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## **SCHOOL OF GRADUATE STUDIES**

# **Rural Non-farm livelihood diversification among farming households in Saharti Samre *Woreda*, Southeastern Tigray**

**By**

**BRHANU TSEGAY MESELE**

**June, 2016**

**Addis Ababa, Ethiopia**

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**BRHANU TSEGAY MESELE**

**A Thesis Submitted to the School of Graduate Studies of Addis  
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**Approved by Board of Examiners**

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## Glossary of Local Terms

**Tabia:** refers to the smallest unit of political division in administrative system

**Woreda:** is a political sub-division composed of a number of *kebeles/ Tabias*.

## **Acronyms**

**ADLI:** Agricultural Development Led-Industrialization

**FGDs:** Focused Group Discussions

**FTC:** Farmers Training Center

**GTP I:** Growth and Transformation Plan I

**HHs:** Households

**KAs:** Kebele Administrations

**NGOs:** Non-Governmental Organizations

**SPSS:** Statistical package for Social Sciences

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## ***Abstract***

*Non-farm livelihood diversification is a multi-dimensional concept which encompasses engagement on various activities other than agriculture. This research is aimed at assessing rural non-farm livelihood diversification among farming households in Saharti Samre Woreda, South Eastern Tigray in general. Exploring the determinants of non-farm livelihood diversification across two agro-ecologically distinct rural settings (weynadega and qola), types, gender dimensions and outcomes of rural non-farm livelihood diversification, constraints of non-farm livelihood diversification and the role of government on non-farm livelihood diversification in particular are the detailed objectives of this study. Cross-sectional survey was used as a survey design due to the nature of the study. Purposive sampling for sampled Tabias and simple random sampling for sampled farming households were used. Household survey, in-depth and key informant interviews and focus group discussions were used as data collection methods so as to generate firsthand information. Although farming households predominantly pursue agriculture as their major livelihood strategy, they also pursue non-farm livelihood activities due to various reasons. Factors regarded as push rather than pull play significant role in influencing households to diversify their livelihoods to the non-farm sector. Household size and farm land holding size was among the determinants of diversification. Seasonality of agriculture was also found significant determinant of non-farm livelihood diversification. Besides, the increasing price of agricultural inputs was also found as a driving force for diversification. Income earned from non-farm livelihood activities help households to reduce different vulnerability contexts, improve use of agricultural inputs, and asset building. Wage labour, sale of cooked food and local drinks, handicrafts, trade and quarrying and traditional mining are non-farm livelihoods that farming households mostly engaged in the study area. The role of government on the development of rural- non-farm livelihoods is very weak.*

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the study

In most developing countries, importance of non-agricultural activities is increasing and it is estimated to account for 30-50% of rural incomes (World Bank 2008, as cited in Woinishet, 2010: 8). Several international organizations like Overseas Development Institutes (ODI), Department for Foreign and International Development (DFID) and many others promote and argue that livelihood diversification acts as a safety net for poor rural households.

In addition, studies conducted in North Shewa (Yared 2002:347 and Degefa 2005: 106) on Erenssa and Garbi communities have shown the need and importance of diversification for household survival and secured livelihood. A household, which depends on few livelihood strategies, is very vulnerable. The strategy might not provide enough, or it may fail completely. Diversification means there could be other sources of livelihood for the household to fall back on.

Many researchers in the field of rural development tend to agreed that the number of poor people in rural areas of Ethiopia exceeds the capacity of agriculture to provide sustainable livelihood opportunities. Even with a decline of fertility rates, and a slowing down of population growth registered for the past few years, this situation is believed not to change significantly. Whilst there is a potential for out-migration of women and youngsters for which urban centers cannot be assumed to be capable of providing adequate livelihood opportunities for all those unable to make a living in agriculture. This indicates a potentially important role for rural non-farm livelihood diversification in reducing poverty in rural areas (Fikru 2008: 6).

There are many specific reasons suggested by many researchers why rural people diversify their livelihood other than to the agricultural employment.

(Mulat 2001:20) argued that diminished average farm size of households has also contributed to people's diversification of their livelihoods towards the rural non farm sector.

Rural non- farm activities may absorb surplus labour in rural areas, help farm-based households spread risks, offer more remunerative activities to supplement or replace agricultural income, offer income potential during the agricultural off-season and provide a means to cope or survive when farming fails (Gordon and Craig 2001:7).

Likewise, non-farm livelihood diversification is common among people who are living in *Saharti Samre woreda*, South Eastern Tigray. Diversification took place other than agricultural (agricultural intensification) to the non-farm sector. There are several reasons that initiate people to diversify their livelihoods to the non-farm side. At the same time, there are also some constraints that limit rural households in diversifying their livelihoods to the non-farm sector. Most of the time, households experience vulnerability contexts and trends that push or pull them to the non-farm livelihood activities. These might include drought, paste disease, low productivity, and increase of price agricultural supply, land fragmentation, and ultimately food insecurity. These and other stresses may arise because of natural, manmade or global and national level trends. In general, the casual factors may be labeled as demand pull or supply pull factors.

## **1.2 Statement of the Problem**

Livelihood diversification is becoming one part of experiential aspect of rural households. In Ethiopia, It is true that many researchers have examined sustainable livelihoods strategies, livelihood and food security, sustainability and resilience of livelihoods, livelihood diversification, and rural non-farm livelihood activities. Some studies attempted to assess historical trends, driving forces of diversification, and contributions of the non farm sector to the national economy across time.

However, according to Tassew, (2002:5, as cited in Reta, 2010), policy makers were favouring agriculture as means of rural livelihood strategy for a long time. This has been excluded rural non-farm livelihood diversification from much attention, thereby ignoring an important source of livelihood. Amare and belaineh (2013) had also attempted to show the policy focus on increasing agricultural productivity and farm income so as to attain food self sufficiency at national, regional and household level.

In fact, there are considerable numbers of studies conducted before on issues of livelihood diversification. For instance, Woldehana and Oskam (2001), noted that the underlying factors that hinder participation in nonfarm livelihood activities such as credit constraints, and lack of skill which might be addressed through the provision of credit and technical training.

In addition to this, Mulat (1997) had also indicated some categories of factors that influence decisions of households regarding participation in nonfarm livelihood activities. Furthermore, Tegegne (2000) conducted a study in southern Ethiopia indicating the tendency of farming households involved in non-farm livelihood activities because of the shortage of land, low yield of crops, lack of grazing land and so on.

Nonetheless, most of the studies are scope limited which might not be applied to other parts due to variations in agro-ecology and other features. During course of reviewing the available materials, previous studies did not adequately address variations in nonfarm livelihood diversification across agro-ecologically distinct settings, gender aspects of rural non-farm livelihood diversification, and key constraints of rural non-farm livelihood diversification in actual bases.

Except some researches on issues of food insecurity and productive safety net program, there are no studies that explicitly focus on the rural non-farm livelihood options in the rural areas of South Eastern Tigray where the researcher took it as a study.

Over the last several decades, Saharti Samre Woreda has been suffering from the problem of persistent food insecurity and poverty. In this area where land generally forms the primary basis for generating income, Issues of population growth, which results land scarcity and fragmentation, landlessness, and particularly tenure insecurity have become persistent problems; which in turn result in declining land access, rising livelihood vulnerability, and hampering agrarian and rural change Maxwell (2013).

In this *woreda*, most households survive often on small plots of land characterized by low or even declining productivity. Due to the inability of their agriculture-based livelihoods to generate adequate food and income, households have seen their livelihoods deteriorate while surviving on food aid.

As to Maxwell and *etal* (2013), *Saharti Samre* is among the most vulnerable *woredas* that are classified as drought prone and highly food insecure.

Particularly, the chronically food insecure population of the *woreda* is included under productive safety net program.

Hence, this study focuses on understanding the dynamics of their livelihoods by examining how households in this area make a living under the prevailing vulnerability contexts and diversify their livelihoods to the non-farm livelihood activities. Furthermore, as long as non-farm livelihood diversification is divergent, multidimensional and context specific in its nature, the researcher thought that context based study can generate basic knowledge about the determinants of rural non-farm livelihood diversification in areas where there is distinct agro- ecological, demographic, economic and socio-cultural patterns.

### **1.3 Objective of the Study**

#### **1.3.1 General objective**

The main objective of this study is to assess the rural nonfarm livelihood diversification among farming households in *Saharti Samre woreda*, South Eastern Tigray.

#### **1.3.2 Specific objectives**

- To identify the determinants of non-farm livelihood diversification across agro-ecologically different rural settings
- To assess the types of rural non-farm livelihood diversification in the study area
- To explore out-comes and gender dimensions non-farm livelihood diversification
- To assess the role of government on the development of rural non-farm livelihood diversification
- To assess constraints of rural non-farm livelihood diversification

#### **1.4 Significance of the Study**

It is believed that the findings of this study will be serving as a benchmark for those who are interested to conduct further study on issues related to non-farm livelihood options. Besides, results of this study could be seen as important inputs for understanding of major determinants and constraints of non-farm livelihood diversifications, agro ecology and non-farm livelihood diversification and outcomes of non-farm livelihood diversification in rural settings.

#### **1.5 Delimitation of the Study**

The scope of the study is confined only to explore the rural non-farm livelihood diversification among farming rural households in *Saharti Samre woreda*. This study was carried out in small portion of the population where the researcher believed that the issue has to be researched. Hence, it may not be applied to other areas, that might have different cultural, demographic, and socio economic patterns.

#### **1.6 Limitations of the Study**

Among the limitations that the researcher had faced while conducting this study, frequent and ad-hoc meetings of staff and officials were major hindrances of arranged interviews. Hence, securing an appointment and getting the appointed time respected was a real challenge. Many of the *Woreda* sector-offices' staff leave for field work early in the morning during most weekdays. This is due to the overlapping of the period of data collection with the national election campaign (2007 E.C). Besides, transportation issue was also another important challenge faced by the researcher. Furthermore, it is assumed that the various forms of capital including asset ownership status of farming households and other socio-cultural variables have their own impact on farming households' engagement on non-farm livelihood activities.

However, these issues were not addressed by this study considering manageability of data, and resources issues necessary to do so.

## **1.7 Structure of the Thesis**

The report of the study is divided in to five chapters. The first chapter deals with the introductory part which includes, background of the study, objectives (general and specific) and, problem statement of the study. Chapter Two, represents reviews of previous researches on non-farm rural Livelihood diversification developing countries in general, and in Ethiopia in particular.

Chapter three describes the Methodology part, including the study approach, study design, data sources, methods of data collection, the field work and methods of data processing and analysis. Chapter Four provides basic description of the *woreda* and the study *Tabias* including the study population. This chapter also presents findings related to determinants of non-farm diversification the dominant types of non-farm livelihood activities, and challenges of non-farm livelihood diversification in the study area. It continues to examine the, gender dimension, and outcomes of rural nonfarm livelihood diversification.

Chapter 5 summarizes the results obtained from the various components of the study, draws conclusion about non-farm livelihood diversification, and identifies some implications for research.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Non-farm rural livelihood diversification**

Rural livelihoods analysis is believed to have been born with the birth of peasant studies in the 1960s, given the dominance of peasant modes of production in many newly independent African countries. Though 'peasant studies' has fallen out of fashion, the concepts and theories are still central to an understanding of rural livelihoods (Start and Johnson, 2004:14 as cited in Fikru: 2008).

Ellis (1998, 2000) has elaborated a framework which describes the context within which rural non-farm livelihood activities are undertaken. In this framework, different livelihood activities of rural households are enabled by access to assets, in the context of institutions and social relations, modified by trends and shocks, with effects on livelihood security and environmental sustainability (Fikru 2008:25).

In most developing countries, importance of non-agricultural activities is increasing and it is estimated to account for 30-50% of rural incomes World Bank (2008). This is because the number of poor people in rural areas exceeds the capacity of agriculture to provide sustainable livelihood opportunities in many parts of the world (Woinishet, 2010: 7)

However, little is known on the current overall participation rate in Ethiopia. There is also no consensus on factors that affect participation decision into off-farm activities in Ethiopia. Some found that diversification is positively associated with wealth accumulation Block and Webb (2001). On the other hand, Berg and Kumbi (2006) found that poorer households are more likely to engage in non-farm sectors (Woinishet 2010:8).

## **2.2 The Vitality of Rural Nonfarm Livelihood Strategies**

In most developing countries, employment in the agricultural sector is decreasing. Many rural areas are undergoing a process of “de-agrarianization”, with younger workers seeking to move out of agriculture because of lack of jobs, low incomes and agro-climatic constraints. Increasing numbers of rural people are working in non-agricultural activities in or outside their place of origin in order to diversify their income and reduce risk. In the late 1990s, rural non-farm activities accounted for 42 per cent of rural households’ income in Africa<sup>1</sup>, 40 per cent in Latin America and 32 per cent in Asia (Reardon et al. 1998, IFAD, 2007:18).

The process of economic development desires the diversification of economic opportunities, which allows peasants to leave farms in order to pursue employment opportunities (portfolio) in other sector of economy. It is important to note that, weather productive (viable) or not, alternative sources of livelihoods in the rural non-farm sector are necessary, and policy makers must take steps to help smallholders towards this end (Nagayets, 2005: 365-367).

## **2.3 Rural Livelihood Diversification in the Ethiopia Context**

The Ethiopian economy is based on agriculture, which is the largest contributor to the economy that accounts for nearly 80% of employment and 45% of the national GDP. However, agriculture in Ethiopia is characterised by low labour productivity, a declining in farm size, soil degradation, subsistence farming, and tenure insecurity, lack of financial services, imperfect agricultural markets and poor infrastructure (Degefe and Nega, 1999, as cited in Reta: 2010).

The policy focus is also to increase agricultural productivity and farm income so as to attain food self sufficiency at a national, regional and household level. Substantial

resources have been spent on agricultural research and extension to alleviate food shortage in the nation while research and extension activities have not been done adequately on the issues related to off/non-farm employment (Amare, and Belaineh, 2013:1).

Nonetheless, due to many reasons, rural livelihood and rural communities could pursue alternative livelihood strategies to ensure income and food security of their household members. The increasing population growth in rural Ethiopia obliged households to cultivate and making their living on extremely small size of land.

