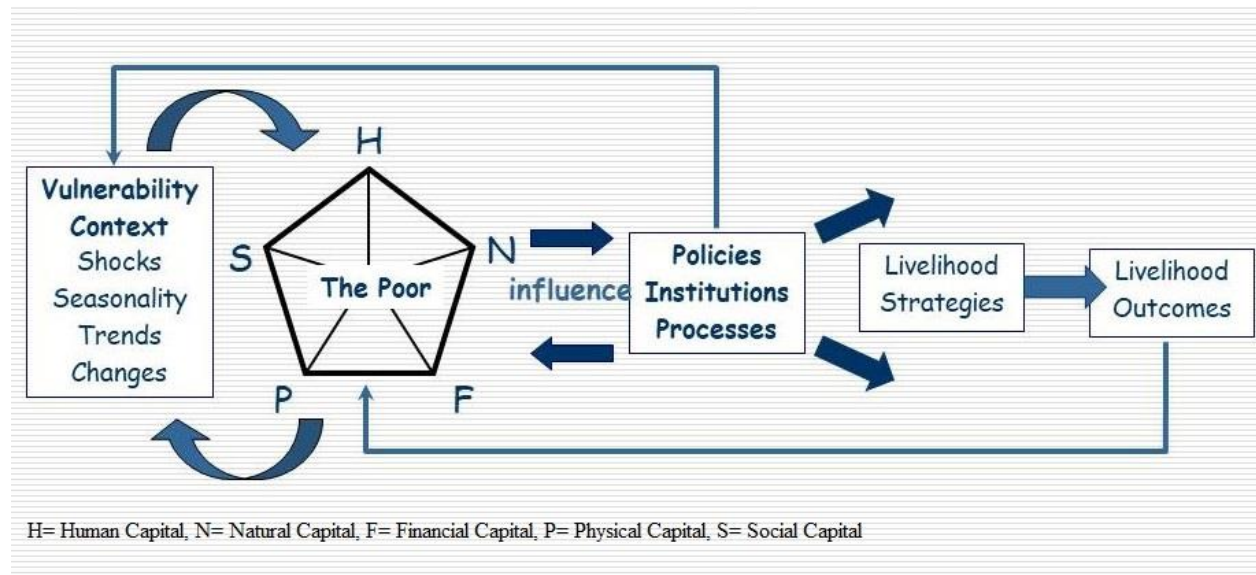


Figure 1: Sustainable Livelihoods Framework

Source: (DFID,1999)

The above diagram illustrates SLF; it will help us to have an understanding on the elements available in the sustainable livelihood framework. Furthermore let's look the descriptions of each elements of SLF one by one.

### **2.2.1. Vulnerability Context**

According to DFID (1999), vulnerability context frames the external environment in which people exist. People's livelihoods and the wider availability of assets are fundamentally affected by critical trends as well as by shocks and seasonality – over which they have limited or no control. This includes trends (such as national or international economic trends, population trends, resource trends (including conflict), national/international economic trends, changes in available technology, political systems), shocks (such as human health shocks, natural shocks like disaster, economic shocks, crop/animal health shocks and conflict), and seasonality (of prices, production cycles, health, employment opportunities). The vulnerability context is important because the three factors have a direct impact on the possibilities that poor people have to earn a living now and in the future. Wider economic conditions can create more or fewer opportunities; an illness in the family can deprive a family of an important source of income and can force them to sell important assets that they have built up. Seasonal shifts in prices, production and employment opportunities are one of the most enduring sources of hardship for poor people all over the world.

### **2.2.2. Assets/Capitals**

Assets/Capitals are the basic building blocks upon which households are able to undertake production, engage in labour markets, and participate in reciprocal exchanges with other households. Capital owned, controlled, claimed or in some other means accessed by households holds are the starting point of the Sustainable Livelihood Framework (Ellis, 2000). As it is available in the literature there are various types of capital that rural households depend on it to make living.

As opposed to other scholars (Scoones, 1998) identified four kinds of capital, merging physical and financial capital by naming Economic or financial capital, while others remain the same. On the other hand many scholars have identified five types of assets, or capital as they are described

in various literature, that we all, not just poor people, need in order to make a living. For instance (DFID, 1999) have identified the following types of capitals.

- ❖ **Human capital:** skills, knowledge, the ability to work and good health. Good health is not simply a means to earning a livelihood; it is of course an end in itself.
- ❖ **Social capital:** the social resources that people draw on to make a living, such as relationships with either more powerful people (vertical connections) or with others like themselves (horizontal connections), or membership of groups or organizations. Generally relationships of trust, reciprocity and exchange that the poor can draw on in times of need, and that lower the costs of working productively together. Like human capital, social capital has an intrinsic value; good social relationships are not simply a means, they are an end in themselves.
- ❖ **Natural capital:** the natural resource stocks that people can draw on for their livelihoods, including land, forests, water, air and so on.
- ❖ **Physical capital:** the basic infrastructure that people need to make a living, as well as the tools and equipment that they use. For example, transport and communication systems, shelter, water and sanitation systems, and energy.
- ❖ **Financial capital:** savings, in whichever form, access to financial services like credit, and regular inflows of money. Livestock resources are also categorized in this category.

The more assets any household has access to, the less vulnerable they will be to negative effects of the trends and shocks as described above, or to seasonality, and the more secure their livelihood will be. Often increasing one type of capital will lead to an increase in other amounts of capital, for example, as people become educated (increase in human capital) they may get a better job which earns more money (increase in financial capital) which in turn means that they are able to upgrade their home and facilities (increase in physical capital). Sometimes, however, one form of capital decreases as another increase. This could be true, for example, where a person or household sells their land to migrate to a city (DFID, 1999; IRP and India, 2006).

### **2.2.3. Transforming Structures and Processes**

Transforming Structures and Processes within the livelihoods framework are the institutions, organizations, policies and legislation that shape livelihoods. Their importance cannot be overemphasized. They operate at all levels, from the household to the international arena, and in all spheres, from the most private to the most public. In addition, they have a direct impact upon whether people are able to achieve a feeling of inclusion and well-being. Because culture is included in this area they also account for other ‘unexplained’ differences in the ‘way things are done’ in different societies. All of these can change both the vulnerability context and the assets to which poor people have access. They effectively determine: access (to various types of capital, to livelihood strategies and to decision-making bodies and sources of influence); the terms of exchange between different types of capital; and returns (economic and otherwise) to any given livelihood strategy (DFID, 1999).

Individual and households livelihoods are shaped by local and distant institutions (e.g. local customs regarding access to common property resources, local and national land tenure rules), and by societal relations (gender, caste, kinship, and so on), as well as by economic opportunities (Ellis, 2000).

### **2.2.4. Livelihood Strategies**

Livelihood strategies is an overarching term used to denote the range and combination of activities and choices that people make/undertake in order to achieve their livelihood goals including productive activities, investment strategies, reproductive choices, etc. (DFID, 1999). According to different scholar’s livelihood strategies are categorized differently (Scoones, 1998; Ellis, 2000; World Bank, 2008). Based on those assets, and shaped by the vulnerability context and the transforming structures and processes, poor people are able to undertake a range of livelihood strategies - activities and choices - that ultimately determine their livelihood outcomes (Rutherford, 2009; Armendariz and Morduch, 2010).

### **2.2.5. Livelihood Outcomes**

Livelihood Outcomes are the achievements or outputs of Livelihood Strategies (DFID, 1999). Poor peoples are usually obliged to combine a range of strategies in order simply to survive;

individuals may engage in multiple activities, and the different members of a household may live and work in different places. The outcomes that they may achieve, all being well, could include more income, increased well-being, reduced vulnerability and greater food security. Sometimes one outcome can negatively affect another; for example, when poor people engage in less risky and hence lower income activities, in order to be less vulnerable to shocks (Rutherford, 2009; Armendariz and Morduch, 2010).

### **2.3. Livelihood Strategies of Landless Rural Households**

The basis of a livelihood strategy is the asset position of the household at a given point in time (Ellis, 2000). On the other hand the ability to pursue different livelihood strategies is dependent on the basic material and social, tangible and intangible assets that people have in their possession (Scoones, 1998)

People draw on their different assets to build a livelihood strategy, which enables them to manage and sustain their lives, and the lives of their families, (or in simpler language, they find ways to ‘get by’) (May, Brown, Cooper, and Brill, 2009). These assets are stocks, which may depreciate over time or may be expanded through investment. In making decisions on strategies to improve the livelihood position, households consider both the current situation and the long-run livelihood position. Livelihood strategies thus include a dynamic component (Winters, Corral, & Gordillo, 2001). Those who have plenty of assets in all five areas will have strong strategies; probably with a number of ‘back-up’ plans should the primary plan fail. For example, if we consider a typical ‘reasonably comfortable’ household, their asset base will be relatively strong – both adults are in good health and have relevant skills and experience (human assets), they own their own house and car (physical assets) and are both in well-paid and secure work (financial assets). In addition they have strong social networks (social assets) and have the confidence and knowledge to hold those responsible for public services (May, Brown, Cooper, and Brill, 2009).

Asset endowments are constantly changing due to different factors (DFID, 1999). For instance due to population growth land as one of natural capital constantly diminishing and peoples are being landless. Hence livelihood strategies must be able to adapt or change altogether as the surrounding conditions change (IRP and India, 2006).

Although some capitals like lands are constantly diminishing and in some cases one type or components of assets/capitals totally absent; they usually combined in a multitude of different ways to generate positive livelihood outcomes (DFID, 1999). On the other hand when land is totally absent; landless rural households may pursue different kinds of livelihood strategies by utilizing other livelihood assets.

According to some scholars, livelihood strategies pursued by rural households in sub-Saharan Africa have become increasingly multidimensional and multi-local in the past two decades (Mohammed, 2007). Scoones (1998) identified three broad clusters of livelihood strategies. They are: agricultural intensification/extensification, livelihood diversification and migration. Scoones sees these to cover the range of options open to rural people. Either you gain more of your livelihood from agriculture (including livestock rearing, aquaculture, forestry, etc.) through processes of intensification (increasing output per unit area through capital investment or increases in labour inputs) or extensification (calling more land into cultivation), or you diversify to a range of off-farm income earning activities that since majority of this activities do not require land holdings, or you move away and seek a livelihood in urban, semi urban or other rural areas where land is available, either temporarily or permanently.

On the other hand McDowell and Haan (1999), identified three types of livelihood strategies that landless rural households pursue in order to survive. They are: participating in non-farm activities, by renting-in land from landholders, and migration. As compared to others these strategies were similar as stipulated by Scoones, except the wording. As to my understanding participating in non-farm activities represents diversification, renting-in land from landholders represents agricultural intensification/extensification and migration is the same for both. Furthermore as described by Lanjouw and Lanjouw (2000) either migration to urban areas or the development of non-farm employment in rural areas is practiced by majority of rural households, as a remedy to limited arable land and growth of rural labour force that are not productively absorbed in the agricultural sector. In this case the livelihood strategies pursued was only two which is migration and non-farm employment.

Ellis (2000) on the other hand, identified two types of livelihood strategies namely: natural resource based strategies and non-natural resource based strategies.

*The natural resource based activities include collection or gathering (e.g. from woodlands and forest), food cultivation, non-food cultivation, livestock keeping and pastoralism, and non-farm activities such as brick making, weaving, thatching and so on. Non natural resource based activities include rural trade (marketing of farm outputs, inputs and consumer goods), other rural services (e.g. vehicle repair), rural manufacture, remittances (urban and international), and other transfer such as pensions deriving from past formal sector employment.*

There is a variety of livelihood strategies classification. World Bank (2008) also in World Development Report identified five types of livelihood strategies: They are (1) agricultural markets (market oriented small holders), (2) farming (subsistence oriented farmers), (3) labour oriented households (wage work in agriculture, rural non-farm economy, or from non-agricultural self-employment), (4) migration and remittance, and (5) diversification; which combine (agricultural markets, farming, labour oriented strategy, and migration). Although there are a wide variety of livelihood strategies classifications, it is up to the researcher mandate to use the appropriate ones which fits to the contexts of the study. However for the case of this study, it is very important to understand the description of each livelihood strategies pursued by landless rural households. Although the below classification of livelihood strategies are pursued by all rural households, it is equally important and be pursued by landless rural households as well. So livelihood strategies pursued by landless households are elaborated as follows.

### **2.3.1. Agricultural Intensification/Farming**

Intensification of agricultural production is meant that a more efficient use of available farm resources such as land, labor, capital (livestock and money), and other inputs (e.g. energy, water, nutrients) that increases output per unit of input. Improved farm inputs such as chemical nutrients, irrigation facilities, improved seeds and breeds of livestock, pesticides and better agronomic practices are of paramount importance in raising the productivity of land and, labor thereby to increase total farm outputs (Samia and Woubshet 1996). However for intensification landless rural households should have an arrangement for getting lands.

For instance in the case of Ethiopia there are various land use arrangements are available for landless rural households; even though they differ from locality to locality. According to Tesfaye

(2004) there are two kinds of land acquisition arrangements in Ethiopia; in which landless rural households makes use of lands for agricultural activities. These arrangements are fixed cash rental and share cropping.

Many of the small land holders lack oxen for plowing and input for planting. Elderly, disadvantaged groups, women headed households, ultra poor and absentee holders mostly rent out their holdings or arrange share cropping with capable ones. The traditional farming system like heavily labor based for plowing, planting, weeding, harvesting, threshing and soil and water conservation activities are very difficult for women and other vulnerable groups. Absentee landholders may also prefer to work on other activities and rent out their land to others (Zemen, 2013). Thus through share cropping and fixed cash rental arrangement landless rural households participate in agricultural as a source of their livelihood.

Fixed cash rental is not as common in rural communities, particularly in marginal agricultural areas where climate-based production risk is high. However, it assumes greater importance in areas where rural road infrastructure and markets are better developed, and agricultural production is commercialized. The incidence of cash rental is higher among economically better-off farmers, particularly among non-resident cash crop farmers (Ibid).

On the other hand share contract is particularly prevalent among farmers residing in the same localities and/or with strong social ties since the incidence of labor shirking and breaching contracts (even if they are orally arranged) is low. The greater preference for sharecropping, especially among fellow farmers with established acquaintance and social control mechanisms, suggests transaction costs associated with selection, monitoring and enforcement of share contract are small (Ibid). Adding to this as stated by Zemen (2013); Ethiopian farmers have a tradition of renting land or arranging share cropping among themselves. The rural people arrange such deals through elders and kinship structures.

### **2.3.2. Off farm**

Forestry, fisheries or hunting and gathering on common-property resources are sometimes called “Off-farm” (DFID, 2002) or any of agricultural activities, which are away from the family farm, as in the case of agricultural wage labor (Leones and Feldman, 1998). Also refers to wage or exchange labour on other farms, and labour payments in kind such as harvest sharing and other

non-wage labour contracts (Loison, 2015). Engagement in wage labor forms the core of off farm based livelihood strategies. Especially for households that do not have access to land or whose access is limited (in terms of land area and quality of land), do not have the resources to make their farms more productive, or lack the other assets that can temporarily ease declining entitlements to food, the sale of its labour is seen as a more viable alternative or as a parallel strategy to own agricultural production and other food accession efforts.

### **2.3.3. Nonfarm**

Nonfarm livelihood activities constitutes all secondary (including manufacturing, processing, construction) and tertiary (including transport, trade, finance, rent, services) sectors (DFID, 2002) or any types of activities, outside agriculture (Leones and Feldman, 1998), also includes all economic activities in rural areas except agriculture, livestock, fishing and hunting (Lanjouw and Lanjouw, 2000). Most recent studies agree that cash and in-kind Rural Nonfarm Income is a substantial contribution to total household income. The contribution from the Rural Nonfarm alone is 40–45% in Sub-Saharan Africa, Latin America and South East Asia, and 30–40% in South Asia (DFID, 2002). This proportion varies widely between, landless households and those with access to land for farming; this means landless households pursue nonfarm livelihood strategies than small holders (Ellis, 1998).

### **2.3.4. Migration**

There are various definitions of migrations by different scholars. This term is very vague and complex in nature so as to have a common definition which is acceptable by all stakeholders. Some scholars give definitions depending on the distance covered when peoples move from one place to place, others depend on time span of stay at destination place or country, whilst others depend on places and human wills. On the other hands the definitions do not cover some movements of peoples from place to place like nomads and students (Sinha, 2005). Since this study is only interested with migration as livelihood strategies of landless rural households we do not go deep to dig about the concepts.

However for having a little understanding of the concepts; some of the definitions are depicted below. According to Hagen-Zanker (2010) migration is the temporary or permanent move of individuals or groups of people from one geographic location to another for various reasons like

better employment possibilities. Also as described by Gautam (2000) migration is a form of geographical or spatial mobility, which involves a change of usual residence of a person between clearly defined geographical units.

On the other hand as described by Dubey and Mallah (2015) migration is simply a movement of people between regions or countries. It is the process of moving from the use of one operating environment to other operating environment that is, in most cases, is thought to be a better one. Unlike the unique events of birth and death that define an individual's lifetime, migration can be a multiple event. Its measurement depends entirely upon how it is defined in time and across space (Skeldon, 2017).

Both poor and better off people pursue migration as a livelihood strategy. Choice of destination and levels of benefits and risks, however, vary significantly, according to the economic and social power of the migrant (Siddiqui, 2003). Migration have a paramount importance in rural contexts where the family structure is very traditional; migrants maintain close links with their nuclear and extended families. These links are maintained through cash and kind remittances to their families, social or kinsmen associations in the cities through which political and economic development in their home communities are monitored. Also through such associations funds are raised for development objectives in their villages (Olajide, 2014).

#### **2.3.4.1. Causes of Migration**

People's decisions about migration are not taken in an ideal world of free choice in which individuals rationalize in order to maximize net advantage. Rather degree of autonomy and constraints that individual faces; influences individual and group decision on migration (McDowell and Haan, 1999).

Economic and political factors, family reunification and natural disasters sometimes cause migration to happen. In relation to the present global setup, it can be observed that internal and external conflicts of sovereign states compel people to leave such countries. The best example would be the moving of people from Afghanistan, Iraq, Libya and Syria due to civil wars. On the other hand, poverty and lack of decent jobs have become reasons for leaving countries, which is considered as economic migration (Wickramasinghe and Wimalaratana, 2016). There are two generalized causes of migration are available in various literatures; namely: free or spontaneous

human mobility and forced mobility. The former movement is the result of free choice of the person or group migrate which includes: Economic or labour migration, health migration, study migration, tourism, pilgrimage, and business migration. While the latter (forced migration) is the movement forced by conflict, natural disaster, persecution, discrimination and deportation which includes asylum seeker, refugee, displaced person, exile, and deported. Others classify causes of migration as push and pull factors (Gautam, 2000; Andrienko, 2010; Sinha, 2005)

### **2.3.5. Diversification**

Livelihood diversification is defined as “the process by which households construct a diverse portfolio of activities and social support capabilities for survival and in order to improve their standard of living” (Ellis, 1999). He also defined livelihood diversification as the process by which rural households construct an increasingly diverse portfolio of activities and assets in order to survive and to improve their standard of living (Ellis, 2000).

Historically, rural development policies and projects implemented by national and local governments, NGOs and international organizations have tended to focus efforts on single sectors of the rural economy. In particular, the focus of interventions has been on agricultural production and, quite often, individual crops. While this may be suitable in certain circumstances, given the diversity of activities employed by households to maintain livelihoods this focus may be limited at best and quite likely inappropriate (Winters, Corral, and Gordillo, 2001). Diversifications do not only represent having or promoting many different income portfolios across different sectors, but also mean to represent diversifying income sources within agriculture sector itself (Ellis, 2000).

For many poor rural households, diversification may well be conditioned by “push” factors. As land becomes scarce and agricultural productivity declines; and as households face fluctuations in their incomes, having more than one source of income becomes the only imperative to survive. Furthermore diversification is not only driven by constraints or “the unrelenting struggle for survival of the poor”, it can also be determined by incentives (Adi, 2003). As stipulated by (Ellis, 2000) the reasons that individuals and households pursue diversification as a livelihood strategy are often divided into two overarching considerations, which are necessity or choice.

Necessity refers to involuntary and desperation reasons for diversifying. Examples might be the dispossession of a tenant family from its access to land, fragmentation of farm holdings on inheritance, environmental deterioration leading to declining crop yields, natural or civil disasters such as drought, floods or civil war resulting in dislocation and abandonment of previous assets, loss of the ability to continue to undertake strenuous agricultural activities due to accident or ill health.

Choice, by contrast, refers to voluntary and proactive reasons for diversifying. For example, seeking out seasonal wage earning opportunities, travelling to find work in remote locations, educating children to improve their prospects of obtaining nonfarm jobs, saving money to invest in nonfarm businesses such as trading, utilizing money obtained off the farm to buy fertilizers or capital equipment for the farm enterprise.

Ellis (2001) summarized that farm based livelihoods are no longer able to provide a secure long-term livelihood for a number of reasons. Some of these include: land fragmentation at inheritance causing plots to become less viable for family food security, adverse environmental change that increase the risks associated with natural resource-based livelihood activities and declines in agricultural markets relative to non-farm wage levels. Such problems push small holder farmers to diversify their income in non-farm livelihood alternatives.

#### **2.3.5.1.Determinants of Livelihood Diversification**

There are various determinants of livelihood diversification that found in literature (Ellis, 2000). According to (Ellis, 1999) considerations of risk spreading, consumption smoothing, labour allocation smoothing, credit market failures, and coping with shocks can contribute to the adoption, and adaptation over time, of diverse rural livelihoods. Individuals and rural households may diversify their activities in response to incentives or necessities may be classified as push and pull factors (Ellis, 2000; Loison, 2015). Diversification may occur either as a deliberate household strategy which is pull factors or accumulation of wealth and involuntary response to a crisis which is pull factors or distress (Barrett et al. 2001; Möllers and Buchenrieder 2005) as quoted by (Zerihun, Folloni, and Prowse 2015)

#### **2.3.5.1.1. Push Factors**

Push factors are negative factors that may force farm households to seek additional livelihood activities within or outside the farm (Ellis, 2000; Loison, 2015). Also termed as survival led diversification (Ellis, 2000). Push factors tend to dominate in high-risk and low-potential agricultural environments, subject to drought, flooding and environmental degradation (Haggblade et al., 2007) as quoted by (Loison, 2015). Other scholars identified push factors that determine livelihood diversification are as disguised agricultural employment, inadequate access to fertile land, lack of access to farm input, markets, deterioration of natural resource base and incomplete credit among others (Obi, 2011) as quoted by (Dereje, 2018). Others scholars also support this statement (Ellis, 2000; Loison, 2015).

