Rural-Urban Linkage of Adwa Town and its Surrounding Rural Areas: Its Nature and Effects on Rural Livelihood Diversification

Mewael Berhane

A Thesis Submitted to

The Department of Geography and Environmental Studies

Presented in Fulfillment of the Requirements for the Degree of Doctor of Philosophy in Geography and Environmental Studies

Addis Ababa University

Addis Ababa, Ethiopia

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ABSTRACT

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Mewael Berhane
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This study attempts to assess the nature of RULs and its effects on rural livelihood diversification of Adwa town and its surrounding. In the first stage, four Tabias were chosen purposively to represent different characteristics (irrigation practices, experience stone extraction, have industries and natural resource conservation). Random sampling was mainly used to select the research subjects. Household sample survey, FGD and field observation were the principal methods used to solicit the primary data. Quantitatively, statistical tools such as Chi-square, ANOVA and regression were employed. SLF was adopted to holistically examine the overall well-being of rural households in relation to the RULs.

The findings of the study show that the production linkages were very weak except for the backward production linkage which was reflected mainly in the use of inputs. The forward production linkage was almost missing in the study area since none of the households sold their agricultural produce to agro-processing plants. However, a strong consumption linkage was observed as farmers tend to purchase goods and services from the town. The insufficient crop production had made the existing marketing linkage to be expressed only in the form of exchange of livestock, vegetables, honey and forest products. A considerable number of the rural households took loan and saved money in the town-based financial institution. This financial linkage was further strengthened through the remittances sent from the town. A household's access to irrigation, livestock and beehive ownership, access to mobile phone, number of farm plots, age and distance from the town were found to be the most important determinants of the orientation as well as the magnitude of the marketing linkage. Similarly household head's gender, family size, livestock ownership and number of farm plots were found to be the most important determinants of non-marketing linkage. The study found out that for most of the rural households, diversification is a necessity than a choice. Many of the households obtain more than 40% of their income from non-farm sources. Similarly, the poor (33.2%) were more beneficiaries from livelihood diversifications than their rich (22.6%) counterparts. About 62% of the poor have experienced a strong non-marketing linkage, which was by far higher than the rich (16.4%). Considerable numbers of households were able to improve their social and human capital as a result of the existing RUL. Therefore, the RUL was playing a crucial role in the livelihoods of the poor. The study found no visible difference between the poor and rich in the asset possession as the two have similar asset pentagon.

Finally, the research recommended that urban oriented farming practices such as irrigation practices and honey production need to be strengthened. There is a need to further strengthen the existing financial linkages and non-farm skills to enhance livelihood diversification. Furthermore there is a need to forge forward production linkage as it provides opportunity as agro-processing industries exist in the town. Access to transport would strengthen the RUL.

Key Words: Rural-urban linkage, Livelihood diversification, Adwa.

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Mewael Berhane Mengesha

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ACRONYMS

ADLI-Agricultural Development Led Industrialization

AOFP- Adwa Office of Finance and Plan

AWSA- Adwa Wereda Statistical Abstract

CCRDA- Consortium of Christian Relief and Development Associations

CSA-Central Statistical Authority

DA- Development Agent

EDHS- Ethiopian Demographic Health Survey

FGD- Focus Group Discussion

FTC- Farmers' Training Center

FUPI-Federal Urban Planning Institute

GTP- Growth and Transformation Plan

IFS- International Federation of Surveyors

IRDP- Integrated Rural Development Program

MFA-Ministry of Federal Affairs

MoFED- Ministry of Finance and Economic Development

MoWUD- Ministry of Works and Urban Development

NGO-Non Governmental Organization

NUDP- National Urban Development Policy

NUPI-National Urban Planning Institute

PASDEP- Plan for Accelerated and Sustained Development to End Poverty

PSNP- Productive Safety Net Program

RUL- Rural-Urban Linkage

SDPRP- Sustainable Development and Poverty Reduction Program

SLF- Sustainable Livelihood Framework

SME- Small and Micro Enterprise

TVET-Technical and Vocational Education Training

UNDP- United Nations Development Program

UNICEF- United Nations Children's Fund

WFP-World Food Program

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The relative emphasis placed on rural versus urban areas in the development policies of developing countries has shown considerable variation over time from industrial development in urban areas to integrated rural development. These development strategies have addressed either urban or rural areas separately rather than the interdependencies between the two (Chowdhury, Asfaw and Torero, 2005).