Unlike many studies that show their strict focus on agricultural intensification and extensification, there is a growing literature dealing with rural non-farm livelihood issues in Ethiopia. Some of these includes, Demissie and Workineh (2004), Tassew (2000), Carswell (2002), Mulat (1997) Dercon and Krishnan (1996), Block and Webb (2001), and Fredu et al (2006) etc.

The one by Adugna (2006), however, covers different regions and cropping systems of the country except pastoralist areas while the others focus on drought periods. According to Woldehana and Oskam (2001), increasing the availability of off- and nonfarm activities and improving the wage rate received by farm households can expand the economic activity of the Tigray Regional State. Hence the underlying factors that hinder participation in non-farm activities such as credit constraints and lack of skill may have to be addressed through the provision of credit and technical training.

Carswell (2002) also concludes that lack of credit and lack of labour are the two key barriers to entry for diversification activities. Consequently, the key policy

challenge identified in the study is how to find effective ways of articulating formal credit delivery and informal systems.

Other key institutions identified include markets and institutions around labour and natural resource tenures. The institution of caste, the traditional authority which it implies, kinship and social network are also deemed to have a critical role in livelihood strategies of people in the study area.

Mulat's (1997) study which is part of the Deagrarianisation and Rural Employment (DARE) programme also had attempted to investigate the extent of de-agrarianisation in North Shoa (Debre Berhan, Ankober and Gera Medir). The findings indicate that there are five categories of factors that influence decision of households regarding participation in non-farm activities. These are:

Personal attributes, farm income, farm attributes, food balance (defined as grain sales less grain purchase) and access to urban markets. The conclusion that emerged from this study is that "participation in non-farm employment is largely dictated by the need to meet subsistence food requirements."

Tegegne's (2000) study which was carried out in southern Ethiopia in two woredas namely Kacha Bira and Damot Gale indicated that the farm sector in the these study areas was characterized by shortage of land, low yield of crops, shortage of draught animals and lack of grazing land. In conclusion, the farm sector is not adequate to support the high density of population in the study sites. Hence, Farmers in these study areas have greater tendencies to involve in non-farm activities and income from non-farm sources play a major role in their livelihood.

Tassew's (2000) study which was conducted in Ethiopia particularly Tigray, also show that off farm income can be complementary to farm income if farm households are constrained in their borrowing.

It also shows that farm households with more diversified sources of income have a higher agricultural productivity. One of the key findings of the study is that expenditure on farm input is dependent not only on agricultural production, but also on off-farm income because of capital market imperfections (borrowing constraints).

Fredu et al (2006), who conducted a study in Northern Ethiopia, found out that diversification intensifies income inequality. A rise in income from non-farm income and livestock, according to their study increases income inequality. They also found that social capital is an important factor determining non-farm income but not so for crop income.

(Dercon and Krishnan 1996,as cited in Fikru:2008) using data on rural households from Ethiopia and Tanzania, suggest that constraints on entering activities is one of the main explanations for diversifying income sources. Certain activities have very low entry constraints but others have high entry constraints in the form of special skills or capital needs.

## **2.4 Motivational Factors of Non-farm Livelihood Diversification**

There is also no consensus on factors that affect participation decision into off-farm activities in Ethiopia. Some found that diversification is positively associated with wealth accumulation Block and Webb (2001). On the other hand, Berg and Kumbi (2006) found that poorer households are more likely to engage in non-farm sectors (Woinishet, 2010:8).

In poor rural areas, some households will make a positive choice to take advantage of opportunities in the nonfarm livelihood economy, taking into consideration the wage differential between the two sectors and the riskiness of each type of employment.

Rising incomes and opportunities off-farm then reduce the supply of labour on-farm. However, other households are pushed into the non-farm sector due to a lack of opportunities on-farm, for example, as a result of drought or the small size of land holdings. This may result in a similar pattern of rising non-farm incomes.

This has been discussed with reference to many dichotomies which essentially refer to the same distinction: demand-pull/distress-push, coping/accumulating, need/opportunity, etc. Demand-pull diversification is a response to new market or technological opportunities, while distress-push diversification is driven because there are no opportunities on- farm. Islam (1997) suggests that factors that lead to demand-pull diversification include the increased income of lower and middle-income households and increased demand from urban areas for rural products. He identifies successive droughts that depress income and

hence increase the need for alternative incomes offering low- skill income as a distress-push factor.

The factor that usually cited for leading to the practices of non-agricultural activities are seasonality, risk, labour market conditions, credit market, asset possessions, and coping strategies, just to name but a few. Moreover, under precarious position that characterizes the land scarce farmers' survival in many low-income areas, non-agricultural source of income has positive attributes for livelihood security that outweigh negative connotations Adunga (2005).

Diminishing farm sizes and a decline in return to labor in farming under population pressure may encourage rural households to diversify their employment and livelihoods. In rural areas, livelihood diversification is achieved, for example, by temporary and seasonal migration, wage laborer, crafts, and trades (Tesfaye, 2003:90).

Most rural households with more land tend to follow agricultural extensification rather than diversifying away from agriculture since they benefit from advantage of either production of land or renting it out.

## **2.5 Outcomes of Non-farm Livelihoods**

Nonfarm livelihood diversification may result in both desirable and undesirable effects. So far, some studies had tried to assess what undesirable effects may result from nonfarm livelihood diversification on the environment. Unlike this attempt, most studies focus on the positive outcomes arises due to of nonfarm livelihood diversification.

The non-agricultural sources of income is equally important and reduce poverty though large landholders are fail to participate due to their satisfaction from their produce and probably heavy reliance on land based outputs.

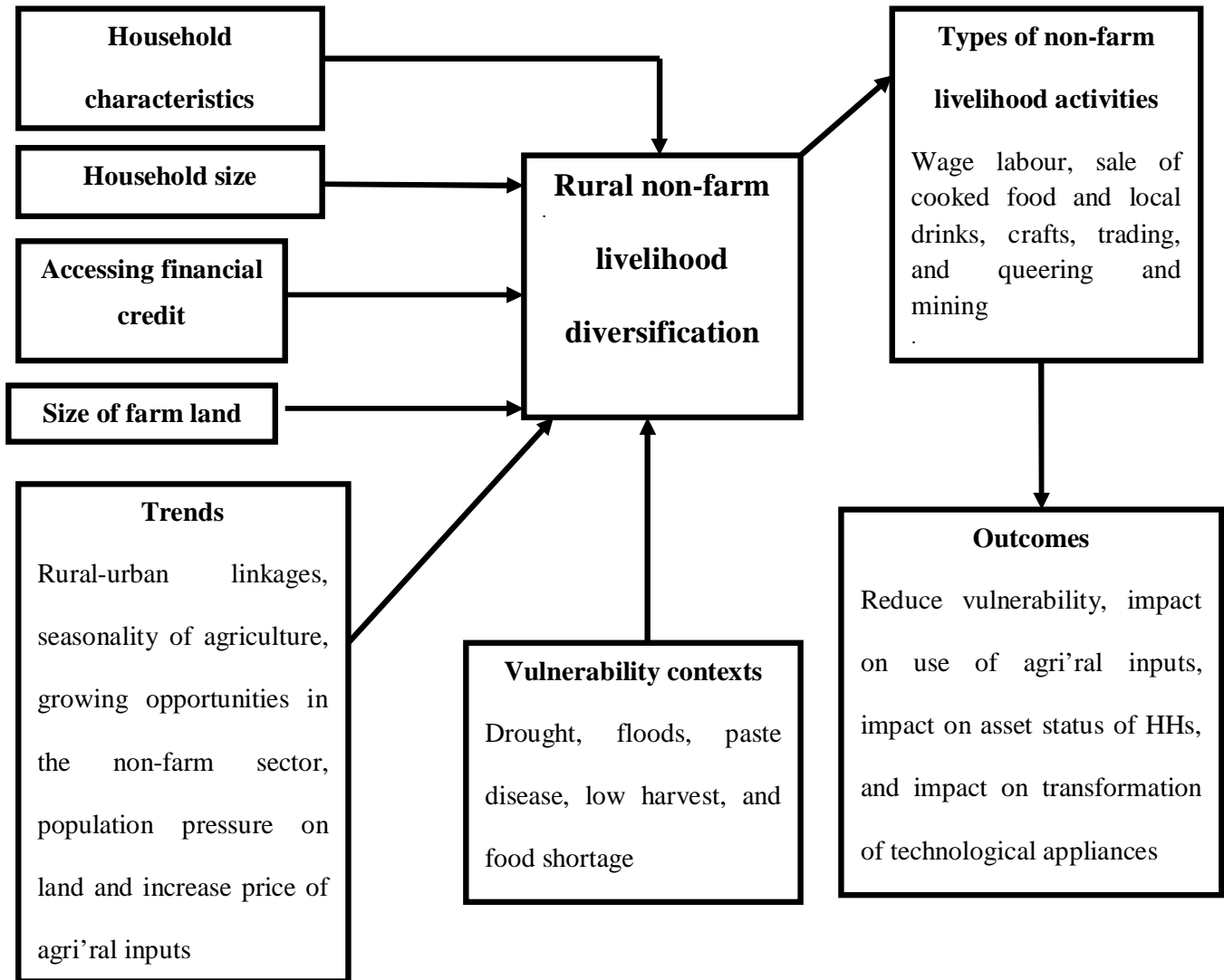
### **2.5.1 Outcomes on Agricultural Inputs Utilization**

The supply of agricultural inputs is one of the key elements for improving agricultural productivity. Seasonal migration as nonfarm livelihood strategy leads to better utilization of agricultural inputs like fertilizer, improved seeds, high yield breeds, pesticides/ and insecticides/herbicides.

This finding is inconsistent with the finding of Davis (2008) from the rural Vietnam that revealed seasonal migration causes less use of agricultural inputs. It is complementary to household farming in which non-agricultural income serves to overcome credit market failures. This also contrasts with Holden, *et al.* (2004) study of Northern Ethiopia that suggested access to non-agricultural activities leads to increasing soil erosion and land degradation and entailing a fall in agricultural factor productivity Reta (2010).

In my review of the above studies, the authors commonly conclude that “the performance of the agricultural sector in Ethiopia is weak and those restrictive policies; drought, environmental degradation and population pressure are among the major bottlenecks in the development of agriculture.” Diversification decision is driven by differing factors and variables and its effects also vary. Finally, As long as the outcomes of these studies are related to the objectives of this research, findings of this research will be proved or disproved wither it also works to this study area or not.

## 2.6 Conceptual framework



**Figure1: Rural non-farm livelihood diversification framework**

As it is shown above, Figure 1 represents the framework. The livelihood framework regards, household characteristics (being male or female headed), demographic characteristics, farm land holding pattern, access to financial credits, trends and vulnerability contexts takes place in the rural households as fundamental to understanding their decision to diversify their livelihoods into non-farm activities.

Various asset positions of households which might have direct or indirect impact on influencing rural households to diversify their livelihoods to the non-farm sector are not included in this framework for manageable analytical purpose.

In the context of this study, nonfarm livelihood diversification is engagement of households on the non-farm sector so as to produce income for different purpose, this can include engagements in non-farm self-employment and waged-employment.

Livelihood outcomes are the outputs from livelihood strategies. For the purpose of this study, outcomes are effects that those households who are engaged on non-farm livelihood activities come across the effects might be desirable or undesirable.

## **2.7 Conceptual definition of terms**

The literature on livelihood diversification which crosses several related fields and disciplinary approaches is characterised by many terms and definitions. Likewise, there are some concepts that are significant to this study and that needs to be defined.

**Household characteristics:** household characteristics is to mean that whether a given household is male or female headed

**Household size:** Household size refers to the number of individuals living together within a given household excluding the family members living outside the household.

**Farm land size:** refers to the size of farm land that farming households have at household level

**Accessing financial credit:** refers to the situation whether farming households have accessed credit or not

**Vulnerability contexts:** refers to the situation whether farming households are prone to drought, floods, paste disease, low harvest, and food shortage

**Trends:** trends in this study represent Rural-urban linkages, seasonality of agriculture, growing opportunities in the non-farm sector, and increase price of agri'ral inputs.

**Push factors:** refers to factors that force farming households to be engaged on non-farm livelihood activities.

**Pull factors:** factors that attract farming households diversify their livelihoods on to the non-farm sector

**Livelihood:** is a concept, which has different meaning for different people. However, for the purpose of this study, the early and widely cited work of Chambers and Conway (1992) definition of livelihood is used.

**A livelihood** comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: (Chambers and Conway, 1992:7-8).

**Diversification:** in this study, diversification is an attempt by individuals to find new ways to raise incomes and to reduce risk, by involving into activities in addition to main agricultural activity Hussein & Nelson (1998).

**Rural livelihood diversification** is then defined as 'the process by which households construct a diverse portfolio of activities and social support capabilities for survival and in order to improve their standard of living' Ellis (1998).

**Rural non-farm livelihood diversification:** is the process of creation or engagement on ongoing social and economic processes by rural households other than the agricultural sector to increase portfolios of livelihood strategies.

**Non-farm income:** nonfarm income in this study is to mean income earned by households from livelihood activities only from the non-farm sector.

**On-farm income:** on-farm income in this study refers to the income might earned by household if the price of all annually produced crops value is converted in to birr and hull sell in the same year market price.

## **CHAPTER THREE**

### **RESEARCH METHODS**

#### **3.1 Study Approach**

As far as the issue of rural non-farm livelihood diversification is multi-dimensional in its nature, it is quite challenging for a researcher unless reasonable combination of qualitative and quantitative techniques are applied. Any single approach will not help to achieve the objectives of the study. Therefore, the objectives of the study are achieved by employing the qualitative and quantitative study approaches.

#### **3.2 Research Design**

The research is a cross-sectional study. The study is aimed at collecting data at one point in time and describing the study population rather than showing the patterns of change which might be witnessed over time. Albeit the study was conducted at one point in time, some questions in the survey still required respondents to recall the changes in certain variables over a specified period of time.

#### **3.3 Data Sources**

The study employed primary and secondary data sources to achieve its core objectives. The nature of the data is both qualitative and quantitative.

##### **3.3.1 Primary sources**

The most important source of data in the study was the primary sources to obtain firsthand information on the thematic issues of the determinants of non-farm livelihood diversification, the alternative livelihood strategies, the outcomes (the desirability and vulnerability) of the alternative livelihoods. The sources of the information were key informants, focus groups, fields, and sampled households.

