

Jimma University

College of Social Sciences and Humanities

Department of Sociology

Determinants and Views on Rural Livelihood Diversification: The Case of Ada'a
Berga Woreda, Oromia National Regional State

By: Megersa Tafa

Advisors: Moges Woyessa (PhD) and Dereje Tesema (MA)

A Thesis Submitted to the Department of Sociology Jimma University in Partial
Fulfillment of the Requirements for the Degree of Master of Arts in Sociology and
Social Policy

December, 2019

Jimma, Ethiopia

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Abbreviations and Acronyms

ABWAO Ada'a Berga Woreda Administration Office

ABWANRO Ada'a Berga Woreda Agriculture and Natural Resources Office

AEWs Agricultural Extension Workers

CSA Central Statistical Authority

DFID UK Department for International Development

HH Head of Household

LD Livelihood Diversification

LS Livelihood Strategies

MoARD Ministry of Agriculture and Rural Development

SSA Sub Saharan African

UN United Nations

UNDP United Nations Development Program

WB World Bank

Acknowledgements

The completion of this thesis would have been impossible without the help of many individuals and organizations. I sincerely express my deepest gratitude to my advisors Dr. Moges Woyessa and Dereje Tessema (MA) for their professional guidance, support and encouragement starting from the conception of this thesis up to its completion. I truly thank you Dr. Moges and Mr. Dereje, for your constructive input, guidance, valuable insight, and patience that made me to accomplish this paper.

I am very grateful to all of my friends for their professional, material and psychological supports that encouraged me to accomplish this thesis. My deepest gratitude goes to Ada'a Berga Woreda Administration Office, Administrators of Ula Gora Kebele, Dheku Kersa Kebele and Biyyo Wogiddi Kebele, for their kind support starting from the preliminary assessment of this study up to its completion.

I am indebted to rural people of Ada' a Berga Woreda for their active participation and for providing me with relevant information that helped to accomplish this paper. Really, they are lovable and respectable community. I thank all data enumerators who supported me during the field work of this study. My special gratitude also goes to Assosa University and Jimma University Department of Sociology Staffs who helped me morally and professionally while I was attending my master in general and doing this study in particular. Finally, my special indebtedness goes to my family for their unmeasurable support. MAY GOD BLESS YOU ALL!!!!

Abstract

Due to the decline of agricultural productions, lack of agricultural intensifications and other related problems, rural households in Ada'a Berga Woreda have expanded their livelihoods. In a view of this, the study was done to analyze determinants and views toward the contribution of livelihood diversification with a particular emphasis on rural household. The study employed multi-stage cluster and purposive samplings. The primary data of the study were collected via household survey, key informant interview, focus group discussion and non-participant observation. Secondary data were also used in the study. The data were analyzed by using thematic approach, descriptive statistics, chi-square and multinomial logistic regression. The study was abided by key ethical standards of the research. In the study area, 60.9% rural households participated in one or more of agricultural livelihood strategies. Whereas, 33.8 % of them broadened their livelihood by involving in agricultural plus non-agricultural livelihood strategies such as marketing of livestock, crops, vegetables as well as handcraft activities, processing of local drinks, daily labor and others. The remaining 5.3 % of them adopted non-agricultural livelihood strategies. The Chi-Square Test of Independence found the existence of statistically significant relationships among accessing credit service, age, agricultural extension services, and access to land and livelihood diversification at ($P < 0.050$) The result demonstrated that differences in households' livelihood diversification were related to differences in accessing and owning the above variables. The Multinomial Logistic Regression indicated that age, accessing credit and access to land had positively and negatively influenced non-agricultural and agricultural plus agricultural livelihood strategies of rural households. On contrary, utilization of agricultural extension service had negatively and significantly influenced households' non-agricultural livelihood strategies. The Likert scale result showed that majority of households had realized the contribution of diversification in improving the livelihood of rural people in different aspects. Though households in the area had diversified their livelihood, they have been constrained by the existence of poor market opportunities, lack of road, bad attitudes of local people and low level of experience about trade. The study suggested that the government of Ethiopia and other development partners need to pay enough attention to address the barriers of livelihood diversification and should include the importance of diversification in policy formulation.

Chapter One

1. Introduction

1.1 Background of the Study

Globally, about 2.5 billion people depend on agriculture as their main source of livelihood. Of these, 1.3 billion of them are small farmers and landless workers (World Bank 2008). Not surprisingly, it is a source of livelihood of many developing countries' households (Gradl, Kükenshöner, Schmidt and Martinez 2012). Agriculture is very important for those households as it provides food, creates employment opportunities, and a source of income (Aliber and Hart 2009; Wiggins and Keats 2013). Therefore, it is the backbone of developing countries' economy.

Despite its paramount roles, agriculture in developing countries has been plagued by different natural and man-made problems such as drought, bad farming practices, population growth and lack of cultivable land (Hebinck and Aveberke 2013; Shackleton, Shackleton and Gambiza 2013; Kepe and Tessaro 2014), land fragmentation, environmental degradation, lack of access to credit and lack of basic infrastructure (Haggblade, Hazell and Reardon 2010; Sikwela 2013).

These challenges necessitated rural households to broaden their livelihood by adopting non-agricultural livelihood options (Sahal and Bahal 2012). These days, farm households drive their livelihood from diverse livelihood activities (Niehof 2004). Livelihood diversification is a process by which farm households to construct multiple portfolios of activities so as to improve their living standards (Ellis 2000).

It is not confined to the notion of income diversification. Rather, it is a dynamic process which can occur by diversifying agricultural and non-agricultural livelihood activities (Losch, Freguin and White 2012; Israr, Khan, Jan and Ahmad 2014). Different studies on livelihood diversification showed that farm households engage in livelihood diversification due to numerous reasons. To this regard, some literatures identified enabling factors like better access to infrastructure, investment and the presence of abundant assets (Barrett, Reardon and Web 2001; Makita 2016).

These factors are seen as a cumulative process to combine both farming and non-farming activities to secure living conditions and to gain better economic advantage (Bandyopadhyay and Skoufais 2013). By the contrast, other researches pinpointed compelling factors such as drought, market

failure, labor constraint, difficult of farming conditions, and population growth (Khatun and Roy 2016; Kassie, Kim and Fellizar 2017) force households to engage in livelihood diversification.

Still other literatures have examined a combination of distress driven factors, opportunity driven factors and capacity factors (types of assets) as the forces for households' livelihood diversification (Barret et al 2001; Loison 2016). Although both factors can lead households to diversify their livelihood, the pushing factors are the main factors that compel rural households of African to involve in livelihood diversification (Ellis 2000; Sahal and Bahal 2012).

Livelihood diversification in the region plays a paramount role especially by reducing different problems, promoting the welfare of households, and creating job opportunities (Alobo 2016; Martinez and Lorenze 2016; Hilson 2016). Despite this, the relevance of livelihood diversification to all households is uneven.

Ethiopia is one of the poorest countries in the world whose economy is dominated by the agriculture. Although agriculture is the backbone of the country's economy, it is affected by lack of rainfall, population growth, drought, soil erosion and poor farming technique (World Bank 2009; MoARD 2018). Different regimes of Ethiopia have formulated agricultural policies to promote agricultural sector. Yet, these policies did not bring a robust solution (Kassie et al 2017).

With the decline of agricultural activities, the increment of population and poverty, a number of farm households have been compelled to diversify their livelihood options by adding nonagricultural activities to their agricultural livelihood (Belay and Bewket 2015). Nowadays, studies indicated that livelihood diversification has been increasing in rural areas of the country (Zerai and Gebreegziabhier 2011; Reta and Ali 2012).

Some scholars stated that non-farm activities contributed about 20-50% of rural households' total income (Woldhanna 2001; Rijkers 2008; Bezabih et al 2010). Moreover, diversifying livelihood has different roles to play in rural areas (Kebede, Hailesellasiye, Gebrehiwot and Luchia 2014). Thus, policy makers need to give attention to the contribution of livelihood diversification in rural areas (Kassie et al 2017).

In Ada'a Berga Woreda, farming households do not depend only on agriculture. Rather, they rely on diverse portfolios of activities. In this respect, there is a widespread of rural livelihood diversification. In spite of the expansion of this phenomenon in the area, study on forces of

livelihood diversification, and views of rural households toward the contribution of livelihood diversification is still lacking. Thus, the intent of the study was to address these issues.

1.2 Statement of the Problem

Livelihood diversification has become a policy agenda and development practices of developing countries (Davis, Winters, Carletto and Stamoulis 2010). This is due to its contribution in helping rural households to accumulate income and get different opportunities (Loison and Loison 2016; Khatiwada, Deng, Paudel and Su 2017), to address food insecurity and lessen poverty (Ellis 2000; Zerai and Gebreegziabhier 2011; Kahan 2013). Nevertheless, the effects of livelihood diversification are not always positive for rural households of Sub-Saharan African (Goulden, Adger, Allison and Conway 2013).

These have in turn resulted in a continuous debate on the dual outcomes of diversification (Nagler and Naude 2014). As many studies stated, diversification might lead rural households to participate in more income generating activities. It provides households a higher alternative to accumulate wealth and to secure their livelihood. Thus, diversification improves the livelihood of households who have better access to resources (Reta and Ali 2012; Makita 2016; Oyinbo and Olaleye 2016).

On the other hand, other investigators said that diversification might make households to involve in low return activities. The participation in such activities could hamper their ability to sustain their livelihoods. These may in turn generate poverty and exacerbate vulnerability. Thus, livelihood diversification might not as such support the livelihood of rural poor who have entry constraints (Deressa et al 2008; Lemi 2010; Ayantoye, Amoi and Fanifosi 2017; Sharma 2018).

There have been various empirical studies conducted on the existing livelihood strategies in Ethiopia (Ambachew and Ermias 2016). Many of these studies stressed on factors that influence livelihood strategies (Bezu and Barrett 2010; Sisay 2010; Tesfaye, Roos, Campbell and Bohlin 2011; Asmah 2011). They identified asset owning as determinants of livelihood strategies. Yet, they have not analyzed livelihood diversification in a changing environment.

Amare and Wondewosen (2017) examined the pastoralist livelihood diversification strategies. Their finding showed that personal factors and socio-economic factors influenced the livelihood of pastoralist. It would have been better for this study to triangulate both approach to get information on livelihood diversification. Dereje (2018) studied the livelihood assets that affect

households' livelihood strategies such as credit, market and education. The finding indicated that there was a variation between households with respect to their livelihood strategies.

The sustainable livelihood framework investigated livelihood within an existing environment by disregarding the issue of gender and livelihood diversification (Peters 2011). Other scholars studied households' livelihood strategies in relation to various factors (Adugna and Wegayehu 2012; Berhanu and Getachew 2017). It would have been good if these researchers scrutinized how rural households view the role of livelihood diversification in improving their living condition.

In the context of study area (Ada' a Berga Woreda), scholars have done their studies on food security and its determinants (Fekadu and Beyene 2013), while others have carried out their researches on the issues of water, livestock and soil properties (Alemu 2015; Abdi, Zerihun, Desta and Fanta 2015; Abay, Abdu and Tefera 2016). In the area, the livelihood of household has been altered in recent years.

Agricultural production in the area has become decreased due to climate change, poor farming techniques, plantation of eucalyptus tree, lack of using modern technologies such as tractors due to geographical barriers and lack of agricultural intensifications. In addition, the growth of population in the area led to environmental degradation and land fragmentation. These have resulted in decline of agricultural production.

The expansion of investment has partly led households to adopt different livelihood alternatives. Consequently, they have broadened their livelihood rather than relying only on conventional mixed farming. This was because agriculture alone did not enable them to improve their livelihood as it is subjected to the above problems. Though these households adopted various livelihood portfolios, they did not have the same perception toward diversification.

This was related to the differential effects of diversification on their livelihood. Household's perception toward the contribution of diversification could directly or indirectly influence its practice. In the process of practicing non-agricultural livelihood, these households were hindered by lack of access to market, negative views of local people and other problems. The expansion of the plantation of eucalyptus brought different effects on the rural livelihood

In the study area, however, there was lack of research on the aforementioned issues. Therefore, the study was aimed to fill these knowledge gaps by examining rural livelihood diversification in

relation to its determining factors, analyzing the views of households' toward its contribution and exploring the barriers of livelihood diversification in the study area.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of this study was to examine the determinants and views of households' toward the role of livelihood diversification in the case of Ada'a Berga Woreda, Oromia National Regional State, Ethiopia.

1.3.2. Specific Objectives

This study intended to address the following specific objectives

- To examine the types of livelihood diversification in the study area
- To analyze factors affecting livelihood diversification in the study area
- To examine the views of households on the contribution of livelihood diversification
- To explore the barriers of livelihood diversification

The research questions of the study were: *What are the determining factors of livelihood diversification, how households' view the role of livelihood diversification and what are the barriers of livelihood diversification in the case of Ada'a Berga Woreda.*

1.4 Delimitation of the Study

This study was delimited by various parameters. First, it has been delimited by concepts. In this respect, the study gave attention on determining factors of livelihood diversification, views of rural households toward the role of livelihood diversification and its barriers. Conversely, the study did not emphasize on the initial activities of households who engaged in agriculture, the livelihood of households who live in towns and the effect of using mobile phone on livelihood diversification.

Second, the study focused on Ada'a Berga Woreda rather than other Woredas' of West Shewa Zone. This was attributed to the expansion of livelihood diversification of households in the area. To this respect, rural households' in area engaged in a number of livelihood activities. Lack of agricultural intensifications as result of lack of modern agricultural inputs, decline of agricultural

production, plantation of eucalyptus tree, population growth, expansion of investment and climate change have led households to diversify their livelihoods.

Third, the study was delimited by research methods. In this regard, the study employed multistage cluster and purposive samplings so as to select the study participants. Cross sectional study design and explanatory research were employed in the study. The unit of analysis for the study was rural household. The target groups were the rural households, government officers at Woreda and Kebele levels. Households who lived in urban areas of the Woreda were not included in the study.

1.5 Significance of the Study

The study analyzed issues which are very important in rural sociology and rural development. In this respect, it studied the contexts in which rural households made their livelihood. Types of livelihood diversification, forces that influence households' livelihood diversification, their views on the role of livelihood diversification and bottlenecks of rural livelihood have been addressed by the current study. Hence, the following notions explain the importance of this study for academics, theory, research and policy.

The study contributed relevant data on livelihood diversification of rural households, how it was affected by different factors and the views farming households have about the relevance of diversifying livelihood. To this regard, the study increases an awareness about the expansion of livelihood diversification and the factors that prompted households to diversify their livelihood in the study area. It provided data on the opportunities and threats that may enable or obstacle households' livelihood diversification. Thus, the results of the study have a role to play in encouraging the development of rural sociology and development in Ethiopia.

Furthermore, the findings of the research serve as a reference material for researchers, practitioners and academicians who want to conduct their study on rural livelihood diversification in other parts of the country. It helps them to know the specific context in which rural people make their livelihood. The finding of the study increases the understanding of professional and non-professionals about the barriers of households' livelihood diversification

In terms of theory, the study analyzed how personal factors (age, educational level) and institutional factors (land access, access credit, distance to road and market) affect the decision of

households' to adopt different livelihood portfolios. To this end, the results of the research contribute relevant thoughts to the integration theory of sociology.

Finally, the findings of the study have a relevance of initiating policy advisers, policy makers and other concerned bodies to consider various rural livelihoods and their relevance. It informs how ownership and access to different resources and policies influence the livelihood diversification of rural households. In this way, the study informs policy makers to pay attention to analyze these factors so as to improve the livelihood of rural households and to alleviate poverty. It provides them with the trend of rural livelihood system and agricultural activities in the contemporary period.

In addition, the study advocates the Ministry of Agricultural and Rural Development of Ethiopia to inculcate the role of diversifying livelihood in its policy and strategies so as to promote the rural development in a sustainable way and to reduce the root causes of rural poverty. The findings of the study also inform the federal, the regional and zonal government offices to consider the adverse effects of poor infrastructure, lack of asset and expansion of planting eucalyptus tree on the livelihood of rural people and to make immediate intervention so as to address these problems.

Generally, studying livelihood diversification is very important for developing countries like Ethiopia where majority of population lives in rural area and where rural economy is very significant for national development.

1.6 Limitations of the Study

The study was restricted to analyze the livelihood diversification of rural households. In this regard, it only provided information related to rural households. The study did not emphasize on the initial activities of households who adopted agriculture, the livelihood of urban households, the effects of livelihood diversification on natural resources, the influence of international remittances and using mobile phone on households' livelihood diversification.

With regard to area selection, the study has chosen only three rural kebeles of Ada'a Berga Woreda. It would have been good if the study comprises more than three kebeles of woreda to widely scrutinize the livelihood diversification of households in the area. The limited itself to Ada'a Berga Woreda. Thus, its results did not represent the livelihood diversification of households in West Shewa Zone as a whole.

Regarding the study design, this study employed cross sectional study design. Thus, it did not provide data that are collected over a long period of time which need longitudinal study design. The study used the sustainable livelihood approach and push-pull factors perspective. It would have been good if the current study inculcate other sociological theories to investigate the livelihood situation of rural people.

1.7 Challenges of the study

There have been different constraints that hindered this study. In this respect, the time allotted for collecting and analyzing data was very short. Unwillingness of some respondents and participants, and political crisis of the country have hindered the study. Thus, they had affected the time and process of data collection. In addition, the other challenge of the study was the geographical barrier of the study area. In lowland area and midland area, conducting household survey was very difficult. This was mainly due to the long distance between the house of the household and the landforms of the study area.

1.8 Organization of the Study

The study has different chapters. Each of these chapter is interrelated. Chapter one accentuates background and justification of the problem (study), objectives, delimitation and significance of the study. Chapter two discusses different literature which are very important for the current study. To this regard, it comprises relevant theoretical perspective and empirical studies that provide the land mark for the study.

Chapter three discusses the study setting and research methods (research approach, sampling technique and sample size, methods of data collection and analysis) and the research ethics which this study followed starting from its beginning up to its end. Chapter four provides information on the data analysis, presentation, interpretations and main findings of the study. The final chapter includes the general understanding about the current study (conclusions) and the alternative ideas provided by researcher on the studied issues (recommendations).

1.9 Conceptualization and Operationalization of Variables

Livelihood diversification has different concepts. Of these concepts, some concepts that were used in the study have been defined as follows. Accordingly, the following concepts were defined by the researcher in ways that they used in the study.

A) Livelihood: The notion of livelihood has been defined differently. According to Ellis and Freeman (2005), livelihood is what people do in order to make a living (resources and capability), the risk factors and the institutional and policy context that could enable or block people in their pursuit of a viable living. For Serrat (2008), “livelihood involves the assets, capabilities and activities required for a means of living” (2008:1). In the context of this study, livelihood includes all assets, activities and efforts that households undertake to make a living.

Head of Household: Kertzner (1991: 156) explained “household as a group of co-residents... who live under the same roof and typically share in common consumption”. This definition views households as people who live in the same area. For Jenkinson(1999:1), household represents either one person living alone or a group of people, who may or may not related, living (staying or temporarily) at the same address... who either share at least one meal a day or share common living accommodation.

For Niehof and Price (2004), households involve collectives who are integrated together in making decision, in organizing and controlling different resources so as to lead their livelihood and meet the needs of their individual members. In this study, household is a group of people who are linked to one another in terms of reproduction, production, distribution and exchange of different livelihood activities. A head of household could be male, female and any other individuals who can lead the household members.

Livelihood resources: In this study, rural resources involve assets that rural households use to build their livelihood system.

Accessing land: In this study, access to land indicates whether the heads of household have access to land or not

Using agricultural extension services: For this study, it refers to whether the head of households use agricultural extension services that are given by the agricultural experts.

Non-agricultural livelihood strategies: In this study, they include livelihood portfolios which are outside of the agricultural livelihood strategies like trade, charcoal production, processing and selling of local drinks, casual wage labor and handicrafts.

Livelihood Diversification: In this study, livelihood diversification inculcates different portfolio of activities and social support that rural household use to build their livelihood. In the context of this study, it goes beyond the conventional view of diversification which was either income

diversification or reflected only the adoption of non-agricultural livelihood. Thus, it contains agricultural, non-agricultural and agricultural plus non-agricultural livelihood strategies.

Operational definitions

Description of Variables

Variables	Their description and measurement
Accessing land	1=Yes 2=No (binary)
Market center	The average distance between household's house and nearest market center in (min) (continuous)
Accessing credit	1=Yes 2=No (binary)
Road	The average distance between household's house and main road in (min) (continuous)
Urban/town	The average distance between household's house and nearest town / urban center in (min) (continuous)
Using agricultural extension services	1=Yes, 2=No (binary)
Age	Age of head of household in completed years (continuous)
Family size	Number of household members(continuous)
Sex	Sex of head of households 1=Male, 2=Female(binary)
Number of dependents	The number of dependents in household: Aged <15 years and >65 years(continuous)
Educational level	Maximum level of education attained by the head of household(categorical)
Livelihood diversification	Categorical variables

Table: 1 Operationalization of the variables

Chapter Two

Review of Literature

2.1 Introduction

This chapter is concerned with relevant ideas which are related to the issue under investigation. Reviewing literature is very vital to a given study in many ways. Different scholars have asserted that reading and reviewing the existing literature help the researcher/s in different ways. In this regard, it helps to know what have been studied so far, the types of research methods and theoretical perspectives used in the previous studies, the thematic areas on, and the setting at, which those studies were done. In addition, it enables the researcher(s) to become more familiar with different research methods that might be used in his (her)/ their study.

By reading the available literatures very carefully and critically, the researcher could able to identify the addressed issue and the gaps. Having mentioned the necessity of reviewing literature, the researcher discussed and analyzed different concepts, theories and empirical studies which played a crucial role in building and materializing this study. The chapter has three sections. The first section illustrates about the core concepts used in the study. The second section discusses the theoretical perspectives employed in the study, their assumptions, their relevance to the current study and their limitations.

The third section focuses on analyzing empirical studies that have been carried out by different scholars on different thematic areas, at different times and geographical areas. Such categorization allows the researcher to know and understand what the existing literatures indicate, persuade the reader to aware the contents included in the chapter and simplifies the way researcher tends to present his review of literature.