#### **2.3.5.1.2. Pull Factors**

Pull factors are positive and these may attract farm households to pursue additional livelihood activities to improve their living standards (Loison,2015). Although termed as opportunity-led diversification (Ellis,2000). As stated by (Zerihun, Folloni, and Prowse, 2015) choice reasons for diversifying involve taking advantage of seasonal wage earning opportunities, investing in children education, saving to invest, and availability of growth engines like private investments. Diversification becomes a deliberate strategy for an individual or household in order to generate assets for accumulation and reinvestment (Ellis, 2000).

### **2.4. Determinants of Landless Rural Households' Choice of Livelihood Strategies**

Many livelihoods are largely predetermined by accident of birth. A person may be born, socialized and apprenticed into an inherited livelihood – as a cultivator with land and tools, a pastoralist with animals, a forest dweller with trees, a fisherman with boat and tackle, or a shop keeper with shop and stock; and each of these may in turn create a new household or households in the same occupation (Chambers and Conway, 1992). This premise do not always true in the contemporary world. There are also livelihoods that are less singular or predetermined. For example a person or household may also choose a livelihood especially through education and migration (Ibid). Livelihood strategies of landless rural households are determined by various explanatory variables. Some of the explanatory or independent variables that tend to determine the choices of livelihood strategies will be further explained in the forthcoming section.

Furthermore unintended birth into a predisposed livelihood (e.g. the caste system in India.), gender, inherited livelihoods, spontaneous livelihoods, education and migration determines the choice of livelihoods (Ellis 2000; Fabusoro et al. 2010; Khatun and Roy 2012); as quoted by (Mphande 2016).

#### **2.4.1. Sex**

Gender of households head, may influence available opportunities, also expected to play a role in activity choice (Winters, et al., 2009). Gender is an integral and inseparable part of rural livelihoods. Men and women have different assets, access to resources, and opportunities. Women may have lower education due to discriminatory access as children, and their access to productive resources as well as decision-making tend to occur through the mediation of men. Women typically confront a narrower range of labour markets than men, and lower wage rates (Ellis, 1999). On the other hand female headed households are hypothesized to participate less in both self-employment and wage jobs relative to their male counterparts because of differential in access to credit and other resource (Zhang et al., 2006) as quoted by (Nigussie, 2017).

#### **2.4.2. Household Labour Size**

The amount of labour in the household could lead to an expanded range of activities particularly in contexts in which land is limited. Availability of family labour is likely to influence the range and type of activities in which the household is involved (Winters, et al., 2009). Rural households with greater labour endowments are expected to be pushed toward off farm activities since they are likely to have higher labour – to – land ratio.

#### **2.4.3. Age**

Age is included to reflect changes that occur in the life cycle of a household as well as a measure of experience. As age increases the probability of switching between different kinds of activities also increases. In other word the older the household most likely pursue diversified livelihood activities (Winters, et al., 2009). Furthermore according to some socialist countries when someone gets older government transfer is regarded as a source of living. Literature also suggests that younger farmers are more oriented towards adopting modern agricultural technologies, and as well as non-agricultural livelihoods (Rahman, 2003; Hatlebakk, 2012) respectively quoted by (Rahman and Akter, 2014).

#### **2.4.4. Dependent Family Members**

It measures the pressure on the productive population. Dependency measures the population of dependents (people younger than 15 and those older than 64) against the productive population (ages 15–64). In a household dependency ratio measures the ability of the household to sustain and meet their needs. Increase in the dependency family member puts more pressure on the household and decreases the ability of the household to meet their needs (Mphande,2016). An increased dependency ratio will push the household into diversifying into other activities that can bring more income to the household (Khatun and Roy 2012) as quoted by (Mphande, 2016).

#### **2.4.5. Educational Level**

The human capital of the household, as measured by schooling, is expected to generally be linked to a shift to non-agricultural activities since this is where the returns to education are most likely to be highest. This does not necessarily imply that there are no returns to education from agriculture, but rather that, on average, increased education appears to be likely to lead a shift away from agricultural activities.

Lack of education creates a barrier to entry in many rural non-agricultural activities and education is expected to be particularly important in participation in non-agricultural activities (Winters, et al., 2009).Households with more educated heads are more likely to participate in non-farm sector (Abdulai and CroleRees, 2001) as quoted by (Rahman and Akter, 2014)Furthermore households with low level of educational attainment often find it difficult to overcome the skills barrier for taking up non-farm livelihoods (Barrett et al, 2001) as quoted by (Rahman and Akter, 2014).

#### **2.4.6. Access to Credit**

Access to credit and loans in the right form at an appropriate time and at the right interest rate is important in enabling positive development trajectories (Ambrose-Oji, 2004). Rural financial services can provide important incentives to invest in improved land – use practices, increase the chance of starting a small business and skill acquisition both directly through the availability of liquidity and indirectly through reduced uncertainty (Robben and Crucx, 2003) as quoted by (Nigussie, 2017). Access to credit and ability to obtain loans allows for diversification. With

enough capital to start up a new business or acquire assets that can be used to advance a livelihood, access to credit is beneficial to a household (Mphande, 2016).

#### **2.4.7. Access to Land**

Land ownership is closely linked to agricultural production, including both crop and livestock production. Those without access to some land, on average, to focus on other economic activities and limited land access is hypothesized to be linked to participation in off-farm and non-agricultural income generating activities (Winters, et al., 2009). Although landless rural households do not have land ownership different empirical study emphasized that land is still important for them. There is various land use arrangement in which landless farmers use to pursue farming livelihood strategies. Through land renting, sharecropping landless rural households pursue farming as a strategy (Mezgebu, 2014; Degefa, 2003; Moges, 2009; Weldegebrial and Fekadu, 2012).

#### **2.4.8. Asset/capital Endowment**

Asset/capitals holds special place in the Sustainable livelihood framework. It is the starting point of the framework which is owned, controlled, claimed, or in some other means accessed by the household (Ellis, 2000). Even though landless households can access land by different land use arrangement over all capital endowments will influence or determine the choices of livelihood strategies that landless rural households pursue (Winters, et al., 2009). Asset (capital) endowment and ownership and access to this capital tend to influence the choice of livelihood strategies that rural landless households pursue (Ellis, 2000). The household asset variable (which also includes value of all tools and equipment used for farm operations) has potential influence on the choice of livelihood options (Rahman and Akter, 2014). Availability of assets in a household increases the chances of investing into new markets and or activities that will enhance the economy of the household. Availability of assets allows for collateral that can be used to obtain loans and credit that can be used to boost capital and start up new businesses and income generating activities. A poor asset base limits a household's ability to diversify and/or acquire loans or credit (Mphande, 2016).

#### **2.4.9. Training**

In order for a household to diversify, there is need for human capital. Human capital is an asset in diversification for rural livelihoods because the more the skills attained by a household the easier it is to diversify. At the family level, the more the skills in a household, the more they can venture into different markets thereby widening their ability to make money and support their family (Mphande, 2016). According to some study training is found to have a negative and significant effect on the combined use of on-farm and nonfarm as a livelihood strategy as compared with relying only on-farm activities to drive their livelihood. This is because most of the trainings provided to the farmers were on ways of improving agricultural production and productivity. This is because majority of training is only given for boosting agricultural productivities. This in turn helps them to get better production, and then this most likely leads to obtain more income to fulfill their family requirements by enhancing their agricultural production skills, knowledge and experiences (Seid, 2016; Yishak, Gezahegn, Tesfaye, and Dawit, 2014)

#### **2.4.10. Access to Infrastructure**

Access to infrastructure is likely to increase opportunities in non-agricultural activities (Winters, et al., 2009). Non-agricultural livelihoods are more common in regions with developed infrastructure and proximity to regional headquarters. In other words, the presence of developed rural infrastructure correlates with diversification (Rahman and Akter, 2014). Infrastructure is important with regard to access, use and adoption of modern agricultural technologies. Also, electricity connection may be critical in enabling engagement in non-agricultural activities (Gibson and Olivia, 2010) as quoted by (Rahman and Akter, 2014). Households with greater access to electricity, water, communication, roads and other forms of infrastructure have a broader range of opportunities in non-agricultural activities in comparison to those with less access, who may be limited to agricultural activities (Winters, et al., 2009).

#### **2.4.11. Urban and Market Proximity**

Rural populations that are closer to a town are able to source markets for their produce and also have a chance to access facilities and infrastructure such as markets, banks, credit facilities and health facilities that can further develop their livelihood. Access to town also means access to

non-farm activities and skills that can be of benefit to a household. A household or community that is further from town has poor access to these facilities and has less chance of diversifying (Mphande, 2016). Proximity to market also provides opportunities to sell output, and purchase inputs, from self-employment activities as well as opportunities for agricultural employment. Access to markets may also provide higher returns to certain agricultural activities through better input supply and greater opportunities for high – value crops (Winters, et al., 2009).

#### **2.4.12. Inheritance of Livelihoods**

Livelihoods pursued by parents are expected to determine livelihood strategies of off springs. In this case an individual takes up a livelihood that has been passed on in the family, for example cultivation, pastoralists, fisherman, shopkeeper, artisanal work, etc.(Chambers & Conway, 1992;Mphande, 2016). In this case a livelihoods strategy is predetermined, and off springs continues the same way of their families' strategies of pursuing livelihoods.

#### **2.4.13. Institutions (Structures and Processes)**

Institutions play a paramount role in determining the choices of livelihood strategies to be pursued by individuals. Institutions in this context mean economic, social and political organizations, together with the rules that govern their interaction. The institutional framework mediates the access of the poor to assets, financial and other services, technologies and markets, and it determines the extent to which poor groups benefit from the production generated by these assets and services. Public institutions and their rules of the game also determine resource allocation and impose regulatory frameworks that have great impact on the lives of the poor (IFAD, 2013)

According to Baye (2012), institutions facilitate access to economic assets that are essential for their survival and well-being. By defining and limiting the set of choices of individuals, institutions structure incentives in human exchange in political, social and economic domains. Institutions influence livelihood strategies by defining the way in which rural people interrelate and act as well as by influencing how, where, when and by whom assets are accessed, used, controlled and decided upon (FAO, 2008). Institutions can be: (i) formal rules, regulations and enforcement, which include political, judicial and economic rules and contracts, or (ii) informal constraints, which refer to conventions, codes of conduct and norms of behaviour that are culture

specific. In this regard, institutional arrangements include community culture, which is the set of norms, attitudes and values of an entire community, that induce individuals to behave in particular ways (Baye, 2012).

#### **2.4.14. Livestock Resources**

Livestock resources measured in TLU is a determining factor of choosing between different livelihood strategies. If number of livestock resource increases by TLU, the probability of diversifying livelihood strategies decrease, because from selling these livestock resources, individuals and households purchase their basic necessities like food, clothes and so forth. On the other hand whenever ownership of livestock resource is small, the probability of households to pursue diversified livelihood strategy will increase (Yishak, Gezahegn, Tesfaye, & Dawit, 2014).

### **2.5. Review of Empirical Literature**

According to Moges (2009) study undertaken in Dehana Woreda of Amhara Regional State; landless households pursue agriculture, nonfarm, off farm, migration and diversification as their livelihood strategies. Although the rate of landless household participation is not clearly stated for farming and diversification; the rate of participation for nonfarm, off farm and migration is 77.9%, 49.7% and 16.6% respectively. On the other hand the income of share of farming on average is about 78.3%. From agriculture alone the share of income from crop production is about 81%, the share of livestock sale and animal product is about 18 % and 1% respectively. Adding to this the mean income share of nonfarm is about 17.15 %, that of off farm income is about 2.61% and migration constitute about 1.94 % of mean income share.

Regarding to labour based strategies, according to data available from official statistics in Ethiopia consistently suggest that the large majority of rural people are own-account workers or contributing family workers. Working for wages is a source of livelihood for a small fraction of the population and mostly takes place in agriculture and on a casual basis. (NLFS, 2004; De Gobbi, 2006) as quoted by (Rizzo, 2011)

Furthermore according to Sosina (2010) study undertaken in 15 kebeles of Ethiopia based on panel data of Ethiopian Rural Household Survey (ERHS); of those who participate in nonfarm employment activities, 79% participated in self-employment and 39% in wage employment, 18% of nonfarm participant households choose both wage and self-employment.

With regard to migration, available studies indicated that rural-urban migration in Ethiopia is a suitable mechanism to improve own and families' living standards and to relax land constraints in the rural areas (Brauw and Mueller, 2011:3, as quoted by Birhanu and Nachimuthu, 2017). Furthermore according to Feleke (2005), in the four Woreda of Kolfe (one of Addis Ababa's sub-cities) migrants in these urban neighborhoods have revealed rural poverty as their initial and main reasons for the migration of male migrants notably from the Southern Nations, Nationalities and Peoples Region (SNNPR), Amhara, Oromiya, and, to some extent, from Tigray. The main push factors are rural vulnerability to food insecurity and lack of assets expressed in the form of diminishing farmland sizes in all their rural localities and shortage of landholdings.

According to Mezgebu (2014) study done in Mecha woreda of Amhara Regional state out of 118 rural landless households 35(29.7% of the total respondents) have migrated from their localities in searching of earning income to survive. Hence, from these households who migrate in the last 12 months, 34(97.1%) of them were the household heads and only one individual is the son from a household. The destination of most of these households (33 or 94.3%) were commercial farms in Amhara and Tigray regional states particularly Humera, Metema and Jawi sesame farms; while two of the respondents went to other areas. Based on the survey findings, of these migrated households, 30(85.7%) of them brought cash, while 3(8.6%) brought food and the rest 2 (5.7%) brought nothing to the households.

As stated by Zemen (2015) study undertaken in one rural area and four urban areas of Ethiopia 39.5 percent of migration to urban to area is mediated by lack of land to make a living on farming.

Regarding determinants to the choice of livelihood strategies; as noted by (Dereje, 2018; Gecho, Ayele, Lemma, and Alemu, 2014); sex, education, age, experience in other activities, training, credit and distance from market affect the decision of households in choosing from available different livelihood strategies; though the study is undertaken on livelihood strategies of rural households in general including those who have lands. Furthermore (Chambers and Conway, 1992) stated that, livelihood can be inherited from parents. Winters, et al., (2009) specified about different types of determinants; they are land, year of schooling, access to infrastructures, and other factors like; gender, age, labour size and so forth

## 2.6. Conceptual Framework

The conceptual framework in Figure 2 illustrates the interrelationships and hypotheses about how each key factors influence landless households' choice of livelihood strategies.

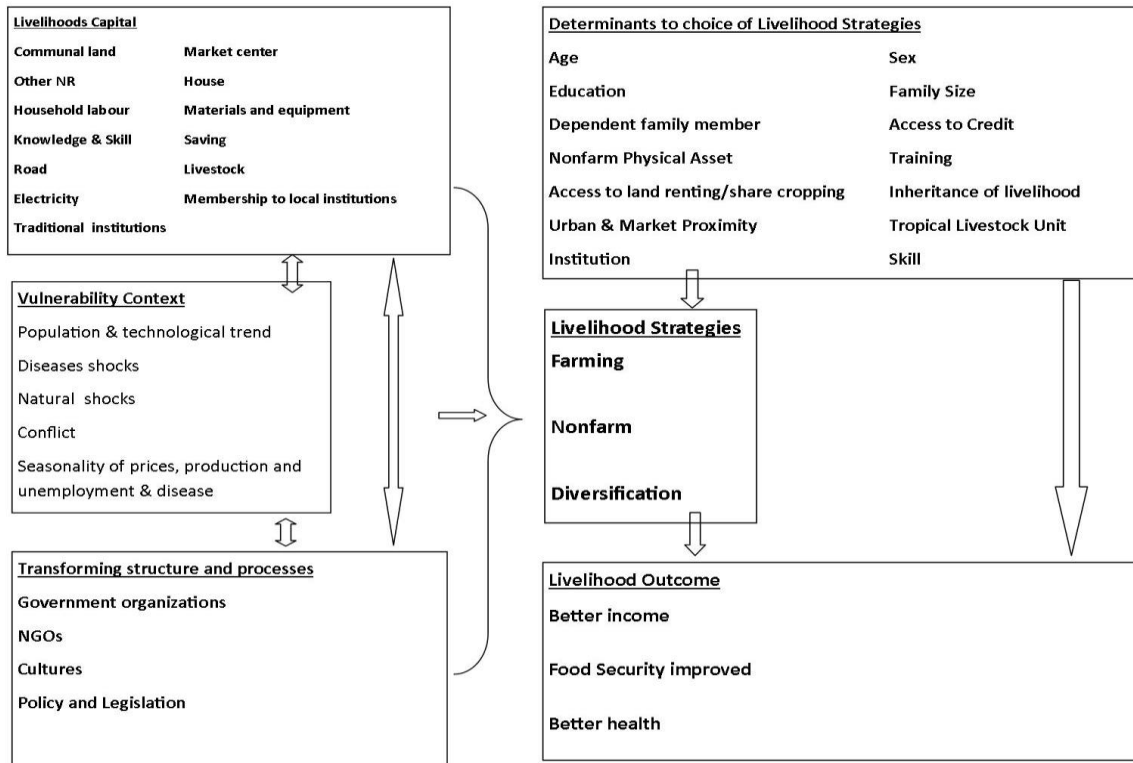


Figure 2: Conceptual Framework of the Study

Source: Adapted with modifications from (Scoones, 1998; DFID, 1999)

Based on literature, theory and previous research findings of Ellis (2000), Ambrose-Oji (2004), Winters et al., (2009), Rahman and Akter, (2014), Mphande (2016), and Nigussie (2017) livelihood strategies were determined by various factors. These factors are sex, age, education status, labour size, access to credit, assets, distance to urban centers, ownership of livestock resources and the like. On the other hand, although respondents are landless they may pursue farming livelihood strategies through various land use arrangements like land renting and share cropping (Degefa, 2003; Mezgebu, 2014).

## CHAPTER THREE

### 3. Research Methodology

This chapter is concerned with description of the plan on how the study is undertaken. It includes description of the study area, research design, sampling size determination with sampling techniques, data sources, data collection methods with tools and data analysis methods.

#### 3.1. Description of the Study Area

Wolmera Woreda is one of the administrative units of Finfinne Surrounding Oromiya Special Zone. Astronomically, it is located between  $8^{\circ}50'-9^{\circ}15'N$  Latitude and  $38^{\circ}25'-38^{\circ}45'$  Longitude. This woreda shares boundary with Burayu town in the East direction, Ejere Woreda and Adea Berga Woreda in the west direction, Sululta Woreda and Mulo Woreda in the North, Sabata Hawas Woreda in the south direction. The woreda have total area of  $809.27 \text{ Km}^2$  or 80927 hectare (WWFECO, 2015).

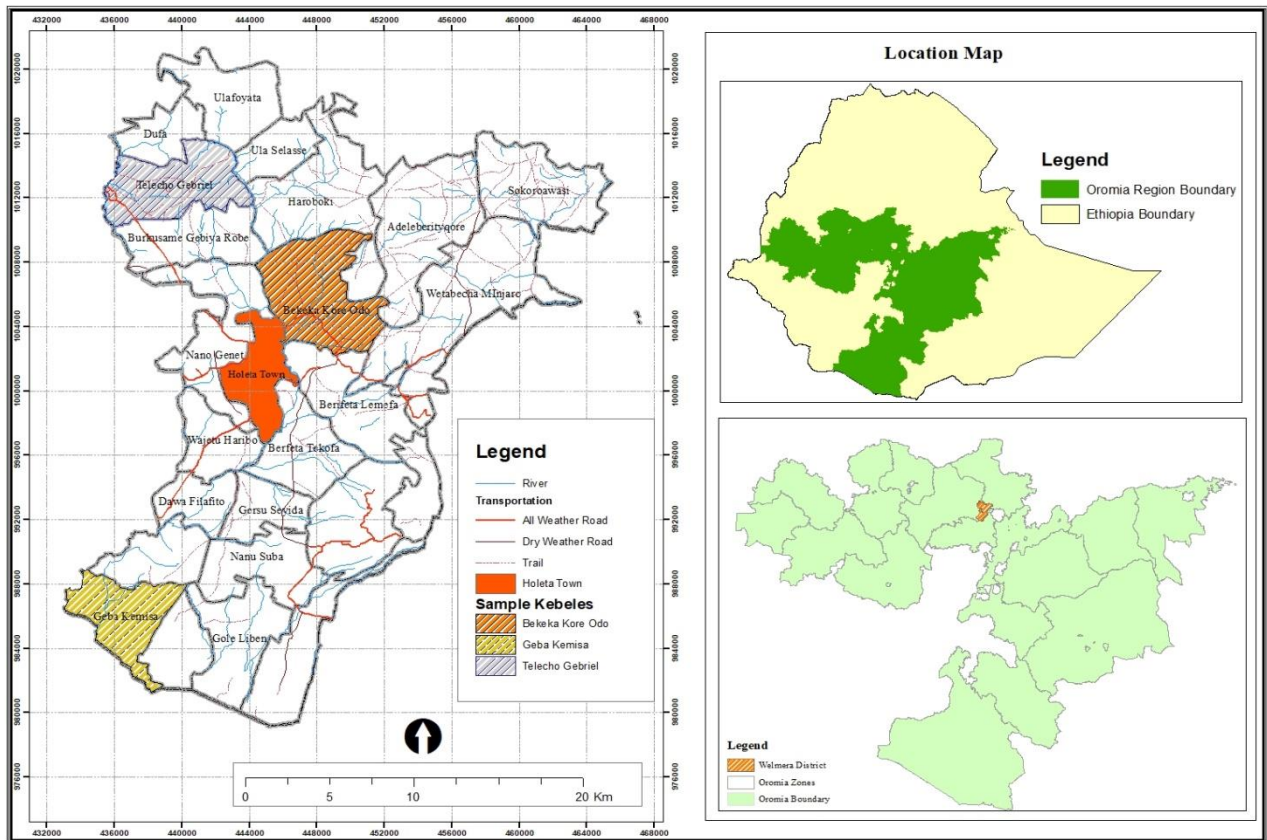
The altitude of the woreda is from 2060-3380 meters above sea level. There is no specified lowest place in Wolmera Woreda, while the highest place is located around Wececa Mountain. Due to its location, the district has high network of river systems. The major permanent rivers of the district are Holeta, Bobe, Kata, Chanco, Mintile, and Karsa. On the other hand, the major seasonal streams flow during April, June July, August, September, October, November, and December. Generally, the district has high potential for traditional irrigation system which can be used to increase agricultural productivity and almost all are utilized efficiently. Regarding agro ecology of the woreda dega represents about 69% of total kebele, and woinadega represents about 39% of total kebeles.