Until 1970's, literature on development planning in third world countries considered agriculture and industrial sectors as somewhat separate and sometimes conflicting aspects (Mesfin, 1995). Development planners had focused on allocating resources on the basis of either sectoral (agriculture or manufacturing) or spatial (rural or urban areas) approach (Mohammed, 2007). Urban specialists ignore rural areas and rural specialists ignore urban areas or see urban areas as responsible for rural exploitation. According to Tegegne (2001) most pro-poor and anti poverty initiatives remain steadfast to discrete urban or rural domains.

In 1950s and early 1960s, hoping to achieve rapid development, urban and industrial development paradigms were the focus of many developing countries. They saw export oriented industries in large cities as engines of growth and trickling down effects were expected to incorporate the rural population and stimulate agricultural production.

On the other hand the 'urban bias' thesis which was developed to explain why rural areas remained poor helped to shift attention to rural areas. It showed that different actions that include tariff, trade, taxation and sector investment policies pursued by most governments had deprived rural areas of resources and infrastructure. As a result, development agencies began to redirect their priorities towards rural development well into the 1980s. Development planners recognized that the stagnation of the rural sector

and the relatively emerging food deficit at national level could be reduced by raising the productivity of the rural sector through Integrated Rural Development (IRD) strategies which focus on agricultural change with little, if any, attention paid to the role of urban centers in the rural economy (Mesfin, 1995; Tacoli, 2008). As a concurrent trend, development researchers advocated for the role of the agricultural sector as the engine of growth in developing countries. For that matter, increased agricultural output is considered as the only hope for better standard of living for many third world countries (Tegegne, 2001).

Though IRD helped to promote some non-agriculture activities in rural areas, their focus was primarily on planning in the rural agriculture sector and projects usually did not consider potential linkages with urban policy (Douglass, 1998). Integrated Rural Development Programmes (IRDPs) over emphasized the peasant farmer and rural agriculture, with little if any attention to the role of urban centers in the rural economy (Tacoli 1998b). As a result, the expected economic development did not materialize because the rural poor had limited access to inputs and credits. In addition, it was also mentioned that the neglect of the urban aspects of rural economy had undermined the development potential of rural areas (Mohammed, 2007). Priority was not given to the relationship of the local as well as inter-sectoral linkages between regional urban centers, small towns and their hinterland (UNDP, 2000). IRDP has also failed simply because there was a neglect of the urban dimension in the development process (Tegegne, 2001). IRDP neglects the benefits of migration and of livelihoods diversification that move across urban and rural areas.

The forgoing dichotomous views did not fit reality, as there are many linkages between urban and rural areas. In line with this, recently, there is a growing recognition of the importance of focusing on the mutual interdependencies, rather than the “separateness” of rural and urban areas because the livelihoods of rural and urban households rely both on “rural-based” and “urban-based” resources as well as the exchanges between the two areas (Chowdhury et al., 2005). It is now widely discerned that there exists an economic, social and environmental interdependence between urban and rural areas, and there is a

need for balanced and mutually supportive approach for the development of both rural and urban areas. This mutual development is manifested through rural-urban linkages (IFS, 2005; Mohammed, 2007; Munankami, 2005; Okpala, 2003; Tegegne, 2001).

The positive impact of rural-urban linkages on rural and urban livelihoods is summarized in the 'virtuous circle', where rural and urban development is mutually dependent and integrated (Tacoli, 1998b). An increment of agricultural income would lead to the emergence of different urban activities. These activities would in turn have a capability to attract surplus labor and increase demand for rural and agricultural produces (Tegegne, 2005).

The rural-urban linkages are crucial elements for economic growth and contribute to poverty reduction by enabling households and individuals to expand their options for income generating activities (Adebayo, 2005). In such linkages the urban centers may serve as center for wage employment or informal sector activities and the people may visit their home or send remittance with the implication that rural-urban interactions can bring about changes to the livelihood strategies.