2.1.1 Household

Since livelihood diversification of every society is linked to household, it is important to define and analyze the concept of household. It is true that many scholars and institutions have given different meanings for the concept of household. They defined the concept on basis of their field of profession and on the purpose of their research. The concept of household is culturally defined and varies across time, society and place. Thus, it is difficult to get a universally recognized definition of this concept.

For scholars of economics, household refers to a groups who are related to one another in terms of production, distribution and exchange of goods and services (Bossen 1981). As per to this definition, household does not inculcate groups who are linked with one another in terms of reproduction. Other authors defined household as groups of people involved in making and sustaining arrangements for resource management in order to provide for the basic needs of their members (Niehof and Price 2001).

From the point view of this definition, households involve collectives who are integrated together in making decision, in organizing and controlling different resources so as to lead their livelihood and meet the needs of their individual members. But the definition does not tell us whether the household embraces family or not. Starting from this definition, the researcher defined households as a groups of people who are linked to one another in terms of reproduction, production, distribution and exchange of different livelihood activities.

What makes this definition of household differ from the above definitions is that it includes family as part of household. In rural areas, many activities are carried out by the household and its members. From sociological point of view, household represents the starting unit analysis of human social organization in general and rural community in particular. In the context of this study, household was the basic unit of analysis and head of household was the unit of observation.

2.1.2 Livelihood Diversification

Like that of any other concepts, the concept of livelihood diversification has numerous meanings. Its meaning is quite different from disciple to disciple and organization to organizations. It mean different things to different people and scholars. Currently, there is no universally accepted definition of this notion. Although it is difficult to reach a definition of livelihood diversification which would satisfy most people and scholars and is both operationally useful and theoretically valid, the researcher has tried to analyze the concept in a way it was used in this study.

For Ellis (2000), livelihood diversification is the process by which rural households construct a multiple portfolios of activities and assets in their struggles for survival and improvements in their standards of living. As per to him, livelihood diversification is not confined to single activity but embraces a number of livelihood activities which can be either, farming, off-farming, non-farming or an amalgamation of them.

For him, livelihood diversification is not pursued by a single individual or family but by the households. These households exploit and use different resources and assets in the process of pursuing multiple livelihood activities for the ultimate purpose of either to reduce different problems or to broaden their livelihood alternatives.

Authors such as Barret, Reardon and Webb (2001) defined livelihood diversification by stating that “livelihood diversification is a means of self-insurance”. This definition equated the notion of livelihood diversification to a mechanism to move out of problem. It reduced the notion of livelihood diversification as a means of survival strategy. Nonetheless, livelihood diversification goes beyond a means of survival and represents numerous things.

Literature on rural livelihood reveals that scholars have identified different types of livelihood diversification on the basis of criteria such as geographical/spatial location, time, function, income, employment, assets and sector (Hussein and Nelson 1999; Ellis 2000; Barret et al 2002; Goulden, Adger, Allison and Conway 2013; Loison 2015). Based on income, livelihood diversification consists of on-farm, off farm and non-farm (Hussein and Nelson 1999). This classification equated livelihood diversification with income diversification.

Barret et al (2002) categorized livelihood activities based on location: migratory and local, based on sector: farm and non-farm, based on function: wage and self-employment. Other scholars modified the above categories of livelihood diversification developed sectoral classification of livelihood diversification such as agricultural, other agricultural activities, non-agricultural and a combination of these livelihood strategies (Loison 2015).

Goulden et al (2013) sorted livelihood diversification into three types: (1) temporal diversification which comprises seasonal and annual; (2) geographical of diversification: local and migratory; (3) concurrent diversification which includes doing one or more livelihood activities at the same time. At this juncture, it is better to note that all of the above classifications are invaluable to make sense of the nature of the choices necessitated by rural livelihood diversification processes.

Although the above categories of livelihood diversification have their own relevance in showing different the components of diversification, the researcher adopted the category of livelihood diversification on the basis of sector. In the study, agricultural sector contains farming activities like livestock rearing, crop cultivation, planting tree and off-farm activities like wage labor in agriculture. Agricultural activities such as fishing and others were not the concern of the study.

Non-agricultural livelihood strategies cover activities outside of agricultural sector such as hand craft activities, charcoal selling, and trade (like marketing of vegetables, crops and marketing of livestock), processing and selling of local beverages, and wage work either at local area or remote towns or a combination of these activities. Other activities such as salaried employment/job, income from vehicles, foreign remittance, pension payment and others were beyond the scope of the study.

2.2 Theoretical Perspectives on Livelihood Diversification

As the literature indicates, the term theory has no single definition. For some scholars, theory is a sets of interrelated ideas that have been scientifically tested and which help to clarify and explain different phenomena. It is useful to broaden and challenge the existing knowledge within the limit of critical bounding assumption (Abend 2008; Richard 2013; Fisher and Aguinis 2017).

As per to this definition, theory is an interlinked thoughts and concepts which enable us to expand our understanding of a certain social or natural phenomenon via a systematic way. This definition states the relevance of theory in supporting and refuting the existing body of empirical evidences.

Put differently, theory can “emerge out of a long period of careful observation of phenomena andan attempt at a systematic and logically consistent framework of explanation based on the accumulation of empirical evidence” (Cross 2011:13). Other scholars explained that theory is a set of description of a phenomenon and the interaction of its variables that are used to explain, understand and predict (Thomas 2017).

The definitions provided by Cross and Thomas view theory as a body of knowledge which relies on scientific ideas and methods to contemplate the existence a given situation be it natural or social. Regarding the theories of livelihood diversification, there is no well-developed and independent theory which is used to explain this phenomenon. As a result, it is very difficult to get a comprehensive theory which explicitly elucidates the notion of livelihood diversification. In spite of this constraint, researchers have applied different theoretical perspectives to clarify and understand this phenomenon.

They used theories such as pull and push factor perspectives (Ellis 2000; Barret et al 2001; Martin 2016); common labor supply theory (Brons 2005); asset based theory and insurance based theory (Ellis and Freeman 2004); sustainable livelihood approach (Chuong Thao and Ha 2014; Sahalu and Bekele 2015; Amare 2017; Ibrahim, Hassan, Kamaruddin and Anuar 2017); assets measure

approach, activities measure approach and income measure approach (Tamirat, Ashebir, Aman and Ibsa 2019) in their studies to analyze rural livelihood diversification.

Though none of these theories is sufficient by itself in explaining livelihood diversification, each of them has considerable contribution in explaining this phenomenon. By reviewing the significance of these approaches in livelihood researches, the current study employed the sustainable livelihood approach and pull and pull factor perspectives.

2.2.1 Sustainable Livelihood Approach

Sustainable livelihood approach focuses on understanding the livelihood of poor people in rural or urban areas. The approach has its origins in the concept of sustainability coming from the Brundtland Commission report of 1987 (Silva 2013). It became popular in the middle of 1980s to supplement the basic needs of development discourse of the 1970s and to replace the top down approaches such as modernization theory that had dominated the development discourse for some time (Ellis 2000 cited in Mapfumo 2015).

In 1990s and 2000s, the approach became more famous with the work of various organizations and scholars (Chambers and Conway 1992; DFID 2001; Wanyama, Mose, Odendo and Mohammed 2010; McLean 2015). These days, the approach is increasingly employed by developmental agencies and NGOs in order to understand the factors that determine household's livelihood options and to avert poverty in rural area (Scoones 1998; 2009; Allison 2007).

It encompasses asset-based approach that goes beyond income and sector. Unlike other approaches, SLA emphasizes on the strength of rural households, the types of their livelihoods and overall their livelihood condition. Furthermore, it recognizes the diversity of livelihoods of rural people and their asset so as to examine the strategies they adopt for survival (Kristjanson, Mango, Krishina and Jahnsen 2009; Van 2010; AFC 2010).

According to Silva (2013) and McLean (2015), this approach has its own analytical framework to analyze the multidimensional realities and to examine the determinants and bottlenecks of rural livelihoods. It aims to examine the livelihood of poor rural households. The SL framework focuses on how institutions, structures, vulnerability contexts affect the livelihood assets of rural people. It also shows how ownership and access to different capitals or assets affect households' choices of different livelihood alternatives (DFID 2002).

According to the UK DFID (2002), SLF has five main elements: livelihood capitals, transforming structures and processes, vulnerability contexts, livelihood strategies and livelihood outcomes. Due to numerous reasons, the author of the study applied this approach. Many livelihood scholars contended that SLA enables us to study livelihood activities in different contexts (rural vs urban space, women vs men, rich or poor, developed or developing countries) (Silva 2013).

In the context of this study, sustainable livelihood approach helped the researcher to analyze the livelihood diversification of rural households. The approach focuses on the role of the wider socioeconomic and political environment in mediating access to assets. The approach integrates livelihood assets with different livelihood portfolios (DFID 2002 and Scoones 2015).

The author applied the elements of SLF such as institutional factors and livelihood capitals (accessing land, accessing credit, market, agricultural extension services, educational level and others) in order to analyze how they affected the chance of rural people to broaden their livelihoods.

The approach uses household as its basic unit of analysis. In this study, rural households were employed as the main unit of analysis and data were collected from head of household. Scoones (2015) stated that the sustainable livelihood approach is a pro-poor approach. It reflects the diverse and complex realities faced by poor people in a specific context. Similarly, the current study used this approach to explore the barriers of households' livelihood diversification in the area.

The approach gives much attention on range of interventions that support diversified agricultural and non-agricultural livelihoods strategies of rural areas (FAO 2015). This is due to the fact that the world's most marginalized households are found in rural areas. The current study applied this approach to examine the livelihood of rural poor where great attention is needed to avert poverty and to improve the livelihood activities of these people in a sustainable manner.

Although DFID's sustainable livelihood framework has many strengths in analyzing the livelihood diversification of rural households, it has its own drawbacks. First, sustainable livelihood framework misses the vital role of individual's views on livelihood diversification. Secondly, it does not explain the issue of gender and gender related problems. Thus, it fails to address the relationship between gender and livelihood system.

In this respect, the framework is unable to examine how gender difference affects livelihood diversification (Carney 2002). Thirdly, it does not pay enough attention to the inequalities of power. Fourthly, the approach fails to deal about the shifts in rural economies and agrarian change (Scoones 2009).

2.2.2 Push and Pull Factors Perspective

This perspective/approach focuses on the factors that led individuals and households to broaden their assets, income and activities (Martin and Lorenzen 2016). To this approach, the causes for diversifying rural livelihood are different over time, across place and among households. They are complex and multidimensional (Israr et al 2014; Abimbola and Olunkawemi 2016 and Tamirat et al 2019).

According to push factor perspective, diversification of rural activities is mainly associated with different problems. Households' multiply or change their livelihood strategy options for the sake of survival and to reduce different livelihood problems. To this perspective, natural factors such as climate induced difficulties, recurrent drought, heavy rainfall, floods, decline of soil fertility and declining of yields because soil erosion, erratic rainfall and cold could obligate households and individuals to engage in a number of livelihood activities (Wassie and Fekadu 2015 and Ahmed et al 2015). These natural related problems mainly affect the farming of rural poor.

The proponents of this perspective argue that demographic factors and institutional factors like population growth, labor constraints, poor infrastructure, lack of access to credit, lack of modern technologies, bad farming practices, land fragmentation, lack of education and poverty can compel individuals and households to diversify their livelihood option (Muyanga and Jayne 2014; Barret et al 2001 and Kamwi et al 2018).

These are mainly a man-made factors of rural livelihood diversification. These factors of livelihood diversification are mainly common among poor households who live in developing countries such as Ethiopia (Kassie et al 2017 and Tamirat et al 2019). From this point of view, livelihood diversification is seen as a reactive approach and a means of survival.

According to pull factor perspective, households and individuals broaden and spread their livelihood activities as a result of the availability of assets, the existence of basic infrastructure and other related reasons (Loison and Bignebat 2017). To this approach, livelihood diversification is

resulted as a strategy of combining numerous activities that contribute to buildup of wealth at different points in individual's and household's life span. It says that households who are better off in terms of assets are more likely to diversify their livelihood activities than their counterparts.

From this perspective viewpoint, livelihood diversification is viewed a means of pro-active strategy and of wealth accumulation. Generally, a combination of push and factors are the reasons for the occurrence livelihood diversification in a given area (urban or rural, pastoralists or cropping households and others). In the context of study area, the assumptions of the perspective have been applied because there were different compelling and enabling reasons that led rural households to diversify their livelihood activities. In spite of the aforementioned strengths, this perspective does not tell us about the views of households on the contribution of households.

2.3 Empirical Studies on Rural Livelihood Diversification

It has been argued that rural households can diversify their livelihoods in various ways. The literature reveals that different researchers from different disciplines have carried out their studies on the issue of rural livelihood diversification. They have used different variables which are related to rural livelihood diversification. Some of those scholars have employed quantitative research methods, whereas others have utilized qualitative research methods. There are also researchers who have used mixed research methods.

They have conducted their studies on different rural people and areas. In this regard, some of them focused on pastoralist and semi-pastoralist communities and households, others have emphasized on agriculturalist communities and households. There are findings which are consistent and which are contrary to each other. Hence, the next sub-sections discuss these issues.

2.3.1 The Nature of Rural Livelihood Diversification

Literature has shown that engaging in different livelihood portfolios is not a new phenomenon. As literature indicated diversification is not merely found in rural area, poor, women and developing nations but also found in urban area, wealthy, men and developed countries. Irrespective of different socio-economic backgrounds and areas, diversifying livelihood is a common phenomenon. Nonetheless, there is a variation of diversification among households with respect to the different variables.

It is known that rural people pursue different livelihood alternatives in order to lead their life. These livelihood portfolios might include agricultural and agricultural allied activities, non-agricultural and non-agricultural linked activities or all of them (Niehof and Price 2001). This indicates that rural livelihoods are diverse. Thus, the livelihood of rural households is characterized by multiple livelihood activities and an amalgamation of these activities can be termed as livelihood diversification strategies (Martin and Lorenzen 2016).

In the context of developing countries, diversifying livelihood has become a norm of different rural households. Broadening one's own livelihood diversification has multiple and inter-related effects on the livelihood of rural households and has an implication on poverty reduction. Thus, it is this implication that recently led the academicians and policy makers to pay attention on the issue of diversifying livelihood (Ellis 2000; Davis et al 2010; Israr et al 2014; Loison and Bignebat 2017). Yet, the level and the relevance, effects of livelihood diversification vary across place, time and among households (Ellis and Freeman 2004; Nelson et al 2016). The effects of livelihood diversification are not always positive. It has various negative impacts (Anderson and Deshingkar 2005). The next sub-section reviews different studies conducted on livelihood diversification.

2.3.2 Empirical Findings on Determining Factors of Rural Livelihood Diversification

Studies that have been carried out on the influencing factors of livelihood diversification in rural areas are numerous in number. They were done by different scholars, in different countries, at different times, and by using different research approaches and target population or unit of analyses. These studies stated various factors that influenced the rural household's livelihood diversification. While many of these studies are consistent, others are contradicting. So, the following sub-section discusses the findings of these studies.

For instance, (Ellis 2000) did his research on the determinants of rural livelihood diversification in the context of developing countries. By employing secondary data, he found that asset strategies, seasonality, labor market, risks, coping strategies and credits had influenced the involvement of rural households in livelihood diversification. The study also showed that the diversified livelihoods are more likely to secure than the undiversified ones.

Ahmed et al (2014) investigated the patterns and extents of determinants of income diversification in rural areas of Bangladesh. The study utilized mixed research approach. The results of Simpson

index indicated that remittance, business and caste occupation and rice farming played a great role in determining the income diversification of rural people.

Another study done by Loison and Bignebat (2017) examined the patterns and determinants of income diversification in rural areas of Senegal and Kenya. The study employed mixed research and econometric model. The results of this model showed that household's asset, demographic factors and proximity to rural towns have significantly influenced household's income diversification. Rahut and Scharf (2012) found that geographic location, education of households, wealth ownership, and household size affect the choice of rural households to diversify their livelihoods and the constraints they faced. Nevertheless, the study limited its focus on the natural, household and institutional factors that influence the choice of livelihood diversification

Teshome and Indris (2013) studied the factors and patterns of income diversification in the case of Akaki Kaliti District of Ethiopia. They employed mixed research method. The outcomes of the Tobit model showed that educational level and age of head of household, family size, extension contact per year and distance from market and land size had significantly affected household's decision to engage in income diversification.

Zerihun(n.d) researched the determinants of rural non-farm and its returns in Ethiopia. The study used Tobit and Double Hurdle Models and found that asset holdings, educational level, consumption and family size had significantly affected the chance of households to participate in non-farm activities. Yesihak (2016) has examined the factors of rural farm households' income diversification in the case of Wolaita Zone, Ethiopia. The study employed multistage cluster sampling to select sample respondents and binary logistic regression to analyze the explanatory variables. The results of the regression showed that education, sex, farm size, market distance, livestock and oxen ownership had significantly affected the income diversification of farm households.

In Ghana, Assan (2014) studied livelihood diversification of small farm households in Akuapem North and Dangme West Districts of Southern Ghana. The study used survey, FGD, interviews and Chi-square. The findings of his study indicated that the effects of livelihood diversification on food security and social services were varied across the two districts. Muluken and Workneh (2012) did their research on the relationship between livelihood diversification and market access. They found that access to market played a vital role in motivating the farmers to diversify their

livelihood options. However, it would have been good for this study to encompass the role of a number of livelihood assets in affecting livelihood diversification.

In Nigeria, Oyinbo and Ololaye (2016) investigated the effects of livelihood diversification on poverty alleviation in Giwa Local Government Area of Kaduna state. Their study employed only quantitative methods like Foster, Greer and Thorbecke Poverty model and Tobit regression model. The findings of the study revealed that households who engaged in a number of livelihood activities were more likely to tackle their poverty. Likewise, the results of Tobit model stated that household size, access to credit and livelihood diversification had significant effect on poverty level of the farm households.

A study done by Rehima et al (2014) focused on the determinants of crop diversification in the Southern part of Ethiopia. By using survey and Heckman Two stage model, their study found that gender, resource ownership, education, access to extension services, transaction costs and membership in cooperatives had influenced the crop diversification of small holder farmers.

A study by Tagesse et al (2017) assessed the livelihood diversification of pastoral households' in Afar Region of Ethiopia. Using the primary data like survey, the study reveals that the patterns of livelihood diversification among households were uneven. The findings of the Tobit model also indicate that household size, health status, educational level and credit utilization were the main influencing factors of households' livelihood diversification.

Another study was done on the sustainable livelihood diversification and its determinants in Borena district of Southern Oromia. The study relied on quantitative method, income portfolio analysis and multinomial logit regression. The results of the regression model showed that age, extension service agent contact, credit utilization, market distance, farm input use and cattle size had significantly affected households' decision to participate in different livelihood activities. The influences of these variables were both positive and negative (Amare and Wondewosen 2017). It would have been good if the studies of (Amare and Wondewosen and Tagesse et al 2017) would have triangulate the research method.

Finally, other studies that had been done in different parts of Ethiopia in relation to livelihood diversification specified that education, land size, age, extension service, livestock ownership, distance to market, and training affected the farmers' choice of livelihood strategies (Ngang'a et al 2011; Legesse and Demessie 2013; Yizengaw et al 2015).

The above studies were conducted on the income diversification of rural households in different areas of the world and Ethiopia. They focused either on off-farm or non-farm income diversification. These studies were mainly done by scholars of agricultural sciences, economics and other natural sciences field. However, there are only few studies who have been done by the sociologists. There are scarce data on the view of rural households toward the contribution of diversifying livelihood.

In addition, in the study area, nothing study has been done on the issue of livelihood diversification. But, rural households in the study area have been and continue to involve in a number of livelihood diversification due to unstudied factors. Therefore, the researcher intended to address these issues by employing different qualitative and quantitative research methods, sustainable livelihood approach and pull and push-factor perspectives.

2.4 Conceptual Framework of the Study

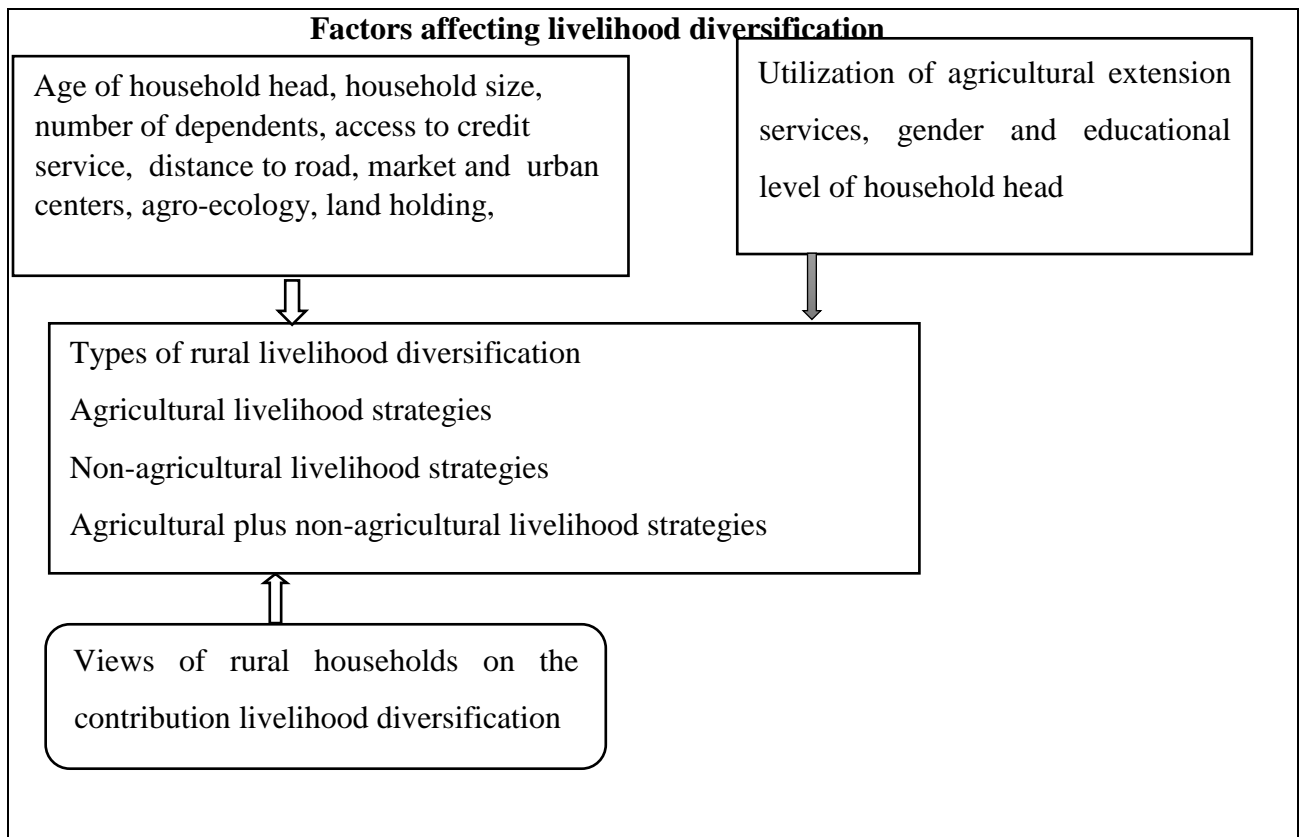
The following conceptual framework was made up of the concepts, theoretical approach, empirical studies and objectives of the study discussed in the study. The ability of rural households to broaden their livelihood options relies on their access to different capitals. As it has been indicated in the following figure, rural households make their livelihood diversification in face of different factors. These factors include the type of their assets and institutional system. For example, age of the head of households has a great influence on their decision to participate in different livelihood diversification.