According to the estimation made from 2007 census, Wolmera Woreda had 103,092 populations in the year 2014. From the total population of the Woreda, only 4% are living in urban areas. This indicates that more than 96 % of the population of the Woreda is living in rural area and depending on agriculture for their livelihood activities.

Regarding population to land resource ratio/relation, the Woreda had a crude density of 123.83 peoples per  $\text{km}^2$  in 2014. Similarly, the agricultural density of the woreda was about 115.63 peoples per  $\text{km}^2$  in 2014.

Furthermore the Woreda have also some tourist attraction center. Menagesha Suba Forest, Markos Museum and Church, Monasteries and caves of Menagesha mountains, Worship place of Kolobo and Alge (Foyeta mountains) are the main tourist attraction sites of the Woreda.

The locational map of wolmera woreda of Oromia region depicted in below figure.



Source: (CSA, 2007)

Figure 3: Locational map of the Wolmera Woreda.

### 3.1.1. Description of Sample Kebele

#### 3.1.1.1. Bakaka Kore Odo Kebele

This kebele is among those classified under a group of those who are very near to towns. It is found at 5 km away from Holeta town to the North direction. There are about 357 households in the kebele. Among them 296 households are male headed households. While about 61 of households are female headed households. Totally the kebele have a population of 1775 peoples, among them male and female represent about 894 and 881 peoples respectively.

On the other hand the kebele has about 1001.346 hectares of land. Among this land that is being used for farming or agriculture purpose is about 614 ha of lands. While natural forest accounts to about 4 ha, manmade forest accounts for about 188.14 ha of land, grazing land accounts for 125 ha of land, land used for houses and different institutions accounts for 41.206 ha of land, and Habesha Cement Factory has about 29 ha of land holding in the kebele. Furthermore there are different livestock resources available in the area. They include 2676 Cattle (including cows, ox, heifers, bull and calf), 100 goat, 1900 sheep, 1 mule, 260 horse, 240 donkey, and 2750 poultry.

Regarding infrastructure of this kebele, there is all weather road, school, health post, water supply as well as modern irrigation and communication facilities. In this regard, there is problem of quality and coverage of infrastructure related to road, water supply and communications. On the other hand electricity services does not provided for the communities of this kebele.

#### **3.1.1.2. Talaco Kebele**

It is found on the north direction of Holeta town and available at a distance of 10 km. This kebele is found under the category of those kebeles found at medium distance from urban centers. There are about 544 households in this kebele. Among them 456 households are male headed households, while female headed households are about 88 households of the kebele. Regarding total population of the kebele, there are about 3053 peoples, among them 1577 are male whereas about 1476 are females.

Talaco kebele have about a total area of 1662 ha of lands. Among these, farm land is about 1407 ha, grazing land is 166 ha, man-made forest is 40 ha, and land used for construction of house and garden together represents about 49 ha of lands. In this kebele; Barley, Wheat and Horse bean is produced with larger amount of land than other crops like teff, lentils, and pea. Furthermore irrigation infrastructure is available in this kebele; in which 130 ha of lands are used for production of irrigation based crops especially potato, beet root, carrot, onion, maize and round cabbage. Livestock resources were also available abundantly in this area. Cattle, sheep, goat, horse, donkey and poultry were livelihood resources that households of the study area using for various purposes. There are about 5679 different types of cattle, 2855 sheep, 725 goat, 4 mule, 742 horse, 560 donkey and 3780 poultry in the kebele.

In this kebele all most all the most important infrastructure is available. They include all weather road, water supply, health post, health center, primary school, high school, veterinary clinic and communication infrastructure. However there is limitation of coverage and distribution of telecommunication, electricity and water supply service. Furthermore, all weather road of this kebele lacks quality.

### **3.1.1.3. Gaba Kamisa Kebele**

This kebele is found on south direction of Holeta town with distance of about 16 km. It is found at distant from towns when compared with the other two kebeles. There are about 551 total households in this kebele. Among them male headed households are 496 while female headed households are about 56. The total population of this kebele is about 2855 peoples, which comprise about 1432, and 1425 males and females respectively.

Regarding land resources, total land area of this kebele is about 3297 ha. Among them farming land is about 1992 ha, land used for construction of house and different institutions is 115, forest land is 95 ha and grazing land, and others like road, unproductive land together represents about 1095 ha of lands available in the kebele. The major rain fed crops produced in this kebele was Wheat, Teff, Barley, Faba bean, Lentils and Chickpea. Furthermore Potato, Round Cabbage, Onion, Beet root and Carrot is being produced by irrigation based agriculture in this kebele. On the other hand livestock resource productions are also being undertaken in this kebele. There are about 1500 different types of Cattle, 3000 Sheep, 750 Goat, 94 Mule, 440 Horse 350 Donkey and 2158 Poultry in this kebele.

This kebele have access to water supply although there is limitation on coverage as well as there is all weather road that help communities of the area to take their products to markets. Furthermore there is health post, school, and veterinary clinic. On the other hand, communication services are not available at all places in this kebele and electricity is totally absent.

### **3.2. Research Design**

This study followed mixed method research design. In this mixed method research design both qualitative and quantitative data collection and analysis is employed in order to get both in depth information from small respondents as well as large information from all sample respondents of the study area (Creswell, 2014). Data collected and utilized for this study by this method to achieve objectives of the study was a cross-sectional data. Among various typologies of mixed method, concurrent embedded method was employed for data collection and analysis. In concurrent triangulation method, both qualitative and quantitative data collection, data analysis and interpretation is employed simultaneously at the same time as well as one type of data collection and analysis should be dominant. Hence, from both qualitative and quantitative data collection analysis, the quantitative strand was the dominant one

### **3.3. Data Types and Sources**

This study employed both types of data meaning qualitative and quantitative to analyze and investigate landless rural households' livelihood strategies, and determinants of households' choice of strategies in the study area. Regarding data source, both primary data and secondary data is collected in order to meet the objectives of this study.

**Household Survey:** Information related to household demographic and socio-economic characteristics, access to land rent and share cropping, livestock, household assets, livelihood strategies, income, access to social and economic infrastructures, social support networks, access to credit, challenges to livelihood choices and the like is collected through household survey from 174 sample households. This household survey is undertaken first by preparing structured questionnaire in English and translated in to the local language (Afan Oromo) for smooth communication and understanding. Household survey is conducted through hiring and giving training for enumerator living and working as development agent in the study area. Enumerators have collected data by door to door visiting of landless rural households.

**Focus Group Discussion (FGD):** Regarding FGD a group of 8 – 12 individuals is selected from different age groups and by including both male and women. Generally three focus group discussions were held in three sample kebeles'. It is not recommendable to undertake focus group discussions by including different segments of communities like women as well as youths.

This happens because of shortage of time and budget. However on very few important questions women's were contacted at the end of the sessions in order to get in depth information on the idea that needs clarification. Over all about 27 individuals were participated in the three focus group discussion sessions.

**Key Informant Interview (KII):** One key informant interview at woreda level and three at kebele level is held, to collect primary data. These Key informant interview is very important in supporting the data collected by household survey. Participant of key informant is selected based on their knowledge of the study area as well as their age and educational status. Accordingly, four key informant interviews were held with literate and well informed persons of the study area. At woreda level one key informant interview is held with senior expert of the Wolmera Woreda Agricultural Development Office. At kebele level three key informant interviews was held with three elders who have better knowledge about the study area as well as who have better years of schooling as compared to others.

**Observation:** In all sample kebeles observation is held on infrastructure availability with their respective quality, means of transportation, land use patterns, sources of household energy, communication facilities, housing condition, and livelihood activities.

**Case Study:** This part of data collection is intended to uncover the experience of landless rural household in pursuing livelihood strategies and to identify determinant factors to the choices of the strategies. So for this case study, three landless rural households were contacted for collecting the required information. Data regarding socio economy, demography, livelihood strategies, and challenges to choices of strategies is collected from the selected individual households.

Secondary data on the other hand is collected from published and un-published sources at Woreda, and Regional level.

### **3.4. Sample Size Determination and Sampling Techniques**

According to Wolmera Woreda Rural Land Use Administration (2017), there are about 2564 landless households in the woreda. These 2564 rural landless households represent about 13

percent of total rural households of the study area. Therefore by using (Cochran, 1977) sample size determination formula, the sample size for this study was as follows;

Cochran's (1977) sample size determination formula

$$n = Z^2 pq / d^2$$

Where,

**N** = is the desired sample size;

**Z** = is standard normal variable at the required confidence level (Z statistics: 1.96);

**d** = is the desired level of precision or level of statistical significance (0.05);

**p** = is estimated characteristic of target population which is 13% of the population are landless households (about 2564 or 13 percent of the study area households are landless) and

**q** = is 1-p

Hence  $n = Z^2 pq / d^2$

$$n = \frac{0.13 * 0.87 * (1.96)^2}{(0.05)^2}$$

$$n = \underline{174}$$

So according to this formula the required sample size is **174** landless households.

Based on the required sample size, to select the predetermined sample size, 23 kebeles' of the woreda are clustered into three groups based on kebeles' distance from town. Because distance to market and urban areas determine livelihood strategies that landless rural households employ Winters, et al., (2009). According to the aforementioned criteria, the woreda kebeles' is classified into three groups, namely: near town, medium distance from town, and very far from town. The near kebeles' are those who shares boundary with Burayu, Sabata and Holeta town. On the other hand those kebeles' which are available at medium distance from town and very far from town are those who shares boundary with kebeles' that are neighbor to town and those who

are very far from the town respectively. Among the three groups, one kebele is selected randomly by simple random system.

Based on the above criteria, the selected kebeles are: Bakaka Kore Odo which is nearby town, Talaco which is located at a medium distance from town and Gaba Kamisa Kebele which is very far from town. Finally in all these three kebeles sampling frame of landless household was prepared by development agents. Then the required sample size is selected based on the proportions of landless population's available in all of these three sample kebeles as depicted in below table.

Table 1: The study area population from sample kebele and selected sample size

Name of sample kebele	Study Population of sample kebele (Households)			Number of Sample Household		
	Male	Female	Total	Male	Female	Total
Bakaka Kore Odo	66	13	79	37	9	46
Talaco	107	6	113	65	5	70
Geba Kamisa	74	6	80	56	2	58
Total	247	25	272	158	16	174

Source: Own survey, 2019

As mentioned in the above Table 1; these sample landless rural households were drawn by simple random system. For all of the three sample kebeles, the strategy utilized to fulfill the sample respondents that were not available for various reasons at the time of data collection was replacing them from the left sampling frame through simple random system.

### 3.5. Data Collection Methods and Tools

Data collection method utilized for this study is; interview, observation and review of different published and unpublished sources. Interview is used to collect both quantitative and qualitative data by household survey, key informants, focus group discussions and case study. On the other hand observation and review of published and unpublished sources was undertaken to collect the required data for this study.

Data collection tool employed for household survey is structured questionnaire. Furthermore data collection tool for focus group discussion, key informant interview, observation and case study is

checklist, which is prepared as open ended questionnaire. All the aforementioned tools are used to collect primary qualitative and quantitative data. Besides this primary data, secondary data from reports of various offices, as well as, review of different published and unpublished documents is utilized.

Interview is held by using structured questionnaire with 174 landless rural households of the study area by trained enumerators, who are working as development agent. Data pertaining to households' demography, socio economy, livelihood activities as well as livelihood strategies, access to and ownership of livelihood assets and the like were collected by these enumerators, through interviewing sample landless rural households of the selected kebeles. This data collection method has a paramount importance in gaining the required information while undertaking this study.

Checklist is prepared to collect qualitative data to support information collected through household survey. For this specific study checklist is used to collect data from focus group discussion, key informant interview, observation and case study. The nature of data collected by this tool is qualitative. These data were collected through discussion and dialogue as well as by observation. The data collected with this method is very useful, because it have large amount of information that helps to support the quantitative analysis as well as to make the study complete.

Focus group discussions were held in all three sample kebeles, by having about 8 – 10 individuals participation in each sessions. Totally about 27 individuals are participated in all of the three focus group discussion sessions. The participants of focus group discussion are elders, youth, female and male headed households.

Key informant interview is held with literate and well informed persons of the study area. For this study four key informant interview were undertaken. The participants of these key informant interview are one person from each three sample kebeles and one person from woreda level expert. The data collected by this method has have helped in understanding of the data collected by household survey, because their understanding on the subject matter is greater than others.

Observation on the other hand was undertaken to collect infrastructure status, livelihood activities, transportation methods, vegetation cover and the like of all the study area sample

kebeles. While undertaking observation, residents of the kebele were asked to clarify the collected information.

Case study of was undertaken in all three sample kebeles. The participants of this case study was one male headed landless rural households from one kebele two female headed landless households from other two kebeles. This case study of three individuals was undertaken by researcher. The collected information through this approach is in depth and was utilized to support the quantitative data analysis. However only two participant case studies were presented in this manuscript, because the story is all most the same.

### **3.6. Data Analysis**

To analyze the collected data for this specific study; both descriptive statistics and inferential statistics is utilized. Quantitative data analysis pertaining to socio economy and demography and livelihood strategies is analyzed by descriptive statistics like percentage, maximum, minimum, mean and the like. While data pertaining to determinants of livelihood strategies of landless rural households is analyzed by inferential statistics which is known as Multivariate probit model. For the analysis of these quantitative data both SPSS and STATA software were utilized.

Furthermore, qualitative data is analyzed by thematic analysis method. This qualitative analysis is undertaken in order to triangulate the data analysis methods collected through quantitative method. It is used for elaboration of analysis that numbers do not give complete description of the phenomena at data analysis and interpretation stage. In addition to this Sustainable Livelihood Framework (SLF) is used to structure and guide the analysis.

In general, the information gathered from key informants, focus group discussion and the review of documents is compiled, organized, summarized and interpreted to strengthen the finding that attained in quantitative analysis in relation to the subject under study.

### **3.7. Multivariate Probit Econometric Model**

Multivariate logistic regression analysis is an extension of bivariate (i.e., simple) regression in which two or more independent variables ( $X_i$ ) are taken into consideration simultaneously to predict a value of a dependent variable ( $Y$ ) for each subject. Multivariate probit model would extend to more than two outcome variables just by adding equations (Greene, 2002). The

dependent variables used to be analyzed in this study is livelihood strategies of landless rural households, namely they are; farming livelihood strategies, nonfarm livelihood strategies and diversification of livelihood strategies. Since there is interdependence of livelihood strategies choice were available, each dependent variables (livelihood strategies) were entered in SPSS software by 1 or 0 for yes or no answers respectively. After wards the analysis is done by user written command on STATA.

To identify factors affecting livelihood strategies choices decision of landless respondents at the individual household level, multivariate probit model was used. The multivariate probit is an extension of the bivariate model and is used to estimate several correlated binary outcomes jointly (Cappellari & Jenkins, 2003). Generally, the multivariate model can be written as:

$$Y^*_{3i} = \beta_{im} X_m + \epsilon_{im}$$

Where ( $Y^*_{3} = 1 - 3$ ) represent the dependent variable of livelihood strategies choice selected by the  $i$ th farmer. ( $i = 1 \dots 174$ ). The dependent variables are polychotomous variable indicating whether choice are made through the relevant livelihood strategies. The choice was aggregated into three groups: farming livelihood strategies, nonfarm livelihood strategies, and diversification. Each respondent can pursue one or more livelihood strategies.  $X_{im}$  is a  $1 \times k$  independent variable that affects the choice of livelihood strategies decisions and  $\beta_m$  is a  $k \times 1$  vector of unknown parameters to be estimated  $\epsilon_{im}$ ,  $m = 1, \dots, m$  are the error terms distributed as multivariate normal, each with a mean of zero, and variance covariance matrix  $V$ , where  $V$  has values of 1 on the leading diagonal and correlations.

The aforementioned equation is a system of  $m$  equations shown in the following equations:

$$Y^*_{1i} = \beta'_{1i} X_{1i} + \epsilon_{1i}$$

$$Y^*_{2i} = \beta'_{2i} X_{2i} + \epsilon_{2i}$$

$$Y^*_{3i} = \beta'_{3i} X_{3i} + \epsilon_{3i}$$

The latent dependent variables are observed through the decision to pursue or not ( $y_{ki}$ ) such that:

$$Y_{im} = \int_0^1 \text{if } y * k > 0 \quad k = 1, 2, 3. \quad 0 \text{ otherwise}$$

There are six joint probabilities corresponding to the six possible combinations of choosing and not choosing each of the three livelihood strategies choices. The probability that all three components of the livelihood strategies choice have been selected by household 'i' is given as:

$$\Pr (y_{1i} = 1, \quad y_{2i} = 1, \quad y_{3i} = 1) =$$

$$\Pr (\epsilon_{1i} \leq \beta'_{1i} X_{1i}, \epsilon_{2i} \leq \beta'_{2i} X_{2i}, \epsilon_{3i} \leq \beta'_{3i} X_{3i})$$

$$\Pr (y_{1i} = 1, \quad y_{2i} = 1, \quad y_{3i} = 1) =$$

$$\Pr (\epsilon_{3i} \leq \beta'_{3i} X_{3i}, \epsilon_{2i} \leq \beta'_{2i} X_{2i}, \epsilon_{1i} \leq \beta'_{1i} X_{1i})$$

$$\Pr (y_{1i} = 1, \quad y_{2i} = 1, \quad y_{3i} = 1) =$$

$$\Pr (\epsilon_{2i} \leq \beta'_{2i} X_{2i}, \epsilon_{1i} \leq \beta'_{1i} X_{1i}, \epsilon_{3i} \leq \beta'_{3i} X_{3i})$$

This system of equations is jointly estimated using maximum likelihood method. The estimation is done using the user-written STATA mvprobit procedure. The data covered information necessary to make household level indices of social, economic, demographic, and institutional indicators comparable across different categories of livelihood strategies choice at the individual household level. In order to identify factors affecting livelihood strategies choice decision of landless respondents at the household level, continuous and discrete variables were identified based on economic theories and empirical studies as follows.

### 3.8. Dependent and Independent Variables

In this study dependent variable investigated is livelihood strategies that landless households pursue in order to lead their living. These dependent variables are: farming, nonfarm, and diversification. Farming Livelihood Strategies: Includes activities like rain fed crop production and irrigation based crop agricultural production and livestock rearing. If households diversify their sources of income within this sector or earn incomes from different crop production and livestock rearing, it means that these households are pursuing only farming livelihood strategies.

Nonfarm Livelihood Strategies: Includes a bunch of activities undertaken on other farm in the form of wage labour or skilled labour participation. Under this livelihood strategy all activities outside agriculture are represented under this group. Diversification of Livelihood Strategies: Is a mix of both farming and nonfarm livelihood strategies pursued simultaneously by respondent households.

This study was undertaken to identify the independent variables that tend to determine the choice of these dependent variables (farming, nonfarm, and diversification). The independent variables that influence livelihood strategies of landless rural households are described below:

**Sex (Sexhh):** Dummy variable taking value 1 if the household head is male, 0 otherwise

**Age (Agehh):** Age of the household head in years

**Household Labour Size (LabForce):** Number of persons in a family who were able to undertake a given activities and between 15 – 65 years of age

**Dependent Family Member (Dependency):** Number of dependent family members; analyzed in relation to working age group (15 – 64) years (continuous variable represented by number). Includes family members; below 15 years of age, above 65 year, and patients; who are continually in need of support.

**Education (Eduhh):** Formal education of household head described by years of schooling).

**Access to Credit (AccessTCredit):** Dummy variable which represents household access to credit, (=1, if yes; =0, otherwise)

**Access to Rental Land (LandAccess):** Dummy variable which represents availability land use under various arrangements like renting, gift, share cropping and so on. (1 if this arrangement is available 0 otherwise)

**Farming Physical Capital Endowment (FarminyPhyCapital):** Dummy variable taking 1 if respondents own farm tools and equipment, 0 otherwise

**Nonfarm Physical Capital Endowment (NonfarmPhyCap):** Dummy variable taking 1 if respondents own nonfarm tools and equipment like hair cutting machine, chart and the like, 0 otherwise

**Training (HuRecTraining):** Household attended formal training on income generating activities, dummy variable (= 1, if yes; =0, otherwise).

**Urban & Market Proximity (Urban&MarkProximity):** Distance of the respondents' house from market centers and urban areas (continuous variables represented by kilometer).

**Inheritance of Livelihood Strategy (LSInherited):** Dummy variable taking 1 if he/she inherited livelihood strategy from parents, 0 otherwise

**Institutions (INS):** Dummy variable taking 1 if it affects the choice of livelihood strategies, 0 otherwise. These institutions are availability of different government and non-government organizations in the study area that convince and support individuals in order to pursue a given livelihood strategies.

**Tropical Livestock Unit (TLU):** Ownership of livestock resources converted to standardized measurement, which is represented by continuous variables.

**Skill:** Dummy variable taking 1 if he/she/ family member has the skills required to undertake a given activities, 0 otherwise. These skills includes: carpentry, masonry, barberry, metal work, black smith and others.

Table 2: Description of Variables Used In Multivariate Probit Regression

<b>Dependent Variables</b>					
Farming Livelihood Strategies: It is a dummy variable taking a value of 1 if a household chooses this strategy and 0 otherwise					
Nonfarm Livelihood Strategies: It is a dummy variable taking a value of 1 if a household chooses this strategy and 0 otherwise					
Diversification of Livelihood Strategies: It is a dummy variable taking a value of 1 if a household chooses this strategy and 0 otherwise					
<b>Independent Variables</b>					
Variables	Description	FLS	NFLS	DLS	
Sex (Sexhh)	Sex of household head (1= male and 2= female)	+/-	+/-	+/-	
Age (Agehh)	Age of the household head in years	-	+/-	+	
Household Labour Size (LabForce)	Number of persons in a family who were able to undertake a given activities and between 15 – 65 years of age	-	+	+	
Dependent Family Member (Dependency)	Number of persons in a family who were not able to undertake a given activities, under 15 and above 65 years of age	-	+	+	
Education (Eduhh)	Education of the household head in years of schooling	-	+	+	
Access to Credit (AccessTCredit)	Dummy (1 if a household had received credit from a formal institution, 0 otherwise)	+	-	+	
Access to Rental Land (LandAccess)	Dummy (1 if a household had access to rental land, 0 otherwise)	+	-	+	
Nonfarm Physical Capital Endowment (NonfarmPhyCap)	Dummy (1 if a household own this asset, 0 otherwise)	-	+	+	
Training (HuRecTraining)	A dummy variable that takes a value of 1 if the household head	+	-	+	

	received trainings and 0 otherwise			
Urban Proximity (UrbanProximity)	It is a continuous variable measured in kilometers between the household's residence and urban centers	-	+	+
Inheritance of Livelihood Strategy (LSInherited)	Dummy (1 if a household choices of livelihood strategies was inherited from parents, 0 otherwise)	+	+	+
Institutions (INS)	Dummy (1 if a household choices of livelihood strategies was affected by different institution or organizations, 0 otherwise)	+/-	+/-	+/-
Tropical Livestock Unit (TLU)	Total number of livestock owned in TLU	+	-	-
Skill(AvaSkills)	Dummy variable taking 1 if he/she/ family members has the skills required to undertake a given activities, 0 otherwise	-	+	+

## CHAPTER FOUR

### 4. Results and Discussions

#### 4.1. Socio-Economic and Demographic Characteristics of Respondents

Socio-economic and demographic characteristics of the study area sample respondents was presented in table 3 and table 4. Among the interviewed 174 rural landless households of Wolmera Woreda respondents 158 (90.8 %) were male-headed, while 16 (9.2%) were female-headed households. The mean age of the household heads was about 38.64 years, while the age range of respondents is from 22 – 90 years. Furthermore about 50% and 75 % of total sample household ages were below 38 and 43 years respectively.