### **3.3.2 Secondary sources**

The secondary sources of information include books, articles, research journals, and different reports. These grasped the background information, descriptions of the study area, and lessons and experiences that helped to look and understand the issues under enquiry.

## **3.4 Methods of data Collection**

The study combined key informant interviews, focus group discussions, in-depth interviews and household survey. Structured and Semi-structured checklists were designed to manage the household survey, FGDs, KIIs, and in-depth interviews.

### **3.4.1 Household Survey**

Structured questionnaire were developed and administered to a sample of 180 households from the two sampled *Tabias*, and data has been collected from the selected sample respondents. Since the unit of analysis for this study is the household, survey was the major method of data collection employed in generating quantitative information relevant to the objectives of the study. This method had enabled the researcher to generate primarily quantitative and detailed information about the major theme of the study.

### **3.4.2 Survey sampling**

For the purpose of achieving the objectives of the study, the study *Tabias* were selected purposively from the *wereda* for they have two distinct agro-ecological characteristics (*qola* and *weynadega*). Once the two *Tabias* are selected purposively, respondents were selected by a simple random method. The *Tabia* administrator availed the researcher a complete list of household heads in the respective *Tabias* from which sample respondents (household heads) are drawn.

A random number table is generated using computer for each *Tabia* based on the target population, which gave equal chance for respondents to be selected. The numbers generated in the random numbers table are retrieved from the original list of household heads. Finally, 100 and 80 sample respondents were selected from *Addis Alem* and *Lemlem Arena* respectively.

### 3.4.3 Operationalization of key variables

The following table indicates the identification of variables from concepts, and those of indicators to the variables. The table also illustrates the levels of measurement at which the indicators are measured.

**Table1: Operationalization of key variables**

<b>Concept</b>	<b>Variable</b>	<b>Indicator</b>	<b>Measurement</b>
Household characteristics	Household characteristics	Whether a household is male or female headed	<b>Nominal</b> Male headed/ Female headed
Household size	Household size	Number of members in the household	<b>Scale</b> Count of household members
Land	Size of plot of farm land	The size of plot of land that households farm on	<b>Scale</b> Measured in terms of hectare
Credit	Access to credit	Whether households have access to credit or not	<b>Nominal</b> Accessible/ Not accessible
Labor force	Availability of labor force	Whether availability of labor force at household level is a factor for diversification	<b>Nominal</b> Yes/ No
Seasonality of Agriculture	Seasonality of Agriculture	Whether seasonality of agriculture is a factor for diversification	<b>Nominal</b> Yes/ No
Non-farm livelihood	Non-farm livelihood diversification	Whether households engaged on non-farm livelihood activities	<b>Nominal</b> Diversify/ Not diversify

### 3.4.3 Interviews

#### a) Key Informant Interviews (KIIs)

Key informant interviews were conducted with six different kebele officials. Two of them were agricultural extension workers of the two *Tabias*, two *Tabia* chair persons and the remaining two were women from each *Tabia* holding a position of women and children affairs officer. Using this method, data related to gender dimension, driving forces of rural non-farm livelihood diversification is collected. Besides, data associated with the use of agricultural implements by households which might be directly or indirectly affect rural non-farm livelihood diversification has been collected.

#### **b) In-depth interview**

In-depth interviews were made with 4 purposely selected (two male and two female) individuals who have been engaged on non-farm livelihood activities. This method enabled the researcher to generate detailed and accurate data regarding factors facilitating or inhibiting engagement on non-farm livelihood diversification, and gender dimensions of diversification.

#### **3.4.4 Focus Group Discussions (FGDs)**

Four focus group discussions (8, 8, 9 and 11 individuals in each group and two FGDs for each *Tabia*) were carried out in the two *Tabias*. The arrangement for the discussions was made separately in each *Tabia*. The discussions were focused on driving forces of non-farm livelihood diversification, constraints of diversification and its outcomes.

### **3.5 The field work**

Four enumerators from the respective *Tabias* were deployed; two from each *Tabia*. In selection of enumerators, due care was taken to ensure that they are experienced in administering survey questionnaires. Their command of the English language and local language was also important.

Prior to their field deployment, the enumerators were given an orientation about the activities that they should perform and about the overall contents of the questionnaire. Each question was explained to them with adequate clarity, and they were given an opportunity to raise questions and also make any suggestion they might think useful to improve the questionnaire. The academic status of the three enumerators is a University degree (BA) while the one is with a college diploma. As they were familiar about the study area, much more time was devoted to orient them about technical issues necessary to conduct the household survey.

The researcher was acting as supervisor of the enumerators on day-to-day basis. The supervisor's role was in facilitating contacts with various offices and institutions which were very crucial for the success of the field work. The supervisor's personal relationship with *Tabia* chairmen and other staff had helped a lot in establishing trust and warm rapport from the very outset.

After the sample selection was completed, the next step was to recruit a person who will facilitate the enumerators' access to the homestead of each sampled household heads. The guide's (recruited persons) duty includes informing the respondent households one day ahead about the survey so that their consent and availability could be insured and the enumerators could execute their scheduled day to day work without interruption.

Apart from the household survey, the researcher had personally conducted focus group discussions and interviews. The settings for FGDs were houses where local drinks sold. This was made intentionally by the researcher being informed as farming households enjoy and talk their experience in liquor selling houses freely.

Key informants were also selected outside the households included in the survey sample. A warm and trustful relationship was established with these individuals and information gathered through individual interviews held at the premises of their homesteads with prior appointments. This was assisted by an officer in community mobilization activities in the *woreda*. The cooperation from all of them was very good despite postponing of some appointments by the *woreda* and kebele officials due to meetings. Frequent and ad hoc meetings of staff and officials are the hindrances of arranged interviews. Hence, securing an appointment and getting the appointed time respected was a real challenge.

As the working language in the Region is Tigrigna and the researcher is a speaker of the language, there were no problems of reading and understanding recorded data provided. Overall, the field work was successful; and believed to have contributed to achieve objectives of the research. The field work was conducted from February 27, 2007 to May 11, 2007 E.C.

### **3.6 Methods of Data Processing and Analysis**

The data collected in different ways has been analyzed and interpreted to meet the objectives of the study. Qualitative and quantitative information was analyzed thematically. Qualitative information recorded on notebook from FGDs, conversations with key informants, and in-depth interviews were organized and constructed coherently, analyzed in word description form. This helps to group issues in their respective themes and to establish and analyze cause-effect relationships of variables.

A software package, Statistical Package for Social Sciences (SPSS) version 21, was used as a tool to analyze quantitative information gathered through the survey

instrument. This involves coding and entering the collected data into computer to analyze and tabulate the results. The data were coded before entering into the cells of SPSS. The analysis was done using descriptive statistical analysis i.e. frequency distributions, percentages. In addition, a non-parametric statistical analysis, Chi- square, was used in order to analyze the relationship between and the dependent and independent variables that were identified in the conceptual framework.

# CHAPTER FOUR

## FINDINGS OF THE STUDY: DATA ANALYSIS AND PRESENTATION

This section of the report presents background data about the study area as well as the household and demographic characteristics of the respondents. In addition to this, data collected from different sources regarding determinants of rural non-farm livelihood diversification, challenges of non-farm livelihood diversification the dominant types of non-farm livelihood activities, outcomes non-farm livelihood diversification and gender dimension of diversification are discussed below using simple descriptive and advanced statistical analysis.

### 4.1 Over view of the Study area



**Figure 2: Map of the study area**

As it is shown in the above map, *Saharti Samre woreda* is found in South Eastern Zone of Tigray Region bordering with *Dego'a Temben Woreda* in the North, *Amba Alaje*, *Enderta*, and *Hintalo wajerat* in the East, *woreda Tanqua Abergele* in the West and Amhara Regional State in the South. The *woreda* is 57km away from *Mekelle*, capital of Tigray regional state. The *woreda* has 3% of its land in the *Dega* zone, 50% in the *weynadega* zone and 47% in the *kola* zone. *Saharti Samre woreda* has 23 *Tabias* literally mean *kebeles*. The population size of the wereda is estimated to 144,409 with 71,854 male and 72,555 female.

The study sites selected for the research are two *Tabias*. *Tabia Addis Alem* is located at a distance of 13 kilometers from *Samre* town. The numbers of households living in this *Tabia* are 821. Agro-ecologically, this *Tabia* is found in the *weynadega* zone. The other is *Tabia Lemlem Arena* which is located at a distance of 8.5 kilometers from the old *Samre* town. This *Tabia* is found in the *qola* agro-ecological zone. The total numbers of households living in this *Tabia* are 657.

## **4.2 Socio-demographic characteristics of respondents**

The sample respondents were farming households living in the two study sites -*Tabia Addis Alem (weynadega)* and *Lemlem Arena (qola)* and they were 180 in number. This section describes household characteristics of the sample respondents' (male or female headed), household size, and households' farm land holding size and means of obtaining farm land.

### **4.2.1 Household characteristics**

Among the 180 sampled household, 145 samples (75%) were male headed households, and the remaining 35 (25%) were female headed households. In *Tabia Addis Alem*, only 23 (23 %) households out of the total of 100 are female-headed while 77 (77%)

of the households are male headed. in *Tabia Lemlem Arena*, 12 (15 %) household are female-headed out of the sampled 80 households and the remaining 68(85%) are male headed. It is vital to observe whether non-farm livelihood diversification varies by household characteristics.

#### **4.2.2 Household size**

Household size refers to the number of individuals living together within a given household excluding the family members living outside the household. The average household size in *Tabia Addis Alem* is 5.09 with where as the average household size in *Tabia Lemlem arena* is 5.11. The maximum and minimum household size in both *Tabias* is 7 and 3 respectively.

#### **4.2.3 Farm land holding size**

According to agricultural extension workers, what the farmers called one *Timad* is equal to 0.25 hectare. After collecting the data regarding the land holding size per household in *Timad* (the local unit of measurement for a land size), it was converted in to the standard measure of land size (Hectare). The average farm land size in *Tabia Addis Alem* is 2.37 hectare while it is 3.3 hectare in *Tabia Lemlem Arena*

#### **4.2.4 Means of obtaining farm land**

There are different ways of obtaining farm land. In most instances, farming households obtain farm land from their respective kebele administrations. However, there are other means of obtaining farm land. The following table shows the different ways that households in the study area obtain farm land.

**Table 2: Means of obtaining farm land**

Means of obtaining farm land (multiple responses)	<i>Lemlem Arena</i> ( <i>wenadega</i> )		<i>Addis Alem(qola)</i>		Total	
	No	%	No	%	No	%
Inherited	0	0.0	7	8.8	7	8.8
From Kebele Administration	51	51	52	65	103	116
Inherited and from kebele administration	17	17	12	15	29	32
Transfer from relatives and Kebele administration	12	12	4	5	16	17
Inherited, and transferred from relatives	4	4	0	0.0	4	4
From kebele administration and rented	7	7	0	0.0	7	7
From kebele administration and crop shared	9	9	5	5	14	14

As indicated in the table above, In *Tabia Addis Alem*, around 51% of sampled households obtain their farm land from kebele administration, 17% of the sampled households obtain their farm land both from *Tabia* administration and through inheritance it, 12% of the sampled farmer households obtain their farm land through transfer from relatives and *Tabia* administration.

The other 9%, 7% and 4% of the households in this *Tabia* obtain their farm land from *Tabia* administration and crop shared, from *Tabia* administration and rented and inheritance and transferred from relatives respectively.

On the other hand, 52% of farmer households in *Tabia Lemlem Arena* obtained their farm land only from *Tabia* administration while 12% through inheritance and *kebele* administration. The last 7% and 4% o of sample households obtain farm land through inheritance , and both transferred from relatives and crop shared respectively.

### 4.3 Seasons of livelihood diversification

Rural households diversify their livelihoods across different seasons due to various reasons. There are also some farming households that diversify their livelihoods year round. The following table shows the seasons that farming households diversify their livelihoods.

**Table 3: Seasons of diversifying of rural non-farm livelihoods**

		<i>Tabia</i>			
		<i>Addis Alem</i>		<i>Lemlem Arena</i>	
		<i>(weynadega)</i>		<i>(qola)</i>	
		No.	%	No.	%
<b>Seasons of diversification</b>	Rainy season	11	14.1	5	14.7
	Slack agricultural	42	53.8	18	52.9
	Harvest Season	13	16.7	8	23.5
	Year round	12	15.4	3	8.8
	<b>Total</b>	<b>78</b>	<b>100</b>	<b>34</b>	<b>100</b>

As indicated in the above table, among the farming households who diversify their livelihoods at different seasons, 42 (53.8%) and 18 (52.9%) households diversify their livelihoods during the slack agricultural season from *Tabia Alem Addis (weynadega)* and *Tabia Lemlem Arena (qola)* respectively.

### 4.4 Determinants of Non-farm Livelihood Diversification

Multiple motives prompt households and individuals to diversity their livelihoods. Driving forces of livelihood diversification might be seen as push or pull factors or choice or necessity. Some households diversify their livelihoods to the non-farm sector because of experiencing forcing circumstances while others diversify due to pull factors.

#### 4.4.1 Household characteristics and non-farm livelihood diversification

It is hypothesized that non-farm livelihood diversification is interrelated with household characteristics. In order to test whether these two variables are associated, Chi-square is found to be an appropriate statistical tool. The following table shows the test of the association between these two variables in *Tabia Addis Alem*.

**Table 4: Cross tabulation of non-farm livelihood diversification by household characteristics in *Tabia Addis Alem (weynadega)***

		Household characteristics				Total	
		Male headed		Female headed			
		No.	%	No.	%	No.	%
<b>Non-farm livelihood diversification</b>	Diversified	59	76.6	19	82.6	<b>78</b>	<b>78.0</b>
	Not diversified	18	23.4	4	17.4	<b>22</b>	<b>22.0</b>
	<b>Total</b>	<b>77</b>	<b>100.0</b>	<b>23</b>	<b>100.0</b>	<b>80</b>	<b>100.0</b>

$\chi^2 = 0.370$ , sig. (2-tailed) = 0.543

As shown in the above table, the household characteristics of respondents did not affect their tendency to diversify their livelihoods to non-farm sector. The Chi-square test indicates that respondents' household characteristics is (being male or female headed) insignificant ( $\chi^2 = 0.370$ , sig. (2-tailed) = 0.543) in influencing households to diversify to the non-farm sector.