It is assumed that young households in the study are more likely to diversify their livelihoods more than the old aged households. Because diversifying livelihood needs potential and different information. Similar to age, other assets such as educational level, household size, number of dependents, accessing credit service, distance to market and urban centers, agro-ecology, accessing land, land size and utilization of agricultural extension services also influence the livelihood diversification of rural households in the study area. Nevertheless, other capitals which may influence livelihood diversification have not been included in this conceptual framework.

These capitals/assets are influenced by access. In this regard, the laws and regulation which are devised by the government affect households' access to different resources. This means, for instance, households who have more access to land are more likely to diversify their livelihood options than their counter parts. Accessing land provides households with more opportunities to

diversify their crops and enables them to rear different livestock, on one hand and promotes them to accumulate wealth to participate in other non-agricultural livelihood options, on the other hand. Depending up on these factors, rural households chose different livelihood diversification strategies either agricultural, non-agricultural or a combination of them. However, rural households do not have the same view on the contribution of livelihood diversification. In this respect, many households may have positive attitudes, while others are not.

Figure 1: Conceptual Framework of the study



Source: Researcher's own construction (2017)

Chapter Three

3. Research Methods

This chapter emphasizes on the research methods employed in the study. It discusses the research approach, research design, sampling techniques and sources of data, methods of data collection and analysis. The chapter also describes the study area and the ethical consideration of the study.

3.1 Research Approach

In order to achieve the stated objectives, the study used mixed research approach. Mixed research approach is a way of conducting study which comprises collecting, analyzing and integrating both qualitative and quantitative research approach in a single study. This approach plays an important role in understanding a research problem in a better manner.

In this study, it is very difficult to study livelihood diversification by using only a single research approach because rural livelihood diversification is a multi-dimensional issues. For instance, the reasons, determinants and effects of diversifying livelihood are varied across time, geographic location and among households. Thus, using mixed research approach was very significant to collect and analyze diverse data on the livelihood diversification of rural households.

To this regard, qualitative approach was used to describe the types of livelihood diversification and barriers of livelihood diversification. Quantitative approach was employed to analyze the respondents' socio-demographic characteristics, determinants livelihood diversification and views of rural households toward the contribution of livelihood diversification.

3.2 Research Design

The study employed different types of study design on the criteria of time and purpose. Based on time dimension, the study employed cross sectional study design. This was because the duration of collecting and analyzing quantitative and qualitative data was short and confined to a single - time frame. It was collected from the rural households only at one time. In terms of the research purpose, the study utilized explanatory research. Explanatory research was employed to analyze the view of households' the contribution of diversifying livelihood, the reasons for the participation of households' in non-agricultural livelihoods and examine different factors determining households' livelihood diversification.

3.3 Concurrent Triangulation Strategy

Based on the sequence of data collection and analysis, the researcher utilized a concurrent triangulation strategy. As shown in the following figure (3.1), both quantitative and qualitative data were collected simultaneously. In this respect, the researcher and the data collector have concurrently gathered data from the sample households, key informants, FGD discussants and others.

As the first two arrows indicate, the researcher analyzed the quantitative data via percentage, frequency, mean, chi-square test for independence and multinomial logistic regression. Whereas, the qualitative data have been analyzed by using thematic approach which includes six stages. After the process of data analysis has been completed, the researcher integrated the qualitatively and quantitatively data at the stage of interpretation. As the last arrow shows, both quantitative and qualitative data had discussed together.

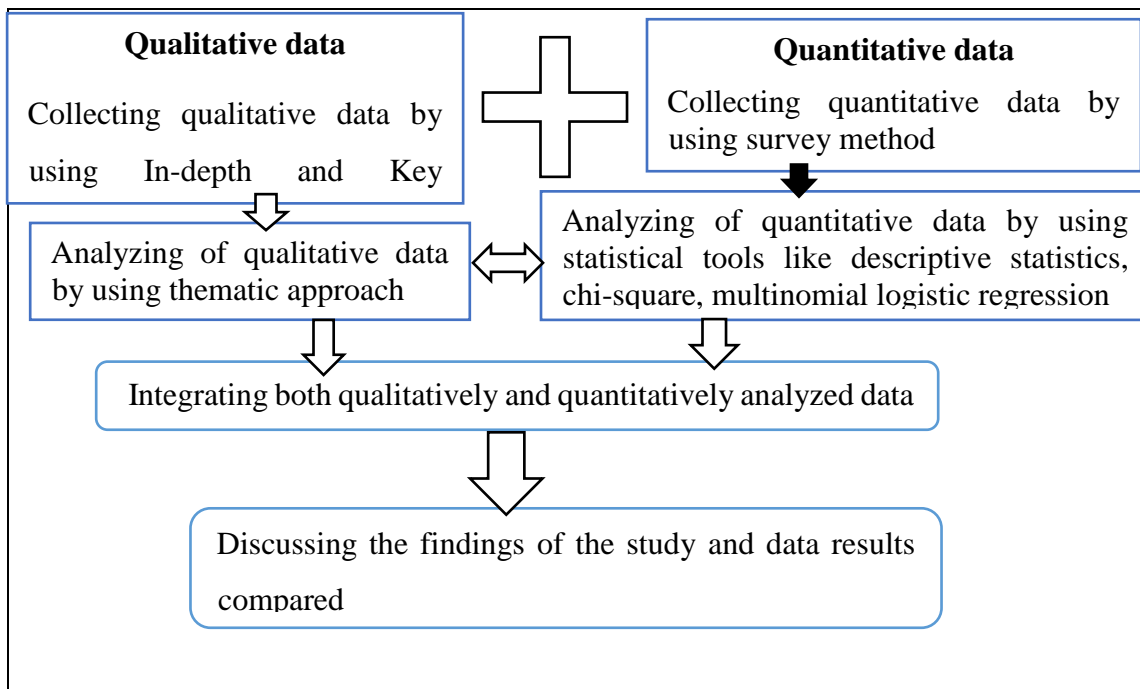


Figure 2: Concurrent Research Design (Modified from Terrell 2012)

3.4 Description of the Study Area

The study was carried at three rural kebeles of Ada' a Berga Woreda (district). Ada'a Berga Woreda is one of the woredas in Oromia National Regional State of Ethiopia which is found in central highland of Oromia Region. The woreda is located at about 64 Km West of Addis Ababa

City and 114 Km North West of Ambo town. The woreda is located at 9° 12' to 9° 37' latitude and 38° 17' to 38° 36' longitude (Alemu 2015 and Zerihun 2015).

Ada'a Berga Woreda is bounded by North Shewa zone in the East, Metta Robi and Metta Walkite Woredas in the West, North Shewa Zone and Metta Walkite Woreda in the North, and Walmera and Ejere Woredas in the South. The total population of Ada'a Berga Woreda is 146,108. Of which, 73,332 are males and 72,776 are females (CSA 2007). The report also showed that about 86.17% of Woreda's population lives in rural area. The rest percent of population resides in urban areas. This Woreda has 34 rural kebeles and 3 Municipal Towns (Inchinni, Muger and Olankomi). As per to the Woreda's Administration office report of (2017), from 34 rural kebeles, 11 kebeles are found in low land and the rest 11 and 12 kebeles are found in high land and midland areas, respectively.

The woreda has about 79,835 hectares of land. Of which, 37,084(46.4%) hectares are used for Agriculture, 13,524 hectares are used for grassland, forest land and bush/shrub account 11,199 hectare, urban land accounts 2167 hectares, stone/rock land covers 2663 hectares, forest planted by human accounts 2184 hectares, water and swamp land cover 45 hectares, and others are estimated to 10969 hectare. The altitude of the woreda ranges from 1371-3169 meters above sea level (ABWANRO 2018).

People in the Woreda follow different religion like Orthodox Christianity, Protestant Christianity and *Waaqeffannaa*¹. Gadaa system has been and continues to be practiced by some segments of the woreda's population. *Afaan Oromoo*² language is largely spoken by almost all of the woreda's population. Amharic language is also spoken by the town residents of the woreda (Alemu 2015).

Regarding the economy, rural people in the Ada' a Berga Woreda depend on diverse livelihood activities for their livelihood system. Of all other livelihood activities, agriculture is the mainstay of these people. Agriculture involves crop cultivation, livestock rearing and others. Farmers in the area cultivate different crops like wheat, barley, teff, (*Eragrostis tef*), gayo, maize, lentil, niger seed, millet, sorghum, bean, pea nut and chickpea. They also keep livestock like cattle, donkey, horse, sheep and goats. In the study area, livestock production plays an important role in farming

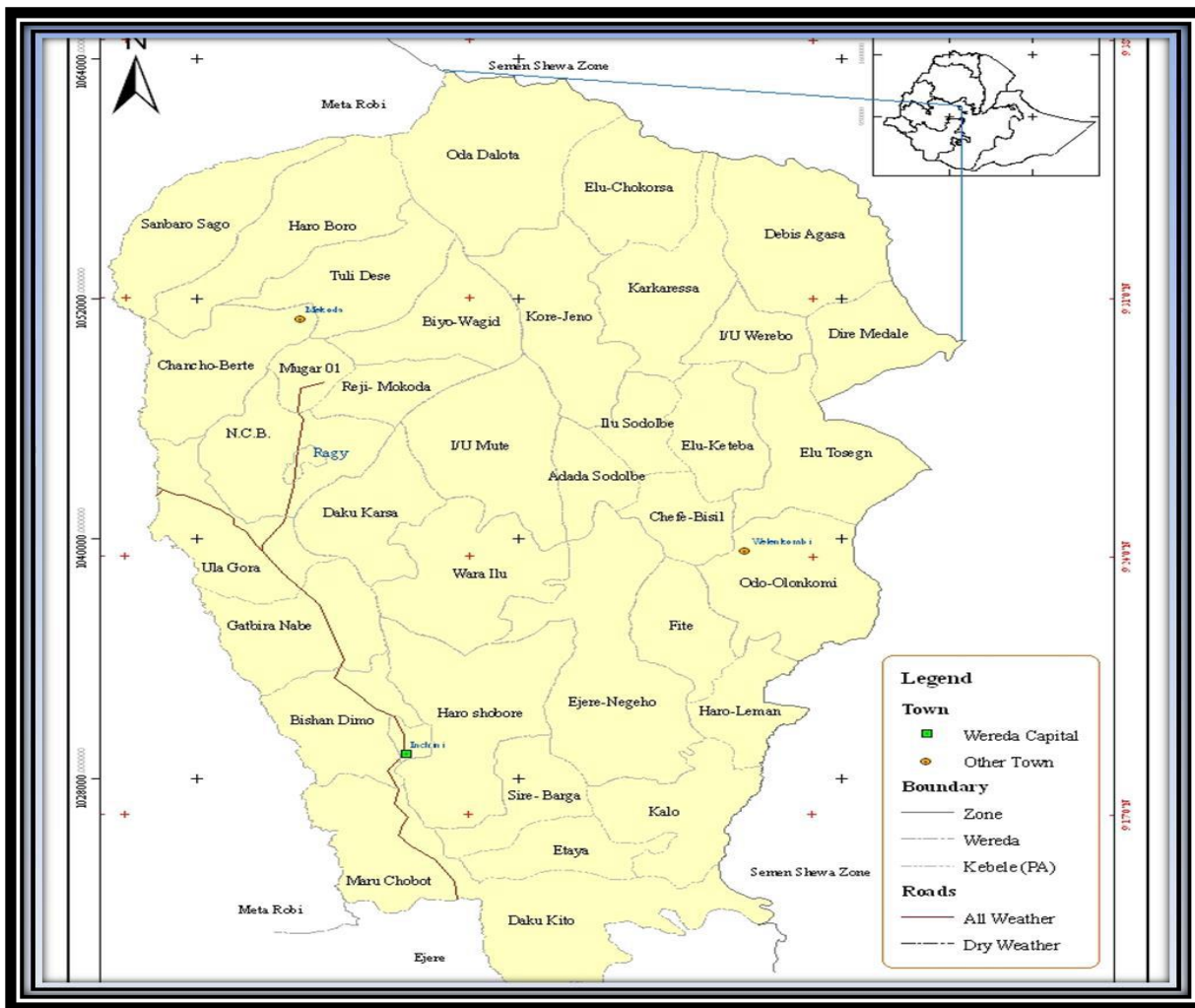
¹ *Waaqeffannaa* is the indigenous religion of Oromo people.

² *Afaan Oromoo* is the largest language which is spoken in Eastern Africa.

activities such as land preparation. These livestock provide rural people with manure, transport and fuel (Fekadu and Mequanent 2010 and Abay et al 2016).

Moreover, rural households in the woreda engage in plantation of eucalyptus tree. They also involve in non- agricultural livelihood strategies like seasonal migration, daily laboring, trade, handicrafts and others. This is mostly associated with different problems and the existence of some opportunities. As compared to other Woredas of West Shewa Zone, different cement enterprises have been established in the Woreda. These are: Muger Cement 1 and 2, Dangote Cement, and Medrock Cement Factories. The woreda is rich of different minerals (ABWANRO 2017).

Figure 3: Map of Ada'a Berga Woreda (Source: ABWA Office 2018)



3.5 Sources of Data

In order to attain the objectives of the study, both primary and secondary sources of data were employed. The primary data of the study were gathered by using household survey, key informant interview and FGD. The study also used secondary data. Such data were obtained by reviewing available literatures that were related to the issue under study. Thus, it included different sources like books, articles and reports of governmental organizations (include the reports of study area woreda's) and non-governmental organizations.

3.6 Methods and Tools of Data Collection

This study has employed qualitative and quantitative procedures and tools of data collection. Qualitative research approach was mostly used to explore rich and detailed information about the issue under study. It enabled the researcher to explore information from the perspective of both groups and individuals and to combine together the collected data. By relying on the objectives of the study, the study used methods of data collection such as FGD, non-participant observation and key informant interview.

A) Non-participant observation

Non-participant observation provided the researcher with the chance to gather different information during the fieldwork. It gave the researcher the opportunities to think and observe various activities, resources and problems existed in the study area. Non-participant observation was employed in the study because it encouraged objectivity, cooperation, freedom from groupism and careful analysis. In order to collect data, observation checklist was used. The researcher did not explicitly engage in activities that were done by the study participants.

Rather, the researcher has indirectly observed the activities have been done in the area. Then, he took notes and observed issues like road, market, households who participated in activities like handicrafts, woodwork, trading of crops, vegetables and livestock, processing and selling local beverages. This method was served as a complementary method to triangulate data that were collected via key informant and FGD.

B) Key Informant Interview

The study also used key informant interview (KII). KII provided vital information on people livelihood, perspectives and experiences through direct discussion with the key personnel. It included a set of key questions which describe the livelihood diversification of the households in

the study area. Unstructured interview was used as a tool of data collection. The informants of the study were selected based on the assumption that they would provide better information on the issue of livelihood diversification. Thus, the researcher purposively selected one knowledgeable household from each kebele and one expert from woreda's Agricultural and Natural Resource Office.

Additionally, one manager and one agricultural extension worker from each selected kebele have also participated as the key informants. The key informants have provided relevant information on the types of livelihood diversification exist in the study area, services provided for rural households and barriers of livelihood diversification.

C) Focus Group Discussion (FGD)

FGD is very important in enabling the researcher to explain the participants' shared narrative as and their differences in terms of experiences, opinions and worldviews about certain issue. The researcher employed this method in order to collect data, from groups of people and, which could not be gathered via survey method, KII or non-participant observation. The discussants were selected on the basis of sex, age, kebele and the type of livelihood diversification they involve in.

The researcher in collaboration with the kebele chairpersons and agricultural extension workers agreed to select discussants on the basis of the aforementioned criteria. Facilitators were the data enumerators whom the researcher has recruited. The researcher played the role of mediator and managed the group discussion in line with the issue under study.

In the study, the researcher conducted three focus group discussions which consisted of 23 discussants. Though the researcher proposed 30 discussants, only 23 discussants participated in the three FGD. Of 23 discussants, 9 discussants were females and 14 were males. With regard to their age, 10 discussants were found in adult age category, 8 were found in young age category and the rest 5 were found in old age category.

With respect to their area of residence, 7 female discussants were from Ula Gora Kebele and all of them engaged in agricultural livelihood strategies. Eight (6 males and 2 females) discussants were from Biyo Wogidi Kebele and all of them engaged in both agricultural and non-agricultural livelihoods and 8 male discussants who participated in both agricultural and non-agricultural livelihood strategies were from Dheku Kersa Kebele.

Though the researcher has given equal chance to both sexes, only nine females had participated in the FGD. This was partly due to the existence of social burden on female households. The discussants were informed before five days as they had discussion on the issue under study. With respect to the site at which FGD conducted, the FGD of Ula gora kebele was held at the place of local institution (*Idir*) before they have gone to idir.

The rest two FGDs were held at Dheku Kersa and Biyyo Wogiddi kebeles' compounds. On average, one FGD has taken 45 minutes and seven discussants participated in the study. FGD checklist was used as a tool of data gathering. Unstructured interview guide was developed and used to facilitate face to face interview with the discussants. The data collected via FGDs helped to prove/disprove and supplement the information collected through survey, in-depth interview, observation and key informant interview.

D) Household Based Survey

Survey is the main research method which is used to collect quantitative data in a given study. This study has employed survey method so as to investigate the livelihood diversification of rural household in Ada'a Berga Woreda. It was used to collect data on the socio-demographic characteristics of households, types of livelihood diversification, the determinants of livelihood diversification and views of households on the contribution of livelihood diversification.

Questionnaire was used as a tool of data collection. The questionnaire contained five parts. It had both close-ended and open ended questions. In order to check the validity of the items, pre-testing was made prior to the beginning of the process of data collection. The researcher administered the questionnaire to the respondents via survey interview (face-to-face interview).

In order to accomplish the process of gathering data on time, the researcher has recruited four data enumerators who had Bachelor of Arts degree qualification. Then, the researcher gave orientation for data enumerators on the contents of the questionnaire one day ahead of the actual data collection. The researcher along with data collectors went to the field in order to collect the data.

The English version of the questionnaire was translated into *Afaan Oromoo* language for easy understanding by the study respondents and the required data were obtained with maximum accuracy. To ensure the quality and consistency of data, the responses of questionnaire were again changed to English version.

Regarding to the Likert scale questions, the views of households were measured on Likert scale of 1-4. The researcher gave value for each response in order to know the view of households toward the contribution of diversifying diversification. In this regard, 1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree. The higher score the households responded, the more positive perception they would have toward livelihood diversification and vice versa.

3.7 Methods of Data Analysis

In this study, both qualitative and quantitative methods of data analysis were employed to search for patterns in the data. The qualitative data that have been collected via interviews, observational notes and focus group discussion were transcribed, coded and categorized into themes. The study employed thematic approach to analyze the data. Finally, the data were expressed and interpreted in the forms of narration.

Quantitative data were analyzed in the form of numbers or statistics. The study employed different quantitative tools of data analysis. Accordingly, Statistical Package for the Social Science (SPSS) Version 20 was used to process and compute the collected data. Descriptive statistics like frequency distribution, percentages and mean were used to analyze households' socio-demographic characteristics and their livelihood diversification.

The study utilized various models to analyze the quantitative data. In this regard the chi-square test of independence was the first one. Chi-square test of independence is a non-parametric test that is used to see if there is a relationship between two categorical variables. It analyzes the relationship between the expected cases and the observed cases. It starts with the view that there is a relationship between the two variables, say, X and Y.

The chi-square statistic used to conduct this test is the same as in the Goodness of fit test. Accordingly, each entry in the summation can be referred to as: "The observed minus the expected, squared, divided by the expected. The chi-square value for the test as a whole is the sum of the observed minus the squared, divided by the expected".

$$\chi^2 = \sum_i \frac{(O_i - E_i)^2}{E_i}$$

There are different assumptions of chi-square test of independence. It assumes that two variables must be measured at nominal or ordinal level. It views that variables must embrace two or more

categorical, independent groups. It assumes that if the probability of the test statistic is $< \alpha$ = alpha error, we accept the alternative hypothesis but reject the null hypothesis. On contrary, if the probability of the test statistic is $> \alpha$ error we accept the null hypothesis but reject the alternative hypothesis.

In the context of this study, the researcher employed this test to analyze the relationship between categorical variables and households' livelihood diversification. Multinomial logistic regression model was used to analyze factors that determined households' livelihood diversification in the study area. This type of regression is used whenever the dependent variable whether nominal or ordinal variable has more than two categories.

In multinomial logistic regression, the independent variables can be either continuous or categorical variables. The model depends on the assumption that the dependent variable cannot be directly predicted from the independent variables for any case. Thus, it does not assume the linear relationship among the variables, normal distribution and independence. But, it assumes independence of dependent variables. In the study, the dependent variable was livelihood diversification which contained three categories.

In order to diagnose the problem of multicollinearity, the study used the SPSS version 20. Accordingly, variables were entered into the software so as to know their variance inflation factor. This was conducted by running a regression using the dependent variables and the explanatory variables. Variables which were highly correlated have been discarded. Other variables which were not related have been used in the MLR. Standard error was used to standardize the regression coefficient.