The mean number of years of formal education for the household heads was 2.22 years, ranging from 0 – 10 years of formal education. There are no any respondents who achieved greater than 10 years of schooling in the study area. According to the collected data female headed households are less educated than male headed households that means, 0.13 years of schooling for female headed households and 2.44 years of schooling for male headed households. When compared household heads who do not read and write accounts about 52.3 % of total households. On the other hand about 47.7 % of households are those who are able to read and write. This data reveals that the number of respondents who are unable to read and write is greater than that of who read and write. In general the study area landless households have lower years of schooling as well as human capital with regard to education.

As depicted in the below table regarding marital status of household heads; about 149 (85.6 %) of respondents were married, whereas 16 (9.2 %) of respondents were divorced, 7 (4 %) of respondents were widowed and 2 (1.1%) of respondents were not married. Regarding family size of respondents, about 72 (41.4%) of households have less than five family size and about 101 (58%) of respondent households have family size which range between 6 – 10 individuals. Households who have family member greater than 10 is about 1 (0.6%) of respondents. In general the average family size of respondents' households is about 5.02 individuals. This means on average there are about 5 persons living with each other as one household member.

Regarding religion of the respondents, about 77.6% were Orthodox. While about 17.8 % and 4.6 % of total respondents are Protestant and Wakefata respectively. Ethnicities of the respondents

are only Oromo and Amhara. They represent about 89.1 % and 10.9 % of respondents respectively.

Table 3: Socio Economic and Demographic Characteristics of Respondents of the Study Area

Characteristics		Frequency	Percent	Cumulative percent
Sex of household heads	Male	158	90.8	90.8
	Female	16	9.2	100.0
	Total	174	100.0	
Marital status of household heads	Not Married	2	1.1	1.1
	Married	149	85.6	86.8
	Divorced	16	9.2	96
	Widowed	7	4	100.0
	Total	174	100.0	
Educational level of households	Illiterate	91	52.3	52.3
	Grade 1 – 4	47	27.0	79.3
	Grade 5 – 8	27	15.5	94.8
	Grade 9 – 12	9	5.2	100.0
	Total	174	100.0	
Household size of respondents	Household size <5	72	41.4	41.4
	Household size 5 – 10	101	58.0	99.4
	Household size >10	1	0.6	100.0
	Total	174	100.0	
Religion of respondents	Orthodox	135	77.6	77.6
	Protestant	31	17.8	95.4
	Wakefata	8	4.6	100.0
	Total	174	100.0	
Ethnicity of respondents	Oromo	155	89.1	89.1
	Amara	19	10.9	100.0
	Total	174	100.0	

Source: Own survey, 2019

Regarding income of the respondents of the study area, the mean income is about 19853.84 birr per year which range from minimum of 4700 to and maximum of 106400 birr. When described by kebele, the mean income of Bakaka Kore odo kebele respondents was about 26821.96 birr with minimum of 8000 birr and maximum of 106400 birr in 2010/2018 year. The mean income of Talaco kebele respondents is about 13956.56 birr, while minimum income is about 4700 birr and maximum income is 30840 birr in 2010/19 year. For Gaba Kamisa kebele the mean income of respondents is about 21444.83 birr with a minimum income of 11000 birr and maximum income of 36800 birr.

On the other hand, based on sex of respondents the mean income of male is about 20414.01 birr with a minimum income of 4700 birr and maximum income of 106400 birr during 2010/18. Whereas the mean income of female is 14322.19 birr with minimum income of 8500 birr and maximum income of 25510 birr during 2010/18. Generally female headed households earn less income as compared to male headed households. This reveals that female headed households undertake livelihood activities which are less remunerative as compared to male counterparts. In other word female headed households undertake those activities that do not generate income like reproductive activities (activities that are undertaken in houses like food preparation, looking after children and so forth)

Table 4: Income earning by kebele and sex of respondents

HH characteristics		N Statistic	Minimum	Maximum	Sum	Mean	Std. Deviation
Kebele of Respond ents	BQO	46	8000	106400	1233810	26821.96	20968.380
	Talaco	70	4700	30840	976959	13956.56	6581.804
	G/Kamisisa	58	11000	36800	1243800	21444.83	5475.982
	Total	174	4700	106400	3454569	19853.84	13013.639
Sex of responde rs	Male	158	4700	106400	3225414	20414.01	13446.096
	Female	16	8500	25510	229155	14322.19	4993.354
	Total	174	4700	106400	3454569	19853.84	13013.639

Source: Own survey, 2019

According to the above data, distance to market and urban have an implication on the income of respondent households with some exceptions. In this case, Geba Kamisisa kebele is very far from town as compared to others. However the mean income of this kebele is greater than Talaco kebele which is at medium distance from town. The reason may be there is enough land that can be accessed through various land use arrangements in this kebele and respondents are producing large amounts of different products by using this land. Land accessed through various land use arrangements, for respondents of this kebele is on average about 1.5 ha of lands. Whereas for other kebele, the average land accessed through various land use arrangements for other two kebele is less than 0.5 ha.

## 4.2. Vulnerability Context

The study area landless respondents' livelihoods and the availability of assets are fundamentally affected by critical trends as well as by shocks and seasonality, over which they have limited or

no control. With regard to trends, population is dramatically increasing. This in turn creates complete absence of lands for agricultural activities for some households. The trends of landlessness are increasing as a result of this population increments. This situation is manifested in different forms. For instance, as observed during data collection time, there is high competition and conflict on accessing land for agricultural activities through different land use arrangements. Landlessness in turn increases unemployment and migration of labour force from rural areas to urban centers. In fact migration may help poor peoples of rural areas in trapping out of poverty through remittance, but the level of expertise, education and income of migrant matters. On the other hand unemployment's are causing labour exploitation in the study area. For instance households of the study area who have larger family size and living under poverty were sending their children's to their neighborhoods that are economically better. In this case these children's undertake various activities for the hosting households without any wage or with minimum wage for their labour.

Seasonality is usually associated with diseases of crop and animals as well as price fluctuation of agricultural and nonagricultural consumable commodities. Crop disease and pest is common in the locality than others. The common crop pest that is reducing the production of the area is rust of wheat and barley. These two crops are covered by large amounts of the study area land. Although the degree of devastation of these crops by this pest is not identified, in general reduction of production is attributed majorly by this pest, because these two crops covers large amounts of land available in the study area. So decreased production and productivity of these two crops, decrease overall production of the study area. Apart from the aforementioned pests, others are also playing their part in reducing production. Furthermore there is high intensity rainfall in the area, which is reducing potato productions.

On the other hand seasonality of commodities prices has an impact on the livelihoods of respondents. The prices of commodities produced by them are very cheap, while the price of commodities they purchase from market is very expensive. Furthermore, regarding price seasonality of agricultural commodities the price is usually determined by brokers and consumers. This problem is making them not to fulfill their basic needs. On the other hand, regarding employment in different activities, some households only undertake wage labour in agriculture, earn less income and living with poverty as well, because of seasonality of agricultural activities. Agricultural activities of the study area are seasonal, because majorly it

depends on rainfall. So the income received by wage labour in this kind of activity is too small and is not enough for sustenance. Those who are aged and lacks support are being affected by this situation and who are young are migrating abroad and to urban areas in order to gain employment. In certain circumstances some households have sent their wife and daughters to abroad (Arab countries) to improve their livelihood outcome.

### **4.3. Transforming Structures and Processes**

Transforming Structures and Processes within the livelihoods framework are the institutions, organizations, policies and legislation that shape livelihoods. In the study area there are many different organizations including both governmental and non-governmental organizations. They are shaping livelihood strategies of the study area households including landless rural households. For instance, among non-governmental institutions that are available in the study area are Melka Ethiopia, Sofilet Malt and others. These NGOs are providing support for local commodities in order to improve their living standard. Melka Ethiopia has providing training on how to improve production and productivities especially on poultry to improve income of local communities. Landless rural households are also getting these benefits from this NGO. Sofilet Malt on the other hand is providing cred it and improved seeds of barley that are used for malt preparation. Landless rural households are also getting this service from this NGO to produce barley by renting inland and share cropping.

Governmental structures or institutions are also playing a mediating role in pursuing different livelihood strategies. For agricultural livelihood strategies, Woreda Agriculture Office, Holeta Research Center, as well as Kebele Development Agent are undertaking continuous awareness creation and support on what to produce and how to produce. In some cases they provide seeds like potato for these landless households. Small Scale Enterprise Office on the other hand helps landless households to form a group and undertake activities jointly in order to improve their earnings and gain full employment opportunities.

Furthermore technological advancement on the other hand is helping them to gain full employment opportunities in their vicinity. In this regard, investments in various productions of goods like cement factory, flower producing company and so forth have a paramount importance

in pursuing non-farm livelihood strategies. Monthly income received from nearby cement factory is good as compared to others. There are various livelihood activities regarding this cement factory like guarding, loading, protecting cement from rain on cars by covering rainproof materials and the like. On the other hand the use of modern communication facility like mobile is used to identify their employments opportunities available in their area and provide them market information. This in turn helped them to decide which livelihood strategies or activities to be pursued.

Regarding process the most important variable is gender relations. Gender is used to determine livelihood strategies and activities pursued in particular by respondents and in general by study area communities. For instance male do not undertake wage labour in flower producing companies of the study area.

#### **4.4. Livelihood Assets of Respondents**

According to various scholars there are about five assets or capitals that are to be utilized to lead living and that are useful in choosing livelihood strategies and activities (DFID, 1999 and Ellis, 1999). Accordingly they are Natural Capital, Human Capital, Social Capital, Financial Capital and Physical Capital. So the assets that rural landless households of the study area owns and have access to is presented in what follows.

##### **4.4.1. Natural Capital**

Natural capital is very crucial capital of rural households, because they largely depend on this capital to gain income required for living. However, the study area respondents may not own this capital directly, as land resource is very limited. For instance these respondents have access to farm land through various arrangements like renting, sharecropping, gift and sisso. Sisso is a kind of land usage arrangement whereby landless farmers provide about 1/3 of the productions gained on a particular parcel of land to the land owners by covering all expenses required for farming. On the other hands there is very limited small amount of communal land used for grazing; fire wood collection and mineral productions that in turn help landless rural households to earn an income. Mineral production available in the study area is stone that is used for

construction purposes. So in the coming section we look at natural capital that landless households have access to.

Table 5: Natural Resource Capitals of Respondents

Characteristics		Frequency	Percent	Cumulative percent
Access to Communal Natural resource	No	124	71.3	71.3
	Yes	50	28.7	100.0
	Total	174	100.0	
Kinds of communal land that respondents have access to	No access	124	71.3	71.3
	Grazing land	28	16.1	87.4
	Forest land	20	11.5	98.9
	Protected area	1	0.6	99.4
	Mining area	1	0.6	100
	Total	174	100	
Farming land access through land renting and sharecropping	No	6	3.4	3.4
	Yes	168	96.6	100
	Total	174	100	

Source: Own survey, 2019

According to the above table only 28.7 % of total respondents have an access to communal natural resource base such as grazing land, forest area and mining area. Although they are small, respondents of the study area utilize these natural resources to generate income required for living. They usually generate income by undertaking fire wood collection and selling grass to market as well as by feeding their livestock resources. The large majority of the respondents about 71.3 % have no access to communal natural resource base. However they gain productive land through different land use arrangements from land owners. In general about 96.6 % of landless respondents have access to land by different land use arrangements like renting, share cropping, gift and sisso. Through these land use arrangements, landless rural households are undertaking agricultural activities and generating income to lead their living in the study area.

#### 4.4.2. Human Capital

According to Scoones (1998) and DFID (1999), human capital represents the skills, knowledge, ability to labour and good health that together enable peoples to pursue different livelihood strategies and achieve their livelihood objectives Hence under this sub heading the data

regarding available labour size per households, access to different kinds of training, educational level as well as different types of skill available in the household is presented as follows.

Table 6: Human Capitals of Respondents

Characteristics		Frequency	Percent	Cumulative percent
Respondents level of educations	Do not read and write	91	52.30	52.30
	Grade 1 – 4	47	27.01	79.31
	Grade 5 – 8	27	15.52	94.83
	Grade 9 – 12	9	5.17	100.00
	Total	174	100	
Availability of Semi-skilled person	No	118	67.8	67.8
	Yes	56	32.2	100.0
	Total	174	100.0	
Types of skilled labour force and their quantity (MR)	No	118	67.8	
	Carpentry	36	20.7	
	Blacksmith	3	1.7	
	Barberry	14	8	
	Masonry	8	4.6	
	Metal work	5	2.9	
	Other skills	7	4	
Have you received training?	No	53	30.5	30.5
	Yes	121	69.5	100.0
	Total	174	100.0	
Types of trainings	No	53	30.5	30.5
	Non-farm business related	10	5.7	36.2
	Farm productivity augmentation	106	60.9	97.1
	Other (specify)	5	2.9	100.0
	Total	174	100.0	
Household head health status	Poor health	14	8.0	8.0
	Moderately healthy	56	32.2	40.2
	Good health	104	59.8	100.0
	Total	174	100.0	
Household member	Poor health	1	0.6	0.6
	Moderately healthy	62	35.6	36.2

health status	Good health	111	63.8	100.0
	Total	174	100.0	

MR = Multiple Response is utilized

Source: Own survey, 2019

Literacy has been noted to be one of the factors enabling farmers to acquire and process relevant information effectively. Education has the possibility of influencing household's livelihoods strategies and also determines the income derived from the activities undertaken by the household. As depicted in the above table 6 about 91 (52.3%) of respondents do not able to read and write. Whereas about 47 (27.01 %) and about 27 (15.52 %) of respondent households acquired grade 1 – 4 and grade 5 – 8 respectively. Furthermore respondents who acquired grade 9 – 10 represent about 9 (5.17 %). On the other hand about 118 (67.8 %) of total respondent members have no any skill which is required for generating income. On the opposite, only 56 (32.2 %) of total respondent household members have different skills. The skill that are available is (1) carpentry 20.7%, (2) blacksmith 1.7 % (3) barberry 8 % (4) masonry 4.6 % (5) metal work 2.9 % and others like driving, tailoring, and shoe shining were together available in the study area by representing 4% of total respondent households.

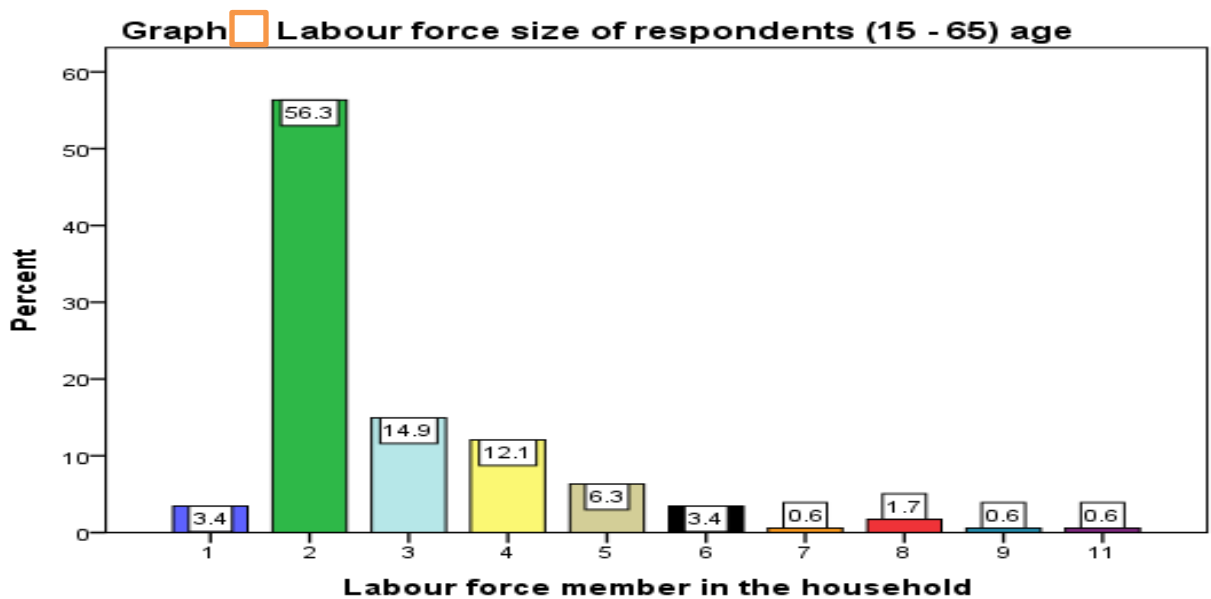
Labour force available in the household is very crucial to pursue a given livelihood strategies and undertake livelihood activities that is useful for generating incomes. The majority of landless rural household respondents or 56.3% of them, own about two (2) labour forces per households. However in general on average there are about 2.92 labour forces per households.

The respondent households have attained different kinds of training which will improve their livelihood directly or indirectly. Among 174 sample households about 121 (69.5 %) have received trainings. While 53 (31.5%) haven't yet received any trainings. Regarding the types of trainings, non-farm business related was received by 10 (5.7%), farm productivity augmentation was received by 106 (60.9%) and others like hygiene and sanitation, food preparation and family planning was received by 5 (2.9%) of respondents.

As presented in the above table, regarding the health status of respondents, about 14 (8%) have poor health, about 56 (32.2 %) have moderate health and 104 (59.8%) have good health status. On the other hand the health status of household member as depicted above, about 1 (0.6%) have

poor health status, 62 (35.6%) have moderate health status and 111 (63.8%) have good health status.

In general the most important human capital of respondents of the study area is availability of labour force in the households. Although others are important labour force is evenly distributed in all respondent rural households. Other elements of human capital like literacy status, skills, health status and training are not equally the same in all households. Hence labour force is the most important source of incomes and livelihood assets among other elements of human capital in the study area.



Source: Own survey, 2019

Figure 4: Labour size of respondents

#### 4.4.3. Social Capital

Social capitals are very wide and difficult to quantify. However it is important to give greater emphasis for membership to groups and local social institution as well as sense of co-operations among individuals. Going beyond this is not the objectives of the study, as it consume more time and budget for analysis. For this reason in the below table, information regarding membership to local informal institution and cooperatives is presented.

Table 7: Social Capital of Respondents

Characteristics		Frequency	Percent	Cumulative percent
Membership to local institution or cooperatives	No	12	6.9	6.9
	Yes	162	93.1	100.0
	Total	174	100.0	
Support received from local institutions, /cooperatives/ or kinships	Missing	63	36.2	36.2
	No	57	32.8	69.0
	Yes	54	31.0	100.0
	Total	174	100.0	

Source: Own Survey, 2019

As presented in the above table, about 12 (6.9 %) of respondents have no membership to local institutions like idir and cooperatives. Whereas 162 (93.1%) of respondents have membership to local institutions or cooperatives. These local institutions are; Idir (Afosha), Ikub, different types of cooperatives that make respondents to undertake some kinds of income generating activities in collaboration. The benefits derived from being membership to these local institutions is getting credit without any interest or with minimum interest rate, labour support for weak peoples as well as during sorrow and wedding ceremonies. Furthermore when a shock happens, especially death of ox and horse, communities collect money from their neighbors and replace ox and horse by buying from markets. Adding to this, when human disease happen to a member of given household and covering medical expense is difficult, these local institution supports this household thereby to cover his/her medical expenses in order to cure from diseases.

#### 4.4.4. Financial Capital

Financial capital denotes the financial resources that respondents use to achieve their livelihood objectives. It includes flows as well as stocks and it can contribute to consumption as well as production. It is adopted to capture; an important livelihood building block, namely the availability of cash or equivalent, that enables people to adopt different livelihood strategies (DFID, 1999). Under this subheadings the availability of financial institutions, saving in cash and in kind especially livestock resources and access to credit is presented in what follows.

In the study area various microfinance institution and bank has been operating. Micro finance Institutions that are available in the study area includes: Oromia Saving and Credit Share

Company, Busa Gonofa, Addis, Wasasa, Hunde, Gasha and Liyu. Banks operating in the study area are: Commercial Bank of Ethiopia, Oromia International Bank, Oromia Cooperative Bank, Berhan International Bank, Dashan Bank, Hibret Bank, Bunna International Bank, and Abysinia Bank.

Although there are various and many MFIs and Banks are available in the study area, the coverage of their service is very limited in a sense that respondents that utilize their services like taking credit from them as capitals required to lead their living is very small. Respondents of the study area use these financial institutions largely for saving than credit. Very few amounts of respondents of the study area take loans from these microfinance institutions, whereas majority do not fulfill the requirements of collateral and group membership. Among sample respondents 55 (31.6%) of them use credit for improving their livelihood activities and livelihood outcome. Furthermore majority of these respondents get this service from MFIs. Iqub and Idir as well as Individuals are also a source of credit for respondents of the study area. Idir gives credit to its members with no or small interest. Very few respondents, meaning about 2 (3.64 %) of respondents get credit from banks to improve their livelihood activities. On the other hand regarding credit, 119 (68.4%) of respondents do not use credit due to various reasons. The reason why those respondents do not use credit were; fear of indebtedness, high interest rate of credit given by MFIs, lack of collateral, lack of awareness and also small portions of respondents do not have interest to use credit.