Even though the relationship between non-farm livelihood diversification and household characteristics is found insignificant in *Tabia Addis Alem (weynadega)*, it is vital to see the association between the above two variables in the agro-ecologically different study area – *Tabia Lemlem Arena*. The following table shows the test of the association between these two variables in *Tabia Lemlem Arena (qola)*.

**Table 5: Cross tabulation of non-farm livelihood diversification by household characteristics in *Tabia Lemlem Arena (qola)***

		Household characteristics				Total	
		Male headed		Female headed		No.	%
		No.	%	No.	%		
<b>Nonfarm livelihood diversification</b>	Diversified	25	36.8	9	75.0	<b>34</b>	<b>42.5</b>
	Not diversified	43	63.2	3	25.0	<b>46</b>	<b>57.5</b>
	<b>Total</b>	<b>68</b>	<b>100.0</b>	<b>12</b>	<b>100.0</b>	<b>80</b>	<b>100.0</b>

$\chi^2 = 6.102$ , sig. (2-tailed) = 0.014

As indicated in the table above, among the male headed households, 36.8 % of them diversified while the remaining 63.2 % of them did not diversify their livelihoods to the non-farm sector. Among the female headed households, 75 % of them diversified while 25 % of them did not diversify their livelihood to the non-farm activities. The non-parametric test depicts that respondents' household characteristics significantly ( $\chi^2 = 6.102$ , sig. (2-tailed) = 0.014) determine households' engagement on non-farm livelihood diversification.

In comparing the two agro-ecologically distinct study sites, household characteristics significantly determines non-farm livelihood diversification among farming households in *Tabia Lemlem Arena (qola)* while insignificantly determines non-farm livelihood diversification in *Tabia Addis Alem (weynadega)*. In conclusion, households' characteristics play a different role in determining farming households' non-farm livelihood diversification across the two agro- ecologically different study areas.

#### **4.4.2 Household Size and non-farm livelihood diversification**

Hypothetically, non-farm livelihood diversification is interrelated with the size of a given household. And, this has been tested using non-parametric test (Chi-square) so as

to see the association between these variables. The following table shows the test of the association between these two variables in *Tabia Addis Alem (weynadega)*.

**Table 6: Cross tabulation of non-farm livelihood diversification by household size in *Tabia Addis Alem (weynadega)***

		Household size									
		3		4		5		6		7	
		No.	%	No.	%	No.	%	No.	%	No.	%
Non-farm livelihood diversification	Diversified	3	60.0	12	54.5	33	78.6	21	100	9	90.0
	Not diversified	2	40.0	10	45.5	9	21.4	0	0.0	1	10.0
	<b>Total</b>	<b>5</b>	<b>100.0</b>	<b>22</b>	<b>100.0</b>	<b>42</b>	<b>100.0</b>	<b>21</b>	<b>100.0</b>	<b>10</b>	<b>100.0</b>

$$\chi^2 = 14.767, \text{ sig. (2-tailed) } = 0.005$$

The average household size in *Tabia Addis Alem (weynadega)* is 5.09. As shown in the table above, among respondents who have household size three individual members, 60% of them have diversified their livelihoods to non-farm livelihood activities. Among the survey respondents who have household size four individual members, 54.5% of them diversify their livelihoods to the nonfarm sector. Among the respondents who have household size five individuals, 78.6% of the households diversified their livelihoods to the nonfarm livelihood activities. Among the other respondents whose household size is six individuals, all 100% of them have diversified to the nonfarm options of livelihoods. Out of those respondents that have larger household size (7 member individuals), 90% of them diversified their livelihoods to the nonfarm sector.

The non-parametric test depicts that respondents' household size significantly ( $\chi^2 = 14.767, \text{ sig. (2-tailed) } = 0.005$ ) determines households' engagement on non-farm livelihood diversification. Therefore, the size of a given household has an impact on the households' engagement on non-farm livelihood activities. This implies, the households

with the larger member individuals, the higher probability to diversify to the non- farm livelihood options. Regarding the reason why households with relatively large number of member individuals tend to diversify their livelihoods to the non-farm livelihoods, data has been extracted from the study participants. Households are expected to satisfy the needs of member individuals including basic household consumption. Households with relatively large number of member individuals face difficulties to fulfill the needs of their household using income earned only from the farm sector. As a result, they tend to diversify their livelihoods to non-farm livelihood options that can support their major livelihood. In addition to this, engagement of some members of a given household on non-farm livelihood activities reduces consumption level of agricultural produces at the household level and prevents from selling of fixed assets of the household from consumption.

So as to check whether household size determines the tendency of engagement of households to non-farm livelihood diversification in *Tabia Lemlem Arena (qola)*, Chi-square test has been used as a statistical tool. The following table illustrates the test of the association between these two variables in *Tabia Lemlem Arena (qola)*.

**Table 7: Cross tabulation of non-farm livelihood diversification by household size in *Tabia Lemlem Arena (qola)***

		Household size									
		3		4		5		6		7	
		No.	%	No.	%	No.	%	No.	%	No.	%
<b>Non-farm livelihood diversification</b>	Diversified	0	0.0	5	33.3	14	38.9	11	50.0	4	100.0
	Not diversified	3	100	10	66.7	22	61.1	11	50.0	0	0.0
	<b>Total</b>	<b>3</b>	<b>100.0</b>	<b>15</b>	<b>100.0</b>	<b>36</b>	<b>100.0</b>	<b>22</b>	<b>100.0</b>	<b>4</b>	<b>100.0</b>

$$\chi^2 = 8.843, \text{ sig. (2-tailed) } = 0.065$$

The mean household size in *Tabia Lemlem Arena* is 5.11. As shown in the above table, the household size of respondents did not affect their tendency to diversify their livelihoods to non-farm sector. The Chi-square test indicates that respondents' household size is statistically insignificant ( $\chi^2 = 8.843$  sig. (2-tailed) = 0.065) in influencing households to diversify to the non-farm sector.

Comparing the two agro-ecologically distinct study sites, household size significantly determines non-farm livelihood diversification among farming households in *Tabia Addis Alem (weynadega)* while it has insignificant influence on nonfarm livelihood diversification in *Tabia Lemlem Arena (qola)*. This implies household size plays a different role in determining farming households' non-farm livelihood diversification across the two agro- ecologically different areas. The reason why household size plays different role in the two *Tabias* is that, households in *Tabia Lemlem Arena (qola)* did not face much difficulty to fulfill their household requirements through income earned from farming. Most of the respondents in this *Tabia* perceived that the agricultural produce they yield from their farm land is adequate so as to support household requirements.

#### **4.4.3 Farm land size**

Farming households have different farm land size due to various reasons. It is expected that there might be variations among farming households' engagement on non-farm livelihoods due to holding of different farm land size. So as to see the association between non-farm livelihood diversification and farm land size, non-parametric test (Chi-square) is used. The following tables show test of association between these variables in *the respective Tabias*.

**Table 8: Cross tabulation of non-farm livelihood diversification by household size in *Tabia Addis Alem (weynadega)***

		Land holding size in Hectare													
		1.75		2.00		2.25		2.50		2.75		3.00		3.25	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Non-farm livelihood diversificati on	Diversified	14	100.0	29	96.7	10	100	7	50.0	1	14.3	17	81.0	0	0.0
	Not diversified	0	0.0	1	3.3	0	0.0	7	50.0	6	85.7	4	19.	4	100.0
	<b>Total</b>	<b>14</b>	<b>100.0</b>	<b>30</b>	<b>100.0</b>	<b>10</b>	<b>100.0</b>	<b>14</b>	<b>100.0</b>	<b>4</b>	<b>100.0</b>	21	100.0	4	100.0

$\chi^2 = 50.105$ , sig. (2-tailed) = 0.000

The average farm land size in *Tabia Addis Alem (weynadega)* is 2.37 hectare. Among the respondents whose land holding size is 1.75 hectare, 100% of them tend to diversify their livelihoods to non-farm livelihoods. Among the farming respondents with farm land size of 2.00 hectare, 96.7% of them diversify their livelihoods to non-farm livelihood activities. From the farming respondents with farm land size of 2.25 hectare, 100% of them diversify livelihood activities outside agriculture. Among the farming respondents holding 2.50 hectares of farmland, 50% of the households diversified their livelihoods to non-farm livelihood options. Among the respondents who have 3.00 hectares of farm land, 81% of them diversify their livelihoods to the nonfarm livelihood activities. Lastly, among farming households holding 3.25 hectares of farm land, none of them had diversified their livelihoods outside agriculture.

The non-parametric test (Chi-square) indicates that respondents' farm land size is statistically significant ( $\chi^2 = 50.105$  sig. (2-tailed) = 0.000) in influencing households to diversify to the non-farm sector. This implies, households holding small size of farm land, the higher probability to engage on non-farm livelihood activities.

Discussion results of this study also supports this test result. According to the study participants of *Tabia Addis Alem (weynadega)*, holding small farm land size limits households from producing crops enough to support their household members and cover other expenses. Although variations in land fertility might result differences in agricultural production, size of farm land matters to produce what is needed by a given farming households. This implies the households with relatively small farm land size, high probability to engage on non-farm livelihood activities.

Nonparametric test has been also used to see the relationship between nonfarm livelihood diversification and farm land holding size in *Tabia (qola)*.

**Table 9: Cross tabulation of non-farm livelihood diversification by household size in *Tabia Lemlem Arena (qola)***

		Farm land holding size in Hectare											
		2.75		3.00		3.25		3.50		3.75		4.00	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Non-farm livelihood diversification	Diversified	8	66.7	9	45.0	8	53.3	4	25	2	33.3	3	27.3
	Not diversified	4	33.3	11	55.0	7	46.7	12	75.0	4	66.7	8	72.7
	Total	<b>12</b>	<b>100.0</b>	<b>20</b>	<b>100.0</b>	<b>15</b>	<b>100.0</b>	<b>16</b>	<b>100.0</b>	<b>6</b>	<b>100.0</b>	11	100.0

$$\chi^2 = 6.895 \text{ sig. (2-tailed) } = 0.229$$

As shown in the above table, the respondents' farm land size did not affect their tendency to diversify their livelihoods to non-farm sector. The Chi-square test indicates that respondents' farm land holding size insignificant ( $\chi^2 = 6.895$ , sig. (2-tailed) = 0.229) in influencing households to diversify their livelihoods to the non-farm sector.

Comparing the influence of respondents' farm land holding size on non-farm livelihood diversification in the two agro-ecologically distinct study sites, farm land size significantly determines non-farm livelihood diversification among farming households

in *Tabia Addis Alem (weynadega)* while it has insignificant statistical value on non-farm livelihood diversification in *Tabia Lemlem Arena gola*). Thus, farm land size plays a different role in determining farming households' engagement on non-farm livelihood activities across the two agro- ecologically different areas.

#### 4.4.4 Household heads' perception about the productivity of their farm land

Farming household heads' perceive the productivity of their farm land as adequate or inadequate depending the agricultural produces they yield in a given harvest season. It is believed that a perception of household heads' about the productivity of their farm land is associated with non-farm livelihood diversification. Non-parametric test (chi-square) is used as a tool to see the relationship between these two variables. The following tables present test of association between the variables in the two respective study sites.

**Table 10: Cross tabulation of non-farm livelihood diversification by household size in *Tabia Addis Alem (weynadega)***

		Perception of household heads' about the productivity of their farm land					
		Adequate		Inadequate		Total	
		No.	%	No.	%	No.	%
<b>Non-farm livelihood diversification</b>	Diversified	10	55.6	68	82.9	<b>78</b>	<b>78.0</b>
	Not diversified	8	44.4	14	17.1	<b>22</b>	<b>22.0</b>
	<b>Total</b>	<b>18</b>	<b>100.0</b>	<b>82</b>	<b>100.0</b>	<b>100</b>	<b>100.0</b>

$$\chi^2 = 6.444 \text{ sig. (2-tailed) } = 0.011$$

As indicated in the above table, among of the respondents who thought the agricultural produce the yield from their farm land in 2006/7 harvest season is inadequate, 82.9% of them diversified their livelihoods to the non-farm livelihood options while the remaining 17.1% of respondents did not diversify their livelihoods to the non-farm

sector. On the other hand, among the respondents who thought they have got adequate production from their farm land, 55.6% of them diversified their livelihoods to the non-farm livelihood activities while the remaining 44.4% of the respondents did not diversify.

The Chi-square test indicates that respondents' thought about the production they yield of their farm land is found significant ( $\chi^2 = 6.444$ , sig, (2-tailed) = 0.011).

Nonparametric test is also used to check whether perceptions of households about the agricultural produce they got from their farm land determines non-farm livelihood diversification in *Tabia Lemlem Arena (qola)*.

**Table 11: Cross tabulation of non-farm livelihood diversification by household size in *Tabia Lemlem Arena (qola)***

		Perception of household heads' about the productivity of their farm land					
		Adequate		Inadequate		Total	
		No.	%	No.	%	No.	%
<b>Non-farm livelihood diversification</b>	Diversified	27	37.5	7	87.5	<b>34</b>	<b>42.5</b>
	Not diversified	45	62.5	1	12.5	<b>46</b>	<b>57.5</b>
	<b>Total</b>	<b>72</b>	<b>100.0</b>	<b>8</b>	<b>100.0</b>	<b>100</b>	<b>100.0</b>

$\chi^2 = 7.366$ , sig. (2-tailed) = 0.007

As shown in the above table, among the respondents who thought the agricultural produce the yield from their farm land is inadequate, 87.5 % of them diversified their livelihoods to the non-farm livelihood options. Even though the remaining 12.5 % of respondents perceive that their agricultural produce is inadequate, they did not diversify their livelihoods to the non-farm sector. On the other hand, among the respondents who thought they have got adequate production from their farm land, 62.5 % of them did not

diversified their livelihoods to the non-farm livelihood activities while the remaining 37.5 % of the respondents had diversified.

The Chi-square test indicates that respondents' perception about the productivity of their farm land is found significant ( $\chi^2 = 7.366$ , sig, (2-tailed) = 0.007).