3.8 Sampling Technique and Sample Size

The study used multistage cluster sampling technique which consisted various stages. In the first stage, the list of 34 rural kebeles³ was obtained from Ada'a Berga Woreda. The Woreda's Agricultural and Natural Resource office experts classified those kebeles into three agro-ecological zones (low land, mid-land and highland).

In the second stage, the researcher selected one Kebele from each category of agro-ecological zone by using simple random sampling method and by considering the number of kebeles found in this

³ *Rural kebeles*: Rural kebele is defined as "an association of rural dwellers formed by the inhabitants of a given area whose members are engaged either in agricultural ...or non-agricultural activities or in both of them" (CSA 2016:12)

Woreda. Accordingly, Ula Gora (Highland), Dheku Kersa (Mid land) and Biyyo Wogiddi (Low land) kebeles were selected. In the third stage, the sample frame of households was obtained from each selected Keble's administrative offices.

Lastly, the sample households was selected by using the simple random sampling. The unit of analysis of the study was rural households. The three selected kebele had 2285 total number of households. Of which, Ula Gora kebele had 887 households, Dheku Kersa had 583 households and Biyyo Wogiddi had 815 households. The sample size was determined by using Yamane's (1967) formula of sample size determination: $n=N/(1+N(e)^2)$.

Whereas, n is the sample size, N is the total population and e (0.05) is the level of precision. By using the above formula, 340 households were selected and used as sample size of the study. The sample size of the study was administered proportionate to the size of the households in each kebele selected. By using this proportion, the researcher selected 132 households from Ula Gora kebele, 87 households from Dheku Kersa kebele and 121 sample of households Biyyo Wogiddi kebele.

Additionally, the study employed purposive sampling in order to select the informants and discussants from households (knowledgeable households), government officials at woreda (expert of agricultural and natural resources office) and at kebele levels (managers and agricultural extension workers).

3.9 Pretesting, Validity, Reliability and Trustworthiness of Data

In this study, pilot/ pre-testing was conducted to identify various problems and to modify items with in the tools of data collection. To do this, the researcher has discussed with the three kebeles' chairpersons so as to select households' who involved in the pilot test. Accordingly, two households (1 male and 1 female) from each kebele were selected to respond on the questionnaire. The researcher distributed six questionnaires to those households one week ahead of starting the main data collection. After pilot-testing was completed, different lessons have been learned. The first lesson learned from the pilot testing was that there were difficult words in the questionnaire. These words confused the respondents to answer on questions in a good manner. These words were discarded and replaced other words by the researcher.

The second lesson learned from the pilot testing was the existence of some unnecessary questions. This test enabled the researcher to identify some questions which did not match with the objectives

of the study. The researcher has removed those questions and replaced them by other questions which reflected the objectives of the study.

The third lesson learned from the pilot testing was about the obscurity of some concepts and the existence of long statements in the questionnaire. These were partly associated with the translation of questions from English version to Afaan Oromoo version. In this regard, some English terminologies were not equivalent with the terminologies in Afaan Oromoo language. Thus, these issues have been reconsidered by the researcher. Finally, modifications of the items were done in the questionnaire.

To ensure the validity of the data, both face and content validity were employed. Advisors and experts who had experience in research have commented on the items of the tools of data collection. Then after, the researcher ensured that the items included in the instruments of data collection reflected the concepts in the study.

The reliability of the data was checked in order to examine the consistency of the research instruments. The results obtained from the pre and post-test indicated that there was no such difference on the research instruments. Lastly, trustworthiness of the data was ensured by triangulating observation, focus groups and interviews. In a nutshell, the study has checked all instruments of data collection so as to facilitate consistency, truthfulness, clarity and trustworthiness of data.

The rural households in the three selected kebeles' included in the study. Households who were above 18 years were included in the study. By the contrast, households below the age of 18 years were excluded from the study. Households who participated in pretest of questionnaire were excluded.

3.10 Ethical Consideration of the Study

While conducting this study, the researcher has taken into account several ethical considerations. Accordingly, the study began by asking permission from Jimma University, department of Sociology. To this regard, official letter was obtained from the department. Then, the researcher took the letter and made contact with the concerned bodies of the study area (Ada'a Berga Administration office, Ula Gora, Dheku Kersa, and Biyyo Wogiddi kebeles' Administration) in order to ensure informed consent and get approval.

The researcher has given orientation for the study participants (respondents, discussants and informants) on the objectives of the study ahead of data collection. All study participants were informed as this study was used only for the academic purpose. The study participants who involved in the study were requested to give oral consent after orientation was given. The researcher has kept the confidentiality of the study participants. This was done through coding the responses of the study participants instead of writing their names.

Chapter Four

4. Results and Discussions

4.1. Introduction

In the previous three chapters, introduction, literature review and the research methods employed in the study have been discussed. Now, this chapter is concerned with the analysis, presentation and interpretation of the quantitative and qualitative data.

The chapter has four sections. The first section tends to analyze households' characteristics like age, sex, family size and educational levels, the type of their livelihood diversification and the reasons that led households to adopt non-agricultural livelihood strategies. The second section elaborates the relationship between different variables and livelihood diversification of rural households. This section also discusses how accessing resources and institutions could positively and negatively influence households' livelihood diversification. The results of the study are also discussed in relation to the empirical body of knowledge.

The third section illustrates the views of rural households toward the contribution of diversifying livelihood. Studying the perceptions of households toward this phenomenon is relevant to know the awareness of these households on the relevance and effects of adopting different livelihood portfolios. The fourth section discusses the barriers of rural livelihood diversification.

4.1.1 Socio-Demographic Characteristics of the Respondents

This section describes the socio-demographic characteristics of rural households who provided relevant data for this study. These characteristics are sex, age, educational level, household size, number of dependents and others. Detail of these variables are presented in table (2). As shown in the table, 301 (88.5%) of the respondents were male headed households and 82.9% of them were the followers of Orthodox religion.

With regard to marital status, 83.5% of respondents were married and 10 % were divorced. The table revealed that more than half of respondents (52.5%) in the study area did not attend any formal education and they were not able to read and write. Whereas, 37.9% and 7.1% of the respondents have attended primary school (grade 1-8) and secondary school (grade 9- 10), respectively. With this regard, the CSA of Ethiopia (2016) has found that large number of population in Ethiopia lives in rural areas and has low educational status.

Instead of using the actual age, the researcher used the age category of the respondents based on the Ethiopia's CSA (2017) classification. Of the total sample of respondents (340), 77.1% of them were found in between 30 and 64 years. Close to 13.1 % of the respondents were above 65 years. The mean age of the respondents was 46.34 years.

Table 2: Percent distribution of socio-demographic characteristics of sample households, Ada'a Berga Woreda

Variables		Frequency	Percentage	Mean
Sex	Male	301	88.5	
	Female	39	11.5	
Religious affiliation	Orthodox	282	82.9	
	Protestant	48	14.1	
	<i>Waaqeffannaa</i>	10	2.9	
Educational Level	Cannot read and write	179	52.5	
	Grade 1-8	129	37.9	
	Grade 9-10	24	7.1	
	Grade 11-12	4	1.2	
	Diploma and Above	4	1.2	
Marital status	Married	284	83.3	
	Never Married	4	1.2	
	Divorced	34	10.0	
	Widowed	18	5.3	
Age group	Between 18 and 29 years	32	9.4	46.34
	Between 30 and 64 years	262	77.1	
	65 and Above	46	13.1	
Household size	Between 1 and 4	72	21.2	6
	Between 5 and 8	243	71.5	
	Between 9 and 13	24	7.1	
	Above 14	1	0.3	
Number of Dependents	1-3	174	51.6	1.51
	4-6	155	46	
	>7	8	2.4	

Survey: 2018

With respect to household size, 71.5% of the respondents had 5-8 household members. On average, the respondents had 6 family members indicating that the households had relatively a large size of household members. Data in table 2 pinpointed that the average size of household in the study area is higher (6) than the average size of household at national level (4.6) (CSA 2016). The able

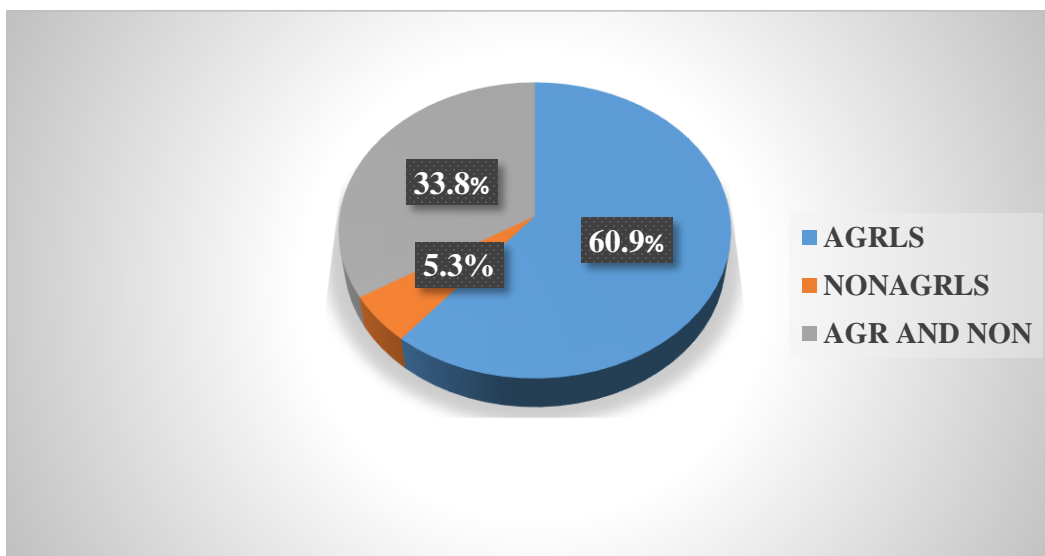
also illustrated that more than half (51.6%) of the sample respondents had between 1 and 3 number of dependents.

4.2 Types of Households' Livelihood Diversification

Figure 4 presents the type of livelihood diversification of the sample households in Ada'a Berga Woreda. As can be seen in figure 4, rural households in Ada'a Berga Woreda engaged in various livelihood portfolios. The survey result revealed that of 340 sample households, 207(60.9%) them have led their livelihood by participating in variety of agricultural livelihood strategies such as production of cereal crops, oil crops; rearing of different livestock such as cattle and draught animals and off-farming occupations like wage work in agriculture and planting tree.

On the other hand, 18 (5.3%) of them have led their livelihood by adopting merely one or more of non-agricultural livelihood strategies such as handcrafting, trade, wage work in urban areas. And 115 (33.8%) of the households have broadened their livelihood by adopting agricultural plus non-agricultural livelihood strategies.

Figure 4: Percent distribution of households' livelihood diversification



Source: Survey 2018

Data obtained from FGD discussants at Ula Gora Kebele and key informants at three Kebeles' indicated that rural households in the area primarily relied on agriculture. Their agriculture consisted of cultivating one or more crops like *Gayo*, *Teff*, wheat, pea, beans and rearing of livestock like oxen, cows, goats, donkeys, sheep and share cropping. These activities were

dominantly done in the area. This was due to the fact that many of these farmers had the experience of agriculture. This has made them to choose and participate in agricultural livelihood diversification.

Additionally, a key informant from Woreda's agricultural and natural resource office mentioned that

“Rural people in our woreda ultimately engaged in agriculture like production of crops, pulses, and animal husbandry more than business activities. These days, they do not only keep large number of livestock but also they began to fatten their livestock.”

The non-participant observation made in the three kebeles' confirmed this idea. In this regard, the researcher was able to observe rural farmers' who plough their land by using ox and those who have different kinds of livestock such as, Sheep, Calf, Goats, Cow and Bull.

As the quantitative and qualitative data revealed that a large number of rural farmers in Ada'a Berga engaged in diversified agricultural livelihoods. This indicates that agriculture was the major means of livelihood of rural households in the area. However, they did their agriculture mainly through using traditional techniques. The probable reasons may be related to the inability of farmers to buy modern agricultural technology such as tractors because of lack of resources and the existence of geographical barriers.

The finding also showed that the surveyed households in the area did not participate in production of cash crops and fish production. The results can be supported by the existing empirical studies (Barret et al 2005; Roy and Yuden 2012; Adugna and Wegayehu 2012) which stated that many rural households in developing countries largely relied on agriculture so as to sustain their life.

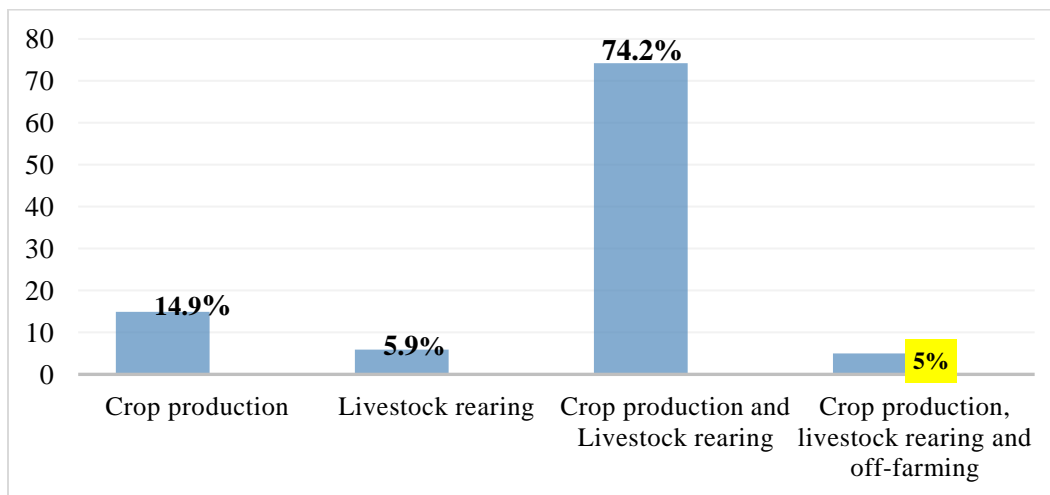
4.2.1 Agricultural Livelihood Strategies

As shown in figure 5, of (322) respondents who involved in agricultural livelihoods, more than half 239 (74.2%) of them engaged in crop production plus rearing of different livestock. On the other hand, 48 (14.9%) of them have engaged solely in production of one or different crops. These rural households have led their livelihood via cultivating crops like *Teff*, maize, sorghum, millet, barley, wheat, beans, pea, *gayo*, niger seed and others. The remaining 5 % of them engaged in crop cultivation, livestock raising plus off-farming.

On contrary to the survey result, a key informant from Woreda agricultural and natural resource office alleged that “farmers in Ada’a Berga Woreda mainly engage in crop cultivation. They are known for cultivation of different crops. In recent years, the trend of farming has been changed. And some farmers have started to adopt activities like fattening different livestock like bull, sheep and cow. Currently, they are benefiting from this activity”.

Moreover, a key informant from Ula Gora kebele stated that some farmers who cultivated crop had no their own land. Instead, they rented farmland from another farmers to produce grains. For the reasons of lacking their own farm land and grass land, those farmers have preferred to crop farming more than rearing cattle.

Figure 5: Percent distribution of households’ agricultural livelihood strategies



Source: Survey 2018

The result of the above data implied that rural households in the area largely adopted crop production and rearing of livestock. The types of crop they produced and livestock they kept were different. Rather than relying on cultivation of single crop, they have diversified their crops. Besides, they also adopted production/rearing of livestock.

The possible reasons for the engagement of households in such types of activities could be related to the existence of land, having experience of farming, habit, geographical location and absence of other opportunities (trade) due to lack of basic infrastructure such as road. In a nutshell, agriculture in the area was dominated by small scale farmers and was still based on traditional system.

Livestock rearing was another agricultural livelihood strategy of the households in the Ada' a Berga Woreda. As data obtained from the survey result and Woreda's Key Informant showed, households in the area kept numerous livestock. Livestock rearing has been and continues to be known in the study area. Alongside of their crop production, farmers in the area produced different types of livestock. These livestock were Cow, Ox, Goat, Sheep, Donkey, Hens, Horse and others.

The study indicated that there was a variation among households with regard to the type of livestock they have owned. While many households had livestock like cow, ox, donkey, horse and sheep, others had livestock like cow, ox and goat. The sample households explained that they involved in rearing of different livestock because of different reasons such as improving their livelihood, lack of land, social status and sustaining their life or a combination of two or more of them.

As these households mentioned, rural households keep large number of livestock for the purpose of getting prestige or honor in their community. In the area, having many livestock was and is seen as a means of getting social status in the society. Farmers who owned large number of livestock such as cattle are considered as a richer than their counterparts. Such farmers had a high status in local society. Thus, there was a big relationship between livestock owning and social honor in the area.

The sampled households also added that households in the area did not manage livestock just for getting prestige but also for leading their livelihood. In this regard, they rear oxen for ploughing their land, cow for improving their livelihood system by selling the milk products and donkey for transporting their products to market and the like.

The general idea from the above data is that rural households' have diversified their crops and livestock. Perhaps, diversifying their crops and livestock have enabled households to improve their living conditions. These activities had a strong relationship with one another because small holder farmers in the area used the labor of their livestock to plough their land. Crop production and livestock rearing were done through traditional farming techniques.

Households in Ada'a Berga Woreda also derived their livelihood strategy from off-farming activities. In this study, off-farming includes activities like wage labor with in agriculture, and assets obtained from other than one's own farm. The survey result indicated that some households in the area united their off –farming activities with other types of agricultural occupations.

As stated in figure 5, 4.6 % of the sample households adopted off-farming activities, crop cultivation plus livestock rearing in order to make their livelihood. The surveyed respondents mentioned that households who pursued off-farm activities were mainly those who had less access to any land. They engaged in these activities in order to get different benefits like labor, cash, livestock and grain.

Some of these households worked on other farmer's farmland either by using their own labor or their ox's labor. In return, they obtained benefits like cash and kind (grain). The money and asset they took from off-farming activities helped those households to re-invest in their farm activities. In this regard, they bought farmland and livestock to improve and sustain their livelihood.

The above expert revealed that there was a close relationship between households' off-farm and on-farm activities. A combination of these activities played a significant in their livelihood. Across the world, plantation of eucalyptus tree has been increasing in recent years. Specifically, it is widely prevalent across the highland areas. This tree is considered as a favorable tree for idle and dry marginal lands of which lack better soil fertility. These days, eucalyptus tree has become a major source of livelihood of rural households in developing countries (Joshi and Palanish 2011).

In Ethiopia, plantation of eucalyptus has become a fashion in rural areas. Rural people plant this tree whenever the fertility of their farmland decline. However, there are many farmers who plant eucalyptus especially on the fertile land and farmland. A study conducted by Tilashwork (2009) in Western Amhara region found that majority of farmers planted eucalyptus tree on cropland and along the side of the farmland.

In Ada'a Berga Woreda, planting eucalyptus is expanding in high land and mid land areas. Along with crop production and livestock rearing, plantation of this tree crop has become acceptable among those farmers. The product of this tree has various benefits. Thus, the benefits of the eucalyptus have motivated farmers to plant it to improve their livelihoods through increased income. In this respect, the qualitative data obtained from the study participants showed that households in the area planted eucalyptus tree for different reasons.

The researcher organized together the ideas of those participants and made the following analysis. Among others, the first reason for the plantation of eucalyptus in the area was the decline of soil fertility. According to the study participants explanation, over cultivation of land for a long period

of time and lack of appropriate conservation of soil fertility have accounted for the depletion of soil fertility.

The existence of heavy rainfall especially during summer season has led to soil erosion. The geographical location of the study area has resulted in soil erosion. Nevertheless, the land which lacked better fertility could not give adequate crop production. As a result, households were forced to plant eucalyptus.

The second reason was habit. Plantation of eucalyptus has become a habit for rural households in the area. This means whenever one's household neighborhood planted eucalyptus, the other household would also have plant this tree. Thus, plantation of such tree has become a tradition of the households in the area.

The third reason for planting eucalyptus was due to its economic benefits. In the study area, eucalyptus had a role to play in supporting livelihoods of farming households. The participants said that sometimes crop production was vulnerable to climate change like lack of rainfall, cold and rust. In order to reduce such type of risks, households planted eucalyptus tree. In addition, they planted this tree for the sake of improving their income and supplementing their farm activities.

Data obtained from FGD discussants at midland kebele indicated that farmers who engaged in planting and selling eucalyptus were able to buy foods, to rent farmland, to purchase fertilizer and to diversify their livelihood strategy. Similarly, many respondents have said that the income obtained from selling this tree crop have enabled farming households to improve their returns, change their livelihood and reduce poverty. Therefore, planting eucalyptus tree was seen a means of making livelihood.

For instance, one respondent from Dheku Kersa Kebele replied that “we plant eucalyptus so as to buy bull for ploughing land and land from urban center”. This implies that plantation of eucalyptus tree was the result of the motivation of household to invest in other farming activities and to shift the place of residence in searching for alternative and improved livelihood opportunities.

In a nutshell, the aforementioned factors have resulted in the expansion of plantation of eucalyptus tree in the study area. From these notions, it is possible to say that both push factors (deterioration of soil fertility, poverty) and pull factors (the need to expand livelihood option) were the main reasons for the widespread planting eucalyptus in the area.

4.2.2 Non-Agricultural Livelihood Strategies

The researcher has studied this types of livelihood diversification because there have been and are a significant number of households who were participating and continue to engage in this livelihood alternative due to unknown factors. Thus, the following section discusses this phenomenon in detail. The survey result found that rural households in Ada'a Berga District did not just rely on agriculture but also they have broadened their livelihood into other non-agricultural livelihood in order to improve and sustain their livelihood. Figure 6 presents the types of households' non-agricultural livelihood strategies in Ada'a Berga Woreda.

Of total of (133) sample households who engaged in non-agricultural livelihood strategies, (37)27.8% of households adopted a combination of petty trade, handicraft, processing and selling/retailing of local beverages and daily labor. 23.3% and 15.8 % of the sample households' have participated in processing and selling of local drinks and daily labor, respectively. Whereas, 13.7 % of the sample households participated in petty trade and 9.8% of households participated in activities like petty trade, brewing of local drinks, charcoal production and daily labor.