It is important, therefore, that governments at national or central level, at local level of large cities, small and medium-sized towns and rural areas should recognize the potentials of rural-urban development linkages, and the positive role they can play in poverty alleviation and livelihood diversification. In other words, there is a need to gain better understanding of the relationships between urban and rural areas and the variety in the nature of these linkages (Okpala, 2003). This study aims to look at the rural-urban linkages from the perspective of rural livelihood strategies.

1.2 Statement of the Problem

The Agricultural Development Led Industrialization (ADLI) strategy of the government was expected to have some impacts on the social and economic development of small towns and rural areas and was one of the key areas of the Sustainable Development and Poverty Reduction Program (SDPRP-2002/03-2004/05). The SDPRP's potential to fully form a basis for rural-urban linkages however was limited. As a result the Plan for Accelerated and Sustained Development to End Poverty (PASDEP-2005/06-2009/10) document placed new emphasis on the issues of rural-urban linkage. PASDEP recognized the role of rural-urban linkages and focused on the expansion of rural road construction, provision of modern agricultural inputs, and increasing the extension service and the like (Yegremew, 2000).

The development strategies of Ethiopia, except the PASDEP, have been formulated with either urban or rural focus. For instance, Tegegne (2005) argues that the development history of Ethiopia has been urban biased until the last decade and rural biased since recent years. Such kind of development strategy with unbalanced focus on either rural or urban centers as poles of economic growth and development undermines the fertile opportunities for sustainable economic development that could be tapped from coordinated rural-urban linkages (Gete, 2007).

To realize the positive role of small towns and the linkage, policies should be matched by specific measures and programs should aim at small towns and rural-urban linkages. Thus, investigation of the rural-urban linkage is an important issue in order to address the rural and urban socio-economic development. The investigation could serve as basis for policies and programs on small towns and rural-urban linkages.

Livelihood is a multifaceted concept, being what people do; what they accomplish by doing it, referring to outcomes as well as to activities. "Ways can be sought to multiply livelihoods by increasing resource-base intensity and the diversity and the complexity of small-farming livelihood systems, and by small-scale economic synergy." (Chambers &

Conway, 1991:1). In order to understand livelihood, understanding migration, right and access to natural resources, local non-farm income and formal employment are important. This implies that there is a demand for rural-urban linkage. This idea is also supported by Scoones (1998), who mentioned that the livelihood intensity may increase through the creation of local economic linkage and the recirculation of knowledge and skill.

Haidar (2009) stated that, the positive livelihood outcomes are influenced by the people's access to assets and the policies, institutions and the processes that affect their ability to use the asset. Feleke (n.d) also stated that, the rural-urban linkage can be useful to understand the complexities of people's livelihoods and their strategies. As a result, what people do in the rural-urban linkage through different mechanisms, what they accomplish from their participation in the linkage (for example, remittances in supporting the livelihoods of those who stayed at the area of origin) in accumulating assets and the outcomes in terms of improved livelihoods can be analyzed using the sustainable livelihood framework. Sustainable livelihoods can serve as a useful approach to investigate the interactions among different factors that bear influence on livelihoods (Soussan *et al*., 2003). This study, therefore, uses the sustainable livelihood approach to analyze the role of rural-urban linkages on the livelihood diversification of the rural households of the surrounding rural areas of Adwa town.

Though there is a vast volume of literature on the subject of rural-urban linkages, there are gaps in our knowledge about the effects that rural-urban linkages have on socio-economic development and the factors that determine such linkages. In particular, the nature of rural-urban linkage and its role in the rural livelihoods using the sustainable livelihood framework has not been well studied in Ethiopia. Those who have made studies in rural-urban linkages have tried to treat issues like farm and non-farm linkages in Northern Ethiopia (Tassew 2002), linkages under different farming systems in Robe and Limu (Tegegne, 2001), livelihood strategies and their implications for rural-urban linkages in Wolenkomi (Mohamed, 2007), natural resource management and rural-urban linkages in Ethiopian highland (Carucci & Yihenew, 2007) and market linkages in Western Shoa Zone (Mesfin, 1995). The interaction between the hinterland and urban

centers was also studied in two small towns (Itheyea and Huruta) in Arisi region (Tegegne and Tilahun, 1996). The above studies, however, did not examine the role of rural-urban linkages in the sustainable livelihoods of the rural households with different socio-economic characteristics. This study hopes to fill this gap and seeks to explore the relationship between rural-urban linkages and socio-economic development (livelihood diversification) through a case study of Adwa town and its surrounding rural areas. In addition, the fact that there have been no linkage studies in Adwa makes this study relevant since Adwa is surrounded by hills with low agricultural potentials and hence linkage will have a crucial role to enhance the livelihoods of the surrounding community.