Comparing the perceptions of farming households across the two *Tabias*, majority of respondents in *Tabia Addis Alem (weynadega)* tend to perceive their farm land productivity as inadequate while majority of the respondents in *Tabia Lemlem Arena (qola)* perceived the productivity of their farm land as adequate. However, respondents' perception of the productivity of their farm land is found statistically significant in determining non-farm livelihood diversification in both *Tabias*. This implies, when household heads perceived their farm land productivity is inadequate, the greater probability to engage on non-farm livelihood activities.

#### **4.4.5 Seasonality of agriculture and non-farm livelihood diversification**

It is perceived that non-farm livelihood diversification is interrelated with seasonality of agriculture. In order to test whether these two variables are associated, non-parametric test is made using chi-square as a statistical tool. The following tables show the test of the association between these two variables in the two respective study areas.

**Table 12: Cross tabulation of non-farm livelihood diversification by seasonality of agriculture in *Tabia Addis Alem (weynadega)***

		Seasonality of agriculture as a factor for non-farm livelihood diversification					
		Factor for diversification		Not factor for diversification		Total	
		No.	%	No.	%	No.	%
<b>Non-farm livelihood diversification</b>	Diversified	69	85.2	9	47.4	<b>78</b>	<b>78.0</b>
	Not diversified	12	14.8	10	52.6	<b>22</b>	<b>22.0</b>
	<b>Total</b>	<b>81</b>	<b>100</b>	<b>19</b>	<b>100</b>	<b>100</b>	<b>100</b>

$\chi^2 = 12.826$ , sig. (2-tailed) = 0.000

As can be seen from the above table, among the respondents who consider seasonality of agriculture as a factor to engage on non-farm livelihood activities, 85.2% of them diversify their livelihoods to the non-farm livelihood activities while the remaining 14.8% of respondents did not diversify their livelihoods to the non-farm sector. On the other hand, among the respondents who did not consider seasonality of agriculture as a determinant for non-farm livelihood diversification, 47.4% of them diversified their livelihoods to the non-farm livelihood activities while the remaining 52.6% of the respondents did not diversify. The Chi-square test indicates that respondents' seasonality of agriculture is statistically significant ( $\chi^2 = 12.826$ , sig. (2-tailed) = 0.000) in influencing households' non-farm livelihood diversification.

So as to see the impact of seasonality of agriculture in influencing households' engagement on non-farm livelihood activities in the other agro-ecologically different study area- *Tabia Lemlem Arena (qola)*, non-parametric test (Chi-square) has been used.

**Table 13: Cross tabulation of non-farm livelihood diversification by seasonality of agriculture in *Tabia Lemlem Arena (qola)***

		Seasonality of agriculture as a factor for non-farm livelihood diversification					
		Factor for diversification		Not factor for diversification		Total	
		No.	%	No.	%	No.	%
<b>Non-farm livelihood diversification</b>	Diversified	5	26.3	12	19.7	<b>17</b>	<b>21.3</b>
	Not diversified	14	73.7	49	80.3	<b>63</b>	<b>78.8</b>
	<b>Total</b>	<b>19</b>	<b>100.0</b>	<b>61</b>	<b>100.0</b>	<b>80</b>	<b>100.0</b>

$\chi^2 = 0.382$ , sig. (2-tailed) = 0.536

As shown in the table above, seasonality of agriculture did not affect respondents' tendency to diversify their livelihoods to non-farm sector. The Chi-square test indicates seasonality of agriculture is found insignificant ( $\chi^2 = 0.382$ , sig. (2-tailed) = 0.536) in determining non-farm livelihood diversification.

Considering the role of seasonality of agriculture in determining non-farm livelihood diversification of farming households across the two agro-ecologically unique areas, it is found significant determinant of non-farm livelihood diversification in *Tabia Addis Alem (weynadega)*. On the other hand, seasonality of agriculture is found insignificant determinant of households' engagement on no-farm livelihood activities in *Tabia Lemlem Arena (qola)*. Therefore, the influence seasonality of agriculture on non-farm livelihood diversification is different across agro-ecologically distinct settings.

#### **4.4.6 Households' accessing financial credit**

Farming households might access financial credits from different credit sources. Those who accessed financial credit might use it for different purposes. It is assumed

households' accessing financial credit have an impact on diversifying their livelihoods to the non-farm sector. Non-parametric test of association (Chi –square) is used as a statistical tool to test the association between these two variables. The following tables illustrate test of association between these variables in respective agro-ecologically distinct study sites.

**Table 14: Cross tabulation of non-farm livelihood diversification by households' accessing financial credit in *Tabia Addis Alem (weynadega)***

		Households accessing financial credit				Total	
		accessed		Not accessed			
		No.	%	No.	%	No.	%
<b>Non-farm livelihood diversification</b>	Diversified	23	71.9	55	80.9	<b>78</b>	<b>78.0</b>
	Not diversified	9	28.1	13	19.1	<b>22</b>	<b>22.0</b>
	<b>Total</b>	<b>32</b>	<b>100.0</b>	<b>68</b>	<b>100.0</b>	<b>100</b>	<b>100.0</b>

$\chi^2 = 1.029$ , sig. (2-tailed) = 0.310

As shown in the above table, the household accessing credit did not affect their tendency to diversify their livelihoods to non-farm sector. The Chi-square test indicates that respondents' accessing financial credit is statistically insignificant ( $\chi^2 = 0.370$ , sig. (2-tailed) = 0.543) in influencing households to diversify to the non-farm sector.

The impact of accessing financial credit on farming households' engagement on non-farm livelihood options has been also tested in *Tabia Lemlem Arena (qola)* using non-parametric test (Chi-square).

**Table 15: Cross tabulation of non-farm livelihood diversification by households' accessing financial credit in *Tabia Lemlem Arena (qola)***

		Households' accessing financial credit				Total	
		Accessed		Not accessed			
		No.	%	No.	%	No.	%
<b>Non-farm livelihood diversification</b>	Diversified	26	45.6	8	34.8	<b>34</b>	<b>42.5</b>
	Not diversified	31	54.4	15	65.2	<b>46</b>	<b>57.5</b>
	<b>Total</b>	<b>57</b>	<b>100.0</b>	<b>23</b>	<b>100.0</b>	<b>80</b>	<b>100.0</b>

$\chi^2 = 0.787$ , sig. (2-tailed) = 0.375

As shown in the above table, the household accessing financial credit did not affect their tendency to diversify their livelihoods to non-farm sector. The Chi-square test of association indicates that respondents' accessing financial credit is statistically insignificant ( $\chi^2 = 0.787$ , sig. (2-tailed) = 0.375) in influencing households to diversify to the non-farm sector.

In conclusion, respondents' accessing financial credit is found statistically insignificant in influencing households' engagement on non-farm livelihood activities in both study areas –*Tabia Addis Alem (weynadega)* and *Lemlem Arena (qola)*.

This implies, accessing financial credit by itself is not a sufficient condition for households to diversify their livelihoods to the non-farm sector. According to the study participants, financial credit that households accessed from different sources is mostly used to purchase agricultural inputs, fatten livestock, to pay previous credits, asset building and fulfilling household's basic needs. Furthermore, issues of collateral make difficult accessing credit especially from the government. The major sources of

financial credit include the government, NGOs, friends and local lenders, friends / relatives, and Idir / Mahber.

According to the survey respondents, currently, vulnerability contexts such as drought, paste disease and low harvest are not determinants of diversification in the study area. In addition to the above quantitatively investigated determinants of non-farm livelihood diversification from the survey respondents, data regarding other determinants of non-farm livelihood diversification has been collected from study participants.

#### **4.4.7 Price of agricultural inputs**

Hypothetically, price of agricultural inputs is expected to have an impact in influencing farming households to engage on non-farm livelihood activities. According to some discussion participants, ever increase of price of agricultural inputs (fertilizers, improved seeds and pesticides) are becoming driving forces for household's diversification to non-farm livelihood activities. This was the most underlined issue by majority of participants in the FGDs and in-depth interview. According to the view of participants, costs of modern farm inputs are becoming intolerable and challenging farming households. As reported by the interviewees, the farm land production did not help them to support their household requirements and cover the entire costs of these modern farm inputs.

Some years back, the price of agricultural inputs was relatively fair, tolerable and affordable by farming households. However, unexpectedly, the price of agricultural inputs (fertilizers, improved seeds, and pesticides) has scale up and farming households face difficulty to afford it. This in turn, forced farming households to look at another livelihood option so as to buy these high price level agricultural inputs. Thus, farming households engaged themselves in nonfarm livelihood activities to generate income.

A 47 years old man who lives in Addis Alem *Tabia* noted that:

*The life of rural households is highly dependent on agriculture (subsistence farming) in particular. Hence, farming households exert their full effort on agriculture to produce the extent possible to support the basic needs of their households. At the same time, government is introducing various mechanisms and farming implements to enhance farm productivity. And we know that this enable farming households to produce more than the conventional way we do ever before. However, the price of these agricultural implements is showing a radical increase from time to time. To your surprise, few years back, the price of fertilizer (DAP) was 35 birr per quintal but now the price of the same size fertilizer is around 650 birr and we are obligated to take it with price limit set by the government. I do not know why this happen. Whatever we produce a lot, we have to pay back to government for inputs we taken and applied in the agricultural farm land. Imagine, the farm land we have could not produce agricultural output that can feed us as well as generate income from crop sale to repay what we bought from the government. Because of this, we seek another alternative livelihood that can help us to generate income to cover the costs of agricultural inputs.*

#### **4.4.8 Pull factors**

Unlike push factors which force households to diversify their livelihoods to the non-farm sector necessarily, pull factors are factors that attract farming households to be engaged on non-farm livelihood activities based on their choice. Even though push factors contributed more for households' livelihood diversification to the non-farm sector, there are some pull factors that motivated households to no-farm livelihood diversification.

Some of the study participants in the FGDs and in-depth interview noted that the positive changes they witnessed on individuals/ households who have been involved in non-farm livelihood activities attracted them to do so. Individuals/ households who had been engaged on non-farm livelihood activities build some fixed assets such as, built a house with collated iron, bought some oxen, and other cattle using the income they generated from such activities. This in turn, motivated other households to be engaged on non-farm livelihood activities. This might be seen as a motivational factor for households who had never diversified their livelihoods to the non-farm sector before.

In addition to this, some young members of a given household who have been engaged on some non-farm livelihood activities share their friends about the opportunities that are available with regard to engagement on non-farm livelihood activities. Accordingly, considerable numbers of youngsters directly listened to their friends and engaged on nonfarm livelihood activities. Here, the social networks of youngsters play a significant role in motivating them to engage on non-farm livelihood activities.

Besides, some study participants from *Tabia Lemlem Arena (qola)* noted that the proximity of their village to the *woreda* town and relatively to *Mekelle* - the capital of Tigray regional state has also contributed to their engagement on some nonfarm livelihood activities. The presence of transportation access to and relatively short distance between their village and the regional capital helped households to probably engage on non-farm livelihood activities available in urban areas. Some members of a given households go to the urban areas and engaged on non-farm livelihood activities like as a daily labourer in construction sites, selling of some household goods for urban households going directly to their homesteads. In addition to this, rural urban linkage interms of accessing transport also helps households to sell some agricultural related

products to the nearby urban households and got off-farm income. Therefore, rural urban linkage in terms of (availability of transport access and relatively 'short distance') between the villages of farming rural households and urban centers might have a significant role on households' livelihood diversification to the non-farm sector. In general, these might be labelled under the pull factor category.

However, a variable considered as determinant for non-farm livelihood diversification in one may not be the case in another area. For instance, rural urban linkages tend to be considered as determinant of diversification by most of the study participants in the FGDs in *Tabia Lemlem Arena (qola)* while this was not the case in *Tabia Addis Alem (weynadega)*. According to the study participants from *Tabia Lemlem Arena (qola)*, the close proximity of their village to the *woreda* town- *Samre* had help households to engage on some income generating activities. Some members of a household go to the *woreda* town work as a daily labourer and earn income.

#### **4.5 Dominant Types of Non-farm Livelihood diversification In the Study Sites**

Households might be engaged in different types of non-farm livelihood activities. There are various reasons that rural households engaged in different types of non-farm livelihood options such as to boost their income and reduce natural and manmade vulnerability contexts. The types of non-farm livelihood activities that people might engage in might vary from one area to another.

There are some non-farm livelihood activities which are predominantly employed by households in the study areas. The following table shows types of non-farm livelihood activities that households engaged in and respective number of households who employed these non-farm livelihood activities in the respective study *Tabias*.

**Table 16: Types of rural non-farm livelihoods**

		<i>Tabia</i>			
		<i>Addis Alem</i> ( <i>weynadega</i> )		<i>Lemlem Arena</i> ( <i>qola</i> )	
		No.	%	No.	%
<b>Types of non-farm livelihood activities</b>	Wage labor/ casual work	42	53.8	22	64.7
	Cooked food and local drink sale	19	24.4	3	8.8
	Crafts	12	15.4	3	8.8
	Trade	5	6.4	6	17.6
	<b>Total</b>	<b>78</b>	<b>100.0</b>	<b>34</b>	<b>100.0</b>

#### 4.5.1 Wage labor

In this case, wage labour might be seen as some members of a given household work on others farm land so as to generate income or moving to urban areas serve as a daily labourer on construction sites.

As shown in the table above, among the surveyed respondents, 53.8% of the households in *Tabia Addis Alem (weynadega)* employed wage/ casual work as means of livelihood generating activity while 64.7% of the respondents in *Tabia Lemlem Arena (qola)* employed it as means of livelihood to generate income. The survey results of this study indicated that, majority of households in both study sites employed this type of non-farm livelihood activity.

However, discussion results from the study participants indicated that employing of this type of livelihood strategy varies from one household to another depending on the availability of labour force at household level and vulnerability contexts. When a given household contains relatively high number of labour force and their farming strategy does not requires intensive labour force, some members of the household go to other

areas and act as a daily labourer in order to generate income. This non-farm type of livelihood activity is found common mostly during the slack agricultural season. This was due to the availability of great demand of wage labourers during this season.

According to the findings of this study, male members of a household are mostly engaged on this type of livelihood activity. However, there are also circumstances on which female members of a household engaged in such activity. For instance, female members of a given household go to nearby urban areas and work as daily laborer especially in construction sites.

#### **4.5.2 Sale of Small Cooked Foods and Local Drinks**

This kind of livelihood activity include, sale of locally produced drinks such as, *tela* and cooked foods and sell to their customers.