Figure 6 indicates households in the area involved in trading activities like marketing of grains like *Teff*, Wheat and *Gayo* and vegetables like onion, potatoes and tomatoes. As the sample households said, they engaged in these activities twice a week especially Saturday and Tuesday. A key informant at Ada'a Berga Woreda's Agricultural and Natural Resource Office said that:

Although rural households' in our woreda primarily engage in farming activities, there are also households who participate in business activities such as selling of different vegetables and hens to improve their livelihood. However, these activities do not provide households with adequate income.

This excerpt implies that farming households in the area participated in low remunerative non-farm activities and reflects that households in the area are economically poor. The probable reasons for the involvement of these households in such activities might be due to lack of experience about engaging in big trade which provide them with better income and to the inaccessibility of market place due to long distance.

In line with this result, the finding of (Abimbola and Oluwakemi 2013; Losch et al 2012; Saha and Bahal 2014) stated that because of the existence of entry barriers and lack of accessing assets, poor people partaken in low remunerative non-agricultural activities.

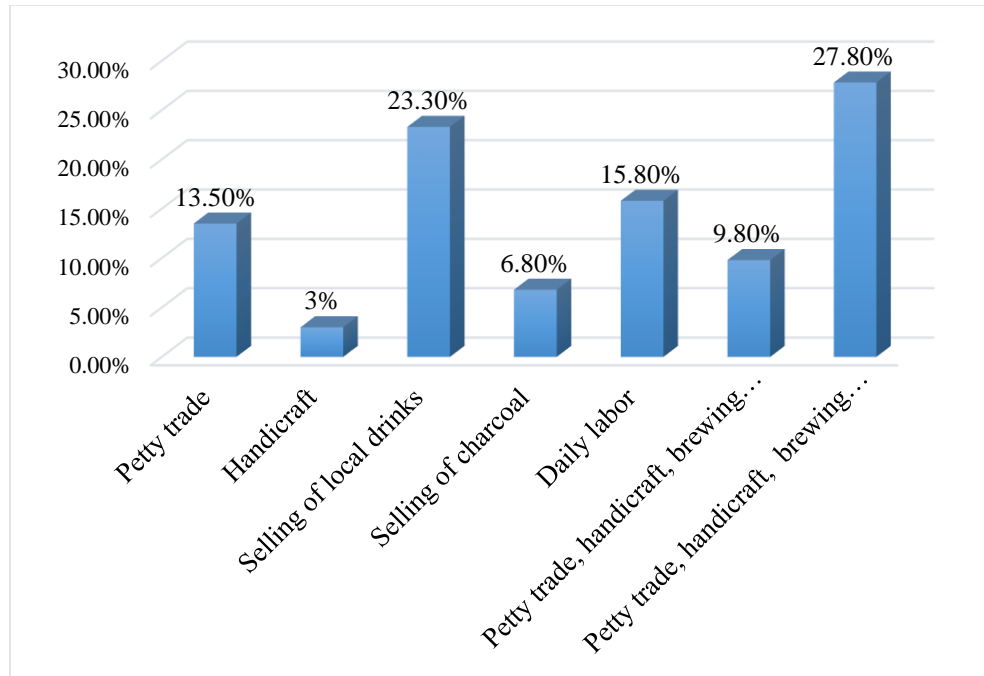


Figure 6: Percent distribution of households' non-agricultural livelihood strategies

Source: Survey 2018

The figure also depicted that rural households in the area engaged in trading of different livestock like Ox, Calf, Hen, Sheep and Goat. Instead of rearing livestock at home, some households in the area involved in marketing of livestock. In relation to this fact, the non-participant observation made at Muger Town's market revealed that rural household's especially males have been participating in selling and buying of sheep and goats. This implies that the types of non-farm activities in the area had a gender implication.

According to a key informant from Ula Gora kebele, some households in the area involve in retailing of livestock rather than rearing them. By relying on these activities, they supplement their agriculture and improve their livelihood. As shown in figure 6, a small number of households in the area have participated in hand craft⁴ activities like carpentry, weaving, metal work and pottery. They did these activities in order to supplement their agriculture.

⁴ Cambridge Dictionary. Hand craft. Hand craft is all about "a skilled activity in which something is made in traditional way with the hands rather than being produced in factory by machines." Retrieved on Oct 12, 2019. <https://dictionary.cambridge.org/dictionary/english/handcraft>

Households who involved in these activities stated that in spite of the presence of negative perception toward their handcraft activities, they continued to rely on these activities. The income they got from these activities helped them to buy food crops, educational materials for their children and to create them job opportunities. In addition, the researcher has observed households in lowland and mid-land kebeles' who practiced handcraft activities like carpentry, metal work and pottery.

Charcoal selling was also another non-agricultural livelihood strategy of the households in the area. They engaged in charcoal production in order to buy grain for their household members. The respondents said that households who participated in in this activity had very small size (less than 0.25 hectare)/no land at all. Because of this, they could not produce enough production which would help them to feed their families. As a result they were obligated to pursue this activity.

As per to key informants at Biyyo Wogiddi Kebele, there were two different scenarios which led households to involve in charcoal production. These two scenarios were stated as follows:

People produce charcoal due to different reasons. On one hand, there are some asset poor households who do this activity for their own survival. By using the money they obtained from charcoal, they may improve their household consumption and income. On the other hand, there are other households who produce charcoal simply for trivial purpose like for drinking alcohol. They have farmland. Some people simply burn charcoal not to move themselves out of problem but because of habit. They burn charcoal because some other households do it.

The above quotation designates that, households in the study area burnt charcoal due to asset constraint. On the contrary, some households in the area did the same activity only for the purpose of satisfying their addiction. For such households, charcoal production was seen as a habit.

The survey indicated that about 15.8% of households in the area participated in daily labor. As the sample households said, the presence of cement factories and urban areas motivated some individuals to involve in daily labor activities. These activities included guards, gypsum mining, counting trucks which carry gypsum, and loading of cement, metal and stones in Muger and Dangote cement factories. This indicated that these activities were temporary.

As the study participants said, there were households who migrate to nearby town and remote urban centers to look for job opportunity such as wage work. The moved away from their home to towns when the process of cultivating and sowing crops has been completed.

A key informant from Ula Gora kebele stated:

There are households who migrate to cities like Addis Ababa, Burayyu and Sebeta in August and September for wage works. Those households engage in this activity whenever there is no farming. They work in these cities for about 1-2 months and go back to their home place for collecting their crops. In some cases, they use the income of their wage work to buy fertilizer and small ruminants like sheep and hens.

It is possible to say from the above excerpt that, migration to urban areas for the search of wage work was a means of earning income. The income they generated have enabled poor households to support their farming activities. This indicates that there was a relationship between wage work and farming activities.

Processing and selling of local drink was another non-agricultural livelihood strategy practiced in the study area. As indicated in figure 6, 23.3% of the households engaged in processing and selling local beverages like *Areke*⁵ and *Tella*. As the respondents said, these local beverages were sold in villages they reside in. There were a significant number of women who were selling *Areke* in a market.

The non-participant observation made by the researcher has confirmed the survey data. In this regard, some women were processing *Areke* at home and there have been also individuals who have drunk this liquor. In the market, the researcher observed many women who were selling *Areke* alongside of different grain and milk products.

In nutshell, households in the area have relatively engaged in different types of non-agricultural livelihood strategies. Yet, many of these livelihood strategies were largely informal. They involved in these activities either seasonally (migration to urban area for wage work) or permanently (handcrafting, trading livestock, processing and selling local beverages).

However, variation has been prevailed among households with respect to their non-agricultural livelihood strategies. Some of them diversified their livelihood into low-return non-agricultural livelihoods. This was largely related to differences in access to various resources. In line with these results, the existed empirical findings of (Martin and Lorenz 2016; Reta and Ali 2012; Dereje 2018) revealed that poor households involved non-farm activities because of entry barriers such as lack of land. But, many of these which are less rewarding.

⁵ *Areke* and *Tella*: A local beverages which are exclusively done by women.

Having discussed the types of non-agricultural livelihood strategies of households, the next subsection tends to explain different factors that either forced or motivated these households to engage in non-agricultural livelihood strategies.

Reasons for Participating in Non-Agricultural Livelihood Strategies

Rural households may broaden their livelihood into non-agricultural livelihood strategies for different reasons. In relation to this fact, many scholars argued that various factors that drive rural people to involve in different non-agricultural livelihood strategies. They categorized these factors as survival strategy and accumulation strategy (Ellis 2000; Sahal and Bahal 2012). Besides, households in the Ada'a Berga Woreda pursued diverse non-agricultural livelihood for various reasons. A combination of distress and voluntary factors led them to adopt this type of livelihood diversification.

I) Compelling/ Factors

In the study area, there were different compelling reasons that pushed households to engage in non-agricultural livelihood strategies. Accordingly, data obtained from survey indicated that the need to improve living condition, poverty, lack of asset base like land and failure of farming activities were the main ones.

Decline of farming activities: In the study area, rural households participated in non-agricultural activities due to the decline of agricultural production and the inability of agriculture to support their livelihood. The failure in their agricultural production were mainly related to climatic factors and lack of using modern technology. As a result, they engaged in these activities so as to generate income to replace the failure in agricultural livelihood options and broaden their livelihood option.

In addition, data obtained from key informants at Ula Gora Kebele and Woreda showed that households in rural areas engaged in different types of non-farm activities whenever their crop production declined due to cold, rust and lack of rainfall. The loss of livestock because of shortage of grassland and water has also made some households to engage in non-agricultural livelihood strategies. They have adopted these activities in order to move out from low standard of living and to improve their livelihood.

The presence of such circumstances implied that diversification in the area could be seen a means of coping strategy with different problems in agriculture.

Lack of asset base: This problem has forced households to engage in one or more of non-agricultural livelihood strategies. The sample of households said that households in the area were asset poor. They did not have enough land which was used for crop production. The size of farmland owned by many young farmers was very small. By only cultivating this amount of land, these farmers could not be able to improve their livelihood. This in turn led farmers to spread their livelihood by adopting variety of non-agricultural livelihoods.

A Key Informant from Dheku Kersa Kebele described that:

Especially, with the increase of the number of population, the size of farm land has become decreased. This situation in turn resulted in land fragmentation. In such a way, households who had small size of land have been obligated to engage in non-farm activities like fermenting of local drinks and retailing of different vegetables

As the above quotation shows, households in the study area involved in non-agricultural activities due to the increment of land fragmentation among family members. The shortage of farmland has made households to expand their livelihood into one or more of non-farm activities. This showed that the presence of large household size played a role in forcing households to multiply their livelihood strategy.

Poverty: Poverty has pushed some households to engage in one or more of the above activities. Data gained from survey result revealed that households in the Ada'a Berga Woreda participate in different non-agricultural activities due to poverty. In this respect, lack of income and inadequacy of food forced some households to involve in activities like handcrafts and daily labor.

According to FGD discussants at Biyo Wogidi Kebele, some households were not self-sufficient in food (one aspect of poverty). In order to cope up with this problem, they migrated to urban center for the search of better job opportunities. They worked in urban areas for two or three months to generate some amount of income. By accumulating the income they got from daily work, male households have been supporting their family members.

The observation data indicated that women households in the area mainly participated in processing *Areke*. Some of these women who engaged in this activity did not have a husband. When asked about why they adopted this activity, they reported that lack of farmland, poverty and the motivation to improve their living conditions have made them to pursue this activity.

In a nutshell, problem oriented factors like decline of crop production, loss of livestock, lack of farmland, population growth, land fragmentation and poverty were the main reasons that forced households to engage in non-agricultural livelihood diversification strategies. Yet, many of these activities were not as such pleasing and did not provide households with high income. Thus, the adoption of these activities in the study area was seen as a means of adaptation and a way of coping strategy.

The results of the study are in line with the push factors perspective which claims that livelihood diversification is a strategy to reduce problems. The results of the current study corroborate the studies of (Sahal and Bahal 2014; Trung et al 2014; Tamirat et al 2019) which identified that distress driven factors like shortage of farmland, lack of assets and poverty have obligated rural poor to engage in various non-farm activities. Their findings also found that households diversified their livelihood in order to handle the immediate effects of stresses and shocks.

II) Enabling Factors

Households in the study area also expanded their livelihood option into non-agricultural livelihood strategies. The sample households said that they participated in one or more of the above livelihood activities because of motivating factors like having of skills of different things and existence of opportunities. Some households in the area had skills of weaving, carpentry and trading of different livestock.

The non-participant observation made by researcher has revealed that households in the area had skills like carpentry, pottery and metal work. Perhaps, these activities have enabled households to improve livelihood and reduce different problems. However, these activities were not as such a more rewarding activities.

Moreover, interview made with agricultural extension workers at Dheku Kersa Kebele indicated that some households are very close to cement factories that are found in the area. Hence, the existence of such factories opened up opportunities such as employment opportunity for those households. They support their agriculture by the income they obtained from working in these factories.

From the above notions, it can possible to illustrate that households in the study site have multiplied their livelihood strategies because of the existence of asset like skill and nearness to

industries. The participation of households in one or more non-agricultural livelihoods has improved their income and enabled them to re-invest in farming activities.

This finding confirms the previous literatures (Barret et al 2001; Loison 2015) which found that households could diversify their livelihood into non-agricultural activities whenever there is favorable opportunities in their environment like investments.

4.3. Determining Factors of Rural Livelihood Diversification

As explained in the previous section, rural households in Ada'a Berga have relatively diversified their livelihood. The types of their livelihoods and their ability to engage in different livelihood portfolios are largely determined by accessing resources and policies and strategies (Niehof and Price 2001). In this respect, this section discusses the determinants of households' livelihood diversification in the study site.

4.3.2 Categorical variables and Livelihood Diversification

Literature on livelihood diversification shows that various resources including human resources play an important role in the livelihood of rural people. In rural areas, the ability of households to broaden their livelihood depends partly on the type of resources they have at their hand (Sharma 2018). Thus, these resources have a role to play in their production, the types of livelihood options they chose and their standard of living. The relationship between different explanatory variables and household's livelihood diversification has been presented in table 3.

Age had a relationship with livelihood diversification of rural households. The study indicated that the average age of household heads was 46.34 years. This reflected that the study area had an economically active age groups. Table 3 presents the variation of livelihood diversification with regard to the age of category of the households. Of 262(77%) households between 30 and 64 years, 46.7% of them engaged in agricultural livelihood strategies and 26.4% of them have adopted agricultural plus non-agricultural livelihood strategies.

On the other hand, 3.9% of them have adopted merely non-agricultural livelihood strategies. The chi square test for independence revealed that the age of households and their livelihood diversification had a statistically significant relationship ($\chi^2(4) = 11.564, P < 0.050$). As shown in table 3, households between 18 and 64 years have diversified their livelihood by adding non-agricultural to their agricultural livelihood strategies as compared to those above 65 years.

Table 3: Distribution of rural households' by age, educational attainment, household size, dependent numbers and types of livelihood diversification. Source: Survey 2018

Types of households' livelihood diversification	Age category of the household			Total
	18-29 years	30-64 years	> 65 years	
Agricultural livelihood strategies	13 3.8%	159 46.7%	35 10.2%	207 60.8%
Non-agricultural livelihood strategies	4 1.1%	13 3.9%	1 0.2%	18 5.3%
Agricultural plus non-agricultural livelihood strategies	15 4.4%	90 26.4%	10 2.9%	115 33.8%
Total	32(9.4%)	262(77%)	46(13.5%)	340

Types of households' livelihood diversification	Educational level of the household					Total
	Cannot read and write	Grade 1-8	Grade 9-10	Grade 11-12	Above Diploma	
Agricultural livelihood strategies	124 36.4%	69 20.2%	10 2.9%	1 0.2%	3 0.8%	207 60.8%
Non-agricultural livelihood strategies	8 2.3%	8 2.3%	2 0.5%	0 0%	0	18 5.3%
Agricultural plus non-agricultural LSs	47 13.8%	52 15.2%	12 3.5%	3 0.8%	1 0.2%	115 33.8%
Total	179 52.6%	129 37.9%	24 7%	4 1.1%	4 1.1%	340 100%
Households' livelihood diversification	Household size				Total	
	1-4	5-8	9-13	Above 14		
Agricultural LSs	40 11.7%	152 44.7%	14 4.1%	1 0.2%	207 60.8%	
Non-agricultural LSs	9 2.6%	9 2.6%	0 %	0 0%	18 5.3%	
Agricultural plus non-agricultural LSs	23 6.7%	82 24.1%	10 2.9%	0 0%	115 33.8%	
Total	72 21.1%	243 71.4%	24 7%	0 0%	340 100%	
Households' livelihood diversification	Number of dependents in the households			Total		
	1-3	4-6	Above 7			
Agricultural LSs	111 32.9%	89 26.4%	5 1.4%	205 60.8%		
Non-agricultural LSs	12 3.5%	6 1.7%	0 0%	18 5.3%		
Agricultural plus non-agricultural LSs	51 15.1%	60 17.8%	3 0.8%	114 33.8%		
Total	174 51.6%	155 45.9%	8 2.3%	337* ⁶ 100%		

This implied that households in this age groups had access to productive resources and had high potential than their counterparts. Having such resource helped them to broaden their livelihoods

⁶ * shows the total number of households who had a dependent member

rather than relying on single livelihood activity. As a whole, variations in household's livelihood diversification were attributed to differences in their ages.

In line with this finding, a study done in Tigray region of Ethiopia stated that rural households who were found under productive age group have diversified their livelihood into on-farm and non-farm occupation than the older households (Gebrehiwot et al 2019). A report of FAO (2019) stated that rural people at age of young and adult are more likely to spread their livelihoods because of the existence of land fragmentation in rural areas.

The relationship between educational attainment of the households and their livelihood diversification was also presented in table 3. Of the 179 households who could not write and read, 13.8% of them participated in agricultural and non-agricultural livelihood strategies. Of 129 households who attended primary education (grade1-8), 15.2% of them engaged in agricultural plus non-agricultural livelihood strategies.

On the other hand, of 24 households with secondary education (grade 9-10), 3.5% of them participated in agricultural plus non-agricultural livelihood strategies. The survey result revealed that households who attended primary education (Grade1-8) engaged in one or more of agricultural plus non-agricultural livelihood strategies than those who did not attend any education and who attended secondary education and above.

The chi-square test for independence found that there was a statistically significant relationship between the educational attainment and households' livelihood diversification ($\chi^2(8) = 15.523$, $P=0.050$). The result stated that variations in households' livelihood diversification were associated with their educational level. For further information, *see annex (VII)*.

When we look at data in table 3, the number of households who attended secondary education and above was smaller than the number of households who did not attend and attended primary education. This indicated that the types of livelihood diversification to which household diversified were largely informal. The descriptive data have been consistent with the chi-square result.

The survey result showed that the mean of household size in the study area was 6. As presented in table 3, of 243 households who had between 5 and 8 number of family members, 44.7 % of them involved in agricultural livelihood strategies than their counterparts. The chi-square test for

independence revealed that the relationship between household size and households' livelihood diversification was statistically insignificant ($\chi^2(6) = 11.120, P > 0.050$).

The survey result showed that the average number of dependents in the households was 3.6. This indicated that household in the study area have less than 4 number of dependents. Accordingly, of 174 households who had between 1 and 3 dependents, 32 % of them relied one or more of agricultural livelihood strategies, 15.1% of them engaged in agricultural plus non-agricultural livelihood activities.

The remaining 2.1 % of them relied on non-agricultural livelihood strategies. Of 155 households who had between 4-6 numbers of dependents, 26.4% of them pursued only agriculture, 17.8% of them relied on agricultural and non-agricultural livelihood strategies. Of 111 households who had between 1-3 numbers of dependents, 32.9% of them participated solely in agricultural livelihood strategies. On the other hand, 15.1% of households have adopted agricultural plus non-agricultural livelihood strategies.

Nevertheless, the chi-square test for independence indicated that the relationship between number of dependents and households' livelihood diversification was statistically insignificant ($\chi^2(14) = 12.068, P > 0.050$). This result showed that differences in households' livelihood diversification were not associated with differences in the number of dependents.

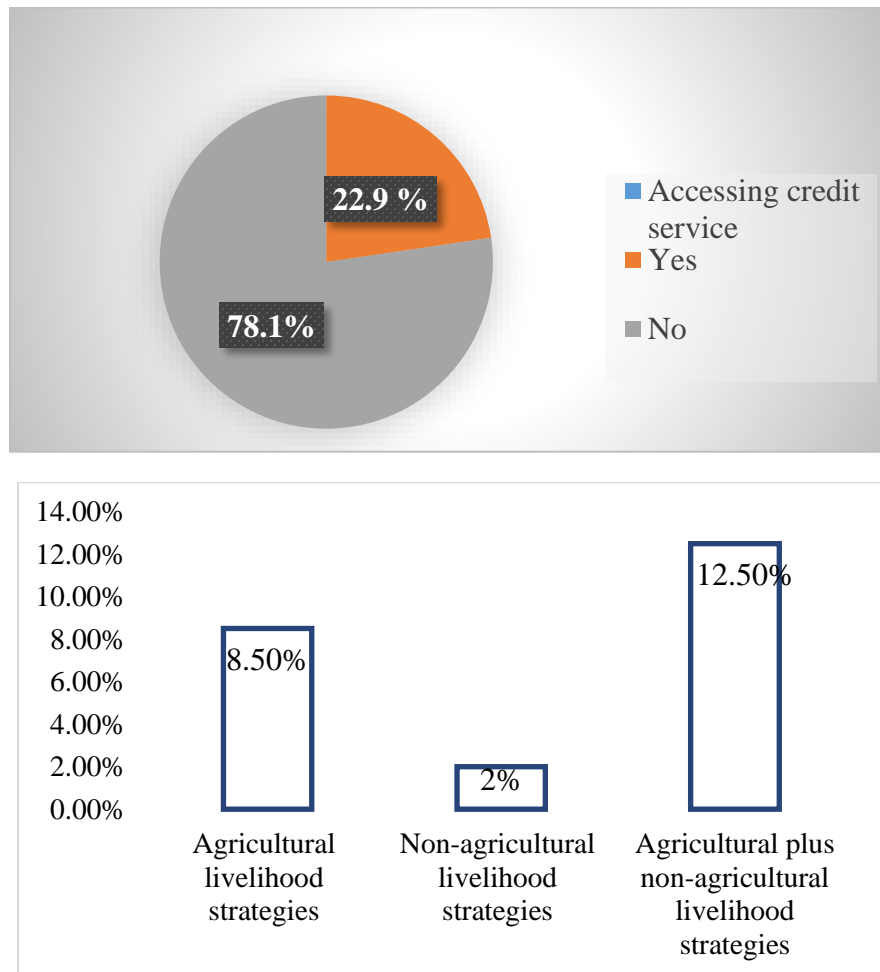
The possible reasons could be that diversifying livelihood in rural area may need more time and is done frequently. Households could be busy of caring for their dependent members. Thus, they could not diversify their livelihood. The result is inconsistent with the previous empirical study of (Choung et al 2014) which found that income diversification of rural households has been related to having large number of dependents.