1.3 Objectives of the Study

The main objective of this study was to examine the nature of the rural-urban linkages that exist between Adwa town and its surrounding rural areas and to assess the role rural-urban-linkage plays on the livelihood diversification of the rural households.

The specific objectives of the study are to:

1. Investigate the different forms of linkages of rural and urban areas in the study site;
2. Assess households' assets and livelihood strategies in connection with the various activities that form the rural-urban linkage;
3. Identity the local factors that determine the rural-urban linkage in the study area at household level; and
4. Examine the implication of the rural-urban linkages on rural livelihoods across different economic status groups.

1.4 Research Questions

The specific research questions this study attempts to answer are the following:

1. What are the different forms of rural-urban linkage that exist in the study area?
2. How do RULs affect rural household's asset and livelihood strategies?
3. What are the factors that determine the rural-urban linkage in the study area?
4. To what extent does the existing rural-urban linkage play a role in differentiating the livelihoods of different economic status groups?

1.5 Significance of the Study

Nowadays, the importance of focusing on rural-urban integration has been widely recognized. The mutual development of rural and urban areas is the preferred development strategy in any country. The balanced development between rural and urban areas can be achieved if the two spatial settings interact. Exchange of goods and services between rural and urban areas are essential elements of rural-urban linkages. The nature, magnitude and factors of linkage between the town and its surrounding rural areas; and the potential of the linkage in promoting equitable development of the two spatial units is believed to be helpful for planners and policy makers. Since linkages are location specific, it is essential to study representative regions that may exhibit different linkages. Thus, by identifying the forms, magnitudes and factors of linkages and its role in rural livelihood, this research provides insight for strengthening helpful linkages, and benefit local government bodies in particular and development practitioners, and policy makers in general, by providing evidence regarding the contribution of rural-urban linkage, in improving economic development and poverty alleviation. It shows the entry points of strategies that are vital in alleviating poverty and improving livelihoods. Assessing the role of the existing RUL on the rural livelihoods would have its contribution in filling the gap in the literature. The outcome of this study makes a modest contribution to research methodologies. On top of this, finding of the research work could also give an insight for researchers and students interested in similar theme for further investigation in other areas or to conduct an in-depth study on RULs or other related issues.

1.6 Scope of the Study

Livelihood is a very wide concept, including many elements and explanatory variables that are related to each other in a complex way. The study, however, focuses on the connection of the existing rural-urban linkage with the most important diversification of rural livelihood such as assets (natural capital, human capital and social capital), activities, strategies, and livelihood outcomes. Geographically the study is limited to Adwa and its hinterland that is within reasonable distance to discern rural-urban linkages.

1.7 Organization of the Dissertation

This dissertation is organized into eight chapters. The first chapter deals with the introduction part in which the statement of the problem, objectives, research questions, significance of the study, scope and limitation, and organization of the study are included. The second chapter attempts to review the existing related literature and established conceptual framework. Chapter three describes research methods (research design, sampling method and sample size, data collection, measuring rural-urban index, methods of analysis, validity and reliability of data, and ethical consideration). Chapter four elaborates the description of the study area and background of the respondent: rural households, urban households and traders.

In chapter five, the nature, extent and direction of rural-urban linkages are discussed based on the collected data. Types of rural-urban linkages and the determinants of marketing and non-marketing rural-urban linkages are also treated under this chapter. Chapter six dealt with the rural livelihoods and the existing rural-urban linkages in the study area. Theoretical and methodological reflection on rural-urban linkage and livelihood diversification is considered under chapter seven. Finally, chapter eight provides conclusion and recommendations as well as policy implications of the findings.