As indicated in table (16), among the surveyed respondents who pursue non-farm livelihood diversification, 24.4% of the households in *Tabia Addis Alem (weynadega)* employed this type of non-farm livelihood activity to make a living while 8.8% of respondents in *Tabia Lemlem Arena (qola)* employed this livelihood activity so as to generate income.

Households who are engaged in such activity prepared some locally produced drinks such as *tela* and cooked foods and sell to their customers relatively on fair price. Study participants reported that in most instances, female-headed households are involved in this business. Widows and divorcees are usually pushed or pulled to such activities when their livelihood situation deteriorates following the death of a spouse or unfair property division when marriages fail. This might be due to difficulties that female headed households face in keeping the farm economy as their major livelihood activity after they lose their spouse.

The evidence from a female informant describes the following.

*A thirty nine years old woman, who lives in Tabia Addis Alem (weynadega), is engaged in sale of local drinks like (Tela and areki) she started this business when she lost her husband seven years ago, shouldering all the responsibility to raise five children. The woman said, "Some of the reasons forced/motivated me to engage in trade are; I cannot keep farming alone after my husband has passed away. I found trade simple for me to raise my children. In trade, no need of buying agricultural inputs, no need of having oxen and so on. Considering the effort I exerted and the expenses that I invest to run this business, the outcomes might not be much more satisfactory. But I found this business easier than farming especially to female headed households.*

#### **4.5.3 Handicrafts**

Handicrafts as a livelihood strategy include blacksmithing, pottery and waving. Blacksmiths give service to inhabitants of the *Tabia* by making /sharpening various tools and utensils (such as knives and ploughs).

As shown in table (16), among the surveyed respondents, 15.4 % of households in *Tabia Addis Alem (weynadega)* employed crafts as means of livelihood activity to support their major livelihood strategy while 8.8% of the respondents in *Tabia Lemlem arena (qola)* employ this type of non-farm livelihood activity.

Households who employed blacksmithing as a type of livelihood strategy are too busy and overstretched during ploughing seasons due to the high demand of farming households making /sharpening of various tools and utensils (knives, ploughs

etc.). Women are predominantly engaged in pottery. They make *Mitad, jebena* and other household goods sold in local markets. In addition there are also individuals engaged in weavings so as to generate income to support their household. They make traditional cloths and sold to customers.

#### **4.5.4 Trade**

Although trade is mostly considered as dominant livelihood strategy of urban society, it is not solely confined to the urban dwellers. Thus, rural households also employed trade as their major as well as supportive livelihood strategy across the in the study sites. As indicated in table (15), among the surveyed respondents, 6.4% of households in *Tabia Addis Alem (weynadega)* are engaged in trade as a means of livelihood strategy while 17.6% of households in *Lemlem Arena (qola)* employed trade as a livelihood strategy.

There are owners of some small shops ('*suks*') in both *Tabias (Addis Alem* and in *Lemlem Arena)*. They buy various consumer items such as sugar, coffee, candy and soft-drinks from *Mekelle* city- capital of Tigray regional state and sell it to the local community.

Other than these common forms of trading, farmers form a *Mahber* containing not more than five members. They bought ox or cow from market and butcher during holidays sell the meat (*qircha*) to get profit. The income earned from the sale of meat to community at holiday times is distributed to members of the *Mahber* proportionally based on the expense they contribute during buying of the ox or cow.

#### **4.5.5 Mining and Quarrying**

According to the official data obtained from the *woreda* administration, greater numbers of individuals are engaged in this type of non-farm livelihood activity and make a living. Measured by the number of people engaged, this is the most significant non-farm

activity in *Tabia Lemlem Arena* because of its proximity to the old *woreda* town – *Samre*, where construction and urban renewal is recent feature.

According to the *Woreda* official, significant number of members of households participates in quarrying river sand and stone. The area is rich in river sand, stone and shingle which resources are having relatively high demand for greater number of construction use. The *Woreda* official reported that this type of non-farm livelihood activity is mainly operated by the rural youth due to the attention given by government so as to reduce unemployment rate in rural settings.

All landless or unemployed members of *Tabias* who apply to access the resource are eligible under the condition that they organize themselves under cooperatives. However, non-organized dwellers in cooperative form, landless or not, are free to work as daily labourers, though they cannot enjoy the benefits derived from sale of sand and stones.

The condition for membership is certification by the kebele where the applicant resides that the person has no other means of income (is landless or has no other means of employment). Most of the members of these cooperatives (about 80 %) are youth particularly less than 34 years old.

#### **4.6 Temporary and seasonal Migration as a way in to non-farm livelihood activities**

Migration might be expressed as moving of some members of the household to nearby rural and urban centres to engage on various non-farm livelihood activities. Some members of a given household go to somewhere else and work there to get income on a temporary basis.

There are two quite different kinds of argument among scholars regarding migration. Some perceived migration as one means of livelihood strategy employed by people because of either push or pull factors. On the other hand, others argue that migration should not be perceived as a livelihood strategy due to problems that might be created in the place of destination with particular focus on delivery of social services like pure water supply, health care service, education and others. Hence, various strategies have been devised to minimize the rate of migration- rural- urban migration. Despite these counterpart arguments, rural households employ seasonal migration as one live livelihood strategy.

According to the study participants, farming households in the study area are not encouraged to employ migration as a livelihood strategy by the *Tabia* as well as *woreda* administrations. Those who have a farm land in their place of origin and migrated to urban areas are warned they can loss their farm land. According the *Tabia* and *woreda* administrators, in most cases, members of a given household who migrated to urban areas are engaged in begging and this damage the image of sending areas. In spite of discouragements from *Tabia* and *woreda* administrations households employ seasonal migration as a livelihood strategy. Besides, the importance of migration to rural households' livelihoods cannot be under estimated. In most instances, the migrants send remittances to their family.

The view of a 42 years old man confirms this:

*The income that we got from migration helps us to cover our children basic expenses including their cloths and other educational materials. In addition, it is the income we got in the form of remittances that help us to cover costs of modern agricultural inputs such as, fertilizer and*

*improved seeds. Otherwise, we are expected to sell our fixed assets or agricultural products and use it to cover these all costs. Hence, the income we got in the form of remittance plays an indispensable role in our life.*

Although Reta *et al.* (2010) noted that dependency on remittance traditionally has been portrayed as a negative process in the sending areas which increases dependence on labor exports represents a loss of labour and capital in these areas, this was hardly recognized in this study because in most cases. Farming strategy in study areas does not require much labor force due to limited farm land size and can be handled by the labour force left home. Instead, remittance resulted from migration affects Investment in agricultural intensification and conservation of productive resources, such as land or major assets of the household.

#### **4.7 Constraints of Non-farm Rural Livelihood Diversification**

Given the fact that rural non-farm activities are heterogeneous by their very nature, the constraints also have varying characteristics. This had been proven by many researchers. Therefore, this study is emphasizing on major constraints of diversification identified by the study population. Survey respondents of this study were asked to tell and put hierarchically constraints preventing them from opening a non-farm enterprise by choosing among pre-coded answers in the questionnaire. In addition, this was also a common question to the study participants in the FGDs and in-depth interview.

Surveyed respondents and study participants had put and list down a number of specific and general constraints of diversification. However, for analytical purpose, greater emphasis is given on the major ones identified by respondents. The following

table illustrates major challenges of diversification identified by the sampled respondents in the study sites.

**Table 17: Constraints of non-farm livelihood diversification**

Constraints of non-farm livelihood diversification	<i>Tabia</i>			
	<i>Addis Alem(weynadega)</i>		<i>Lemlem Arena (qola)</i>	
	No.	%	No.	%
Lack of capital	53	67.9	20	58.8
Skill deficiency	63	80.8	26	76.5
Lack of organized non-farm livelihood generating enterprises	74	94.8	28	82.4

As shown in the table, among the households that diversified their livelihoods to the non-farm sector, (93%) of the households in *Tabia Addis Alem* indicated that lack of organized non-farm livelihood generating enterprise as a primary constraint that limit livelihood diversification while the other 80.8 % and 67.9 % of the respondents in the same *Tabia* identified skill deficiency and lack of capital as the second and third constraints of non-farm livelihood diversification respectively.

On the other hand, among the surveyed respondents who had diversified their livelihoods to the nonfarm livelihood activities in *Tabia Lemlem Arena (qola)*, majority 82.4% of them put lack of organized non-farm livelihood generating enterprises as primary constraint. The other 76.5 % and 58.8% of respondents in the same *Tabia* indicated that lack of capital as the second and third constraints of non-farm livelihood diversification respectively.

Despite the high percentage of respondents who singled out lack of organized non-farm livelihood generating enterprise as primary constraint in both *Tabias*, skill deficiency and insufficient capital are also considered as major constraints of non-farm livelihood

diversification in the study sites. Each major constraint identified by the study population is explained briefly as follow.

#### **4.7.1 Lack of organized non-farm livelihood generating enterprises**

Nationwide, there might be different enterprises that have clear guidelines and principles to achieve their stated objectives. For instance, the micro and small scale enterprises which is introduced by the Ethiopian government attempts to focus on micro and small scale livelihood generating activities. Although this policy of micro and small scale enterprises is expected to take place both in urban and rural areas of the nation, it is blamed by many scholars for its urban biasness. In rural areas, the role of micro and small scale enterprises is in one way or another highly associated to improving the agricultural livelihood strategy by deploying various technical and material offers to rural farming households. For instance, enterprises related accessing credit focused delivering financial and material credit to farmers who need to increase their agricultural productivity. This let rural farming households with no option of organized nonfarm livelihood generating enterprises to diversify their livelihoods in an organized manner outside the agriculture sector. This was evident in the study area.

According to the view of subjects of this study, there is no organized nonfarm livelihood generating enterprise that can motivate, provide technical and financial assistance to farming households so as to engage on non-farm livelihood activity other than agriculture. However, farming households seek other livelihood options even in the absence of organized nonfarm livelihood generating enterprises. Households create different *Mahber* by themselves and engaged in some non-farm livelihood activities. For instance farming households' form some sort of *Mahber* contains not more than five member individuals. They bought ox or cow and butchering at holiday times selling meat for communities and got profit.

### **4.7.2 Skill deficiency**

Skill refers to technical capability of individuals which can be developed through training and education. Skill deficiency was another challenge outlined by the study subjects in both study *Tabias –Addis Alem and Lemlem Arena*. It obvious that before directly engaged in to some livelihood generating activities, people should have enough technical and scientific knowhow about the issue they want to employ. Farming households in the study area are provided different technical and science based trainings by agriculture extension workers so as to enhance agricultural productivity. These continuously provided trainings by agriculture extension workers to farming households had brought progressive consciousness of farmers about enhancing agricultural productivity from to time to time.

However, according to the study participants, there is no concerned body that attempts to develop the consciousness of farming households about nonfarm livelihood options. Therefore, in the study area, the knowledge and consciousness of farming households about non-farm business enterprise is very weak and this had let them to highly depend on agriculture livelihood strategy.

### **4.7.3 Lack of capital**

Lack of capital was the third constraint of non-farm livelihood diversification reported by the study population. Lack of capital in this sense does not represent the various forms of capital rather, it is only associated to the financial type of capital. Although some farming households need to invest on non-farm livelihood business options, they face acute entry barriers interms of financial capital.

According to the study participants, now days, investment on non-farm business needs high financial capital and there is no way of getting higher financial capital to invest it on non-farm business activities. Hence, farming households prefer to engage on some

non-farm livelihood activities that do not require much more financial capital. In this regard, temporary wage labour is often prime choices due to no need of start up capital rather the labour of an individual.

FGD participants in both *Tabia Addis Alem* and *Tabia Lemlem Arena* stressed that:

*Business consciousness and education in general are very low in this community. We are tradition and custom-oriented. Lack of capital is also another important problem. The community here has no awareness how to make a business outside the agriculture sector. And, it is obvious that a business cannot be established in the absence of any know how because the risk might be severe unless it is supported by enough business consciousness. More than anything else, there is no organized non-farm livelihood generating enterprise that can guide and help us make a living out of it.*

In addition to the above stated major constraints outlined by the survey respondents, other inhibiting factors were also identified by members in the FGDs and In-depth interviews such as, absence of credit sources for the purpose of non-farm livelihood diversification, and lack of awareness about credit Sources and fear of loss of land. According to *Tabia* administrator, there is a rule that any member of a given household who migrated and stayed away for two years might be taken his/ her land by the government. Because of this, household members who have land and migrated to other areas often do not stay more than two years in the destination areas.

#### **4.8 The role of government on the development of rural non-farm livelihood diversification**

The role of government on the development of rural non-farm livelihood diversification can have its own impact on motivating farming households to diversify their livelihoods outside farming. This can be ensured by providing trainings related to non-farm livelihood activities to farming households. Survey respondents, key informant interviewees and discussants were asked to examine the role of government on the development of non-farm livelihoods.

According to the survey and discussion results, the government introduces different programs to improve livelihoods of rural people. Much more efforts have been dedicated to the agricultural sector by supplying agricultural inputs and other technologies to enhance agricultural production. Except some opportunities created for rural youth so as to engage on some non-farm livelihood activities such as, queering and traditional mining, the micro and small scale enterprises which in principle have focused on alternative livelihoods is less effective in creating favourable non-farm livelihood options in rural areas. Thus, the linkage between rural development programs and non-farm livelihood strategies is found weak in the study area.

According to the key informant interviewees, households in both *Tabias* tend to find out other livelihood options even in the absence of enough awareness about non-farm livelihoods, responsible agencies and guiding principles.

Asked whether they have ever received trainings on alternative livelihood activities, households had also given their responses. According the survey respondents, there has no trainings given to farming households with regard to non-farm livelihood activities.

While attempting to identify the trainings and supports delivered to some rural households, the researcher found out that supports or trainings given for rural households on alternative livelihoods were, in one way or another, associated with the different types of farming like dairy farming and beekeeping.

On the same token, the discussants in FGDs confirmed that trainings given for farming households are related to diverse forms of farming. Non- farm activities are not formally delivered to the farmers by the government or NGOs. Although extension workers working in the respective *Tabias* believe the importance of non-farm livelihoods to farming households, they had confirmed the absence of experts deployed who can work on issues of non-farm livelihood activities.