Table 8: Financial Capital of Respondents

Characteristics		Frequency	Percent	Cumulative percent
Do you use saving?	No	62	35.63	35.63
	Yes	112	64.37	100.0
	Total	174	100.0	
Where do you keep Saving?	Cash saving at home	40	35.7	35.7
	In Bank	65	58.0	93.8
	In MFIs	4	3.6	97.3
	Others(specify)	3	2.7	100.0
	Total	112	100	
Do you use credit?	No	119	68.4	68.4
	Yes	55	31.6	100.0
	Total	174	100.0	
From where do you get	Merchants	6	10.91	10.91

credit?	MFIs	26	47.27	58.18
	Bank	2	3.64	61.82
	Iqub/Idir	8	14.55	76.36
	1 & 4	13	23.64	100
	Total	55	100	
Do you have Livestock resources?	No	13	7.47	7.47
	Yes	161	92.53	100
	Total	174	100	

Source: Own survey, 2019

Based on the above table 62 (35.63%) of respondents do not save some amounts of their incomes. While about 112 (64.37%) of respondents save portions of their income for consumption, to build house, to buy agricultural inputs and tools, for accumulation of wealth and for other purposes like buying and renting land for farming purposes. Furthermore, for saving all respondents do not save portion of their income in financial institutions. As depicted in the above table about 40 (23%) of respondents save their income in cash at home. Whereas 65 (37.4%) and 4 (2.3%) of respondents save their money in Banks and MFIs respectively. Only 3 (1.7%) of respondents save their incomes in the hands of relatives and person who are merchants. Saving at home is vulnerable to different problems like thief and other hazards as well as lack interest. Hence it is important to change the habit of saving money at home.

Table 9: Respondent's saving in the study area by kebele and gender.

Saving		N Statistic	Minim um	Maxim um	Sum	Mean	Std. Deviation
Saving in 2010/18 by kebele	BQO	27	500	20000	123200	4562.96	4442.725
	Talaco	46	100	5000	37832	822.43	950.415
	G/Kamisa	39	100	18000	94950	2434.62	3706.629
	Total	112	100	20000	255982	2285.55	3442.310
Saving until 2010/18 by kebele	BQO	27	1000	88000	283285	10492.04	17334.203
	Talaco	46	150	10000	72776	1582.09	1908.443
	G/Kamisa	39	200	20000	117820	3021.03	4167.418
	Total	112	150	88000	473881	4231.08	9526.861
Saving in 2010/18 by Sex	Male	105	100	20000	244052	2324.30	3526.044
	Female	7	200	5000	11930	1704.29	1813.871
	Total	112	100	20000	255982	2285.55	3442.310
Saving until 2010/18 by sex	Male	105	150	88000	456391	4346.58	9809.716
	Female	7	300	8000	17490	2498.57	2710.845
	Total	112	150	88000	473881	4231.08	9526.861

Source: Own Survey, 2019

According to the above table, the mean saving of respondents living in Bakaka Kore Odo is greater than the mean saving of the other two kebeles. The mean saving of Bakaka Kore Odo kebele respondents, up to 2010/18 is about 10492.44 birr, while the mean saving of Talaco and G/Kamisa kebele are 1562.09 birr and 3021.03 birr respectively. In general among 174 total respondents only about 112 (64.37%) were saving portions of their incomes. On average their saving in 2010/2018 was 2285.55 with a minimum of 100 birr and maximum of 20000 birr. While, up to 2010/18, on average respondents saving were 4231.08 with a minimum of 150 and maximum of 88000 birr. The reason why saving of Bakaka Kore Odo is greater than other is that, their mean income is greater than that of the others, because there is greater employment opportunities in this kebele due to small distance of the area from town centers. This kebele is very near to Holeta town; hence they can get employment opportunity from different private enterprises. Habesha Cement Factory is also available in this kebele.

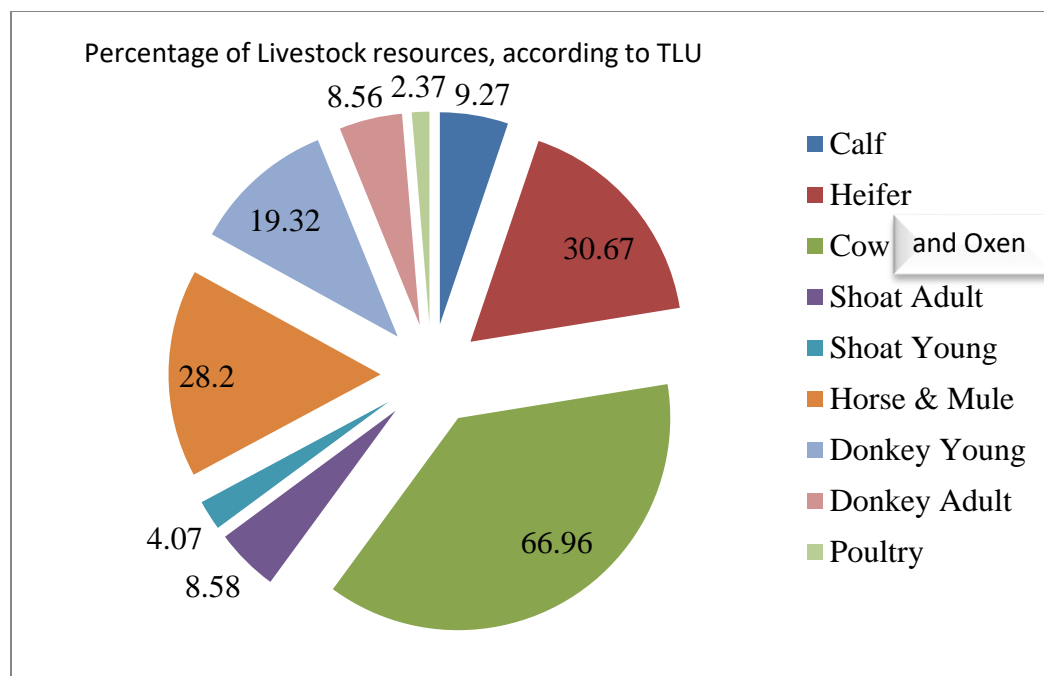
Other important financial capitals these respondents own are livestock resources. They include: cow, goat, sheep, horse, donkey and poultry. In the study area, farmers undertake mixed farming where livestock rearing is one of the important activities. As it is confirmed in many studies farmers who have better livestock ownership status are likely to participate in different income generating activities; because, livestock can provide cash through sales of products which enables farmers to decide to diversify their income source. Among total respondents, 13 (7.47%) of landless rural households do not own any livestock resources. While about 161 (92.53%) of respondents, own livestock resources although there is a variation in ownership. To indicate the livestock holding of each household in terms of total livestock unit (TLU), the TLU per household was calculated. The result of the survey indicates that livestock holding of the sample ranges from 0.05 to 12.88 TLU with the average of 4.087 TLU per respondents.

Table 10: Tropical Livestock Unit Owned By Respondents of Study Area

Name of Livestock Resources	N Statistic	Minimum	Maximum	Sum	Mean	Std. Deviation
Calf	98	0.25	1.75	36.75	0.3789	0.31140
Heifer	78	0.75	5.25	95.25	1.2533	0.81182
Cow & Ox	129	1.00	8.00	353.00	2.7364	1.24699
Shoat Adult	86	0.13	1.43	30.16	0.3507	0.25229
Shoat Young	89	0.06	0.60	14.82	0.1665	0.09732
Horse & Mule	63	1.10	2.20	72.60	1.1524	0.23614
Donkey Young	47	0.70	2.10	37.10	0.7894	0.27759
Donkey Adult	17	0.35	0.35	5.60	0.3500	0.08489
Poultry	131	0.01	0.22	12.66	0.0967	0.04778
Total tropical livestock unit	161	0.05	12.88	657.96	4.0867	2.47241

Source: Own Survey, 2019

With regard to distributions of livestock resources, across kebeles; Gaba Kamisa has the largest livestock resources, which is about 277.6 (42.2%) of TLU. Furthermore Bakaka Kore Odo and Talaco kebeles respondents owns, about TLU of 137.61 (20.9%) and 242.75 (36.9%) respectively. The problem regarding to livestock rearing is shortage of feeds. Since all respondents are landless they are unable to keep their livestock on individual grazing land, as communal grazing land does not exist in the study area. Hence respondents keep their livestock in one place and provide their feeds there. Although it is possible to rear livestock in this manner, it is impossible to keep large amounts of them, because providing feed for them through all available options (cut and carry, hay, crop residue and industrial byproduct) is too expensive.



Source: Own Survey, 2019

Figure 5: Percentage of Respondents Total Tropical Livestock Units of the study area

These livestock resources are also presented in percentage as aforementioned in the above graph. Cow and ox of the respondents in the study area accounts for a larger parts of livestock resources, which is about 70 % of the total TLU. This is due to using their traction power as well as a source of food and income like fattening and dairy production. Whereas poultry and young shoats' percentage from the total livestock unit is very small, these represent about 2.37 % and 4.07 % of respondents TLU respectively.

#### 4.4.5. Physical Capital

Physical capital comprises the basic infrastructure and producer goods needed to support livelihoods. Infrastructure consists of changes to the physical environment that help people to meet their basic needs and to be more productive. Producer goods are the tools and equipment that people use to function more productively. The following components of infrastructure are usually essential for sustainable livelihoods: (1) affordable transport; (2) secure shelter and buildings; (3) adequate water supply and sanitation; (4) clean, affordable energy; and (5) access

to information (communications) (DFID, 1999). Although it is not in depth analysis of the capital we roughly look at the physical capital that respondents own and access in what follows.

Table 11: Physical capital owned and accessed by respondents

Characteristics		Frequency	Percent	Cumulative percent
Do you have access to potable water supply?	No	43	24.7	24.7
	Yes	131	75.3	100.0
	Total	174	100.0	
Are there all weather roads you can access in your area?	No	78	44.8	44.8
	Yes	96	55.2	100.0
	Total	174	100.0	
Is there a mobile network in your area?	No	66	37.9	37.9
	Yes	108	62.1	100.0
	Total	174	100.0	
Do you have your own house?	No	6	3.4	3.4
	Yes	168	96.6	100.0
	Total	174	100.0	
Do you own physical capital like farm tools, cart and other machineries?	Not have	4	2.3	2.3
	Farm tools and equipment	104	59.8	62.1
	Cart & Others	66	37.9	100.0
	Both	66	37.9	100.0
	Total	174	100.0	

Source: Own survey, 2019

Based on the above table, respondents who have access to potable drinking water are 131 (75.3%) and who have no access to potable drinking water are about 43 (24.7%). The average distance required to fetch water is about 1.13 km. This reveals that, the need for potable water supply required for the communities is not satisfied. This in turn has many effects on the livelihood activities of the study area households. Because the time needed to fetch the water minimizes the time required to perform any income generating activities and also lack of potable water supply erode productive capacity, through water born, sanitation and hygiene related diseases.

Road infrastructure is available in all three sample kebeles. This road is both graveled all weather road constructed by Universal Rural Road Access Program (URRAP) and asphalt road. The problems related to these roads are lack of quality of construction for graveled road. Although there is such problem, farmers are utilizing horse carts as well as vehicles to transport their productions to markets. These roads are provided to the center of kebeles and the villages under the kebele do not yet have access to these roads. In order to arrive to these roads, they have to cover certain amount of distance by foot and equines. The distance required to reach this all-weather road is on average about 4 km.

Communications infrastructure, especially that of mobile network is available in all these three sample kebeles. However the quality of the services is not the same from village to village and from one specific location to other specific locations. Among 174 sample respondents of the study area, 108 (62.1%) of the respondents have an access to working mobile network and 66 (37.9 %) of respondents has no access to mobile network. This communication infrastructure is very important to get market information.

Sample respondents of rural landless households also own houses, farm tools and equipment's as well as others tools that are used to generate income, especially horse cart and hair cutting equipment's. From the total respondents, who own house are about 168 (96.6%) and who do not own a house are only about 6 (3.4%) of total respondents. This data reveals that almost all landless rural households have their own houses and have no expenses for renting houses from others. On the other hands, regarding farm tools and other materials 4 (2.3%) of respondents have no any type of farm tool and equipment's. Those who have farm tools only are about 104 (59.6%) of total respondents. Furthermore those who owns horse cart and other materials like hair cutting equipment with farm tools required for agricultural activities were about 66 (37.9%) of total respondents.

#### **4.5. Landless Rural Households**

The study area has about 23 rural kebeles. According to focus group discussion and Key Informant Interview, landless rural households are those households living in rural areas without any parcel of agricultural land but may have about 500m<sup>2</sup>(0.05ha) of land which is used for

house and backyard. On the other hand those who have no land ownership certificate given by Woreda Land Administration Office is also said to be landless.

Table 12: Landless Rural Households in Sample Kebele of the study area

Name of Kebele	Total HHs			Landless HHs			Percentage
	Male	Female	Total	Male	Female	Total	
Bakaka Kore Odo	296	61	357	66	13	79	22.1
Talaco	456	88	544	107	6	113	20.8
Gaba Kamisa	496	56	552	74	6	80	14.5
Total	1248	205	1452	247	25	272	18.7

Source: Own Survey, 2019

According to data collected from three randomly selected kebeles landless rural households accounts to about 14.5 % to 22.1% of total households in the study area. In general, landless rural households on average accounts to about 18.7 % of total rural households available in the study area as depicted in the above table. Although these rural households have no any land holding, very few of them has an opportunity to get land by inheritance after death of their fathers/mothers and both. The reason why they are landless while their parents own land is, land owners prefer others to rent their land to outsiders. Because, if they give the land they own to their off spring they may not provide them sufficient produce and claim on the land will increase, which in turn reduces their land holdings. On the other hand the land they receive through inheritance from parents is much reduced in size and creates diminished productivity of labour to land, because it is not possible to pursue farming efficiently on this fragmented land. However respondents may own land through different processes. Although land sale and purchase is prohibited by law in Ethiopian context, some respondents are saving some portions of their incomes, as well as use remittances to purchase land required for undertaking agricultural productions in the study area.

In general the main reasons for landlessness are: population increments, being young during land redistribution of Derg Regime, investment activities to kebeles who are found adjacent to town: which is more similar with the statement of Tan, Beckmann, Van Den Berg, and Qu (2009) landlessness is the result of conversion of agricultural land to non-agricultural land uses for

urbanization and industrialization during phases of economic development and population growth as quoted by (Tuyen, 2012). The other reasons are: lack of interest from families to share portions of their land to their children's before death, and much diminished land size which makes the owner to sell out land. Having diminished land size occurs during inheritance between family members. Undertaking farming on this diminished farm size would make individuals economically inefficient. In the study area according to focus group discussions few amounts of landless households participated in selling out of this diminished land size.

#### 4.6. Livelihood Strategies of Landless Rural Households in the Study Area

Respondents in the study area pursue different kinds of livelihood strategies. However the most significant kinds of livelihood strategies are: farming, nonfarm, and diversified livelihood strategies are pursued by respondents. Other forms of livelihood strategies such as off farm, non-farm and migration are not independently available. Although some of them are available, it is not significant. Therefore these three types of livelihood strategies were merged into one which is known as nonfarm livelihood strategy as opposed to what is described in World Development Report (World Bank, 2008).

Table 13: Percentage of Livelihood Strategies of Respondents of the study area

Characteristics		Frequency	Percent	Cumulative percent
If only one Livelihood Strategy were pursued without overlap	Farming	18	10.3	10.3
	Nonfarm	4	2.3	12.6
	Diversification	152	87.4	100.0
	Total	174	100.0	
Farming (MR)	No	4	2.3	2.3
	Yes	170	97.7	100.0
	Total	174	100.0	
Nonfarm (MR)	No	18	10.3	10.3
	Yes	156	89.7	100.0
	Total	174	100.0	
Diversification	No	22	12.6	12.6
	Yes	152	87.4	100.0
	Total	174	100.0	

(MR): represents multiple response

Source: Own Survey, 2019

According to the above table, when described in separate 18 (10.3%) of respondents in the study area pursue only farming livelihood strategy. On the other hand 4 (2.3%) of the respondents in the study pursue only nonfarm livelihood strategy. The vast majority of respondents 152 (87.4%) pursue both farming and nonfarm livelihood strategy, which is commonly known as diversified livelihood strategies. This is because landless rural households utilize exhaustively their full potential and resources open to them including time, for subsistence and for improving their living standard.

#### 4.6.1. Farming Livelihood Strategies

Landless rural households in the study pursue farming alone as their livelihood strategies or pursue in connection with nonfarm livelihood strategies. This means majority of the study area landless households are pursuing both farming and nonfarm livelihood strategies. They undertake production of crops and animal rearing with other forms of rural nonfarm activities like petty trading, fire wood selling, trade of crops and animals, and skilled non-farm (carpentry, masonry, metal work, barberry and the like). The various types of crops that are produced by rain fed agriculture as well as irrigation and livestock reared by respondents of the study area is presented as follows.

Table 14: Crops produced, by respondents of the study area

S/No	Types of crops	Ha	Production	Percentage of area coverage
1	Teff	14.25	114	8.07
2	Wheat	35.50	1420	20.11
3	Barley	46.50	1302	26.34
4	Potato	45.25	8145	25.63
5	Lentils	3.75	30	2.12
6	Horse bean	20.50	328	11.61
7	Cabbage	2.31	277.2	1.31
8	Field pea	4.75	57	2.69
9	Onion	2.25	270	1.27
10	Carrot	1.50	90	0.85
<b>Total</b>		176.56	12033.2	100

Source: Own survey, 2019

Based on area coverage barley, potato and wheat production accounts for larger parts of land utilized for farming. Barley holds first rank which is about 26.34 % of total land area coverage,

potato and wheat holds the second and third rank with a percentage of 25.63 % and 20.11 % of total land held under production by landless respondents of the study area. Land held under production by crops like lentils, cabbage, onion and carrot is very small. Together these crops utilized about 5.55 percent's of lands from total lands utilized by respondents.

Generally landless rural households utilized about 176.56 ha (5.02 %) of farm land from total 3513 ha of lands available in these three sample kebeles, through various land use arrangements to undertake agricultural crop productions. According to focus group discussions farming only livelihood strategies do not sustain their living, because it is difficult to get enough land required for farming through various mechanisms, and the prices of agricultural commodities do not give incentive for them. Hence majority of them simultaneously pursue both farming and nonfarm livelihood strategies to fulfill the gap of basic needs.

Furthermore, respondents of the study area undertake livestock rearing under farming livelihood strategies. The types of livestock reared were, cows, sheep, goat, horse, donkey, and poultry. Ox and cow are reared by many households and share the highest TLU of respondents' assets. They are utilized for traction power as well as in generation of income through milk selling. On the other hand horses are helping in easing transportation problem especially taking productions to market as well as giving transport services by pulling cart. In this case some landless households augment their income by rendering transport services with this horse cart.

Landless rural households also undertake irrigation based crop production. In irrigation based agriculture, landless rural households participate less; because the price of renting in land and capital required for undertaking irrigation based production system is very high. Hence landless rural household respondents of the study area less participates in irrigation based agriculture.

#### **4.6.1.1. Income Earned from Farming Livelihood Strategies.**

Regarding income earned from all three components of farming livelihood strategies, the incomes of the three components namely, rain fed crop production, livestock rearing and irrigation is available. The incomes derived from each activity are presented in what follows.

Table 15: Description of farming income, based on kebele of the study area

Name of kebele		Livestock production	Rain fed crop	Irrigation
BQO	Mean	2199.60	9156.10	6840.00
	N	25	41	6
	Std. Deviation	2335.358	6034.818	6908.580
Talaco	Mean	1428.26	4797.93	1131.70
	N	46	67	23
	Std. Deviation	921.203	2916.965	861.607
G/Kamisa	Mean	3036.21	16275.86	
	N	58	58	
	Std. Deviation	2152.167	4307.452	
Total	Mean	2300.70	9884.70	2312.72
	N	129	166	29
	Std. Deviation	1975.909	6605.990	3826.752

Source: own sample survey. 2019

Based on the above table, the income derived from rain fed crop production on average is greater than the income derived from livestock rearing and irrigation. On average the income derived from rain fed crop production is 9884.7 birr, while from irrigation and livestock rearing it is about 2312.72 birr and 2300.7 birr respectively. The income derived from rain fed crop production is higher than the other; because land is easily accessed by respondents of the study area for rain fed crop production despite overall land shortage. In other word it is difficult to access land through land use arrangements simultaneously for irrigation and grazing land to undertake irrigation based crop production and livestock keeping respectively. Furthermore the income derived from livestock is very rare; because households are convinced to keep few livestock at home by providing feeds and water. The reason is lack of grazing land and the current animal keeping extension advocates for such kind of livestock productions.

#### 4.6.2. Nonfarm Livelihood Strategies

Nonfarm only livelihood strategies were being pursued by 4 (2.3%) of respondents. However majority of respondents are pursuing nonfarm livelihood strategies in connection with farming livelihood strategies. This nonfarm livelihood strategies were a source of livelihood for about 156 (89.7%) of respondents. From these total respondents, about 4 (2.3%) of rural landless households only pursue nonfarm livelihood strategies for generating incomes and to lead their

living. On the other hand, about 152 (87.36%) of respondents pursue nonfarm livelihood strategies with farming livelihood strategies for generation of income and to lead their living.

A nonfarm livelihood strategy is pursued in different forms by respondents of the study area. Although the definition and the components of activities under this nonfarm livelihood strategies differs from one scholars to others, the result of this study reveals that; off farm, nonfarm migration, remittances are all available as a source of livelihood income for some portion of respondents. Only pension and other government transfer are not found in the study area, as a means of livelihood income in the whole data of this study. In the below table, livelihood activities that are found under nonfarm livelihood strategies are presented as follows.

Table 16: Livelihood activities of nonfarm livelihood strategies

Nonfarm Livelihood activities		Frequency	Percent	Cumulative percent
Nonfarm	No	106	60.9	60.9
	Yes	68	39.1	100
	Total	174	100	
Off farm	No	62	35.6	35.6
	Yes	112	64.4	100.0
	Total	174	100	
Migration	No	135	77.59	77.59
	Yes	39	22.41	100
	Total	174	100	

NB: Multiple responses are utilized in this table data.

Source: Own computation of survey, 2019

The above table data reveals that, under nonfarm livelihood strategies, respondents of the study area undertake these different livelihood activities to generate income required for living. Among total sample respondents, 68(39.1%) of them participate in nonfarm livelihood activities, whereas about 112(64.4) and 39(22.41%) of respondents participate in off farm and migration based livelihood activities respectively. Generally off farm livelihood activities are undertaken by majority of the study area, because it requires less skill and expertise as compared to the other

livelihood activities. On the other hand off farm livelihood activities are easily accessible for landless rural households, because it does not require many capitals to pursue it.