4.3.3 Accessing Credit Service

In Ada'a Berga Woreda, the survey result found that accessing credit service by rural households had a relationship with their livelihood diversification. Accordingly, figure 7 presents that out of the total sample of households (340), 78 (22.9 %) of them had access to credit service and 262 (78.1%) of them had no access to credit service.

As shown in the same figure, of households who had access to credit service, 12.3% of them engaged in one or more of agricultural and non-agricultural livelihood strategies. The chi-square test for independence revealed that there was statistically significant relationship between households' livelihood diversification and accessing credit service ($\chi^2(2) = 23.928, P < 0.050$).

Figure 7: Percent distribution of households' accessing credit service and livelihood diversification



Source: Survey 2018

This partly reflected that access to credit service encouraged households to broaden their livelihood options by adopting various livelihood portfolios. The main reason could be that accessing credit service by households might have helped them to get financial service, how they can use this finance to diversify their farming activities and to participate in non-farm activities. Thus, broadening these activities would have a role to play in reducing poverty of rural poor.

The quantitative results from survey and chi-square test can be verified by the qualitative data. In this respect, data obtained from FGD discussants and Key informants at three kebeles' entertained the importance of accessing credit service. The data notified that households who had access to credit service were able to improve their agricultural livelihood strategies either by cultivating crops which have given them improved production or by rearing different livestock. The credit service also enabled them to invest in their agricultural livelihood strategies.

Getting this service has in turn encouraged these households to participate in different non-agricultural livelihood strategies. The general idea from the above expert is that households who had access to credit service were able to spread their agricultural and non-agricultural livelihood strategies than those who had not.

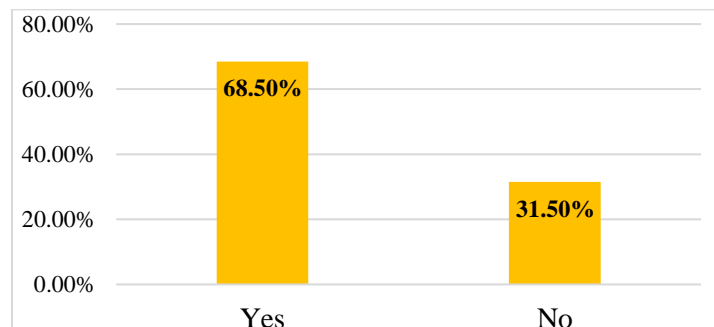
Thus, differences in households' livelihood diversification in the study area were related to differences in accessing credit service. In line with this result, the sustainable livelihood approach and pull factor perspective that assumed the essentiality of financial capital such as credit in enabling rural households to pursue different livelihood strategy and address poverty.

This finding is consistent with the findings of (Echebiri, Onwusiribe and Nwaogu 2017; Dereje 2018; Yishak 2016) which stated that accessing rural credit had a great relationship with the livelihood of rural households. Their findings showed that rural households' who had access to rural credit service have diversified their livelihoods. Perhaps, diversification helped them to improve their living condition, to reduce risks that attack their assets and offered them the way out of vicious poverty. Conversely, it disagrees with empirical literature which found that accessing credit does not promote households to diversify their livelihood.

4.3.4 Utilizing Agricultural Extension Service

The survey result indicated that utilization of agricultural extension service had a close relation with the livelihood diversification of rural people. As shown in figure 8, of 340 sample households, more than half 233 (68.5%) of them had used different types of agricultural extension services. On the other hand, 107 (31.5%) of them did not use any type of agricultural extension service.

Figure 8: Percent distribution of households' utilizing agricultural extension services

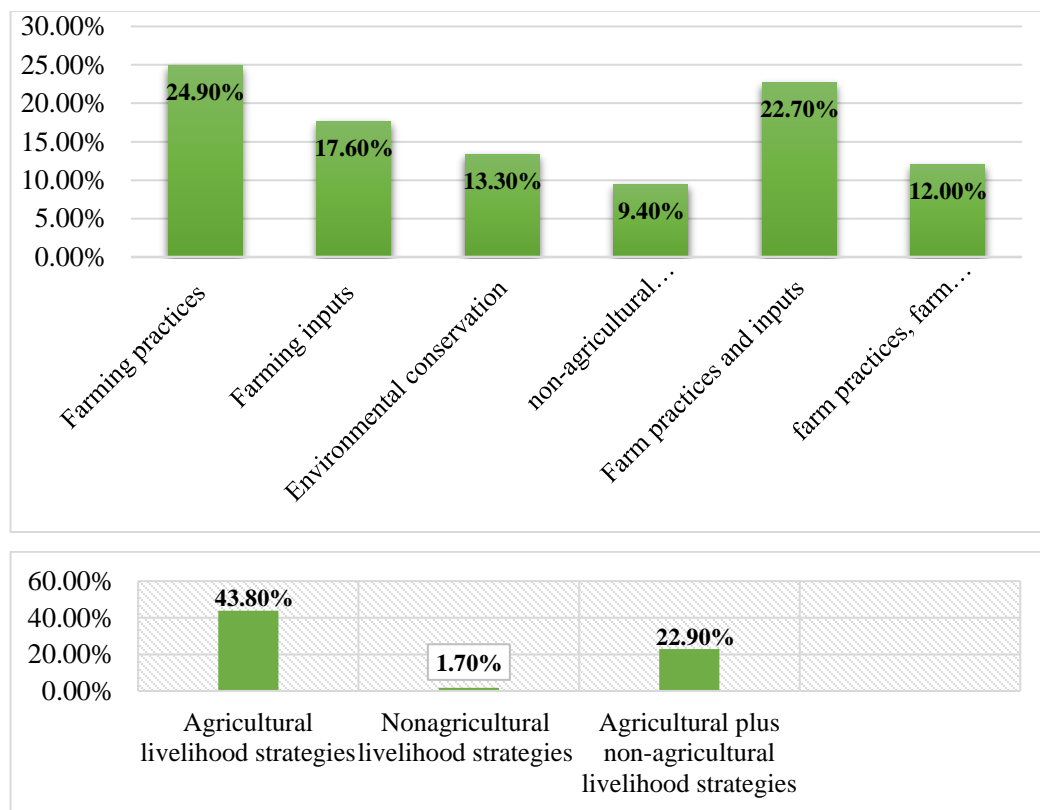


Source: Survey 2018

With this regard, agricultural extension workers at Dheku Kersa kebele said that “though some farmers are reluctant to utilize agricultural extension service, many of them are using agricultural extension services.”

This expert revealed that there was a difference among farmers on utilizing agricultural extension services. This variation among households on utilizing one/ more types of agricultural extension services had an impact on their choice of livelihood diversification. The survey result that the utilization of agricultural extension has created a disparity among households on the type of livelihood diversification they pursued.

Figure 9: Percent distribution of households’ utilizing different types of agricultural extension services and their livelihood diversification



Source: Survey 2018

As shown in figure 9, of 233 households who utilized agricultural extension services, 24.9% of them used farm practices, and 22.7% of them replied as they have used services about farm practices and farm inputs. 17.6% and 13.3% of them responded as they got services related to farm inputs and environmental conservation, respectively.

Regarding to the type of services given to those households, agricultural extension workers from Biyyo Wogiddi kebele and Ula Gora Kebele explained that:

We as an experts give different services for our farmers. For instance, we advise them on how they plough their land, how they use both natural and chemical fertilizers, how they use selected seed and selected livestock. In addition, we advise them on how they protect soil erosion, reduce deforestation and how they conserve wild animals which are found in their area. After they received these services, there were farmers who improved their livelihood especially by engaging in fattening of selected livestock. They used the income obtained from this activity to improve their life. These days, they are pursuing not just agricultural activities but also non-farm activities. Thus, such services are helping our farmers to increase their agricultural production and promote their non-agricultural activities.

As the results of the quantitative (Survey) and qualitative data (key informants) show, the services that the households in the area got were not the same. While some farmers have got service about farm practices like how they sow their crops, how they raise their livestock and how they plough their land, other households have got services related to farm inputs especially how they use fertilizers (chemical fertilizer), herbicides, and how they use selected seed.

Some households have got services related to non-agricultural livelihood strategies such as the way they cooperate to receive credit service from formal credit institutions and the way they expand their livelihood option into other non-farm activities like trade. A combination of these services have helped the households to choose different livelihood portfolios and improve their living conditions.

As indicated in figure 9, of 233 households who used different types of agricultural extension services, close to half 149 (43.8%) of them participated in agricultural livelihood strategies. Whereas, 78(22.9%) of them engaged in both agricultural and non-agricultural livelihood strategies. The chi-square test of independence found that the relationship between utilizing agricultural extension services and households' livelihood diversification was statistically significant at ($\chi^2 (2) = 11.509, P < 0.05$).

The main idea is that households who had utilized one or more of agricultural extension services had diversified either their agricultural or non-agricultural livelihood strategies. This might be related to getting information from agricultural extension workers on how they could spread their livelihood portfolios. In rural areas, having such information could help rural households how they can cultivate different crops which give them different benefits and fulfill their food, how they

get access to, and rear selected livestock and how they use modern farming technologies to improve their agriculture.

In addition, this information promoted households how they can get access to credit service and cooperate together to engage in various non-agricultural livelihood strategies so as to sustain their livelihood and improve their overall living condition.

Data obtained from agricultural extension workers at Dheku Kersa Kebele reveal that there were farmers who used different agricultural extension services such improved seeds, agro-chemicals, access to credit services and soil conservation. Many of these farmers mainly engaged in agricultural livelihood strategies than non-agricultural livelihood strategies.

This notion revealed that the type of services they got from those experts led them to pursue agricultural livelihoods. This motivated them to diversify their agriculture more than searching for another livelihood alternatives. These findings conform the MoARD policy's (2018) which states that agricultural extension services intend to meet diversity of rural livelihood. It aims to increase agricultural production, alleviate rural poverty and improve the rural livelihood thereby facilitating credit service.

4.3.4 Accessing Land

In rural areas, land is very relevant to households in helping them to pursue various livelihood activities. Evidence showed that households who access land and have large plots of land have a chance to produce adequate crop and raise many livestock's. Besides, the ability to raise different types of livestock in rural area is largely dependent on the amount of the grassland that the households could have at their hand. Thus, access to land has key role to play in encouraging households to avert poverty and broaden their livelihood (Cotula et al 2006; Sharma 2018).

The survey result stated that many households in the area had relatively access to land. As shown in figure 10, of the total sample of households (340), 306 (90%) of them had access to any type of land. On the other hand, 10 % of households in the area had no access to any land. As the same figure indicated, households who had access to land had engaged in different livelihood portfolios.

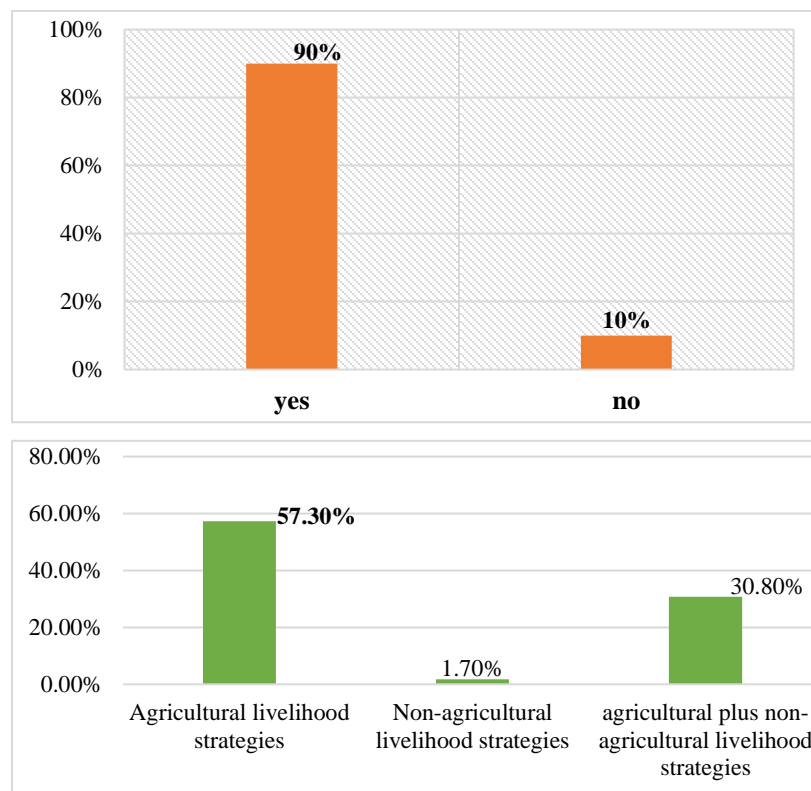
The study indicated that of households (306) who had access to any land, 195 (57.3 %) of them practiced various agricultural livelihood strategies, while 105 (30.8%) of them involved in both

agricultural plus non-agricultural livelihood strategies. The remaining 1.7 % of them engaged in one or more non-agricultural livelihood strategies.

The result of chi-square test revealed that there was a statistically significant relationship between access to land and households' livelihood diversification ($\chi^2 (2) = 68.009, P < 0.05$). This implies that the probability of χ^2 statistic was $P = 0.000$, less than the alpha level of significance of 0.05. In other words, the result showed that as households had access to land, there was a probability of households to diversify their livelihood.

Thus, differences in households' livelihood diversification were associated with differences in their access to land. These differences in access to land among farming households could be related to formal and informal forms of land acquisition. In the study area, access to rural land by households has been shaped by the society's custom and government rules and regulation. Having differential access to any land has created a variation among households with respect to the types of livelihood they have chosen.

Figure 10: Percent distribution of households' accessing land and their livelihood diversification



Source: Survey 2018

The general idea is that households who had access to land could diversify their agriculture by cultivating variety of crops which have high value, rearing different livestock and planting trees and broaden their livelihood by involving in different non-agricultural livelihood strategies.

This finding confirms the previous literature (Fobih 2004; Cotula, Toulmin and Quan 2006) which stated that households who have access to land can participate in numerous livelihood activities, enhance their financial security, generate additional income and alleviate poverty. Thus, land access has a significant role to play in the livelihood of poor households.

The survey result has found that even though many households in the area had access to any land, there have been some households who did not have access to any land. They were landless. Lack of access to land would have its own implication on the livelihood of rural poor. In this respect, 24 (7 %) of land less households derived their livelihood from non-agricultural and a combination of both agricultural and non-agricultural livelihood strategies. As the survey result showed, lack of access to land has limited the chance of households to involve in agriculture.

This might indicate that households who lacked this asset could not actively engage in agriculture. They may have broadened their livelihood into one or more of the non-agricultural livelihood strategies such as trade, processing of local drinks, handcraft and others, on one hand and they engaged in farming plus non-farm activities, on the other hand. Though they did not have any land, these households had relatively participated in agriculture. The probable reasons could be that these land less households may rent land from other households or participate in share crop so as to engage in agricultural occupation.

Interview made with key informant at Dheku Kersa Kebele pinpointed that in the area, landless household's especially young farmers participate in activities like sharecropping, labor employment in agriculture, retailing of different grains and fermenting local drinks. By engaging in such type of livelihood diversification, the landless households make their livelihood.

Key informant at Ula Gora Kebele also replied the same response. In the area, lacking land in one way or another could led households to broaden their livelihood options into different activities. This result corroborates the finding of (Fekadu and Mequanent 2010) which showed that land less households were forced to diversify their livelihood by engaging in share cropping and wage labor. The finding is also supported by the push perspective factors of livelihood diversification which

views that shortage of land obligates poorer households of developing countries to diversify their activities by adopting different livelihood portfolios.

4.3.5. Agro-Ecology

The survey result indicated that rural households in the study area live in different agro-climatic zones such as mid-land, highland and lowland. As shown in table 4, of 121 households who lived in lowland kebele, 69 (20.2%) % of them engaged in agricultural livelihood strategies and 44 (12.9%) of them led their livelihood by involving in agricultural plus non-agricultural livelihood strategies. From 87 households who lived in mid land kebele, 51(15%) of them participated in agriculture and 31(9.1%) have adopted agricultural plus non-agricultural livelihood strategies. From 132 households who lived in highland kebele, 40(11.7%) have diversified their livelihood into agricultural and non-agricultural livelihood strategies.

Table 4: percent distribution of households' by agro-ecology

Types of households' livelihood diversification	Agro-ecology			Total
	Low land	Mid land	High land	
Agricultural livelihood strategies	69 20.2%	51 15%	87 25.5%	207 60.9%
Non-agricultural livelihood strategies	8 2.3%	5 1.45	5 1.4%	18 5.3%
Agricultural plus non-agricultural livelihood strategies	44 12.9%	31 9.1%	40 11.7%	115 33.8%
Total	121 35.5%	87 25.5	132 38.6	340 100

Source: Survey 2018

As presented in the table, households in the lowland area have relatively adopted agricultural and non-agricultural livelihood strategies as compared to households in the midland and highland areas. The survey result revealed that households in the highland area have been known for pursuing agricultural livelihood activities than the rest households. In this regard, 87(25.5%) of them had participated in one or more of agricultural livelihood strategies as compared to those in lowland and mid land kebeles'

Nevertheless, the chi-square test indicated that the relationship between agro-ecology and households livelihood diversification was statistically insignificant ($\chi^2(4) = 2.711, P > 0.05$). This implied that differences in household's livelihood diversification were not related to differences in their geographical location.

On contrary to the statistical test result, data obtained from the key informants at woreda and midland kebele and FGD discussants at highland kebele revealed that majority of households have been making their livelihood from agricultural activities like livestock raising, crop cultivation and share cropping. Yet, due to the difference of climate, households did not just rely on agricultural activities. Instead, they simultaneously engaged in both agricultural and non-agricultural livelihood strategies in order to escape any problem that may come up with climate change.

Perhaps, both qualitative data and survey result specified that variation of households' livelihood diversification was associated with related to their location.

4.3.6 Road, Market and Urban Centers

In rural areas, road and market are very essential assets for rural households. They play a key role in the development of rural areas. In the study area, variation was observed among rural households regarding their distance to market, road and urban center. As shown in table 5, the mean distance between the main road and the home of the households was 1 hour and 10 minutes. On average, households spent 1 hour and 37 minutes from home to nearest market center (Table 5). The mean distance between the urban center and the home of the households was 1 hour and 37 minutes.

Table 5: results of households walking distance to market, road and urban center

Walking distance to infrastructure	Mean	Standard deviation	Maximum	Minimum
Distance to Main road(in hour)	1.10'	0.784	4.00	0.5'
Distance to market center(in hour)	1.37'	0.794	4.00	0.15'
Distance to urban center(in hour)	1.37'	0.785	4.00	0.10'

Source: Survey 2018

The results in table 5 illustrated that households in the study area were situated very far away from the main road, market and urban center. This distance would have its own influence on households' livelihood diversification. The possible reasons are that households who were closer to main road, market and urban center were more likely to diversify their livelihood into non-agricultural and both agricultural and non-agricultural livelihood strategies than their counterparts. This was because such households would have more opportunity to access credit, get different information, pay low cost for transport and save their time.

In line with the survey result, non-participant observation informed that households in the study area were found very far away from the motorized road, market and urban center. On average, they went for about 1 hour to reach these places. Besides, the topography of the land in the area was very difficult. This has in turn hindered the government to construct road. Lack of road has exposed households not to arrive the market and urban center on time. The long distance to the market, road and urban center hampered the opportunities of those household to broaden their livelihood option.

Interview made with key informants at Dheku Kersa, and Biyyo Wogiddi Kebeles confirmed the above ideas. Data obtained from these key informants showed that majority of farmers in the area have been suffered a lot due to the distance of market center and motorized road from their residential place. These farmers could not transport their product as they like. When they transport their products even by using their own labor and animal labor, they could not sell their products at an optimal cost. Because of this distance, they could not participate in activities other than agriculture like trade. Rather, they stick to participate in agricultural livelihood strategies.

The above survey result and qualitative data asserted that distance factors had a great relationship with the livelihood diversification of rural households. The results of the study substantiate with the theme of sustainable livelihood approach which says that the presence of or poor basic infrastructure (especially road and market) either promote or obstacle the livelihood portfolios of rural poor.

4.3.7 Gender and Livelihood Diversification

Studies indicate that the issue of gender has been overlooked for a long period of time. This was mainly associated with the previous political and social systems of the world. However, recently, the issue has become one part of cross cutting issues (UN 2009). Thus, it has got importance in political and academic arena. In area of rural livelihood, gender and different types of livelihood diversification have a vital relationship (Smith 2015).

Under the sustainable livelihood approach framework, the researcher has reviewed the relevance of the approach for this study and its shortcomings. Of these weaknesses, disregarding the issue of gender in livelihood is the main one. To address this issue, the current study was made to analyze whether gender has any interaction with livelihood diversification or not. To do this, data were collected from the respondents, informants, discussants and non-participant observation.

As the survey result of the study illustrated, there was a difference between male and female households regarding the types of agricultural and non-agricultural livelihood strategies. In this respect, the sample respondents said that male households engaged in agricultural livelihoods like crop-farming and daily labor more than female households.

Data obtained from FGD discussants at all kebeles and key informants showed that the livelihood activities of rural households were socially constructed. They were interlinked with the culture of societies. Perhaps, the types of activities in which women engaged were not the same with that men. As compared to men, women engaged in rearing of livestock such as cow, poultry, sheep and goats. They also engaged in weeding and carrying crops home. Whereas, men mainly involved in ploughing, land preparation, and harvesting crops more than women.