CHAPTER TWO

LITERATURE REVIEW

2.1 Rural-Urban Linkages

2.1.1 The Concept of Rural-Urban Linkage

The term rural-urban linkage generally refers to the growing flow of capital (private and public), people, goods (trade), ideas, information and diffusion of innovation between urban and rural areas. In this rural-urban linkage, accessibility of adequate infrastructure like transportation, communication, energy and basic services is a pillar for successful linkage. Adequate investments in infrastructure improve the rural productivity and allow access to market, jobs and public service. Efficiency and effectiveness of infrastructure and other institutions are important in facilitating the linkages (Braun, 2007; Okpola, 2003).

Urban and rural areas are tightly connecting with each other. These connections display as resource flows of people, capital, information, goods and technology between them. There is an existence of social, economic and environmental interdependence between urban and rural areas. According to Tesfaye (1993: 59) “Urban and rural areas are interdependent and linked in almost all spheres of economic, social, political and cultural life”. The encouragement of these rural-urban linkages is critical for improving the economic capacity and quality life of the majority of people in Africa. Promoting rural-urban linkages offer considerable potential for developing the entire rural-urban continuum (Demeke, 1998; Lynch, 2005).

Rural-urban linkages include flows of agricultural and other commodities from rural based producers to urban markets, both for local consumers and for forwarding to regional, national and international markets; and, in the opposite direction, flows of manufactured and imported goods from urban centers to rural settlements. They also include flows of people moving between rural and urban settlements, either commuting

on a regular basis, for occasional visits to urban-based services and administrative centers, or migrating temporarily or permanently. Flows of information such as information on market mechanisms and information on employment are also manifestations of rural -urban linkages. Financial flows include, primarily, remittances from migrants to relatives and communities in sending areas, and transfers such as pensions to migrants returning to their rural homes, they also include investments and credit from urban-based institutions (Tacoli, 2004). Rural- urban linkages generally refer to the growing flow of public and private capital, people and goods between urban and rural areas. The flow of ideas, information and diffusion of information are also important (Okpala, 2003; Sheng, n.d). The rural-urban development linkages play a positive role in poverty reduction. It is very important point that governmental authorities at different levels (national, local, large cities, small and intermediate towns, and rural areas) should give due attention in the potentials of rural-urban development linkages.

Another model by Evans strengthens the above idea. This “virtuous circle model” states the mutual relation between urban and rural development. The rural-urban interdependencies have explicitly or implicitly dependent on a virtuous circle of growth model. The virtuous circle model takes note of inter-sectoral (farm-nonfarm) and inter-settlement dependencies. With some caveats, the proponents of such model implied that growth could be propagated from sector to sector and place to place through the linkages and interdependencies (Momen, 2006).

According to this model the increment of agricultural income would lead to the emergence of different urban activities. These activities would have a capability to attract surplus labor, increase demand for rural produces and increase demand of agricultural products. According to Braun (2007:4) “Some of the demand for the goods produced in center (example from the manufacturing sector) comes from the periphery, demand also comes from the manufacturing sector itself because of backward linkages to other manufacturing industries”.

Most of the economic linkages shown at household level are due to demand for production and consumption goods and services. The demand linkages can be seen as a backward linkage while the supply can be seen as a forward linkage of the economy. The rural products get market in the urban areas. The urban centers also offer opportunity for non-farm employment opportunity (Demeke, 1998; Ndegwa, 2005).

Small and intermediate towns play a great role in economic development and poverty reduction, as market for agricultural produce; as market for service and manufactured goods for rural residents; in livelihood diversification and the development of non-farm occupation; as destination for migrants as well as to secure social justice for the hinterland population (Hilhorst, 1990; Tacoli, 1998a). Small towns play a vital role in supporting the growth of agricultural production and rural income and that they can absorb rural population. The backward and forward linkages can be fostered when the small towns play their role effectively (Tegegne, 1997; 2001). The hinterland also stimulated growth in nearly urban centers by initiating a wide range of small scale non-farm activities. Agriculture is only really productive when it incorporates goods and services produced in cities, or transferred from cities, for example fertilizers, machines, refrigeration and the results of plant and animal research.