Nonfarm livelihood activities of the area includes, trading crops and other commodities, trading livestock's, petty trading, wage labour in different companies (Flower Producing Companies, Habesha Cement Factory and etc.), loading and unloading, skilled activities like construction and hair cutting, as well as cutting eucalyptus, guarding, mining, giving transport services by horse chart and so forth. This all activities are being practiced by respondents of the study area, in order to lead their living. However these nonfarm livelihood activities do not solely undertaken by respondents of the study area. Rather these activities were undertaken simultaneously in connection with other livelihood activities to improve their earnings.

Off farm livelihood activities are practiced by many respondents of the study area as compared to nonfarm and migration. These activities includes wage labour on other farm like (planting, weeding, harvesting, threshing), collecting and selling fuel woods and leaf of eucalyptus as well as making and selling charcoal.

Regarding migration, migrants at destination undertake different kinds of activities, based on his/her skill, capability as well as the context of the destination. The kinds of migration practiced between different segments of the study area respondent's households as well as the destination of migrants and other information regarding migration is presented in what follows.

Table 17: Information of respondent's on migrants' household members

Variables		Frequency	Percent	Cumulative percent
What kinds of migration are practiced?	No	135	77.59	77.59
	Seasonal	14	8.05	85.63
	Temporary	25	14.37	100.00
	Total	174	100	
Destination of migrant	No	135	77.59	77.59
	Nearby town	19	10.92	88.51
	Neighboring country	1	0.57	89.08
	Middle East	19	10.92	100.00

	Total	174	100	
From house hold members who are participated in migration so far?	No	135	77.59	77.59
	Husband	10	5.75	83.33
	Wife	12	6.90	90.23
	Daughter	11	6.32	96.55
	Son	6	3.45	100
	Total	174	100	
Do migrant support his/her families by remittance?		135	77.59	77.59
	No	3	1.72	79.31
	Yes	36	20.69	100.00
	Total	174	100	
For what purpose you utilized remittances?	No	138	79.31	79.31
	Build & buy house	9	5.17	84.48
	Commence Nonfarm	2	1.15	85.63
	Buy food & clothes	14	8.05	93.68
	Pay for health expenses	8	4.60	98.28
	Others	3	1.72	100
	Total	174	100	

Source: Own computation from survey, 2019

According to the above table, respondents of the study area practice both seasonal migration and temporary migration for few months or years. In all cases there is no permanent migration in which respondents stay at destination for rest of his/her life. Seasonal migration is practiced by about 14 (8.05%) of respondent households of the study area. Whereas, about 25 (24.37%) of respondents household members practice temporary migration for short month or years. Seasonal migration is majorly practiced by husband to improve earning of income during off season. According to the study area this off season is, a season when agricultural activities are not available or when there is ample time to undertake a given income generating activities like summer season while school is closed and so forth. On the other hand majority of migrant who are wives, daughters and sons of study area respondents' practice temporary migration for short period of month or years which is used to accumulate money at destination.

Regarding destination of the migrant, about 19 (10.92%) is nearby town, about 1(0.57%) of migrant is to neighboring country as well as about 19 (10.92%) of migrant migrate to Middle

East countries. In this case only wives and daughters of study area respondent household members migrate to Middle East countries. On the other hand, son and husband member of respondent households migrate to nearby towns to undertake income generating activities.

Whether the type of migration they practice is seasonal or temporary, migrants usually support their families at home through remittance. In the study area, from total respondent households about 36 (20.69%) of them are being supported through remittance. While, about 3 (1.72 %) of respondent households are not getting support through remittance. On the other hand about 135 (77.59 %) of respondent households do not have any migrant family members. Respondent households who are receiving these remittances were utilizing it for various purposes. From all respondents of the study area, about 9 (5.17%) of respondent households were bought and built house with this remittance, about 2 (1.15%) commence nonfarm activities, about 14 (8.05%) bought food and clothes, about 8(4.6%) of respondents used for covering health expenses and about 3 (1.72%) of respondents used this remittance to rent in and buy land from other land owners. In general the mean income received by migrant households from remittance is about 9930 birr.

#### **Case study: 4.1. Aye Birhanu**

*Aye Birhanu is a mother of one daughter. She is living in Talaco kebele of Wolmera Woreda. She is 50 years old. Currently she is divorced and pursuing only off farm activity which is wage labour in agriculture.*

*The only very important capital required to pursue a given livelihood strategy she has is human capital which is her labour force. Her health condition is deteriorated and living under poverty. She do not have house, saving, land, livestock resources and the so forth.*

*In general it is difficult to say that she is living. She is struggling to survive by undertaking only wage labour in agriculture, which is more seasonal. On the other hand she is teaching her 15 years old daughter with this small amount of income.*

The above case study tells us that, although the women have her labour which is used to undertake wage labour in agriculture, she is constrained by two things. One is seasonality of agricultural activities which makes her idle during offseason and the other is health status which makes her not to undertake activities as required. So because of these constraints she cannot generate sufficient income required to lead her living. If other less labour consuming activities that can be undertaken at all season does not be provided, she cannot satisfy her basic needs.

### 4.6.3. Diversification of Livelihood Strategies

Livelihood strategies of landless rural households of the study area are highly diversified. They are pursuing both farming and nonfarm livelihood strategies simultaneously. Among sample respondents of the study area, 152 (87.4%) of total respondents pursue diversified livelihood strategies. While about 22 (12.6%) of total respondents do not pursue diversified livelihood strategies. The reason why they pursue diversified livelihood strategy was; to accumulate wealth by 42.5% of respondents, to respond to shocks by 35.6% of respondents and to improve subsistence and food self-sufficiency by about 60.3% of total respondents.

Respondents diversify their livelihood strategies by simultaneously undertaking different livelihood activities of farming and nonfarm livelihood strategies. In diversification of livelihood strategies, respondents are performing different livelihood activities simultaneously in order to gain sufficient income and to lead living. These livelihood activities are; livestock rearing, rain fed crop production and irrigation from farming livelihood strategies; livestock trading, other trading and petty trading, wage labour in agriculture and outside agriculture, fire wood collection and charcoal selling, skilled nonfarm, mining, remittance and migration from nonfarm strategies.

Regarding incomes, the share of different livelihood strategies and activities are not the same. In this case households who gain larger incomes are those who pursue diversified livelihood strategies as compared to others who pursue farming only and nonfarm only livelihood strategies. In other word pursuing diversification of livelihood strategies makes respondents to earn more income than other livelihood strategies. The income share of diversified livelihood strategies is presented in below table.

Table 18: Income share of different livelihood strategies in diversified livelihood strategy

Livelihood Strategies	Diversification	N statistic	Minimum	Maximum	Sum	Mean	Std. Deviation
Income from farming livelihood strategy only	No	18	7100	29400	324744	18041.33	5729.644
	Yes *	152	500	31000	1678076	11039.97	7634.268
	Total	170	500	31000	2002820	11781.29	7748.868
Income from	No	4	8000	38000	67200	16800.00	14321.080

nonfarm livelihood strategy	Yes *	152	400	86400	1384549	9108.88	11978.093
	Total	156	400	86400	1451749	9306.08	12051.103
Income from diversified livelihood strategies	No	22					
	Yes *	152	4700	106400	3052625	20083.06	13587.505
	Total	152	4700	106400	3052625	20083.06	13587.505

Yes \* = represents the income of different livelihood strategies in diversified livelihood strategies

Source: Own Survey, 2019

Based on the above table, in diversification of livelihood strategies, respondents on average earn more income from farming livelihood strategies. The share of farming income is on average about 55 % of total income received in diversified livelihood strategies. On the other hand the share of income from non-farm livelihood strategies is about 45 % of total income received in diversification of livelihood strategies. This data reveals that, nonfarm livelihood strategies are not developed well as compared to farming livelihood strategies. Accordingly, the result of the income coincides with Sub Sahara results (Ellis, 1998; Reardon, 2001). While looking at the minimum and maximum income earned between livelihood strategies, the minimum and maximum income from farming strategy in diversified livelihood strategies are about 500 and 31000 birr respectively. The minimum and maximum income earned by nonfarm livelihood strategy in diversification of livelihood strategy is about 400 and 86400 birr. These data on the other hand reveals that, the maximum income (86400 birr) received in nonfarm livelihood strategy is by respondent of Bakaka Kore Odo kebele, which is nearest to Holeta town. This income is earned from loading and unloading of cement in Habesha Cement Factory. So this data tell us how important a structure and proximity to urban area, in pursuing livelihood strategies, as described in determinants as well as in Sustainable Livelihood Framework (SLF) (DFID, 1999).

In general when compared the income derived from diversified livelihood strategies is greater than the income received by farming and nonfarm livelihood strategies. In diversified livelihood strategies respondents of the study undertake different income generating livelihood activities simultaneously. Also they pursue this livelihood strategy in order to minimize risk and maximize income required for living.

## **Case study: 4.2. Tajitu Hunde**

*Tajitu Hunde is a mother of six children's; three males and three females. She is 50 years old, divorced and struggling for survival of her families. She is currently living in the kebele called Bakaka Kore Odo which is one of Wolmera woreda kebeles found at distance of 7 km to south of Holeta town.*

*The livelihood capitals owned by her families were, two labour force one male and one female, excluding household head, because she is chronically ill. Four of her children's are not living with her and not support the household. Regarding social capital, she has a membership to local institution called Idir (Afosha). On the other hand she has 6 sheep's bought for her by NGO called Engine and one horse and one horse cart bought by her daughter who migrated to Saudi Arabia.*

*Based on the above assets she is pursuing diversified livelihood strategies, which are both farming and nonfarm livelihood strategies. Regarding farming livelihood strategies, she has rearing sheep's from which she gain an income by selling their off springs. Whereas, nonfarm livelihood strategy is rendering transport service by horse cart, collecting and selling fire woods and leafs of Eucalyptus to market, remittance of 6000 birr per year from one of her daughter who migrated to Saudi Arabia.*

*Generally she has an income of 17,000 birr/year and expense the same amount of money per year for living like for consumption, medication, for horse and sheep feed and so forth. She has no saving at all.*

*She abandoned wage labour in one of Flower Company available in the Holeta town. Because, her health status is affected by chemicals utilized for flower production. On the other hand the household is under different challenges and temptations. One is lack of experience of the horse to pull a cart while rendering transport services and also this horse is aged one. The other one is competition with landowners and surplus producer on collecting fire wood and leaf of Eucalyptus which is scarce resources, living of wild animals in Eucalyptus plantation, which eats poultry, and makes them not participate in poultry farm, and overall lack of saving for future uncertainties.*

Source: Own survey, 2019

#### 4.7. Income Derived from Different Livelihood Strategies

The income derived from these different livelihood strategies differs from one respondent to other and from one kebele to others. Since there is an overlapping of livelihood strategies, it is important to look at and compare the income of different livelihood strategies separately.

Table 19: Mean income of respondents by livelihood strategies

	N Statistic	Mean	Std. Err.	[95% Conf. Interval]	
Farming Income	18	11510.46	595.9252	10334.24	12686.68
Nonfarm Income	4	8343.385	891.1994	6584.361	10102.41
Diversification Income	152	17543.82	1087.938	15396.48	19691.16

Source, Own survey, 2019

According to the above table, income generated by diversified livelihood strategies, is by far greater than the income generated by farming and nonfarm livelihood strategies. The average income generated from diversified livelihood strategies is about 17543.8 birr. Whereas the income generated from farming and nonfarm livelihood strategies are 11510.5 birr and 8343.4 birr respectively. Hence in the study area, to earn more income, pursuing diversification of livelihood strategies is very important. The reason is that, in diversified livelihood strategies, respondents undertake different livelihood activities, so that the failure of one strategy can be substituted by other or their synergy increases generation of sufficient income required for living.

#### 4.8. Means of Land Accessing in the Study Area

Landless rural households in the study area get access to land in different ways. These land use arrangements include, gift, land renting, share cropping and sisso. The distribution of the respondents land access to these various land use arrangements was presented in what follows.

Table 20: Land use arrangements of the study area

Characteristics		Frequency	Percent
Land use arrangements of respondents (MR)	Renting	52	29.9
	Share cropping	65	37.4
	Gift	23	13.2
	Sisso	52	29.9

(MR): Multiple responses is utilized

Source: Own survey, 2019

In gift type of land arrangements, landless household get the land from his/her parents, and use the land to farm on it for unknown periods. This land use arrangements is done usually between father/mother and son/daughter, between relatives or between elders who have no children and those who have no capacity to undertake farming on their lands. They may use the land for some times or years, but can't totally own the land. While they are using land by this type of arrangements there is a responsibilities given to them by landowners. In order to continuously use the land for production they should protect and feeds the landholders usually their parents, as they are not able to work. In some cases if they do not discharge their responsibilities, they lose the right to use the land.

Land renting on the other hand is a method of land access by paying locally known price per hectare or parcel of land, to undertake agricultural activities. According to data collected from Focus Group Discussions (FGD) and Key Informant Interview (KII) there is high competition in accessing land through renting mechanism. This competition is manifested by the amount of payment made per a given parcel of lands and other services provided to the landowners. Those who rent in land, also additionally give other services to the land owners to use the land continuously. Landowners also do not rent their lands to their children's, because they may not pay enough money as compared to others and claiming of the land arose from the son/daughter side, that in turn decrease their land size and the benefit they get from other land renters. On the other land those who have ample lands also compete with landless households in accessing land through renting. They usually plant Eucalyptus tree on their own land and rent in other lands for agricultural activities. In land renting system the landless pay locally known amount of money and undertake all the activities required on that land from land preparation to harvesting with only his own capital and use the produce harvested from it.

Share cropping practice is another kind of land use arrangements available in the study area. In this land use arrangements, landless households take the land from land owners and undertake agricultural activities (producing a given crop) according to the agreement made between the two parts by only his own capitals. After the harvest they share the production on equal parts. This means landowners participate by only his land and landless participate by covering all the activities and expenses required from land preparation to harvesting. As aforementioned in land renting, this type of land use arrangement (share cropping) has also competition in accessing the land. While farming by sharecropping, the landless should have to pay also some amount of money to take the land from landowners.

Sisso is also other types of land use arrangements whereby landless households take lands and cover all activities and expenses. After harvest landless households take  $\frac{2}{3}$  of the produce and give  $\frac{1}{3}$  of the produce to the landholder. In this type of land use arrangements landless households pay a certain amount of money to get the lands. Usually the payment is about one thousand birr per hectare of lands. However this kind of land use arrangement is on extinction, because of competition on this shortage of lands. Apart from all the aforementioned land use arrangements, there is Erbo land use arrangement. This land use arrangement is similar to sisso except, the share of produce for landless is about  $\frac{3}{4}$  and the share of the produce for land holders is  $\frac{1}{4}$ . But this kind of land use arrangements is never working at current time.

#### **4.9. Land markets**

Regarding land markets, in the study area both landowners and landless households participate in land markets. Under this sub heading we are going to elaborate land markets commonly practiced in the study area. Accordingly, a land market of renting in land is described in what follows.

Land renting of the study area is being undertaken in two contexts. The first one is land renting for rain fed crop production and the second is land renting for irrigation based production. There is a difference between the two, which is for rain fed crop production land renting cost is small as compared to land renting for irrigation based production. The reason why the cost of land renting per a given size of land for irrigation is greater than the cost of renting land for rain fed is

that, it is possible to produce market oriented crops two times or more within one year. While for rain fed crop production it is impossible to produce cereals crops two or three times a year.

The cost of land rent under rain fed crop production in the study area is about 4000 to 5000 birr per hectare of land. Whereas the cost of land rent under irrigation based production activities is about 6000 to 8000 birr per hectare of land. This result is not significantly different from the findings of (OWWDSE, 2018). According to this study the cost of land renting for rain fed crop production is very similar, although there is many difference in irrigation based farming. OWWDSE (2018) stated that, land renting under rain fed agriculture is about 6000 of birr on average per hectare of lands per one production period. While the price of land rent under irrigation based crop production is about 12,000 to 20,000 of birr per hectare of land per year. The reason of such difference is the lack of river for irrigation activities and agro ecology of the study area.

OWWDSE (2018), report is concerned with the everage of overall Awash basin woreda of Oromia National Regional State, which also inculde the current study area (Wolmera Woreda). The study area agrocolgy is about woina dega (high land) which is more suitable for potato production. Onion production is not as much under practice, due to weather conditions of the area. Furthermore onion and tomato is more produced in the mid and lower Awash basin. So the difference in the cost of land renting is the result of the crop produced under irrigation based farming. When compared, potato with onion and tomato, the market price of potato is lower than the others. That's why the cost of land renting for irrigation based activities differs from the previous study findings.

#### **4.10. Livelihood Outcomes**

Livelihood outcome represents the achievement of livelihood strategies such as: increased well-being, more income, reduced vulnerability, improved food security and more sustainable use of natural resources (DFID, 1999). According to data collected from respondents majority of households basic needs especially that of food needs does not satisfied. Among sample respondents 49 (28.2%) of them only satisfied their food requirement by pursuing their own

livelihood strategies. Whereas about 125 (71.8%) of respondents food needs does not satisfied by pursuing a given livelihood strategies.

Table 21: Information on income and food security of respondents

Variables		Frequency	Percent	Cumulative
Does your income increased from previous years?	No	70	40.2	40.2
	Yes	104	59.8	100
	Total	174	100	
Does the income you received secure your household food needs?	No	125	71.84	71.84
	Yes	49	28.16	100.00
	Total	174	100	

Source: Own survey computation, 2019

Regarding expenditure, respondents of the study area expends greater money than income they earn from various livelihood activities. This means that households of the study area expend their income on various things. Their expenditures include; land renting, agricultural inputs, school fee and other education related expenditure, food, health expense, clothes and household utensils, other cost like community development and social affairs purposes as well as others.

Although majority of respondents have low capacity to fulfill their basic necessities by livelihood activities, they use various mechanisms to insure their survival. The means for filling the gap of food needs is taking a loan from neighborhood both in kind and in cash, taking loan and support from kinship and local institutions like *Idir (Afosha)*, as well as by participating in different income generating activities, seasonal migration to urban centers and remittances. Furthermore those households who have more families send their children's to households who are economically better than them. By sending their children to better off households, they are able to minimize their expenditures to the level of the income they earn from their livelihood strategies. Although these children's do not able to undertake a given activity efficiently or in some cases their labour is exploited with minimum reward like only covering their living cost.

In general majority of respondents does not secure their food needs because of various reasons. In the first place, farming only livelihood strategy is being undertaken on small amounts of land, accessed through various land use arrangements. In this case they expend their labour as well as financial capital to undertake farming. At the end of harvest their return is too small because of their expense on land renting cost, agricultural input cost and low market price of the produced commodities. Secondly, income of nonfarm livelihood strategies is not sustainably increasing because of market problem, seasonality of these activities (especially wage labour in agriculture, collection and selling of fire wood as well as lack of infrastructure and the like).

On the other hand increased income is a guarantee for health status of respondents as well as his/her family members. As presented in table 6, majorities of respondents as well as family members' health status are in a good situation. However for about 14 (8%) of respondent household heads and 1(0.6%) of respondents family members health status is very poor. This means that, these household heads cannot able to efficiently undertake livelihood activities to generate sufficient income required to lead their living. In other word these household will have more expenditure to health concern than satisfying other basic needs. Respondent household heads and respondent household members who are moderately healthy represent about 56 (32.2%) and 62 (35.6%) respectively.

Based on the income, food security and better health criteria interaction; majority of the study area respondents livelihood outcome is undesirable. Because majority of respondents does not satisfied their food needs, although they are trying to fill the gap by different methods. Income on the other hand is not continuously increasing as commodity price increase and health status of many household heads as well as members are in moderate and poor health status. This health status also affects labour availability per household and minimizes stock of capital that households own in order to cure from the health problem.

#### **4.11. Determinants of Households' Choices of Livelihood Strategies**

Livelihood strategies of the study area landless rural households are farming or agriculture, nonfarm and diversified livelihood strategies. The choice of these livelihood strategies were determined by different factors according to different scholars and literature. . Many scholars

have identified the determinant factors to the choice of livelihood strategies for rural farmers or households, for those who are living in rural areas whether the own land or not. However for this study some of the independent variables that tend to determine the choice of livelihood strategies in the study area is identified by multivariate probit model in what follows.

Although there are about thirteen independent variables that are expected to determine the choice of livelihood strategies according to literature, only eight independent variables meaning; land access, credit, tropical livestock unit, nonfarm physical capital, distance to market, education inheritance of livelihood strategies and skill determines the choice of these livelihood strategies.

Diagnostic test for multicollinearity that seriously affects the parameter estimates was conducted among explanatory variables. The result confirmed that multicollinearity is not a problem in the estimated model since the largest VIF test result is 2.593 and the mean VIF is 1.44. On the other hand correlation analysis was also conducted among explanatory variables to check whether there is strong correlation among them or not. Accordingly the output of the correlation analysis reveals that, the correlations among explanatory variables are not significant.

Multivariate probit model was used to identify factors affecting livelihood strategies choice decision of the landless respondents' rural households. Wald test ( $\chi^2 (42) = 61.12, p= 0.0284$ ) is significant at 5 % significance level. This result implies that the coefficients are jointly significant and the explanatory power of the factors included in the model is satisfactory. The SML (Simulated Maximum Likelihood) estimation results suggested that there is positive and significant interdependence between household decisions to choose farming and nonfarm livelihood strategies (Rho13); farming and diversification livelihood strategies (Rho21) and diversification and nonfarm livelihood strategies (Rho 23).

Table 22: Multivariate Probit Results of the Determinants of Households' Choices of Livelihood Strategies

	Farming		Diversification		Nonfarm	
	Coef.	Std.Err	Coef.	Std.Err	Coef.	Std.Err
HuRecTraining	-0.8762891	0.7169113	0.2254884	0.2999666	0.3319398	0.2890392
NonfarmPhyCap	0.6583923	0.7430755	1.150134***	0.4254576	0.8880834***	0.3283222
LSInherited	0.9872213	0.7318617	-0.5521387*	0.2942411	-0.5189084*	0.2840071
LandAccess	3.135578**	1.275634	1.832869***	0.6514514	-3.264764	86.42269
Dependency	-0.3581428	0.3179183	-0.0991304	0.1295312	-0.0852423	0.1146825
UrbanProximity	0.2979578	0.1646523	0.1287087**	0.0579981	0.1165224**	0.0467851
SemiSkilled	1.043203	0.8423607	-0.4624959	0.3255247	-0.5294324*	0.2918469
INS	0.2986108	1.14268	-0.7081266	0.7333456	-0.0280045	0.409148
AccessTCredit	1.405272*	0.8394238	0.1402324	0.2978888	0.0486719	0.2844928
Eduhh	-0.1746114	0.1114728	-0.1002065*	0.0517282	0.0236507	0.0514193
Sexhh	-0.9966842	1.008181	-0.2557973	0.4658356	-0.208384	0.4131885
Agehh	-0.0507188	0.0338913	-0.0021982	0.0157971	0.0130828	0.0159226
TTLU	0.4394281**	0.182497	0.0234131	0.0824559	-0.0045376	0.0648952
LabForce	0.1752162	0.2988789	0.0531007	0.1189086	0.0398758	0.0999065
_cons	-1.13288	2.073766	-0.2758246	1.091089	3.295796	86.42515

Likelihood ratio test of  $\rho_{21} = \rho_{31} = \rho_{32} = 0$ :

Multivariate probit (MSL, # draws = 5)

Number of observation = 174

Wald  $\chi^2(42) = 61.12^{**}$

Prob >  $\chi^2 = 0.000$

Log likelihood = -112.16639

Joint probability of success = 0.007

Joint probability of failure = 0.775

Note: "Coef" and "Std. Err" represents coefficient and standard error respectively. "\*\*\*", "\*\*" and "\*" represents 1%, 5% and 10% level of significance, respectively.