These results indicate that the types of agricultural activities pursued by both gender were varied. The variation among rural women and men in the study area has been deeply rooted in social structure. Especially, this was related to the attitude of society that women do not farm. Variation among female and male households was also observed in the case of non-agricultural livelihood strategies.

In this regard, data gained from key informant from highland kebele and FGD discussants from mid-land kebele stated that though both male and women households engaged in non-agricultural livelihood strategies like retailing of grains, selling of charcoal, there were activities which were mainly done by male or female households.

More than female households, male households involved in non-agricultural livelihood strategies like trading of livestock, wood work and daily labor. This was mainly related with the way female and male was socialized to these activities. For instance, women could not participate in trading of livestock. This was because it has been considered as an activity of men for a long period of time. On the other hand, women mainly engaged in some non-agricultural livelihood strategies like processing and selling Tella and *Areke* and selling pottery. This activity was exclusively done by female households.

The non-participant observation data from Muger market and three kebeles accompanied the above arguments. As the observation result reveals, many women involved in brewing of the aforementioned local drinks. These women were those who had and who had no husband. They have been selling these drinks in their home and at market place.

The main points from the above data are that the types of livelihood diversification strategies are different among male and female households. There were livelihood activities which have mainly been done by either male or female households. This variation was linked with the society's customs and habits. These results are in line with arguments of (Niehof and Price 2001; Kebede et al 2014) which showed that as a result of their culture, men and women involve in different livelihood activities.

4.3.7. Results of Multinomial Logistic Regression for Rural Livelihood Diversification

This study fits the assumptions of multinomial logistic regression. The model is used when the dependent variables (measured at nominal level) are more than three categories. The study also employed three dependent variables which were consistent with the model. The model assumes that independent variables could either be continuous or categorical. The study fits this assumption by relying on the independent variables which were continuous and categorical.

The model depends on the assumption of non-linearity among variables. The current study did not assume that independent and dependent variables should have a linear relationship. The outcome variables were not directly predicted from the independent variables. Nevertheless, the model assumes the independence among dependents variables.

In order to detect the problem of multicollinearity among the variables, the study used the VIF (Variance Inflation factor). In this study, two independent variables which had the problem of multicollinearity have been avoided. The other issue was about base category. The statistical package for social sciences version 20 selected the last category (agricultural and non-agricultural livelihood strategies) as the reference class by default.

However, the rule of the category says that the reference class of the model needs to be those which has high frequency distribution in the observation/case. In line with this rule, the researcher has chosen agricultural livelihood strategies as a reference category of the model. The agricultural livelihood strategies were selected as a base/reference category of the model because majority of households (60.9%) in the area primary relied on this type of livelihood diversification for making their livelihood.

Then, the model compared households who only adopted non-agricultural livelihood strategies and those engaged in agricultural plus non-agricultural livelihood strategies in reference to those participated in agricultural livelihood strategies. In other words, the first category was the reference

class (Agricultural). There were two other categories or classes. In this study, the second class was non-agricultural and the third category was agricultural plus non-agricultural. Households who engaged in the second and third classes were compared in relation to the first category.

The multinomial logistic regression was employed in this study because the dependent variables of the study had three nominal variables (agricultural, non-agricultural and agricultural plus non-agricultural livelihood strategies). The study had many explanatory variables which were both categorical and continuous. The explanatory variables were age, agro-ecology, accessing credit, access to land, distance to road and utilization of agricultural extension services. The remaining insignificant variables were not included in table 6.

Table 6: Multinomial logistic regression results on the factors determining households' livelihood diversification in Ada'a Berga Woreda.

Outcomes variables	Non-agricultural livelihood strategies						Agricultural plus non-agricultural livelihood strategies					
	B	St. error	Wald	df	Sig.	Exp (B)	B	St. error	Wald	df	Sig.	Exp (B)
Agroecology=1	.702	.592	1.403	1	.236	2.017	.327	.272	1.452	1	.228	1.387
Agroecology=2	5.34	.657	.662	1	.416	1.706	.729	.279	.882	1	.348	1.322
Agroecology=3	0 ^b			0			0 ^b			0		
Age code=1	2.457	1.167	4.432	1	.035** ⁷	11.667	1.476	.528	7.820	1	.000*	4.375
Age code=2	1.945	1.054	.982	1	.322	2.844	.677	.382	3.114	1	.005*	1.969
Age code =3	0 ^b			0			0 ^b			0		
Credit Yes=1	1.363	.523	6.779	1	.009** ⁸	3.906	1.262	.279	20.512	1	.000*	3.531
No =2	0 ^b			0						0		
Access Yes=1	-3.396	.576	34.730	1	.000*	.034	-.237	.450	.276	1	.599	0.789
Land No=2	0 ^b			0			0 ^b			0		
AgrEXT Yes=1	-1.637	.523	9.778	1	.002*	.195	-.198	.253	.613	1	.434	.821
No=2	0 ^b			0			0 ^b			0		
Distance to Road	-.599	.396	2.290	1	.130	.550	.055	.147	1.43	1	.706	1.057
The reference category is agricultural livelihood strategies b is set to zero because it is redundant												
Total number of observations=340												

Source: Survey 2018

Age: As shown in table 6, the age of households had significantly influenced household's livelihood diversification. The multinomial logistic regression indicated that the log of the odds

⁷** represents sign value at 5% probability level

⁸ * represents sign value at 1 %probability level

of households' livelihood diversification was positively related to age of household head. Hence, the likelihood rural households' who were found in the young age category had mostly adopted non-agricultural livelihood strategies by a factor of 11.667 than engaging in agricultural livelihood strategies as compared to the older households.

On the other hand, rural households who were found in the young age category were more likely to engage in agricultural plus non-agricultural livelihood strategies by 4.375 times than agricultural livelihood strategies as compared to the older households. Similarly, households between 30 and 64 years were more likely to participate in agricultural and non-agricultural livelihood strategies 1.969 times than agricultural livelihood strategies.

This showed that the likelihood of rural households' to diversify their livelihood from agriculture to either non-agricultural or agricultural plus non-agricultural livelihood diversification strategies increases with their age. Adults and younger households were more likely to multiply or spread their livelihood as compared to older households. In relation to this fact, the push-pull factor perspective says that households who are younger and adult are more likely to broaden their livelihood from farming to other alternative livelihood strategies than the older households.

This might be due to that diversification requires households who are closer to new information and who are physically stronger. The qualitative data from non-participant observation supported this result in that many of households who engaged in marketing of livestock, crops and poultry were largely found in economically active age groups.

In line with this result, the established empirical studies revealed that age of household head significantly influenced the chance of households to adopt farm plus non-farm activities because diversification and productive age classes have a positive relationship (Sharma 2018; Dereje 2018; Tamirat et al 2019). But, it is on contrary to the finding of (Loison and Begnibat 2017) which found that age does not significantly influence the household's livelihood diversification.

CREDIT: Accessing credit was found to be significantly affected the livelihood diversification of rural households. To this regard, the log of the odds of households' livelihood diversification was positively related to accessing credit. The positive result and log of 3.906 in the above model showed that households who had access to credit service were more likely to adopt non-agricultural livelihood than agricultural livelihood strategies.

In other words, this means households with access to credit had involved in non-agricultural livelihood strategies by probability of 3.906 than those who had no access to credit service. In addition, households who had access to credit service were more likely to participate in agricultural and non-agricultural livelihood strategies by a probability of 3.531 than agricultural livelihood as compared those who had no access to credit service.

These results probable imply that rural households with access to credit service have more opportunities to spread their livelihood as it provides them with financial capital. By using this credit service, they participated in marketing of livestock, grains and processing of local drinks. Similarly, they may have used this credit to buy agricultural inputs to improve their agriculture hand in hand with non-agricultural livelihoods.

The qualitative data obtained from FGD and key informants confirmed the model result in that rural farmers who accessed credit have diversified instead of merely relying on farm activities. This result is supported by the sustainable livelihood approach and the push-pull factors perspective which view that access to resources such as credit service have a significant role in different types of households' livelihood diversification.

The finding corroborates the empirical body of knowledge which stated that access to credit has a key role to play in promoting rural people to engage in livelihood diversification (Tesfaye et al 2011; Oyinbo and Ololaye 2016). However, it disagrees with the findings of (Amare 2017).

AGREXTN (utilization of agricultural extension services): This variable had negatively and significantly affected households' non-agricultural livelihood strategies. The model result showed that households who utilized agricultural extension services were less likely to involve in non-agricultural livelihood strategies by a likelihood of 0.195 than agricultural livelihood strategies as compared to those who did not use any of agricultural extension services.

In other words, households who utilized one or more of agricultural extension services were adopting -1.637 times non-agricultural livelihood strategies than agricultural livelihood as compared to their counterparts. The possible reasons could be that many objectives of agricultural extension services are mainly concerned with scaling up of agricultural production and productivity so as to address poverty and ensure food security than with promoting non-agricultural livelihood in rural areas. This might in turn reduce the interest of farmers to engage in non-agricultural livelihood alternatives.

The finding of Gebrehiwot et al (2018) also stated that farming people who had access to agricultural extension services were less likely to engage in non-agricultural occupation. However, this finding is contrary to the study of Amare (2017) which showed that using agricultural extension services had positively affected the likelihood households to diversify their livelihood into non-farm activities. The finding also disagrees with the previous literature which indicated that access to agricultural extension did not influence households' non-agricultural diversification (Asmah 2011).

ACCESSING LAND: The model result found that access to land had negatively and significantly influenced household's non-agricultural livelihood strategies. This implied that households who had access to any land were less likely to engage in non-agricultural livelihood strategies by a likelihood of 0.034 than agricultural livelihood strategies as compared to those who hadn't access to any land. This means households who had land would have less interest to involve in non-agricultural livelihood strategies than agricultural ones.

The probable reasons could be that having land by itself pushes households' to broaden their agriculture either through cultivating variety of crops, rearing of livestock or planting different trees. Thus, the existence of land and access to it by rural farmers reduce the choice and chance of them to adopt non-agricultural livelihood strategies. The qualitative data obtained from key informants indicated that farmers who have land are busy of doing agricultural activities. They exert much of their time for pursuing agriculture livelihoods.

As a whole, having land made rural households in the area to focus on agriculture more than other livelihood portfolios. In line with this fact, the sustainable livelihood approach claims that rural people who have access to natural resources such as land are largely involve in agricultural activities rather than other productive activities.

4.4 Views of Rural Households and Livelihood Diversification

The other objective of the study was to analyze the views of the rural households toward the contribution of livelihood diversification. In this respect, the sample of households were asked to reveal their view on the contribution of livelihood diversification in the livelihood of rural people. Their views were measured on Likert scale of 1-4. To this regard, 1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree. The main point is that the higher score the households respond, the more positive perception they have toward livelihood diversification and vice versa.

Table 7: Results of views of households on the contribution of livelihood diversification

Statements	Response	Freq	%	Mean
I feel that participating in different livelihood portfolios usually improves household's income	Strongly disagree	18	5.3	3.21
	Disagree	42	12.4	
	Agree	203	59.7	
	Strongly agree	77	22.6	
Total	.	340	100	
In some cases, spreading livelihood does not address household problems	Strongly disagree	126	37.1	1.66
	Disagree	202	59.4	
	Agree	12	3.5	
	Strongly agree	---	---	
Total		340	100	
I believe that multiplying livelihood could encourage households' to invest in their farm activities	Strongly disagree	9	2.6	3.25
	Disagree	22	6.4	
	Agree	213	62.6	
	Strongly agree	96	28.2	
Total		340	100	
I think that diversification might create income difference among households	Strongly disagree	50	14.7	3.61
	Disagree	---	---	
	Agree	102	30	
	Strongly agree	188	55.3	
Total		340	100	
Sometimes, broadening one's own livelihood does not help household to use resources in a sustainable manner	Strongly disagree	126	37.1	1.76
	Disagree	177	52.1	
	Agree	37	10.9	
	Strongly agree	---	---	
Total		340	100	
I perceive that households' who diversify their livelihood can maintain their consumption than who do not.	Strongly disagree	5	1.5	3.29
	Disagree	19	5.6	
	Agree	189	55.6	
	Strongly agree	127	37.4	
Total		340	100	
I believe that diversified livelihood is good for reducing poverty of rural households.	Strongly disagree	18	5.3	3.06
	Disagree	25	7.4	
	Agree	216	63.5	
	Strongly disagree	81	23.8	
Total		340	100	

Survey 2018

With regard to reducing poverty, an item (number 7) stated that: "I believe that diversified livelihood is good for reducing poverty of rural households". Table 7 shows that 87.3% (63.5%+23.8%) of the households agreed with this statement as indicated by mean value of 3.06. This demonstrated that the households in area had good perception about the role of broadening one's own livelihood portfolios in enabling households to increase their potential to escape deteriorated life.

The general tendency is that if the household members participate in alternative employment opportunities, (to say, wife in processing and selling local beverage, husband in production of crops and livestock, marketing crops , boy in selling different livestock and daughter in sending money from urban center), the chance that these household members to avert poverty will be very great. In other words, all these household members contribute their own part to the households' existence by engaging in these activities to improve their livelihoods and sustain their life.

The results of the current study are in line with the previous studies (Sosina et al 2012 and Khatiwada et al 2017) which indicated that the involvement of households in a number of livelihood activities empowers them to alleviate poverty. Their findings also revealed that as compared to households who engage in single livelihood activity, households who spread their livelihood option can alleviate poverty and improve living standard.

In the same say, 93% (55.6% + 37.4%) of the households agreed on the statement (number 6) which stated that "I perceive that households' who diversify their livelihood can maintain their consumption than who do not." This was supported by the mean value of 3.29. The general suggestion from this statement is that for the rural households to serve the consumption of their family members in a sustainable way, it is better to involve in different livelihood. In other words, this implies that households with diversified livelihood activities can generate additional income and this income helps them to improve their consumption.

Qualitative data obtained from FGD showed that as compared to households who merely rely on one livelihood strategy, households with alternative employment opportunities mostly provide their family members with enough food. The qualitative data supported the survey result because they notified that livelihood diversification has positive relationship with the household's consumption.

Regarding the role of diversification on income, 82.6% (59.7% +22.9%) of the households agreed on item (number 1) which stated that "I feel that participating in different livelihood portfolios usually improves household's income" (mean value of 3.21). The response to this item implied that for rural households to lead their livelihood in a good manner, their source of income needs to be increased. To do this, they need to broaden their livelihood option by engaging in different activities. By diversifying their own livelihood option, the households could improve their

income. Consequently, the households would live in an improved life and sustain their livelihood in a more harmonious way.

A key informants at Ula Gora Kebele noted that “there is a difference between households regarding to the types of activities they engage in and their income. Perhaps, households with different livelihood option have more income than others”. This demonstrated the presence of income variation among rural people. This variation was resulted due to difference in their employment opportunities.

According to FGD discussants at Biyyo Wogiddi and Dheku Kersa Kebeles’, households with more family members can assign their members in different activities and generate additional income from either farm or non-farm occupations. As per to these discussants, the presence of large household size enabled households to invest labor in different livelihood works. This in turn provided households with extra income.

Consistent with this fact, the findings of (Sekumade and Osundare 2014 and Sharma 2018) stated that diversification has positive implications on the income of the households. This denotes the involvement of the rural households in a number of livelihood activities have expanded their sources of income. This result disagrees with the chi-square test which found that the non-existence of significant relationship between livelihood diversification and household size

Moreover, with respect to the contribution of diversifying livelihood on rural agriculture, an item (number 3) stated that: “multiplying one’s own livelihood could encourage household to invest in their farming activities”. As indicated in table 7, 90.8% of the households supported this idea by (mean value of 3.25). This might indicate that households with diversified livelihood can reduce risks from agricultural sector.

In other words, livelihood diversification provides households with alternative employment opportunities (i.e non-farm activities) which can promote them to supplement their agricultural livelihoods. For instance, households who earn money from urban wage labor used it to buy fertilizer, rent farmland and sheep to support their agricultural livelihoods.

Put in another way, the income from non-agricultural activities can serve as motor for the agricultural production of poor households. Thus, there is a linkage between households’ agricultural and non-agricultural livelihoods. This result disagrees with the study of (Anderson

and Deshingar2005) which witnessed that diversified livelihood has negatively affected rural agricultural activities.

On contrary to the above ideas, 85.5% (55.5% strongly agree +30% agree) of the households supported an item (number 4) which say that “I think that diversification might create income difference among households” (mean value of 3.61). This notion implied that households who engage in livelihood diversification are more likely to have more livelihood options.

Perhaps, such households can accumulate more wealth than those households who do not diversify their livelihood activities. This situation has the potential to create income disparity among the households who reside in the same and different area. The households recognized the negative effect of diversifying livelihood in increasing income gap among them.

This corroborates the existing body knowledge (Adepoju and Oyewole 2014) which revealed that households with diversified livelihood increased their income than those who didn't diversify their livelihood. Thus, livelihood diversification created income variability among the framing households.

In a nutshell, the study participants noted that involving in livelihood diversification is very relevant in improving their living condition in terms of improving consumption, supporting agriculture, averting poverty and others. In spite of its effect on creating income inequality, majority of the households have positively perceived that livelihood diversification plays a significant role in the livelihood of rural people.

4.5 Barriers of Rural Livelihood Diversification

As mentioned in the previous section, rural households in Ada'a Berga Woreda have engaged in multiple non-agricultural livelihood strategies. Since their non-agricultural livelihood strategies were various, the challenges to this type of livelihood diversification were uneven. The study was made to analyze the bottlenecks of non-agricultural livelihood strategies those households.

Data were collected from sample respondents (households who engaged in these activities), agricultural extension workers at kebele and Woreda levels, FGD discussants and non-participant observation. The researcher organized data which have been collected from these study participants and made the following analysis.

As data obtained from the study participants indicated, rural households' have encountered different constraints while they involved in non-agricultural livelihood strategies. These constraints were numerous and interrelated. Accordingly, lack of market opportunities, low profit, and shortage resources, bad attitudes of the community and lack of awareness were identified as the main bottlenecks of non-agricultural livelihood strategies. Explanation of these constraints is made as follows.

Lack of market opportunities: In the study area, lack of market opportunities was identified as one obstacle of non-agricultural livelihood of rural people. As the respondents and FGD discussants said, households who had small size of land and who had not land engaged in handcrafts activities. But, their activities have been affected by lack of market opportunities. This was mainly related to the variation of preference among many people on traditional and modern products.

These days, majority of people mainly bought modern equipment more than traditional products. This preference of modern equipment over the local products (handcrafts in this study) has discounted the price of local products and reduced their production. This condition has decreased the market opportunity of households who participate in handcrafts. Consequently, they have not benefited from these activities.

The above argument indicates that poorer households who engaged in some non-agricultural activities have failed in two scenarios. On one hand, they were forced to pursue these activities and on the other hand, they could not generate enough income from what they have engaged in. Consequently, they could not improve their living standard.

Bad attitudes: Another constraint of non-agricultural livelihood strategies in the area was the bad attitude of some community members. Agricultural extension workers at Dheku Kersa Kebele and key informant at Biyo Wogiddi Kebele explained that some local people do not have interest to purchase locally produced goods. This is associated with the backward attitudes that society attach to cottage industry for many years.

For instance, individuals who involve in handcraft activities are not considered as human being by some community members. They do not marry with such individuals. These individuals are stigmatized in their society. Nowadays, such condition has been demoralizing the households who produce local products. Even if they were committed to engage in such activities, they would not

have get better returns from their activities. Perhaps, the existence such negative attitude is pushing households to leave these activities to look for another employment.

The above expert reveals that the bad view of the local community toward the above activities have hampered the motivation of households who engaged in these activities. Participating in such activities had also an implication on the interaction between those households and the local people.

Similarity of activities and lack of awareness: In the study area, similarity of activities and lack of adequate awareness about trade hindered household's non-agricultural activities. As data gained from Woreda's Agricultural and Natural Resource Officer indicate engaging in similar business activities and low awareness about trade have constrained households' non-agricultural livelihood strategies. Some of these households involve in trading of vegetables like onion, potatoes, and grains like *Teff*, and *Gayo*. Other households engage in marketing of small number of livestock like sheep, goat and calf. Nevertheless, these households simply supply similar things for the market without taking into account the market demand of those things. Thus, the engagement of households in similar business activities made them to get risk. This process has lowered their profit and then pushed them out of the market.

The non-participant observation made by the researcher also indicated that rural household especially female households engaged in marketing of uniform cereals crops and vegetables. The amount of crops and vegetables they have been selling was very small. On the other hand, male households have involved in marketing of livestock such as sheep and poultry.

The above expert reflected that lacking information about, and rules of doing, business led households led them to participate in similar activities. This has reduced the amount of income they were supposed to get.

Additionally, Woreda's officer and agricultural extension workers at all kebeles noted that households' simply engage in business activity. They do not have adequate awareness regarding business work. Consequently, they cannot compete with urban merchants who have good experience about trade activities. They couldn't able to engage in a big trade. Thus, driven by low awareness about the importance of trade in increasing their income, these households are largely rely on agricultural livelihoods. This in turn minimized their interest to engage in trade activities.

As stated in the above paragraph, lack of experience about business work hampered the chance of rural households to engage in a large trade which could provide them high returns. This is probable related to the fear of local people about big trade because of its risk.

Lack of adequate resource: Lack of adequate resource was another challenge of household's non-agricultural livelihood strategies. As the sample households and Woreda's Agricultural and Natural Resource Officer explained, some households' in the area have no adequate capital. Scarcity of resource especially adequate start-up capital and financial capital has hindered their non-agricultural livelihood strategies. Hence, lack of access to credit and low level of saving constrained the activities of these households. These problems have reduced the chance of them to engage in high income generating activities. They were obligated to participate in small business activities.

Conceding with these results, the studies of (Khatun and Roy 2012; Berhanu and Getachew 2017) showed that poor asset base, lack of access to credit and market facility have been the major bottlenecks of non- agricultural activities of rural people. From the push factor point of view, rural poor people face entry barriers such as lack of credit and asset that limit their chance to engage in high income generating non-farm livelihood. This is prevalent among rural households' of sub-Saharan African.

Nevertheless, the current study is different from these studies in that it found that the engagement of households in similar business activities and negative perception of society hindered their non-agricultural livelihood strategies.