The rural-urban linkages could be production linkages, consumption linkages, and public services linkages. The production linkages could be in the form of backward or forward linkages to agricultural production. Backward production linkages occur when agriculture absorbs agricultural inputs supplied by the urban centers. While the forward production linkages occur through the local processing of agricultural output. The consumption linkages are formed through activities which meet the consumer demand of rural households. And this results in the expansion of rural non-farm consumer industries. The public service linkages include local government services, education, health, and so on (Demeke, 1998). In addition, “consumer activities accounted of larger proportion of employment growth. The consumption related activities are important than production related ones in determining the size and scope of activities (Tegegne, 2001). The same is true to Tigray, that is, the consumption linkages are the strongest (Tassew, 2002).

Rural-urban linkages in Ethiopia are not well studied as manifested by few studies (mentioned in section 2.5). This study hopes to fill this gap by elaborating on the nature of linkages that are expected to be in Adwa and its surrounding rural areas and the role it plays on the rural population livelihood diversification.

2.1.2 Factors Affecting Rural-Urban Linkages

The interaction between urban and rural areas in a given area is inevitable. What matters is the degree of the linkages and the types of linkages that exist in the area (Tacoli, 1998a; 2004). There are several factors which affect the linkages between rural and urban areas. Government policies, pattern of urbanization, structure of rural economy, socio-economy relations, organization of production (production regimes), resource endowment, land tenure policy and land size, built environment are among others (Douglass, 1998; Tegegne, 2005;).

Government policies can affect the rural-urban linkages in various ways. Fixing grain prices, determining grain markets, limiting private sector participation are among others that many developing countries' governments advocate (Eshetu, 2007). The import substitution strategy in Ethiopia advocates industries to import spare parts and inputs from outside, which contributes to reduce linkages with the domestic economic as suppliers of inputs (Tegegne, 2005).

Historical factors related to the development of each city and region can affect the linkage between rural and urban area (Douglass, 1988). The pattern of urbanization in Ethiopia emerged as a primate structure contributes in reducing rural-urban spatial integration. In the contrary, a decentralized urbanization can form locations for small enterprise and generate more rural-urban linkages (Tegegne, 2005). Structure of rural economy has also a significant influence on the rural- urban linkages. Crop production and horticulture which requires more labor and earn high revenue, are likely to increase income for small and medium sized farmers and hence will have demands for goods and services provided in small towns. Whereas rural farming system like livestock farming

which require few labor force will have limited demands for services provided by small towns, will negatively affect the rural-urban linkages (Douglass, 1998; Eshetu, 2007).

The Socio-economic relation is another important factor which can affect the rural-urban linkage. Inequality in income access to land and other resources can affect the linkage (Douglass, 1998). Social exclusion from employment, market, credit, and access to education is a crucial issue in multiracial and multilingual countries and these will have a tendency to diminish rural-urban linkages (Eshetu. 2007)

Another important factor for rural-urban linkage is the organization of production (production regimes). Plantations (commercial cash crop production), which typically use full-time low-wage labor can show little demand for local town services. While smallholder production regimes may depend to a greater extent on towns for supplies, markets, cooperatives and consumer shopping and hence will have relatively stronger rural-urban linkages (Douglass, 1998).

The built environments are major sources for regional differentiation in rural-urban linkages. Adequate infrastructure development such as roads, communication networks, market center, irrigation, electricity, telephone services and the like can determine the nature, scale and magnitude of rural-urban interaction (Douglass, 1998). “Adequate infrastructure such as transportation and communication, energy and basic services is the backbone of the rural-urban development linkage approach” (Okpala, 2003:1). There is a positive relationship among adequacy of transportation infrastructure, ease of mobility and access to employment and enhancement of income. Adequate investments in infrastructure, particularly transportation infrastructure, also improve rural productivity and allow access to markets, jobs and public service by both men and women.

Conditions of natural environment and resource endowment can also affect the rural-urban linkages. According to Douglass (1998:7) “conditions of natural environment, such as deforestation leading to constant flooding, may threaten the existence of the town itself, and beyond that they will influence patterns of access and, therefore, the type of

functions supported by the hinterland". Land tenure policy and land size have a significant impact on rural urban linkages. The type of land tenure which banned mobility and diversification on job opportunities has reduced rural-urban linkages. Farmers with small size of land have a limit to produce surplus production for market, and invest and use of agriculture inputs. A farming system that does not encourage inputs will have a tendency of reducing rural-urban linkages (Tegegne, 2005).