#### **4.9 Gender Dimensions of Non-farm Livelihood Diversification**

There might be different reasons that farming households engaged on various types of non-farm livelihood activities. According to the view of the key informant and in-depth interviewees', women face difficulty to be independent farmers following the death of a spouse or marriage break-up and contract or sharecrop out their farm land. Hence, female headed households tend to engage on non-farm livelihood activities.

Although both male and female headed households might be engaged in various non-farm livelihood activities such as, wage labor, trade, handicrafts, and cooked food and local drink sale, there are some non-farm livelihood activities that female headed households predominantly engaged in. Sale of local drinks and pottery are among the non-farm livelihood activities predominantly practiced by female headed households in the study area. On the other hand, male headed households tend to engage on wage labor, queering and traditional mining, and trade.

Discussion results from the FGDs indicated that even though women predominantly engaged on sale of cooked food and local drinks, and pottery, there are also some women that engaged in trade and wage labor to generate income. Women's' affair office also noted that women are encouraged to diversify their livelihoods to the non-farm sector.

#### **4.10 Outcomes of Non-farm Livelihood Diversification**

As to the findings of this study, outcomes resulted from engagement on non-farm livelihood diversification might be regarded as desirable or undesirable outcomes. The impacts might take place on the household itself, wider community and the nation at large. The following sub section presents both the desirable and undesirable outcomes of non-farm livelihood diversification at household level.

##### **4.10.1 Outcomes on Utilization Agricultural Inputs**

The supply of agricultural inputs is one of the key elements for improving agricultural productivity. Hence, Households are expected to apply these implements so as to enhance the productivity of their farm land. However, according to the study subjects, households face difficulties in covering the costs of these farm inputs. In this case, households seek other livelihood options to generate income that can help them to cover costs of modern farm implements and other household expenses.

Migration is one of among the different non-farm livelihood strategies that rural households employed as a way in to engage on various non-farm livelihood activities. According to the survey results and data generated from members of the focus group discussion, remittances sent from migrant members of a household has helped farming households better utilization of agricultural inputs like fertilizer, improved seeds, high yield breeds, pesticides/ and insecticides/herbicides.

Holden *et al.* (2004) had showed that the access to non-agricultural activities leads to increased soil erosion and land degradation in the Highland of Tigray suggesting a drop in agricultural total factor productivity. However, findings of this study do not fit with that of Holden. As to the survey results and study participants, non-farm source of income help to complement agricultural activities. These income portfolios can be used for purchase of fertilizer and other agricultural inputs. Furthermore, non-agricultural sources of income significantly affect utilization of agricultural resources and material wellbeing of the households

This finding is also different from the finding of Davis (2008) from the rural Vietnam that revealed seasonal migration causes less use of agricultural inputs. It is complementary to farming household in which non-agricultural income serves to overcome credit market failures.

#### **4.10.2 Reduce vulnerability contexts of households**

As to the discussion results from the FGDs and in-depth interview, most of the time it is due to the ‘vulnerability contexts’ that households decided to diversify their livelihoods outside the agriculture sector. Therefore, engagement of any member of a given household on non-farm livelihood activities in one way another reduces the vulnerability contexts of a given household.

Using income generated from the non-farm sector, households solve their food deficiencies by buying crops from market for household consumption. In addition to this income generated from the non-farm sector help households not sell their major assets like oxen, cows, land and other most valuable assets. The following table illustrates the outcomes of diversification.

#### **4.10.3 Impact of seasonal migration on the youth and technological transfer**

There are many ways that made easy transfer of technological appliances from urban to rural areas and facilitate rural urban linkage. This in turn had an impact on cultural, socio- economic and political life of the rural society. It is obvious that rural communities tend to maintain and preserve their indigenous culture, habits and history. However, many studies proved that due to rural urban proximity and other reasons indigenous rural cultural traits are dominated by urban life styles.

Furthermore, this study found out that when rural youth migrates to near or far urban areas, they became familiar with various distinctive cultural patterns of urban people. Back to their home, they tend to exercise these imported life styles instead of preserving their original cultural traits. For instance migrant youth who live for a relatively little period of time in urban areas change their wearing style, hair style and so on.

Apart from this, migrant youth serve as a bridge in transforming some technological innovations to the rural people. Those youth buy mobile phones and other technological appliances and bring it home for further use in their households. Hence, migration does not only help households to generate income, but also facilitate the adaptation of technological appliances by rural households.

On the contrary, another negative outcome of migration revealed by the research participants is migration of a household member for relatively long period of time results loss of emotional support. For instance, children migrate to urban areas and stay for relatively long period of time, parents feel uncertain about their migrant children, loss emotional support and affection. They even see nightmares about their children.

Hereunder, one female participant 37 years old who has migrated to *Addis Ababa* noted what she feels.

*Migration is too bad. It is because of our problem we take it as an option.*

*For instance, my two children have migrated. Although they sent me some sort of money that might help me here, I do not feel good about them all the time. I even see bad nightmares about them. Some times by then I wish my children to be with me. Nobody can help them if they got sick there and I always think about their safety because I cannot reach easily if something happened to them there.*

Other than this, the consequences of migration for women are found to be worse than they are for men due to the increased feminization of the agricultural labour force. When the male household migrates to other area far away from his home, the women left with many responsibilities in the agricultural sector. Tasks of agricultural sector are loaded on the shoulders of the women and her respective children left at home. This finding is consistent with that of Reta (2010). In addition to the above stated consequence, when women members of the household emigrated, she is likely to face acute challenges that might extend up to sexual and physical harassments.

#### **4.11 Purpose and use of non-farm income**

Households use income earned from nonfarm livelihood activities for different purposes. The study households were also asked for what purpose did they use income they earned from non-farm activities. Accordingly in most instances, households use income earned from nonfarm livelihood activities to pay previous credit, purchase farm inputs, for household basic needs consumption, asset building, and hardly to expand non-farm business activities. The following table shows households use of nonfarm income for different purposes.

**Table 18: Use of non-farm income by farming households**

		<i>Tabia</i>			
		<i>Addis Alem</i>		<i>Lemlem Arena</i>	
		No.	%	No.	%
<b>Use of non-farm income by households</b>	Purchase farm inputs	32	41.0	15	44.1
	For HH consumption and essential expenses	17	21.8	5	14.7
	Pay previous credit	18	23.1	3	8.8
	Asset building	7	9.0	8	23.6
	Expand non-farm business activity	4	5.1	3	8.8
	<b>Total</b>	<b>78</b>	<b>100</b>	<b>34</b>	<b>100</b>

As indicated in table above, among the households who diversify their livelihoods to the non-farm sector in *Tabia Addis Alem*, 41% of them use the non-farm income to purchase farm inputs. While 23.8% of the respondents use the non-farm income to repay previous credits, the other 21.1% and 9% of the respondents in the same *Tabia* use the nonfarm income for households' basic need consumption and asset building respectively. The remaining 5.1% of the respondents in this *Tabia*, use the income they earn from non-farm livelihood activities to expand nonfarm- business activities.

On the other hand, among the respondents who reported that they diversified their livelihoods to nonfarm livelihood activities in *Tabia Lemlem Arena*, 44.1 % of them use the nonfarm income to purchase farm inputs. The other 23.6% and 14.7% of the respondents in the same *Tabia* use the nonfarm income for asset building households' basic need consumption and respectively. The other 3.8 % of the respondents in this *Tabia*, use the income they earn from non-farm livelihood activities to repay previous credits while the remaining 3.8% use non-farm income to expand nonfarm- business activities.

## CHAPTER FIVE

### SUMMARY AND CONCLUSIONS

#### **5.1 Summary of major findings**

As the main objective of this study is focused on assessing non-farm livelihood diversification among farming households in *Saharti Samre woreda*, data were collected using survey questionnaire, FGDs, in-depth interviews and key informant interviews from sampled households, study participants, *Tabia* administrator, and agricultural extension workers in the study area.

The specific objectives of this study include, to identify the determinants of non-farm livelihood diversification across the two agro-ecologically different rural settings, to assess the types of rural non-farm livelihood diversification in the study area, to assess challenges of rural non-farm livelihood diversification, and to explore the gender dimensions and out-comes of non-farm livelihood diversification and the role of government on the development of non-farm livelihood diversification.

Despite variations in factors that determine non-farm livelihood activities from site to site, non-farm livelihood diversification is found important to the study population on which this research was conducted. From a total of 180 surveyed households, 112 (62.22 %) of them have reported that they pursue non-farm activities for different reasons. Of these, 78 households are from *Tabia Addis Alem (weynadega)* while the remaining 34 respondents are from *Tabia Lemlem Arena (qola)*.

### **5.1.1 Types of non-farm livelihood diversification**

The types of non-farm livelihood activities predominantly employed by farming households in the study area includes, wage labor, sale of cooked food and local drinks, handicrafts, trade, queering and traditional mining. Among the various non-farm livelihood activities being engaged by farming households in study area, greater number of households engaged on wage labor. And, sale of cooked food and local drinks is a type of non-farm livelihood activity that female headed households dominantly engaged in.

### **5.1.2 Determinants of non-farm livelihood diversification**

Data collected from survey respondents, revealed that rural non-farm livelihood diversification is determined by various factors. Many of the independent variables presented in the conceptual framework were found determinants of rural non-farm livelihood diversification. Besides, these independent variables play different role in influencing farming households' non-farm livelihood diversification across the two agro- ecologically distinct study *Tabias*.

- Data collected from the survey respondents indicated that household characteristics (being male or female headed) is insignificant ( $\chi^2 = 0.370$ , sig. (2-tailed) = 0.543) in influencing households to diversify their livelihoods to the non-farm sector in *Tabia Addis Alem (weynadega)* while it is significantly ( $\chi^2 = 6.102$ , sig. (2-tailed) = 0.014) influencing factor to households' engagement on non-farm livelihood diversification in *Tabia Lemlem Arena (qola)*.
- Respondents' household size was also found determinant of households' engagement on non-farm livelihood diversification in *Tabia Addis Alem (weynadega)* the chi-

square test result indicated household size is significant ( $\chi^2 = 14.767$ , sig. (2-tailed) = 0.005). Therefore, the size of a given household has an impact on the households' engagement on non-farm livelihood activities. This implies the household with the larger member individuals, the higher probability to diversify to the non-farm livelihood options. However, this does not work for *Tabia Lemlem Arena (qola)* ( $\chi^2 = 8.843$  sig. (2-tailed) = 0.065). This indicates the size of a given household does not have relation with the households' non-farm livelihood diversification.

- According to the survey results respondents' farm land holding size significantly determines their engagement on non-farm livelihood activities in *Tabia Addis Alem (weynadega)*. Households with small farm land size have high probability to be engaged in non-farm livelihood activities. The non-parametric test (Chi-square) indicates that respondents' farm land holding size is statistically significant ( $\chi^2 = 50.105$  sig. (2-tailed) = 0.000) in influencing households to diversify to the non-farm sector. On the other hand, respondents' farm land holding size has insignificant impact on influencing farming households to be engaged on non-farm livelihood activities. The Chi-square test of association indicates insignificant ( $\chi^2 = 6.895$ , sig. (2-tailed) = 0.229) role played by respondents' farm land holding size in influencing households to diversify their livelihoods to the non-farm sector.
- Household heads' perception their land about its productivity is found important in influencing them to diversify their livelihoods to the non-farm livelihood activities in both study *Tabias*. When households perceived that the agricultural produces the yield from their farm land in a given harvest season is inadequate, there is high probability of diversifying their livelihoods to the non-farm sector. The Chi-square test indicates that

respondents' perception of agricultural production they yield from their farm land in a given harvest season is found significant ( $\chi^2 = 6.444$ , sig, (2-tailed) = 0.011) and ( $\chi^2 = 7.366$ , sig, (2-tailed) = 0.007) in *Tabia Addis Alem weynadega*) and *Lemlem Arena (qola)* respectively.

- According to the survey results, seasonality of agriculture is found playing a different role in determining non-farm livelihood diversification among farming households living in the two agro-ecologically distinct areas. Seasonality of agriculture significantly ( $\chi^2 = 12.826$ , sig. (2-tailed) = 0.000) determines farming households' engagement on non-farm livelihood activities in *Tabia Addis Alem (weynadega)* while it is insignificant ( $\chi^2 = 0.382$ , sig. (2-tailed) = 0.536) determinant of rural non-farm livelihood diversification in *Tabia Lemlem Arena (qola)*. The Chi-square test indicates that respondents' seasonality of agriculture is insignificant in influencing households' non-farm livelihood diversification.
- Accessing financial credit is found not important in forcing or motivating farming households to be engaged on non-farm livelihood activities in this study. as to the results of non-parametric test (Chi-square) the relationship between accessing credit and non-farm livelihood diversification is insignificant ( $\chi^2 = 0.370$ , sig. (2-tailed) = 0.543) and ( $\chi^2 = 0.787$ , sig. (2-tailed) = 0.375) in both *Tabia Addis Alem (weynadega)* and *Tabia Lemlem Arena (qola)* respectively. This means, accessing financial credit did not affect households' non-farm livelihood diversification in both study sites. Apart from the survey results which indicate insignificance impact of households' accessing financial credit on non-farm livelihood diversification, study participants had also confirmed that although farming households might accessed financial credit from

different sources, they mostly tend to use it for other purposes instead of investing on non-farm business activities.

- According to the discussion participants, ever increase of price of agricultural inputs (fertilizers, improved seeds and pesticides) are becoming driving forces for household's diversification to non-farm livelihood activities. This was the most underlined issue by majority of participants in the FGDs and in-depth interview. According to the participants view, costs of modern farm inputs are becoming intolerable and challenging farming households. As reported by the interviewees, the farm land production did not help them to support their household requirements and cover the entire costs of these modern farm inputs.
- Even though the above summarized factors which could be categorized under push factors are found major determinants of non-farm livelihood diversification in the study area, there are also other pull factors that influences farming households' engagement on non-farm livelihood activities. As to the conception of discussants in the FGDs and in-depth interview, the proximity of farming households' village to the urban centers motivated them to engage in non-farm livelihood activities. This was commonly reported by study participants in *Tabia Lemlem Arena (qola)*. Availability of high demand of labor force in urban areas is also another motivating factor of farming households to engage in non-farm livelihood activities. Furthermore, households witnessing positive changes on households' who had been engaged on non-farm livelihood activities tend to diversify their livelihoods to the non-farm sector.