Source: own computation from survey result (N=174).

**Land Access:** Land is equally important for both farming and diversification livelihood strategies, because in both cases farming is available. Although respondents of the study area have no any parcel of land, they access through various land use arrangements such as land renting, share cropping and so forth. The result of the model reveals that, land access positively affects the choice of farming and diversified livelihood strategies at 5% and 1% significant level. On the other hand there is no significant relationship between land access and nonfarm livelihood strategies. This finding is consistent with (Dereje, 2018). Furthermore the finding is consistent with (Winters, et al., 2009), those without access to some land, on average, focus on other economic activities.

**Credit:** Credit utilization is important for farming livelihood strategies. These rural kebeles usually use credit for undertaking agricultural activities like; buying improved seeds and fertilizers as well as for fattening purposes. Accordingly the result of the model reveals that, access to credit affects the choice of farming livelihood strategies positively at 10 % significant level. This finding is consistent with what is reported by (Dinku, 2018). He reported as, credit use allows pastoralists to follow agricultural intensification by providing better access to farm inputs which in turn improves productivity.

**Tropical Livestock Unit:** Livestock rearing by itself is farming livelihood strategies. On the other hand livestock is an input for farming or agricultural activities by providing traction power to peoples living in the rural areas. The result of this model reveals that having tropical livestock unit positively affects the choice of farming livelihood strategies at 5% significant level. In other word, those who have more tropical livestock unit will more likely to pursue farming livelihood strategies. This study is consistent with what is reported by (Seid, 2016; Nigussie, 2017; Dereje, 2018). There is no significant relationship between ownership of livestock and the choice of diversified livelihood strategies and nonfarm livelihood strategies.

**Nonfarm Physical Capital (Asset):** Data used for this variable is about ownership of physical assets that are useful for undertaking and pursuing nonfarm livelihood strategies. They include cart, hair cutting machines and others that are used for pursuing nonfarm livelihood strategies. These capitals help respondents to generate incomes by performing different activities, if guided by users. According to the result of the model, this variable positively affects the choice of nonfarm livelihood strategies as well as diversification of livelihood strategies at 1% significant

level. This implies that households who own these physical capitals would more likely to choose nonfarm and diversification of livelihood strategies. On the other hand there is no significant relationship between nonfarm physical capital (asset) and farming livelihood strategies. This finding is consistent with (Winters, et al., 2009).

**Urban and Market Proximity:** The result of the model shows that, this variable has positive and significant effect on likelihood of choosing diversification and nonfarm livelihood strategies. Urban and Market proximity affect the choice of diversification and nonfarm livelihood strategies at 5 % significant level. This implies that, households who are very near to market and urban choose more likely diversification and nonfarm livelihood strategies than farming livelihood strategies, because they have more access to market linkage and different livelihood activities. In other words the possible reason for households who are near to market is, they have quick physical access to the market, to transport output and input from and to their residence and there is increased chance of participation in wage labor, small business (petty trade) and other off-farm and non-farm activities. Furthermore those who are more near to market have access to different infrastructures that directly and indirectly support the choice of diversification and nonfarm livelihood strategies. For instance electricity is being used for hair cutting and other metal works. Together all these things are incentives to the choice of diversification and nonfarm livelihood strategies. This finding is consistent with (Eneyew, 2012) which says that the larger the distance to market the lesser is diversification of livelihood strategies. According to Nigussie (2017), household who are nearer to the market have more propensity choice to be engaged in agriculture plus off-farm livelihood strategy diversification compared to alternative agriculture only.

**Education:** Years of schooling or education affects the choice of diversification livelihood strategies negatively at 5 % significant level. This means those who have some years of schooling less likely to choose diversification livelihood strategies. On the other hand, there is no significant effect of this variable on the likelihood of choosing and not choosing farming and nonfarm livelihood strategies. This finding is inconsistent with various studies done priori that have shown education positively affects the choice of diversified livelihood strategies (Yishak, Gezahegn, Tesfaye and Dawit, 2014). The possible reason is that, since respondents of the study area are landless, they struggle to pursue every livelihood strategies open and accessible to them.

On the other hand from collected data you cannot find any respondents who have achieved greater than ten years of schooling. This implies that respondents years of schooling is too small and overall the data also reveals that majority of respondents are illiterate. Furthermore, sample size of the study is too small. So if sample size increases, there may be significant positive relation between education and diversification livelihood strategies as well as between education and nonfarm livelihood strategies.

**Inheritance of livelihood strategies:** Some literatures say that livelihood strategies pursued may be passed to off springs (Chambers & Conway, 1992; Mphande, 2016). In data collection process some of the respondent households responded that; their current livelihood strategies are inherited from their parents. For this study the result of the model reveals that, inheritance of livelihood strategies, negatively affect the choice of diversification and nonfarm livelihood strategies at 10 % significant level. This implies that inheritance affect less likely the choice of diversification and nonfarm livelihood strategies. On the other hand, there is no significant relationship between farming and this independent variable.

**Skill:** Skill is important determinant is of livelihood strategies. It is majorly connected with education of individuals. Anyone who has different skill is expected to pursue diversification and nonfarm livelihood strategies. However the result of the model reveals that, skill is negatively affecting the choice of nonfarm livelihood strategies at 10% significance level. This means that, households who have skills of undertaking activities less likely to choose nonfarm livelihood strategies. This result is not consistent with the hypothesis of the study. The reason may be those who have different skills are not pursuing livelihood strategies that require skills because of accessibility of these activities in rural areas and market linkage problem.

#### **4.12. Challenges to Livelihood Strategies**

As presented above, the choice of livelihood strategies are determined by different factors. Although there are different livelihood strategies are open to respondents, the preferences are presented as follows. Among 174 respondents of the study area about 119 (68.39%) of respondents are pursuing livelihood strategies of their preferences. While about 55 (31.61%) of respondents are not pursuing livelihood strategies of their preferences. Their preferences are mainly farming and nonfarm livelihood strategies which comprises about 25 (14.38%) and 29

(16.66%) of respondents respectively. The challenges that are affecting while choosing the available livelihood strategies are presented in what follows.

Table 23: Description on challenges of choosing preferred livelihood strategies

Variables		Frequency	Percent	Cumulative
Are you undertaking livelihood strategies of your choices?	No	55	31.61	31.61
	Yes	119	68.39	100.00
	Total	174	100	
Which livelihood strategy is your choice?	No	119	68.39	68.39
	Farming	25	14.38	82.77
	Nonfarm	29	16.66	99.43
	Diversification	1	0.57	100
	Total	174	100	
Reason of not pursuing livelihood strategies of your choices?	No	119	68.39	68.39
	Lack of capital	36	20.69	89.08
	Lack of skill	3	1.72	90.8
	Market problem	3	1.72	92.52
	Lack of awareness	2	1.15	93.67
	Health problem	1	0.57	94.25
	Others	10	5.75	100.00

Source: Own survey, 2019

The above table data reveals that, lack of capital is challenge for about 36 (20.69%) of respondents, lack of skill for about 3 (1.72%) of respondents, health problem for about 1(0.57%), lack of awareness for about 2 (1.15%), market problem 3(1.72%), others (lack of land) for about 10 (5.75%) of respondents households were hindering them not to choose livelihood strategies of their preferences.

Among these reason, lack of capital is largely hindering the choice of preferred livelihood strategies by respondents of the study area. Capital is the most important input for pursuing a given livelihood strategies. For respondents of these study area, capital is required to access land through renting, to buy agricultural input and livestock resources for fattening and production purposes as well as to commence other nonfarm activities. Although this capital is required,

majority of respondents do not have the access to enough capital through credit. They may access credit from idir, individual merchants, and cooperatives, but not enough for pursuing and commencing livelihood strategies of their choices. The credit given by idir, individual merchants and various cooperatives to respondents of the study area is done while respondents are affected by different factors like disease and lack of support. On the other hand credit given by micro finance institutions is made for only few of the respondents. Majority of the respondents do not qualify the criteria of micro finance institutions credit access. They do not qualify for collateral criteria, since they are landless as well as they do not qualify to group membership since they do not believe each other's, because of low asset base.

## CHAPTER FIVE

### 5. Conclusion and Recommendation

#### 5.1. Conclusion

In the study area landless rural households are increasing from time to time. On average among rural households of the study area about 18.7 % of them are landless. Landlessness is common among young rural households of the study area. Landlessness is increasing in the study area, because landowner households of the study area do not have interest to give parts of their land to their children's before death, investment activities (which is very common in kebeles adjacent to town areas), population growth as well as being young during Derg Regime land redistribution. Land fragmentation because of inheritance is also a reason of landlessness in the study area. Some respondents who inherited land from their parents receive small parcel of land because of larger family size. These small parcels of land in turn do not support the living of respondents' family. This issue minimizes the productivity of the labour and makes them not to be economically efficient. As a result some of them sell out their land to others and live by utilizing the capitals generated from the sale of land and by undertaking different activities outside agriculture. Although the respondents are currently landless, for very few respondents of the study there is a possibility to have a land in the future through inheritance after death of his/her parents'. Some other respondents are buying land by their saving and by remittance received from family members working in Middle East countries.

Regarding livelihood assets, respondents of the study area own and have an access to different livelihood assets. The study area respondents have access to and own very few elements of the five assets. In natural capital, land is accessed through land use arrangements like renting and share cropping. Forest area and grazing land is utilized by few respondents for fire wood collection and cutting grasses. From human capital: labour and household health status is very important for respondents of the study area in pursuing a given livelihood strategies. From financial capital, ownership of livestock resources, remittances and saving to some extent is playing a paramount role in pursuing livelihood strategies as well as in improving living condition of target population. Social capital of respondents is membership to local institutions. Majority of respondents of study area is a member to one or more local institutions. Respondents of the study area also have access to and own physical capitals: like road and telecommunication

as well as house, and different assets of farm equipment and nonfarm equipment that are required for undertaking a given activities. In general although there is variation in access to and ownership of these capitals, respondents of the study area is utilizing it in pursuing livelihood strategies

Landless households of the study area pursue; farming, nonfarm and diversified livelihood strategies. However the degree to which all this livelihood strategies differs, although all these livelihood strategies are available in the study area. From all these three livelihood strategies, diversification of livelihood strategy is pursued by majority of landless rural households. This means, farming livelihood strategies and nonfarm livelihood strategies are pursued simultaneously by majority of respondents. They undertake farming livelihood strategies in combination with nonfarm livelihood strategies. The reason why they pursue both simultaneously was one kind of livelihood strategies do not be enough in full filling their basic needs. For instance if we take farming, respondents undertake farming by renting in land and share cropping as well as land they get through gift. On the other hand because of different constraints like the setting of rural area, market linkage, credit and lack of awareness, nonfarm livelihood strategy of rural households do not sufficiently help them to improve their income for food self-sufficiency. So, that's way respondents of the study area, pursue both farming and nonfarm livelihood strategies simultaneously.

The income derived from these livelihood strategies differs from one respondent to the others as well as from one kebele to the others. Furthermore respondents, who pursue diversified livelihood strategies, earn more income than other livelihood strategies. In other word respondents who more pursue diversification of livelihood strategies are those who are living in kebeles that is found at adjacent to town. Hence respondents of this kebele earn more income than those who are living at far distance from town.

According to the result of this study, the choice of livelihood strategies were determined by some of the explanatory variables identified from literatures. Explanatory variables like; land access, assets, urban and market proximity, tropical livestock unit, inheritance of livelihood strategies, access to credit, skill and education can generally determine the choice of these livelihood strategies. From these explanatory variables according multivariate probit model result; some of them negatively affect the choice of livelihood strategies, while others positively affect the

choice of livelihood strategies. This means that, it is less likely that respondents choose a given livelihood strategies if the explanatory variables affect negatively the choice of livelihood strategies as well as it is more likely that respondents choose a given livelihood strategies if the explanatory variables affect positively the choice of livelihood strategies.

Some of the respondents of the study area are not pursuing the livelihood strategies of their choices. Their preference is about pursuing only farming or nonfarm livelihood strategies. However due to different challenges like lack of capital, market problem, lack of skill, lack of awareness as well as lack of land, they are not pursuing livelihood strategies of their choices.

## **5.2. Recommendation**

Based on the findings of this study, the following recommendations (policy implications) are found to be relevant to improve livelihood strategies of landless households of the study area.

In the study area there are some respondents who have different skills required for earning income. These skills are not utilized as required in the study area, because of lack of market for the services. Hence the Woreda Micro and Small Enterprise Office and Administration Office should support them on how to attain best benefit from these skills regularly.

In the study area there are some respondents who own only labour among all livelihood capital elements required for generating income. They use their labour to earn income by participating in wage labour. This labour is in turn vulnerable to different shocks like disease and seasonality of agricultural activities. For those individuals, special attention should be given by NGOs and Micro Finance Institutions operating in the study area as well as Woreda Administration Office Micro and Small Enterprise Office and Agricultural Development Office in increasing other capital ownership or providing what they can able to do, which enable them earn income with minimum labour and at all seasons.

Majority of the study area respondents do not have access to credit service as required. Since the study area target population is landless, they do not qualify the required criteria of collateral and group membership mutual trust. In other word because of lack of capital respondents of the study area were not pursuing livelihood strategies or activities of their choices. So it is very important for Micro Finance Institutions, Micro and Small Enterprise Office, Woreda Administration

Office and NGOs operating in the study areas to solve this lack of capitals required as an input to undertake a given livelihood activities.

Infrastructures support/hinder respondents in achieving better livelihood outcomes. Although road and, telecommunication service is available in this study area, government should upgrade on the sustainability of these sectors by improving the quality of their services. On the other hand, water supply coverage and quality is hindering the respondents of the study area by consuming their times as well as lack of potable water may affect the health of household members. Hence government of Ethiopia and Oromia National Regional State should improve the problem related with infrastructure by increasing community participation.

According to literature and different empirical findings education have greater impacts on livelihood of individuals. In the study are the years of schooling on average is too small. So for target population Woreda Education Office, Health Office, Agricultural Development Office and Administration Office should work on, to improve their educational status or it is important to help respondents to have different skills of undertaking different activities through various training opportunities.

Respondents who pursue diversified livelihood strategies are better in terms of income. Accordingly it is very important to give emphasis in helping landless rural households of the study area in pursuing diversification of livelihood strategy, in order to lead their living and improve their earning.

Special attention should also be given to avoid crop failure, since respondents of the study area expenditure on land rent and other input is very high in undertaking production of a given crop. There should be special activities of pre preparation to mitigate the impacts that comes from different pests.

Finally, the way forward of this study for academician and concerned body is to replicate the same study in different location and to know whether the result of the study is the same or different. On the other hand due to limitation of this study it is important to replicate it in other locations.

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## 7. Appendices

### Appendix 7.1: Household Survey Questionnaire

**Addis Ababa University**  
**College of Development Studies**  
**Center for Rural Development**

#### Household Survey Questionnaire

Dear respondent! The aim of this questionnaire is to collect data for the study entitled “**Landless Rural Households’ Livelihood Strategies, and Determinants of Households Choices of Strategies: The Case of Wolmera Woreda**”. This study is required for the completion of Masters of Arts degree in Rural Development at Addis Ababa University. The study aims to assess the livelihood strategies of landless rural households in Wolmera Woreda, and determinants of Households’ Choice of Strategies. Questions included in this instrument are useful to get information pertaining to livelihood strategies of landless households, asset base of households, determinants and challenges of your choice of strategies. The information you give will only serve for academic purposes, and thus your genuine response to questions is very important in achieving the goal of this study. The information you provided me will be kept confidential and you will never be identified as the source of the information. I thus kindly request you to respond to these questions genuinely.

**Interviewer’s Name:** \_\_\_\_\_ **Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Name of the Kebele:** \_\_\_\_\_

**Questionnaire ID Number:** \_\_\_\_\_

#### **Section 1: General Information about respondents**

**Instruction: Put the code number of responses in the given corresponding blank spaces for close ended questions and provide detail information for the open ended questions**

1. Name of house hold head \_\_\_\_\_ Age \_\_\_\_\_
2. Sex of household head (A. Male = 1, B. Female = 2) \_\_\_\_\_

3. Household head's level of education attained (A. Illiterate = 0, B. Others (specify corresponding grade level)) \_\_\_\_\_ = 2) \_\_\_\_\_
4. Marital Status of respondents (A. Single = 1, B. Married = 2, C. Divorced = 3, D. Widowed = 4) \_\_\_\_\_
5. Number of family members (includes household head) A. Male \_\_\_\_\_ B. Female \_\_\_\_\_
6. Number of children: A. Boys \_\_\_\_\_ B. Girls \_\_\_\_\_
7. Number of dependent household member (>15, <64 age and patients)
  - A. Male \_\_\_\_\_
  - B. Female \_\_\_\_\_
8. Religion of respondents (A. Orthodox = 1, B. Protestant = 2, C. Muslim = 3, D. Wakefata = 4, E. Atheist = 5, F. Others \_\_\_\_\_ = 6) \_\_\_\_\_
9. Ethnicity of respondents (A. Oromo = 1, B. Amhara = 2, C. Guraghe = 3, D. Tigre = 4, E. Wolaita = 5, F. Other \_\_\_\_\_ = 6) \_\_\_\_\_

## Section 2: Livelihood Assets

### I. Natural assets

10. Do you have access to communal land resources around your area? (A. No = 0, B. Yes = 1) \_\_\_\_\_
11. What kind of natural resources you own and access to in order to make a living? (A. Land for crop production = 1, B. Grazing land = 2, C. Forest land = 3, D. Protected area = 4, E. Mining area = 5, F. Others (specify) \_\_\_\_\_ = 6) \_\_\_\_\_
12. What kinds of benefit you are acquiring from the use of these natural capitals? (A. Gaining income = 1, B. Others (specify) \_\_\_\_\_ = 2) \_\_\_\_\_

### II. Human capital

13. How many members of your household are in the working age category and able to work? Please answer by using age between 15 – 64 years as reference. A. Male \_\_\_\_\_ B. Female \_\_\_\_\_
14. List your household members by years of schooling

S/No	Relation with the household	Sex	Age	Level of education (grade)	Currently on education (1 if yes 0 otherwise)
1	Wife/husband				
2					
3					
4					
5					
6					
7					
8					
9					
10					

15. If there are semi-skilled persons in your household, list the types of the skills with respect your household labour forces. (A. Carpentry = 1, B. Masonry = 2, C. Black smith =3, D. Metal work =4, E. Barberrry = 5, F. Others(specify) \_\_\_\_\_ =6) multiple response is possible \_\_\_\_\_

16. How many persons in your household are skilled in:
- |                       |                        |
|-----------------------|------------------------|
| a. Carpentry? _____   | d. Masonry? _____      |
| b. Black smith? _____ | e. Metal work? _____   |
| c. Barberr? _____     | f. Other specify _____ |
17. How often do you listen to radio (A. Never=0, B. rarely=1, C. Sometimes=2, D. Often=3) \_\_\_\_\_
18. If your answer to question number 18 is 'sometimes' or 'often', did you find programs related to your livelihood strategies, and determinants of choice? (A. No=0, B. Yes=1) \_\_\_\_\_
19. If your answer to question number 19 is 'yes', please mention those benefits of listening to radio programs. \_\_\_\_\_  
\_\_\_\_\_
20. Have you received any training on livelihood skill development? (A. No=0, B. Yes=1) \_\_\_\_\_
21. What type of training did you received? (A. Non-farm business related=1, B. Farm productivity augmentation=2, C. Other (specify) \_\_\_\_\_=3 \_\_\_\_\_)
22. How do you evaluate the impacts of training you received on livelihood improvement? (A. Nothing = 0, B. Moderate = 1, C. Good = 2) \_\_\_\_\_
23. How do you perceive your health status (A. chronically ill=1, B. moderately healthy=2, C. healthy=3) \_\_\_\_\_
24. How do you describe the health status of your households' working age members in general? (A. Poor health=1, B. moderately healthy=2, C. good health=3) \_\_\_\_\_
25. Number of household members with health problems which keep away them totally from undertaking any activities (use age between 15 – 64 years as reference) (Male \_\_\_\_ female\_\_\_\_)

### III. Social Capital

26. Do you have membership to any local institution and cooperatives? (A. No=0, B. Yes=1) \_\_\_\_\_
27. If yes, list the names of institutions?  
\_\_\_\_\_  
\_\_\_\_\_
28. If your answer to question number 27 is 'yes', what is the benefit you acquired from your membership (please describe it!)  
\_\_\_\_\_  
\_\_\_\_\_
29. Have you experienced shocks and unfavorable living condition which is beyond your capacity for adaptation and resilience? Disaster, animal and human disease? (A. No=0, B. Yes=1) \_\_\_\_\_
30. If your answer to question number 29 is 'yes', have you received support (A. No=0, B. Yes=1) \_\_\_\_\_
31. If your answer to question number 30 is 'yes', what kinds of support did you get from:
- |                             |
|-----------------------------|
| a. Individuals _____        |
| b. Kinship _____            |
| c. Local institutions _____ |
| d. GOs _____                |
| e. NGOs _____               |
| f. Others (specify) _____   |
32. If you have received supports so far, does it have an impact on your livelihood improvement? Please mention it! \_\_\_\_\_  
\_\_\_\_\_

**IV. Physical Capital**

33. Is there potable drinking water in your area? (A. No=0, B. Yes=1) \_\_\_\_\_
34. If 'yes' from which source and how far is distance from your home?
- Spring \_\_\_\_\_ km
  - Pipe water \_\_\_\_\_ km
  - Hand pump \_\_\_\_\_ km
  - Other \_\_\_\_\_ Km
35. Is there all-whether-road you have access to in your area? (A. No=0, B. Yes=1) \_\_\_\_\_
36. If 'yes', which type? (A. Asphalt =1, B. Graveled = 2, C. Other (specify) \_\_\_\_\_ = 3) \_\_\_\_\_
37. If your answer to question number 35 is 'No', how much it takes you to get motorized road transport (in Hours) \_\_\_\_\_
38. What means of transport do you mostly use to transport your produce or consumer goods? (A. Vehicles=1, B. Equines=2, C. Human labour=3, D. Others (specify) \_\_\_\_\_ = 4) \_\_\_\_\_
39. Is there mobile network in your area? (No=0, Yes=1) \_\_\_\_\_
40. If there is electricity in your area, do you use it for undertaking income-generating activities? (A. No=0, B. Yes=1) \_\_\_\_\_
41. If your answer to question number 41 is 'yes', please mention the activities you do using electricity \_\_\_\_\_
42. Do you own a house? (A. No=0, B. Yes=1) \_\_\_\_\_
43. What household materials do you have? Answer (A. No=0, B. Yes=1) in the table

	Bed	TV	Chairs	Mobile Phones	Tables	Refrigerator	Horse cart	Motor /hand/ pump	Farm equipment	Others (specify)	
										Name	No
Ans.											
No											

44. Is there a market place nearby your village? (A. No=0, B. Yes=1) \_\_\_\_\_
45. If your answer to question number 49 is 'yes', how distant is the market center from and to your home in km? \_\_\_\_\_
46. Do you visit markets centers? (A. No=0, B. Yes=1) \_\_\_\_\_
47. If you visit market centers, for what purpose? (A. To buy food and other materials = 1, B. To sell goods = 2, C. for petty trading = 3, D. others (specify) \_\_\_\_\_ = 4) \_\_\_\_\_
48. Please describe briefly market related problems in your area
- \_\_\_\_\_
- \_\_\_\_\_

**V. Financial Capital**

49. Is there any micro finance institution which gives you saving and credit services in your area? (A. No=0, B. Yes=1) \_\_\_\_\_
50. If your answer to question number 55 is 'yes', please list them
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

51. Do you use credit? (A. No=0, B. Yes=1) \_\_\_\_\_
52. If your answer to question number 57 is ‘yes’, from where you get credit? (A. Individual person (Merchants) = 1, B. MFIs = 2, C. Bank = 3, D. Iqub/Idir = 4, E. Other (specify) \_\_\_\_\_ = 5) \_\_\_\_\_
53. If you do not use credit, ‘why’? (A. No credit service in the area=1, B. high interest rate =2, C. Fear of indebtedness=3, D. lack of collateral=4, E. lack of awareness =5, F. I don’t need it =6, G. Other (specify) \_\_\_\_\_=7) \_\_\_\_\_
54. How many livestock resources do you have?