2.1.3 Livelihood and Rural-Urban Linkages

A livelihood is basically the means that a household uses to achieve the well-being and sustain it. Just how sustainable a household's livelihood is will depend on many factors. For example, the activities that a household engages in to create its livelihood may degrade the resources on which it depends, making it unsustainable. But if a household has a diverse set of activities that does not damage the environment and ensures food and income throughout the year, that household's livelihood is likely to be more sustainable (Messer & Townsley, 2003). Tacoli (2004) elaborate diversification ''as an accumulation strategy for households with farming assets and with access to urban networks, and who often re-invest profits from urban-based activities in agricultural production and vice-versa, resulting in capital and asset accumulation''. Therefore, nowadays it is common to find households in both urban and rural areas relying on the combination of agricultural and non-agricultural income sources for their livelihoods. To counter the short and long-term crises, stresses, shocks and trends, the rural household will, besides its main occupation, develop a mix of other livelihood sources, be it in town and/or from the rural home, rural part of the household. These livelihood sources may include diversification and multiple sourcing of cash incomes (non-farming income-generating activities) and social networks, including urban-rural reciprocity. Through these livelihood sources, the aim is to generate a flow of income, other benefits (increased well-being, reduced vulnerability) and thereby improve the rural household's food security and income situation. A household combining urban and rural livelihood sources is a household with a multi-spatial livelihood (Owuor, 2003). Most individuals or households in low-income countries straddle the rural-urban divide through income and occupation diversification

and migration. Time devoted to, as well as the income share derived from, non-farm and off-farm activities are therefore substantial parts of the lives of rural households. Generally, most rural households try to combine agricultural production with non-farm and off-farm income generating activities.

Rural-urban linkages play an important role in local economies as well as in the livelihood strategies of rural people. Rural-urban interactions involve changes to the livelihood strategies. The nature and role of rural-urban interactions are important as they are components of different income groups (Adebayo, 2005). For many rural households, rural-urban linkages are part of the local reality for household members carrying out diverse tasks of producing income on and off the farm, maintaining a living space in the village, and going to local and even distant towns to shop, market, work, and seek specialized services (Douglass 1998). The diversity of livelihoods of rural people, the roles of different types of assets in rural peoples' livelihoods, and the importance of the wider social and political and economic environment in mediating access to assets indicate that the rural-urban linkage and livelihood of the people are interrelated to each other. Thus while increasing evidence has accumulated that rural people engage in many different types of income generating and livelihood activity it is also recognized that their ability to engage in non-agricultural activities is often very dependent on their access too. This shows that different types of activity require different combinations of financial, human, social, physical and natural capital. Therefore, through diversification households can improve their livelihoods.

Low-income rural households draw upon rural-urban linkages in the real world to devise poverty management and alleviation strategies by making their own connections with towns and cities through migration, remittances, and information exchanges. Most generally, insights about the nature of and opportunities to build upon rural-urban linkages can assist efforts to spread opportunities for livelihood and well-being more evenly over space and create more resilient regional economies (UNDP, 2000) Remittances and income from non-farm activities (often involving some type of mobility) are however increasingly recognized as an essential element of agricultural

intensification, especially for small-scale farmers (Tacoli, 2007b). The main aim of economic migration is to expand individuals' and households' options for income generating activities. Remittances are an often crucial component of rural households' income.

Rural-urban interactions are important elements of the livelihood strategies of both rural and urban households, either in the form of flows of people (migration), natural resources, products, goods and services, information and money, or in the form of income diversification such as urban agriculture and non-farm rural employment. Rural urban linkages are manifested in several ways: economic aspects, environmental aspects, and social relations. These manifestations directly or indirectly influence means of livelihood of the rural and urban population.