- Even though government can play a significant role on the development of non-farm livelihood diversification, the study found out that governments' role in creating opportunities for the development of non-farm livelihoods is weak. Other than agriculture related trainings, study subjects noted that, there are no trainings given to farming households that can help them to engage on alternative livelihood activities.

### **5.1.3 Constraints of non-farm livelihood diversification**

The major constraints of non-farm livelihood diversification identified by the survey respondents are lack of organized livelihood generating enterprises, skill deficiency and lack of financial capital. Among the above major constraints, lack of organized livelihood generating enterprises is commonly detected by majority of the survey respondents in both *Addis Alem (weynadega)* and *Lemlem Arena (qola) Tabias*.

In addition, absence of credit sources for the purpose of non-farm livelihood diversification, and lack of awareness about credit sources and fear of loss of farm land are among the constraints that inhibit farming households from diversifying their livelihoods to the non-farm sector.

### **5.1.4 Gender dimension of non-farm livelihood diversification**

Data regarding gender dimension of non-farm livelihood diversification has been collected from discussants, key informants and in-depth interviewees. There are some non-farm livelihood activities that female and male headed households predominantly engaged in. Women headed households tend to engage predominantly on sale of cooked food and local drink sale and handicrafts while men headed households predominantly engaged on wage labor and trade. However, there are also some women that engaged in wage labor and trade.

### **5.1.5 Outcomes of non-farm livelihood diversification**

Findings of this study found that non-farm source of income help to complement agricultural activities. These income portfolios can be used for purchase of fertilizer and other agricultural inputs. Using income generated from the non-farm sector, reduces the vulnerability contexts- fulfil household requirements; keep from selling of their fixed assets, and repay previous credits.

With regard to effects associated with migration, the study found out that migrant youth serve as a bridge in transforming some technological innovations to the rural people. Those youth buy mobile phones and other technological appliances and bring it home for further use in their households. Hence, migration does not only help households to generate income, but also facilitate the adaptation of technological appliances by rural households.

The consequences of migration for women are found to be worse than they are for men due to the increased feminization of the agricultural labour force. Furthermore, when women members of the household emigrated, she is likely to face acute challenges that might extend up to sexual and physical harassments.

Another negative outcome of migration reviled by the research participants is, when children migrate to urban areas and stay for relatively long period of time, parents feel uncertain about their migrant children, loss emotional support and affection loss of emotional support.

## **5.2 Conclusion**

In most developing countries, importance of non-agricultural activities is increasing and it is estimated to account for 30-50% of rural incomes (World Bank 2008 as cited

in Woinishet 2010: 8). Although agriculture is the dominant economic activity and the primary source of livelihoods for rural households, livelihood sources have now become diverse. In addition to the major livelihood strategy *i.e.* farming, rural households engage in different types of non-farm livelihood options for different reasons. This study was conducted to assess non-farm livelihood diversification among farming households in *Saharti samre woreda* south eastern Tigray.

There can be various determinants of non-farm livelihood diversification. These factors that influence non-farm livelihood diversification have different effect from one area to another. Determinants of non-farm livelihood diversification presented in the conceptual framework of this study are found to have varied impact on non-farm livelihood diversification across three two agro-ecologically distinct study areas.

Some of the factors were found significant determinants of non-farm livelihood diversification across the two agro- ecologically different study areas- *Tabia Addis Alem (weynadega)* and *Tabia Lemlem Arena (qola)*. Some other variables were significant influencing factors for households to diversify their livelihoods to the non-farm sector in either of the two study *Tabias* while some found insignificant determinants of non-farm livelihood diversification in both *Tabia Addis Alem (weynadega)* and *Lemlem arena (qola)*.

Household characteristics (being male or female headed) was found insignificant influencing factor for households so as to diversify their livelihoods to the non-farm sector in *Tabia Addis Alem (weynadega)* while it was found significant determinant factor of non-farm livelihood diversification in *Tabia Lemlem Arena (qola)*.

On the contrary, household size significantly influences households' engagement on non-farm livelihood activities in *Tabia Addis Alem (weynadega)* while it has no impact on non-farm livelihood diversification in *Tabia Lemlem arena (qola)*. Respondents' farm land size is also significantly influencing households' engagement on non-farm livelihood activities in *Tabia Addis Alem (weynadega)* while it has no impact on non-farm livelihood diversification in *Tabia Lemlem arena (qola)*.

The other factor that have a significant influence on farming households engagement into non-farm livelihood activities in both *Tabia Addis Alem (weynadega)* and *Lemlem Arena (qola)* is households' perception about the productivity of their farmland. This implies when farming households perceived that the agricultural produce the yield from their farm land in a given harvest season is inadequate, more likely to engage on non-farm livelihood activities.

In addition, the above quantitatively addressed determinants of non-farm livelihood diversification ever increase of price of agricultural inputs, rural urban linkage, growing - opportunities on the non-farm sector also considered as determinants of non-farm livelihood diversification by the study participants. Although determinants of non-farm livelihood diversification might be regarded as push or pull factors, subjects of this study indicated that diversification is highly determined by the factors regarded as push factors than pull factors or necessity category than choice category.

Among the different types of non-farm livelihood activities, wage labor, sale of cooked food and local drink sale, handicrafts, trade and queering and traditional mining are most common employed by the farming households in the study area.

With regard to constraints of non-farm livelihood diversification had been identified by the survey respondents and study participants. Accordingly, the major constraints

include, lack of organized non-farm livelihood generating enterprises, skill deficiency, lack of capita, low awareness about sources of credit, and fear of loss of land. Consistently with other empirical findings in developing countries, the rural non-farm economy in the study area is also found to be an institutional orphan. No single government body owns or claims it, but many influence it one way or another. Unless rural policies aim at integrating farm and non-farm activities, securing sustainable livelihoods of the rural people remains difficult.

Non-farm livelihood diversification has various impacts on farming households. It helps them to reduce vulnerability, asset improvement/ building, fulfilling household's basic needs and improve use of agricultural implements. Besides, households engaged themselves in non-farm livelihood activities generate income that can help them to cover costs of modern farm inputs. Remittances sent from migrant members of a household has helped farming households better utilization of agricultural inputs like fertilizer, improved seeds, high yield breeds, pesticides/ and insecticides/herbicides.

Furthermore, migrant youth serve as a bridge in transforming some technological appliances to the rural people. Those youth buy mobile phones and other technological appliances and bring it home for further use in their households. Hence, migration does not only help households to generate income, but also facilitate the adaptation of technological appliances by rural households.

On the other hand, there are also other outcomes/ effects of migration on women. The consequences of migration for women are found to be worse than they are for men due to the increased feminization of the agricultural labour force. When the male household migrates to other area far away from his home, the women left with many responsibilities in the agricultural sector. Furthermore, when women members of the

household emigrated, she is likely to face acute challenges that might extend up to sexual and physical harassments.

Finally, this study found out that migration of a household member for relatively long period of time results loss of emotional support. For instance, children migrate to urban areas and stay for relatively long period of time, parents feel uncertain about their migrant children, loss emotional

### **5.3 Implications for further Research**

This study, in the course of the literature review and the actual research and analysis, has identified a number of specific themes for further research.

These themes include:

- The relationship between credit and non-farm livelihood diversification ;
- New approaches and models for credit provision in rural areas;
- The influence of the relative prices of farming inputs on livelihood diversification;
- The role of non-farm livelihood expertise and livelihoods of rural households;
- Agro- ecology and rural non-farm livelihood diversification;
- Government policy on migration and rural non-farm livelihood diversification;
- Gender and livelihood diversification in rural community; and
- Rural development programs and non-farm livelihood diversification

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## **Appendixes**

### **Annex A: Survey Questionnaire prepared to be administered to farming households**

#### **Introduction**

Dear respondents, the purpose of this questionnaire is to assess non-farm livelihood diversification among farming households in this area. The following questions will allow the researcher to obtain information regarding determinants of non-farm livelihood diversification, challenges of non-farm livelihood diversification, and dominant types of non-farm livelihood activities. Besides, this questionnaire is designed to assess the outcomes of non-farm livelihood diversification. This study is conducted as a requirement for the degree in Masters of art in Sociology and any findings from this research will serve as a valuable resource for further studies on the subject. Furthermore, your identity and the information you provide in this questionnaire will remain confidential, hence I ask you be honest and forthcoming in your response. Thank you in advance for your valuable time and honest answers.

#### **Segment 1: Certification**

Interviewer's Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Field Supervisor's Name: \_\_\_\_\_

Date of interview \_\_\_\_\_

#### **Segment 2: Identification**

Name of enumerator: \_\_\_\_\_

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

*Tabia:* \_\_\_\_\_

**Segment 3: Household and demographic characteristics**

Question 1-2 are intended to know about household and demographic characteristics of respondents.

- 1. Household characteristics: .....   
(Male headed=1, Female headed=2)
- 2. Household size (the number individuals living within the household): .....

**Segment 4: Questions about farm land holding and crop production systems**

- 1. Do you have plot(s) of farm land? .....   
(Yes=1, Not at all=2)
- 2. What is your farm land holding size? (In local unit- *Timad*) .....    
Farm land size in Hectare (For use by the researcher only)
- 3. How did you obtain your current farm land? (**Multiple responses**)  
Inherited Transferred from relatives  Contracted/rented- in   
Clearing forest land  Crop shared   
From Kebele administration  Short term leased
- 4. Do you think you have got adequate crop production during the 2006/7 harvest season? ....   
(Yes = 1, No=2)

**Segment 5: Non-farm livelihood diversification**

- 1. Do you diversify your livelihoods to the non-farm sector? .....   
(Yes =1, No=2)
- 2. If your answer for question No. 1 is 'Yes', what are the non-farm activities you mostly engaged in? (**Multiple responses**)  
Wage labor  Cooked food and local drinks sale   
Crafts  Trade

If others, specify \_\_\_\_\_

3. For what purpose do use the income you got from the non-agricultural activities?

**(Multiple responses)**

To repay previous credit  For asset building   
To buy farm implements  To fulfill basic needs of members of the HH

If others, specify \_\_\_\_\_

4. In which season of the year do you diversify your livelihoods?

During the rainy season  During slack agricultural season   
During the harvest season  Year round

5. What are the prime factors that influence you to diversify your livelihoods?

**(Multiple responses)**

Seasonality of agriculture  Drought   
Low harvest  Paste disease

If others, specify \_\_\_\_\_

6. Are there any constraints that limit you from diversifying your livelihoods other than agriculture? .....

(Yes=1, No=2)

7. If your answer for Question No.6 is 'Yes', what are the constraints that limit you to diversify your livelihoods outside agriculture?

Lack of capital  Skill deficiency   
Lack of organized nonfarm livelihood generating enterprises

If others, specify \_\_\_\_\_

8. Does government encourage you to diversify your livelihoods other than agriculture? ....

(Yes= 1, No =2)

**Segment 5: Access to financial capital**

1. Have you ever accessed financial credit? .....

(Yes =1, No=2)

2. If your answer for question.1 is ‘Yes’, what is/are your source/s of credit? **(Multiple responses)**

Government  NGOs  Relative and friend   
Idir/Mahber  Local money lender

3. Have you ever accessed financial credit from any source? .....

(Yes=1, No=2)

4. If your answer for question No.3 is ‘Yes’, for what purpose do you use it?

**(Multiple responses)**

To purchase farm implements  To fatten livestock   
To fulfill households’ basic necessities  To engage in nonfarm livelihood activities

If others, specify\_\_\_\_\_

**Segment 6: Human resource skills and capabilities**

1. Have you ever received trainings on alternative livelihood strategies? (If your answer for question No. 1 is ‘No’, skip question.2, 3, and 4).....

(Yes=1, No=2)

2. If your answer for question 1 is ‘Yes’, on which livelihood strategy?

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3. Who provided you the training/s?

Agricultural extension workers  NGOs

If others, specify \_\_\_\_\_)

4. Do you think the trainings you had taken were helpful in solving your practical problems? .....

(Yes=1, No=2)

## **Annex B: Checklists to Guide FGDs**

1. Is the agricultural production you got from your farm land adequate to support household needs? How and why?
2. What are the common types of non-farm livelihood activities that farming households engaged in?
3. What do you think are the most driving forces that initiate households to diversify their livelihoods outside agriculture?
4. Are there any constraints that limit you to engage in nonfarm livelihoods? What are they? How?
5. Is there accessibility of credit for households in this locality? Describe the accessibility of credit? How and why?
6. Have you ever used financial credit to non-farm livelihood activities? How and why?
7. Is/are there institutional or organizational supports that enable you to engage in alternative livelihoods activities? Mention them, and how? What support?
8. On what types of non-farm livelihood activities do women and men mostly engaged in? Why?

## **Annex C: Interview Guides**

### **In-depth interview Guide for household head Interviewees**

#### **Personal Information**

Age: \_\_\_\_\_ Sex: \_\_\_\_\_

1. What do you think are the main reasons that initiate people to engage in nonfarm livelihood activities?
2. What do you think are the main challenges that limit HHs to engage in non-farm livelihood activities?
3. What do you think about the outcomes of non-farm livelihood diversification?
4. On what types of non-farm livelihood activities do women and men mostly engaged in?  
Why?

## **Interview guide for key informant Interview with agricultural extension workers**

1. What are the agricultural inputs delivered to farming households?
2. How do farming households get farm inputs?
3. Do you believe that the farming households' engagement on non-farm livelihood activities is important? How explain
4. Is there any kind of trainings given to farming households to be engaged on non-farm livelihood activities? What kind? By whom?

### **Interview guide for Key Informant Interview with *Tabia* Administration chairpersons**

1. Are households encouraged to diversify their livelihoods other than agriculture? How and why?
2. Do they get any financial or technical support when they need to engage in non-farm livelihood activities why? How?
3. . Are there any measures you might take when households migrate and stay relatively long period of time in place of destination? Why?

## **Interview guide for Key Informant Interview with Women and Children Affair Office**

1. Do women engage in non-farm livelihood activities? Why?
2. What are the various types of non-farm livelihood activities that mostly women engaged in?  
Why?
3. Do they get any financial or technical support when they need to engage in non-farm livelihood activities why? How?
4. What do think about the consequences of non-farm livelihood diversification particularly migration on women?
5. What challenges do women face while diversifying their livelihoods?