Cattle			Shoat (Sheep & Goat)		Equines			Poultry	Other (specify)
Calf	Heifer	Cow & Ox	Young	Adult	Horse & Mule	Donkey			
						Young	Adult		

55. Do you save parts your incomes? (A. No=0, B. Yes=1) \_\_\_\_\_
56. If your answer to question number 61 is ‘yes’, how much you saved in 2010 EC? \_\_\_\_\_
57. If your answer to question number 61 is ‘yes’, how much you saved until 2010 EC? \_\_\_\_\_
58. If you save parts of your incomes, where do you keep your savings? (A. Cash saving at home = 1, B. In Bank = 2, C. In MFIs = 3, D. Others (specify) \_\_\_\_\_ = 4) \_\_\_\_\_
59. What do you use your savings for? (A. For consumption = 1, B. To build a house =2, C. To buy agricultural inputs and tools = 3, E. For accumulation of wealth = 4, E. Others (specify) \_\_\_\_\_ = 5) \_\_\_\_\_

### Section 3: Livelihood Strategies and Transforming Structures

60. Which kinds of livelihood strategies are you depending on; to lead your living? Answer (A. No=0, B. Yes=1

Farming (crop and animal production)	Off farm only	Non-farm only	Migration & Remittance	Diversification

61. Do you believe that your current livelihood strategy is inherited from your parents? (A. No=0, B. Yes=1) \_\_\_\_\_
62. If your answer to question 67 is “Yes”, please describe which livelihood strategies you inherited and how you inherited from your parents?  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
63. If your answer to question number 67 is “No”, why did you choose this type of livelihood strategy? ( A. Lack of land =1, B. Lack of skill = 2, C. Lack of capital = 3, D. support by GO and NGO = 4, E. Lack of options = 5, F. others (specify) \_\_\_\_\_ = 6) \_\_\_\_\_
64. If you are pursuing farming as your livelihood strategies, please identify your reason. (A. Lack of skill in other strategies = 1, B. Other option is not available =2, C. Land access through renting/share cropping is abundant = 3, D. Others (specify) \_\_\_\_\_ = 4) \_\_\_\_\_
65. If you are pursue farming, which land use arrangements are available in your locality? (A. Renting = 1, B. Sharecropping =2, C. Gift = 3, D. others (specify) \_\_\_\_\_ = 4) \_\_\_\_\_
66. On average how many hectares of lands you use land under different arrangement? \_\_\_\_\_ ha

67. Whether you only pursue farming strategy or together with other livelihood strategies please indicate the types of crop you produce. Please confine your answer to 2010 EC.

S/No	Crops produced by respondents	Hectare	Productions

68. If you pursue diversified livelihood strategies, please identify your livelihood diversification strategy? (A. Farming + Off-farm = 1, B. Farming + Non-farm = 2 C. Farming + Migration = 3, D. Off farm + Non-farm = 4, E. Off farm + Migration = 5, F. Non-farm + Migration = 6, G. Farming + Off farm + Non-farm + Migration = 7) \_\_\_\_\_

69. If you have diversified your livelihood strategies, what is your reason to do so? (A. To accumulate wealth or increase the level of income = 1, B. to respond to crisis = 2, C. to insure sustenance = 3, D. others (specify) \_\_\_\_\_ = 4) \_\_\_\_\_

70. Please list your means of earning incomes according to their importance whether you diversified livelihood activities or not.

Type of activities	Incomes in birr	Ranks
Livestock production		
Rain fed crop cultivation		
Irrigated agriculture		
Trading (outside of livestock)		
Trading in livestock		
Skilled non-farm		
Other petty trading		
Mining		
Make and sell wood and charcoal		
Wage labour within agriculture		
Wage labour outside agriculture		
Remittances		
Migration based (_____)		
Others specify _____		

71. Is your current livelihood activity is connected with private companies? (A. No=0, B. Yes=1) \_\_\_\_\_

72. If your answer to question number 79 is “Yes”, what is the name of the company?  
\_\_\_\_\_

73. If your answer to question number 79 is “Yes” what kinds of activity you are performing? (Unskilled = 1, Skilled = 2) \_\_\_\_\_ Specifically what is the name of the activity you are entitled with \_\_\_\_\_

74. Do different organizations (government, non-government and private) played role in defining your current choices of livelihood strategies? (A. No=0, B. Yes=1) \_\_\_\_\_

75. If your answer to question number 77 is ‘yes’ please mention the name of organizations.  
\_\_\_\_\_

- 
76. Do you or your household members have experienced migration? (A. No=0, B. Yes=1) \_\_\_\_\_
77. If your answer to question number 84 is “Yes”, who have the experience of migration in your household member? (A. Household head = 1, B. Wife/Husband = 2, C. Daughters = 3, D. Sons = 4, E. relatives = 5, F. Adopted children’s = 6) \_\_\_\_\_
78. How was decision on migration made in your household? (A. Individually by migrant = 1, Together by household members = 2, B. By household head = 3, C. others (specify) \_\_\_\_\_ = 4) \_\_\_\_\_
79. Where are the destinations of the migrant? (A. Nearby your rural PAs = 1, B. Nearby town = 2, C. Outside of your region = 3, D. Neighboring country = 4, E. Middle East = 5, F. Europe and America = 6) \_\_\_\_\_
80. What kind of migration is practiced? (A. Seasonal for searching of activities during idle months= 1, B. Permanent (never back again) = 2, C. For some month/years to accumulate money in order to commence another activities = 3, D. Other(specify)\_\_\_\_\_ =4) \_\_\_\_\_
81. Does your migrant family member support the household by remittance? (A. No=0, B. Yes=1) \_\_\_\_\_
82. If your answer to question number 89 is “Yes”, through remittance how much birr does your household receive per year? \_\_\_\_\_
83. Do you believe that this amount of money is improving your living standard? (A. No=0, B. Yes=1) \_\_\_\_\_
84. If your answer to question number 89 is “Yes” what have you done so far with the money received through remittance? (A. Build/buy an house =1, B. commence nonfarm activities = 2, buy food & clothes = 3, C. pay for health expenses = 4, D. others (specify) \_\_\_\_\_ = 4) \_\_\_\_\_
85. Are there challenges affecting you or your household to choose migration-based strategies?(A. No=0, B. Yes=1) \_\_\_\_\_
86. If your answer to question number 93 is ‘Yes’, what are the challenges affecting you or your household to choose migration-based strategies? (A. Lack of land =1, B. Lack of job =2, C. Conflict between family member = 3, D. Security problem =4, E. guilty by law = 5, Other (specify) \_\_\_\_\_ =6) \_\_\_\_\_

**Section 5: Livelihood Outcomes and Challenges to Choices of Livelihood Strategies**

87. What is your monthly expenditure? (Give answer for 2010 EC) \_\_\_\_\_
88. Do you believe that income you received from the aforementioned livelihood strategies secured your household food needs? (A. No=0, B. Yes=1) \_\_\_\_\_
89. Does your income is increasing by pursuing the aforementioned livelihood strategies? (A. No=0, B. Yes=1) \_\_\_\_\_
90. Are you undertaking livelihood strategies of your choices? (A. No=0, B. Yes=1)\_\_\_\_\_
91. If your answer for question number 98 is ‘No’, which livelihood strategy is your choice? (A. Farming = 1, B. Off farm = 2, C. Non-farm = 3, D. Migration = 4, E. Diversification = 5) \_\_\_\_\_

92. If your answer for question number 89 is 'No', why? (A. Lack of skill = 1, B. Lack of capital = 2, C. Health problem = 3, D. Lack of awareness = 4, E. Culture/ religion do not accept it = 5, F. Lack of market = 6, G. Government policy do not promote it = 7, H. Lack of support from concerned bodies = 8, I. Others (specify) \_\_\_\_\_ = 9) \_\_\_\_\_

93. Have you had undertaken but abandoned later any of the following livelihood strategies? (Multiple response is possible)

S/No	Livelihood strategies	(No = 0, Yes =1)
1	Livestock production	
2	Rain fed crop cultivation	
3	Irrigated agriculture	
4	Trading (outside of livestock)	
5	Trading in livestock	
6	Skilled non-farm	
7	Other petty trading	
8	Mining	
9	Make and sell wood and charcoal	
10.	Wage labour	
11	Remittances	
12.	Migration based (_____)	
13.	Others (Specify) _____	

94. If you have abandoned livelihood strategies, why?

\_\_\_\_\_

\_\_\_\_\_

95. Is there any policies, legislations, regulations, local norms, traditions, etc. that encourage or discourage certain kinds of livelihood activities? (A. No=0, B. Yes=1)\_\_\_\_\_

96. If your answer to question number 103 is yes, which policies, legislations, regulations, local norms, or traditions? (Answer 0 if discourage and 1 if encourage)

S/No	Policies	0 /1	How?
S/No	Legislation or proclamation and regulation	0 /1	How?
S/No	Local Norms and Traditions	0 /1	How?

97. Please briefly describe the impacts of population, technological advancements and conflict trends on your livelihood strategies?

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98. Please briefly describe whether you have experienced shocks like: Natural disaster, human, animal and plant health with their impacts on your livelihoods?

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99. Please briefly describe the seasonality of price, production, health and unemployment with their impacts on your livelihoods?

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## **Appendix 7.2: Checklists for Focus Group Discussion**

1. What is landlessness in your area? Which age groups of these area households are landless?
2. What is the root cause of landlessness?
3. What kinds of strategies are employed by landless rural households in order to survive and improve living?
4. Do landless households practice farming?
5. If yes, how do they get access to farmland?
6. What is the practice of informal land use arrangements in the area like renting in and out, sharecropping borrowing, gift...? (the cost of renting)
7. What else do you do?
8. Which livelihood strategies are chosen most by landless households? Who choose what? (Use age, level of education and gender as a reference)? Why?
9. Do you think that livelihood strategies in your area are open to all households residing in your areas? What do you think? What are the entry barriers for households not to involve in better livelihood combinations?
10. What is the role of extension agent, market and credit service in improving livelihoods?
11. Is there any policies, legislations, regulations, local norms, traditions, etc. that encourage or discourage certain kinds of livelihood activities?
12. What dominant social informal institutions are available? What is their role when households are exposed to unfavorable livelihoods condition like lack of food, house, lack of money for medication, lack of labour?
13. Did you observe that when households abandon their previous activities and commence a new one or switching between different activities? If so what is the reason?

## **Appendix 7.3: Checklist for Key Informant Interview**

1. What is landlessness in your area? Which age groups of these area households are landless?
2. What is the root cause of landlessness?
3. What kinds of strategies are employed by landless rural households in order to survive and improve living?
4. Do you think that livelihood strategies in your area are open to all households residing in your areas? What is the possibility of pursuing the preferred livelihood strategies by landless rural households? What are the entry barriers for households not to involve in better livelihood combinations?
5. Do you observed that when households abandon their previous activities and commence a new one or switching between different activities? If so what is the reason?
6. Is there any policies, legislations, regulations, local norms, traditions, etc. that encourage or discourage certain kinds of livelihood activities?

### Appendix 7.4: Observation Guide

Parameters/variables to be observed	Yes	No	Remark
1. What kinds of infrastructures available in the study area? Their quality in construction and service provision and accessibility.			
Road			
Health post/Center			
School			
Electricity			
2. Land use patterns			
Irrigation			
Investment			
expansion of farm land			
Degradation			
3. Means of transportation			
For humans			
For goods			
4. Market places and settings			
Types of crops and livestock			
Actors and transactions			
5. Sources of energy of households,			
6. Communication facilities			
7. Housing conditions			
Structure and partition			
Type and quality			
8. Livelihood activities			

### Appendix 7.5: Case Study Guide

Name \_\_\_\_\_ age \_\_\_\_\_ marital status \_\_\_\_\_

Number of children's: male \_\_\_\_\_ female \_\_\_\_\_ total \_\_\_\_\_ your  
 maximum level of education attainment \_\_\_\_\_

1. What is your livelihood strategy in order to lead your living? Why and how?
2. Please indicate your level of incomes from each and every activity that your household members were pursuing?
3. What is your expenditure and saving?
4. Have you ever tried to pursue other livelihood strategy other than the current one or have you abandoned your previous livelihood strategies? If so why?
5. Are you pursuing livelihood strategy of your choice? If not why?

### Appendix 7.6: Conversion factors to compute tropical livestock units' equivalents

Animal Category	TLU
Calf	0.25
Weaned Calf	0.34
Heifer	0.75
Cow and Oxen	1.00
Horse	1.10
Donkey (adult)	0.70
Donkey (young)	0.35
Camel	1.25
Sheep and Goat (adult)	0.13
Sheep and Goat (young)	0.06
Chicken	0.013

Source: Storck et al. (1991) in Gemechu (2018)

### Appendix 7.7: Stata Outputs

Appendix table 1: Marginal effects after mvprobit: mfx compute,  
at(Farming=1, Diversification=1, NonfarmLS=1)

Variable	dy/dx	Std. Err.
HuRecTraining	-0.8762891	0.71691
NonfarmPhyCap	0.6583923	0.74308
LSInherited	0.9872213	0.73186
LandAccess	3.135578	1.27563
Dependency	-0.3581428	0.31792
UrbanProximity	0.2979578	0.16465
SemiSkilled	1.043203	0.84236
INS	0.2986108	1.14268
AccessTCredit	1.405272	0.83942
Eduhh	-0.1746114	0.11147
Sexhh	-0.9966842	1.00818
Agehh	-0.0507188	0.03389
TTLU	0.4394281	0.1825
LabForce	0.1752162	0.29888

Source: Own computation result based on survey data (2019)

Appendix table 2: Marginal effects after mvprobit: mfx compute,  
at(mean Farming=1, Diversification=1, NonfarmLS=1)

Variable	dy/dx	Std. Err.
HuRecTraining	-0.8762891	0.71691
NonfarmPhyCap	0.6583923	0.74308
LSInherited	0.9872213	0.73186
LandAccess	3.135578	1.27563
Dependency	-0.3581428	0.31792
UrbanProximity	0.2979578	0.16465
SemiSkilled	1.043203	0.84236
INS	0.2986108	1.14268
AccessTCredit	1.405272	0.83942
Eduhh	-0.1746114	0.11147
Sexhh	-0.9966842	1.00818
Agehh	-0.0507188	0.03389
TTLU	0.4394281	0.1825
LabForce	0.1752162	0.29888

Source: Own computation result based on survey data (2019)

Appendix table 3: Marginal effects after mvprobit: mfx compute,  
at(mean Farming=1, Diversification=0, NonfarmLS=0)

Variable	dy/dx	Std. Err.
HuRecTraining	-0.8762891	0.71691
NonfarmPhyCap	0.6583923	0.74308
LSInherited	0.9872213	0.73186
LandAccess	3.135578	1.27563
Dependency	-0.3581428	0.31792
UrbanProximity	0.2979578	0.16465
SemiSkilled	1.043203	0.84236
INS	0.2986108	1.14268
AccessTCredit	1.405272	0.83942
Eduhh	-0.1746114	0.11147
Sexhh	-0.9966842	1.00818
Agehh	-0.0507188	0.03389
TTLU	0.4394281	0.1825
LabForce	0.1752162	0.29888

Source: Own computation result based on survey data (2019)

Appendix table 4: Marginal effects after mvprobit: mfx compute,  
at(mean Farming=0, Diversification=1, NonfarmLS=1)

Variable	dy/dx	Std. Err.
HuRecTraining	-0.8762891	0.71691
NonfarmPhyCap	0.6583923	0.74308
LSInherited	0.9872213	0.73186
LandAccess	3.135578	1.27563
Dependency	-0.3581428	0.31792
UrbanProximity	0.2979578	0.16465
SemiSkilled	1.043203	0.84236
INS	0.2986108	1.14268
AccessTCredit	1.405272	0.83942
Eduhh	-0.1746114	0.11147
Sexhh	-0.9966842	1.00818
Agehh	-0.0507188	0.03389
TTLU	0.4394281	0.1825
LabForce	0.1752162	0.29888

Source: Own computation result based on survey data (2019)

Appendix table 5: Marginal effects after mvprobit: mfx compute,  
at(mean Farming=0, Diversification=1, NonfarmLS=0)

Variable	dy/dx	Std. Err.
HuRecTraining	-0.8762891	0.71691
NonfarmPhyCap	0.6583923	0.74308
LSInherited	0.9872213	0.73186
LandAccess	3.135578	1.27563
Dependency	-0.3581428	0.31792
UrbanProximity	0.2979578	0.16465
SemiSkilled	1.043203	0.84236
INS	0.2986108	1.14268
AccessTCredit	1.405272	0.83942
Eduhh	-0.1746114	0.11147
Sexhh	-0.9966842	1.00818
Agehh	-0.0507188	0.03389
TTLU	0.4394281	0.1825
LabForce	0.1752162	0.29888

Source: Own computation result based on survey data (2019)

Appendix table 6: Marginal effects after mvprobit: mfx compute,  
at(mean Farming=0, Diversification=0, NonfarmLS=1)

Variable	dy/dx	Std. Err.
HuRecTraining	-0.8762891	0.71691
NonfarmPhyCap	0.6583923	0.74308
LSInherited	0.9872213	0.73186
LandAccess	3.135578	1.27563
Dependency	-0.3581428	0.31792
UrbanProximity	0.2979578	0.16465
SemiSkilled	1.043203	0.84236
INS	0.2986108	1.14268
AccessTCredit	1.405272	0.83942
Eduhh	-0.1746114	0.11147
Sexhh	-0.9966842	1.00818
Agehh	-0.0507188	0.03389
TTLU	0.4394281	0.1825
LabForce	0.1752162	0.29888

Source: Own computation result based on survey data (2019)

Appendix table 7: Marginal effects after mvprobit: mfx compute,  
at(mean Farming=0, Diversification=0, NonfarmLS=0)

Variable	dy/dx	Std. Err.
HuRecTraining	-0.8762891	0.71691
NonfarmPhyCap	0.6583923	0.74308
LSInherited	0.9872213	0.73186
LandAccess	3.135578	1.27563
Dependency	-0.3581428	0.31792
UrbanProximity	0.2979578	0.16465
SemiSkilled	1.043203	0.84236
INS	0.2986108	1.14268
AccessTCredit	1.405272	0.83942
Eduhh	-0.1746114	0.11147
Sexhh	-0.9966842	1.00818
Agehh	-0.0507188	0.03389
TTLU	0.4394281	0.1825
LabForce	0.1752162	0.29888

Source: Own computation result based on survey data (2019)

Appendix 7.8: VIF for determinants of the choices of livelihood strategies

Variables	VIF
HuRecTraining	1.249
NonfarmPhyCap	1.347
LSInherited	1.204
LandAccess	1.065
Dependency	1.791
UrbanProximity	1.200
SemiSkilled	1.299
INS	1.230
AccessTCredit	1.285
Eduhh	2.593
Sexhh	1.225
Agehh	1.204
TTLU	1.975
LabForce	1.460

Source: Own computation from survey result, 2019

Appendix 7.9: Multivariate probit test

Correlation	Coef.	Std.Err	z-Value	p-Value	[95% Conf. Interval]	
/atrho21	0.782514	0.408951	1.91	0.056	-0.01901	1.584043
/atrho31	0.385985	0.255121	1.51	0.013	-0.11404	0.8860124
/atrho32	1.337098	0.277107	4.83	0.000	0.793978	1.880218
rho21	0.654147	0.233957	2.8	0.005	-0.01901	0.9192309
rho31	0.367893	0.220591	1.67	0.095	-0.11355	0.7094186
rho32	0.870973	0.066895	13.02	0.000	0.660657	0.9545115

Summary of joint probabilities

Variable	Obs.	Mean	Std. Dev.	Min	Max
Diversification0s	174	0.007755	0.019298	7.01E-26	0.128166
Diversification1s	174	0.775031	0.225709	0.000236	0.999999

Source: Own computation from survey result, 2019

Appendix 7.10: Normality test for the multivariate probit model

Variable	Obs.	W	V	z	Prob>z
Residual	174	0.97617	3.446	2.535	0.00562

Source: Own computation from survey result, 2019