Negative effects of planting eucalyptus tree

In Ada'a Berga Woreda, plantation of eucalyptus tree is increasing than ever before. There are households who participate in plantation of this tree crop. This is mostly associated with numerous factors. Nonetheless, planting this tree has multiple impacts on rural livelihood. In view of this, the current study was made to identify the negative effects of eucalyptus tree in the study area. Quantitative data and qualitative data were collected from sample households, FGD discussants and Field observation. Here, households who responded on the effects of eucalyptus on livelihood were not only those who planted eucalyptus but also those who did not plant this tree.

As data gained from households, FGD discussants and field observation showed, the expansion of planting eucalyptus tree in the study area has brought various problems on livelihood of farming

households. These problems were: decline of crop production, deterioration of water point reduction of grass land and increment of various dangerous animals.

Decline of crop production: In the study area, eucalyptus tree has different impacts on rural livelihood. Among these, it has reduced the crop production of the household. As the information obtained from sample households reveals, the fertile farm land that has been used for crop production is now covered by eucalyptus. Thus, the spreading of planting eucalyptus tree has contributed for the shrinkage of various crop production.

In addition, the non-participant observation made in Dheku Kersa and Ula Gora Kebeles' also indicates that the plantation of eucalyptus tree is widely prevalent in the areas. This tree was not only planted on vacant and infertile land, but also on fertile land which could be used for the production of crops like Wheat, *Teff*, and Barley. This would have an implication on the crop production of farmers in the areas.

These data purported that the expansion of planting eucalyptus tree expropriated farm land which has been used for cultivating different crops. The failure of crop production might in turn increase the price of crops and could lead to the shortage of food at household level.

Deterioration of water points: The other effect of planting eucalyptus tree on rural livelihood was the drying of some water sources. As the interviewed households explained, rural people in the area have been and continue to plant eucalyptus tree so as to improve their livelihood. Currently, some size of land that is found around water source has been covered by the tree. As compared to other trees, eucalyptus is mostly known for absorbing water from the ground. The increment of planting eucalyptus started to desiccate some areas which previously have had water. Because of this, many households have been exposed to the shortage of water.

This showed the multifaceted negative implications of plantation of eucalyptus tree in the area as led to the scarcity of drinking water for households and their livestock. This did obstacle their ability to improve their livelihood. This result supports the study of (Joshi and Planisami 2011) which explained that eucalyptus absorbs large amount of water from the water stores.

Furthermore, plantation of eucalyptus also reduced the size of grass land. According to the interviewed households' suggestion, with the plantation of eucalyptus, the place where the livestock got fodder has been deteriorated. These days, the grass land has been covered by

eucalyptus. Under this tree, the grass did not grow. As a result, livestock have been facing grass problem.

This indicated that the agricultural livelihood of households in the area has been affected by the expansion of this phenomenon. This was a serious problem for those households who led their livelihood by relying on rearing of livestock.

Increment of Dangerous animals: Eucalyptus tree has paved the way for the increment of some dangerous animals. According to the sample households and FGD discussants at Ula Gora and Dheku Kersa Kebeles', farmers in the areas give much attention to the benefits they got from planting eucalyptus tree. But, they overlooked the negative effects of eucalyptus on their livelihood. As the plantation of this tree increased, the number of dangerous animals also increased. Consequently, the livestock of poor people such as sheep and goats are being attacked by predators like Fox and Tiger.

The above data demonstrated the expansion of the negative effects of planting eucalyptus on the on the agricultural livelihood of rural people. These effects were uneven among households. Moreover, the failure of crop cultivation as a result of this issue in one way or another way could push households to look for another non-agricultural activities which had low returns. Cognizant to these facts, the sustainable livelihood approach examines the area specific constraints faced by the rural households.

Chapter Five

Summaries, Conclusions and Recommendations

This chapter discusses the summary and the conclusion of the study. It also details out different recommendations which were given on the findings of this study.

Summaries of the Study

In Ethiopia, rural people largely rely on agriculture in order to lead their livelihood. Thus, agriculture is everything for them. Despite of its great relevance for rural households, agriculture in the country is facing various natural and manmade problems. In response to these problems, nowadays households in rural area have started to broaden their livelihood into either nonagricultural livelihood strategies or integrate both agricultural and non-agricultural ones. Similarly, diversifying livelihood was increasingly observed among rural households of Ada'a Berga Woreda.

As the finding of the study indicated, households in the area participated in numerous livelihood activities. Accordingly, they involved in agricultural livelihood strategies like cultivation of different crops, rearing of various types of livestock, labor work in agriculture, sharecropping, planting eucalyptus tree and non-agricultural livelihood strategies like trading of different grains and livestock, brewing of different local drinks, charcoal production and hand craft activities. Yet, these livelihood strategies were not similar among those households. While many of households engaged in agriculture for their livelihood strategies, other households participated either in purely non-agricultural or combined both agricultural and non-agricultural livelihood strategies.

Because of different factors, rural households in the area engaged in non-agricultural livelihood strategies. In this regard, the study found that numerous compelling and motivating forces like lack of land, poverty, reducing different problems, the existence of opportunities, and the need to broaden their livelihood system led rural households to pursue non-agricultural livelihood strategies. Even though these factors played their own role, distress driven factors like poor ownership of capitals, and the need to move out of poverty trap were the primary reasons for the engagement of households in non-agricultural livelihoods.

As the study stated, the choice of livelihood diversification of rural households in the area has been influenced by different factors. Of these factors, access to land, utilizing agricultural extension service and accessing credit service had significantly affected the livelihood diversification of the households. As presented in the finding part, some households who had access to these assets have effectively diversified their livelihood, whereas other households who did not have access to these capitals had not diversified. This implies accessing different assets has created differences among households in relation to their livelihood diversification.

The finding showed that non-agricultural livelihood diversification of many households in the area has been hindered by social, cultural and economic problems such as financial constraints, inaccessibility of market, negative attitudes and poor access to road and credit service, similarity of business activities and lack of interest. The study also found that many households had positive attitudes toward the contribution of livelihood diversification in improving the livelihood of rural people.

Conclusions

The conclusions of the study were made based on the findings of the current study. As mentioned in the main body part, this study focused on examining the determinants of livelihood diversification, exploring changes in livelihood portfolios and examining views of households on the contribution of rural livelihood diversification.

Rural households' engage in varied livelihood activities. Currently, pursuing different livelihood strategies has become a norm of many rural people. Like any other rural households of Ethiopia, rural households in Ada'a Berga Woreda participate in different types of livelihood diversification. In this respect, households in the area are mainly engage in agricultural livelihood strategies such as production of different crops, rearing different livestock, off-farm and combination of these activities.

These activities are integrated and interlinked. For instance, households in the area use their livestock in order to plough land and participate in off-farming and they also use them to buy farmland and to sustain their livelihood. Besides to agriculture, households in the area depend on non-agricultural livelihoods. These types of livelihood diversification are also interlinked with agriculture.

In this respect, households in the area use the income they obtain from non-agricultural livelihoods in order to supplement their agriculture and to improve their livelihood. This implies that rural livelihoods of the study area are diverse and interlinked. However, variation prevails among the households with respect to their livelihood diversification. Households in the area did not produce much more cash crops. This differentiated them from other households who live in different parts of the country.

Numerous factors have led households in the area to participate in non-agricultural livelihood strategies. Of these, poverty, scarcity of land and other related issues were the main factors that compelled rural households to engage in such activities. The sustainable livelihood approach and push factor perspective claim that rural poor participate in non-agricultural activities whenever they face different problems. Many of these households engage in low remunerative non-agricultural livelihoods. This reflects that households in the area are resource poor.

Additionally, encouraging factors such as closeness to urban areas, factories and the interest to accumulate income have also led households to diversify their livelihood into non-agricultural livelihood. This implies that when urban expands and industries intensify, the chance of the households to participate in a number of non-agricultural livelihood strategies will be widened. Such activities might help the households to lessen their problems, improve their livelihood and support their farm activities. As to per the assumption of pull factors perspective, the availability of capitals and investment contributes a lot for the diversification of rural livelihood.

Households' livelihood diversification in the area was influenced by different influencing factors. This was mainly attributed to differential access to different assets and the way households utilize these assets. The model result found that accessing credit service, access to land, utilizing agricultural extension service and age had significantly affected the livelihood diversification of rural households at 1% and 5% probability level.

The finding showed that households who had access to these resources were more likely to diversify their livelihood either into non-agricultural or into both agricultural and non-agricultural livelihood strategies than their counterparts. However, this is not always even among households. There were households who had access to different livelihood resources but who did not diversify their livelihood strategies. This attests that access to different capitals does not always inspire households to pursue livelihood diversification.

Actually, the existence of and accessing resources are central in determining the livelihood choices of rural households. In the process of pursuing their livelihood diversification, households faced numerous challenges. Yet, these entry barriers were uneven among the households. As the finding of the study revealed, different institutional problem and socio-economic problems have hampered households' non-agricultural livelihood strategies.

In this regard, lacking basic assets, bad attitudes and lack of market opportunities were among others that hindered households' non-agricultural activities. Despite its importance for some households, plantation of eucalyptus tree has also mired the livelihood of rural households by reducing the amount of crop production and drying some water sources.

The study also found that households had good attitudes toward the role of rural livelihood diversification in improving the livelihood of rural people. In this regard, many of them have agreed on the contribution of livelihood diversification in reducing poverty, maintaining households' consumption, supplementing agricultural activities and increasing household's income. This indicates how livelihood diversification could play a significant role in supporting the livelihood of rural household. Thus, the findings attest previous literatures that had been done with regard to the importance of diversifying livelihood.

Recommendations

This study has many implications on the local people, the government bodies, NGOs and other concerned bodies. Hence, by taking into account the results of the study, the following ideas are suggested. In the study area, households were mainly relied on agriculture. Nevertheless, these households have pursued their agriculture not by using modern agricultural technologies.

They still pursue their agriculture through traditional system. But, such agricultural system could not satisfy the need of rural poor. Thus, it is better if the federal and regional governments and other concerned bodies give enough attention to improve the traditional farming techniques and also to modernize the agricultural system of those farming households. This situation will in turn help them to mend their agricultural system and to overcome poverty.

Rural households in the area also led their livelihood by engaging in non-agricultural livelihood option. Nonetheless, they involved in non-agricultural livelihood strategies which had no much profit. Hence, such activities provided them with low return/low profit/. This was mainly due to

distress driven factors. Therefore, the regional government along with other concerned bodies need to provide capacity building training and financial assistance for those households. So that, the households can engage in more remunerative activities that will improve their livelihood in a more sustainable manner.

Rural households' non-agricultural livelihood activities were hindered by lack of market opportunities, poverty and others. Hence, the governmental bodies at all levels (federal, regional and local), the non-governmental organizations, the local community and other stake holders need to pay attention to the development of basic infrastructures like road and market.

With the development of these infrastructures, the households will get access to basic information and then improve their agricultural and non-agricultural livelihood strategies. Moreover, the mentioned stakeholders must give attention to alleviate rural poverty so that rural households will diversify their livelihood into more profitable non-agricultural activities.

The study also found that many rural households were not the beneficiary of credit service. Thus, in collaboration with NGOs, the regional government must provide training and create awareness on the relevance of credit service and on how to use the credit service will be very important. By receiving and using this service, those households, therefore, shall participate in more livelihood improving activities either in agricultural, non –agricultural or in an amalgamation of them.

Some community members' attitude hindered handcraft activities. Thus, it is very relevant if agricultural extension workers and other concerned bodies educate and create awareness among the community in order to change the bad attitudes that they have toward these activities. Such work could change the previous attitudes of community toward the activities and then market will be opened for the households who involve in the activities.

Expansion of planting of eucalyptus tree in the area caused different problems on the livelihood of rural households. Thus, the agricultural and natural resource management office of the district and other concerned bodies need to take measure to limit the plantation of this tree. So that the economic benefits of eucalyptus tree will not be harmed.

In Ethiopia, many studies on livelihood diversification have been done by scholars of agricultural sciences, geography and health sciences. Nevertheless, there are no as such empirical researches that were conducted by sociologists and anthropologists on the issue of livelihood diversification,

and how different social institutions might influence households' livelihood diversification. Thus, it is very essential if sociologists and anthropologists of Ethiopia conduct studies on the area of rural livelihood diversification.

Finally, the federal Ministry of Agriculture needs to inculcate the significance of non-agricultural livelihood diversification in policy formulation and to devise projects that support the livelihood of rural poor.

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Appendix A: Tools of Data Collection

Annex I: Survey questionnaire provided to collect data from the households

Jimma University

College of Social Sciences and Humanities

Department of Sociology

Dear respondent!

My Name is Megersa Tafa. I am MA student at Jimma University and currently, I am conducting my Master thesis entitled “*Determinants and Views on Rural Livelihood Diversification in the case of Ada’a Berga Woreda, Oromia National Regional State*”. The study is done for the partial fulfillment of Masters of Arts degree in Sociology and Social Policy at Jimma University. Hence, you are kindly requested to give your genuine response. This is mainly because the quality of the final result of the study mostly depends on the information you provide. In this respect, your responses will be highly valuable. The researcher assure you that the data collected from you will only be used for the academic purpose than for any other purpose. Thus, all information that you provide will have a paramount role for the success of the study. Any information that you provide me will be kept in secret.

General Instruction:

This questionnaire entails five parts. These are: demographic profile of the respondents, types of livelihood diversification, determinants of livelihood diversification, and barriers of livelihood diversification and perception of households toward livelihood diversification. Please, encircle the number or letter of your response for the close ended questions and jot down on the space provided for the open ended questions.

Questionnaire number _____ Name of the kebele _____ Date _____

I. Demographic and Socio-Economic Backgrounds of the Respondents

1. Sex of household head	1=Male 2=Female
2. Age of the household head (in completed years)	_____
3. Religious affiliation of the respondent	1= Orthodox 2=Protestant 3= <i>Waaqeffannaa</i> 4= Muslim 5= Other specify _____
4. Marital status of the respondent	1= Married 2=Never Married 3=Divorced 4=Widowed 5= Specify if any other _____
5. Educational status of the respondent	1= Cannot read and write 2= Grade 1-8 3=Grade 9-10 4=Grade 11-12 5=Diploma and Above _____
6. Household size	Male _____ Female _____ Total _____
7. Number of dependents	Male _____ Female _____ Total _____
	Number of children under 18 years _____ Number persons above 65 years _____

II. Questions on the Types of Households' Livelihood Diversification

1. What type of livelihood diversification do you engage in? If your response is **2**, please **skip** to Question No, **9**).
 - A. Agricultural livelihood strategies
 - B. Non-agricultural livelihood strategies
 - C. Both agricultural plus Non-agricultural livelihood strategies
 - D. Other, Specify_____
2. If your answer to question number 1 is "agricultural livelihood strategies" which type of agricultural activities do you participate in?
 - A. Crop Farming
 - B. Livestock Rearing
 - C. Off-farming
 - D. crop farming plus livestock raising
 - E. Crop farming, livestock raising plus off-farming
 - F. Specify if other_____
3. If your answer to question number 2 is "Crop farming", what type of crops do you cultivate or produce?_____
4. If your response to question number 2 is 'Livestock Rearing, mention the type of livestock do you have?_____
5. If your answer to question No. 2 is 'Off-farm activities', what kind of benefits do you get from off-farm activities?_____
6. If your response to question No. 1 is "Non-agricultural livelihood strategies", what are the type of non-farm activities do you involve in? (Multiple responses are possible).
 - A. Petty trade
 - B. Handicrafts
 - C. Renting of assets (land or livestock)
 - D. Processing plus selling local beverages
 - E. Charcoal selling
 - F. Daily laborer
 - G. Specify if any other_____
7. What are factors that compel and motivate you to engage in non-agricultural livelihood strategies?
 - A. Having of skills of such activities
 - B. Existence of wider resources
 - C. Motivation to improve current living conditions
 - D. Existence of wider opportunities
 - E. Motivation to use available resources in a sustainable way
 - F. Lack of land
 - G. Poverty
 - H. Decline of farming activities
 - I. if any other specify_____

III. Questions on Determining Factors of Livelihood Diversification

1. Do you have an access to credit service? A. Yes B. No
2. Do you have access to any land? A. Yes B. No (If your answer is 'No', Skip to Q.3)
3. If your answer to No. 2 is 'Yes', how much hectares of land do you own _____?
4. How much minutes do you go in order to reach the nearest all weathered road _____?
5. How much minutes do you go in order to reach the nearest market center _____?
6. How much minutes do you go so as to reach the nearest urban center _____?
7. Do you use agricultural extension services?
 - A. Yes
 - B. No (If your response is 'No', Skip to Q. 9)
8. If your answer to question No.7 is 'Yes' what are the services you get from it?(Multiple responses)
 - A. Service about farm practice
 - B. Service about farm input
 - C. Service about environmental conservation
 - D. Specify if other_____
9. Do you plant eucalyptus tree?
 - A. Yes
 - B. No (If your response is 'No', Skip to Part VI)
10. If your answer to question No 9 is 'Yes' what are reasons that motivate you to plant this tree?_____
11. Does gender have relationship with livelihood diversification? A. Yes B. No

12. If your answer to question number 11 is 'Yes', what is the relationship between gender and rural livelihood diversification? _____

VI. Questions on Barriers of Rural Livelihood Diversification

1. Did you experience any challenge related to non-agricultural activities in 2009/10 E.C?
A. Yes B. No (If your response is No, Skip to Q. 3)
2. If your answer to question No. 1 is 'Yes', what were the challenges that you face with regard to your non-agricultural livelihood strategies?

3. Do you plant eucalyptus tree? A. Yes B. No
4. Have you experienced any challenge related to plantation of eucalyptus tree? A. Yes B. No
5. If your answer to question No. 4 is 'Yes,' what are the effects of plantation of Eucalyptus tree on your livelihood over time?

V. Questions on View of Households toward the Contribution of Livelihood Diversification

The following statements focus on the role of livelihood diversification on the livelihood of rural households. Please indicate your views on each item by putting your responses in the following table. Put the sign of wright mark.

S. N	Items	1=Strongly disagree	2=Disagree	3=Agree	4=Strongly Agree
1	I feel that participating in different livelihood portfolios usually improves household's income				
2.	In some cases, spreading livelihood does not address household problems				
3	I believe that multiplying livelihood could encourage households' to invest in their farm activities				
4	I think that diversification might create income differences among households				
5	I perceive that households' who diversify can maintain their consumption than who do not.				
6	Sometimes, diversifying one's own livelihood does not encourage household to use resources in a sustainable manner				
7	I believe that diversification is very important in tackling poverty of rural households'				

Thank you for your participation!!!

Annex II: Non-Participant Observation Guides/Checklists

The following observation guides were used to carry out observations during the whole process of fieldwork

- ☒ Types of livelihood diversification practiced in the study area
- ☒ The resources (land, water) and the homes of households
- ☒ Social services/public infrastructure found in the study area like road, urban center, and market center (accessibility)
- ☒ The availability of water and grassland and The prevalence of eucalyptus tree

Annex III: Focus Group Discussion Check list

Site _____ Date _____ Time Started _____ Time ended _____

Place where FGD conducted _____

Number of Discussants: Males _____ Females _____ Total _____

- ① What types of livelihood options exist in your area?
- ① Why do rural households in your area pursue livelihood diversification?
- ① Is there gender variation with regard to livelihood diversification?
- ① What are the community based organizations exist in your area?
- ① What benefits do you get from these organizations?
- ① How do you see the accessibility of road, urban and market center in your area?
- ① How do you describe the availability of credit service in your area?
- ① Describe the roles of credits for you and rural households?
- ① Elaborate the barriers of livelihood diversification of rural households?
- ① Identify and describe the adverse effects of eucalyptus in your area?
- ① Describe your views on the roles of livelihood diversification?

Annex IV: Interview Guide for Key Informants (knowledgeable Households)

Site _____ Date _____

Time an interview began _____ Time an interview finished _____

- What are the types of livelihood diversification of rural people in this area?
- What are the factors for participation of households in non-agricultural livelihoods
- Do you think that gender has any relation with agricultural and non-agricultural livelihoods?
- What are the constraints of rural livelihood diversification in the area?
- How do you see the role of diversifying livelihood on rural area?
- How do you see the adverse effects of planting eucalyptus tree in your area?

Annex V: Key Informant Interview Guide for Woreda's Agricultural and Natural Resources Office Experts

Site _____ .Sex _____ Responsibility _____

Time an interview started _____ Time an interview ended _____

Questions

- What are the livelihood activities of rural households in this woreda?
- Which type livelihood diversification mostly pursued in the woreda?
- Why do rural households in the area pursue livelihood diversification?

- Why do households plant eucalyptus tree and what are its negative effects on rural people
- Explain the major bottle necks of rural livelihood diversification in the Woreda?
- How do you see the roles of livelihood diversification?

Annex VI: Key informant Interview Guide for Agricultural extension workers

Site _____ Sex _____

Time an interview started _____ Time an interview ended _____ Total _____

- ✓ What are the types of livelihood diversification of rural people in this area?
- ✓ Which type of livelihood diversification dominantly practiced in this area?
- ✓ Why do rural households engage in livelihood diversification?
- ✓ Is there gender variation with regard to livelihood diversification?
- ✓ What are the services you deliver for rural people?
- ✓ What are the main obstacles of rural livelihood diversification in the area?

Appendix B: Chi-Square Test of Independence Results of Households' Livelihood Diversification and Categorical Variables

A) Access to land and livelihood diversification

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	68.009 ^a	2	.000
Likelihood Ratio	37.879	2	.000
Linear-by-Linear Association	1.008	1	.315
N of Valid Cases	340		

B) Access to credit and livelihood diversification

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.928 ^a	2	.000
Likelihood Ratio	23.476	2	.000
Linear-by-Linear Association	22.082	1	.000
N of Valid Cases	340		

C) Educational Level and livelihood diversification

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.523 ^a	8	.050
Likelihood Ratio	15.674	8	.047
Linear-by-Linear Association	9.279	1	.002
N of Valid Cases	340		

D) Age and livelihood diversification

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.490 ^a	4	.014
Likelihood Ratio	12.060	4	.017
Linear-by-Linear Association	8.567	1	.003
N of Valid Cases	340		

E) Utilization of agricultural extension services and livelihood diversification

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.509 ^a	2	.003
Likelihood Ratio	10.561	2	.005
Linear-by-Linear Association	.984	1	.321
N of Valid Cases	340		