Economic Linkages: The economic aspects of the linkage are associated with livelihoods diversification and production systems. These encompass various kinds of resources flow including labour, natural resources, agricultural commodities, and financial flows and industrial goods and services flow. Urban areas facilitate extractive processes in rural areas and rural areas facilitate manufacturing in urban areas, the processes necessary for enhancing livelihood diversification. Hence, selling of goods and services produced in one settlement to another marks the trading and commercial relationships between towns and the surrounding rural areas as towns provide access to markets and serve as means of livelihood for the rural communities (Tostensen, 2004). Moreover, rural-urban linkage enhances diversification of means of livelihood both in rural and urban settings. In the rural areas, rising agricultural wage will raise the opportunity costs of labour in the non-farm activities. This induces a shift in the means of livelihood composition in terms of labor intensity, returns to investment, and skill requirements.

Social Linkages: Another means of livelihood in the tropics in general and in Ethiopia in particular is transfer of economic resources freely or through reciprocity. The social aspect of rural-urban linkage is expressed by the mutual relationship between the urban and rural dwellers. This linkage can be established based on the existing ties in terms of means of livelihood; kinship, friendship and marriage and sometimes it can be religious.

Urban households typically send money or commodities to rural relatives or friends while rural households supply their urban relatives with foodstuff, firewood and building materials.

Environmental Linkage: Livelihood system of the society is affected by the impacts of the RUL on the environment, which provides means of production, water supply, clean air, etc. that are needed for a healthy life. Environmentally, the rural-urban interface is characterized by urban areas polluting the rural landscape, water and air. Industrial, residential and institutional waste in urban areas is often dumped directly on to rural areas or emitted into air with an ultimate destination in rural areas (Bezabih, 2007).

In summary, rural-urban linkages play an important role in the ways in which livelihoods are constructed. However, while rural and urban relations should be seen as mutually reinforcing, generalizations on the nature of rural-urban linkages across different locations and in terms of how they affect different groups must be avoided. Within specific regional contexts, while there is potential for rural-urban linkages to contribute to poverty reduction, this will only occur in a climate in which policies, social relations, institutions and incentives allow an equitable access to the assets (physical, natural, social and financial) necessary to support sustainable livelihoods (Tacoli, 2004). Therefore, the majority of the literature argues for the need to enhance rural-urban linkages in order to facilitate income accumulation and, thus, support people's livelihoods and ensure food security.

2.2 Conceptual Framework

Rural-urban linkages emerged from two spatial units, namely urban centers and rural areas. The linkages are the impacts of both the rural areas and the urban centers. The first type of rural-urban linkage has been produced by the impact of urban centers on rural areas. Different types of models and theories describe this type of linkage. The main paradigm in this type of linkage is the functional regional development. This paradigm

considers the development of regions as a function of national (economic) development. This functional regional development is expressed in two major strategies: the growth pole strategies and rural services center strategies (Tegegne, 2001).

The growth pole approach is that “economic growth could be introduced from the outside through an economic and technological injection”. The small towns were regarded as spatial nodes for this diffusion of economic growth. This means an urban expansion in few selected growth centers with the hope of the spread effects for modernizing rural areas. However, the expected spread effect of economic development from the growth centre to the rural areas and smaller centers was little. This is because the small towns exploit their rural surroundings and the strong economic linkage of growth centers with other clients in the region as well as outside the region (Anders, 1992; Tegegne, 2001).

The rural service center strategy on the other hand focused on small centers for their own development and that of the hinterland. These rural service centers provide markets for agricultural produce and increase productivity, extension, administrative services, education and health services. These centers are considered as engines of growth. They have a contribution for the productive capability of the rural producers and they promote the commercialization and specialization of agriculture in framework of national economic growth (Demeke, 1998; Tegegne, 2001).

The other type of linkage in the rural-urban linkage is drawn from the impact of rural areas on the urban centers and on non-agricultural activities. The increment in food grain production would stimulate growth in agricultural related sectors such as trade, transport, services and the like (Tegegne, 2001). Tegegne (2005) sates that the growing agriculture would create forward consumption linkages, backward and forward production linkages. *Forward consumption linkages results from the expenditure of farm incomes on locally produced consumer goods and services. Backward linkage is manifested as agriculture absorbs inputs, like machinery and fertilizer produced by local industry. Forward production linkage refers to the local processing of agricultural outputs (*Tegegne, 2005).

The most common types of linkages that are produced from the connection of both rural areas and urban centers are:

- Production linkage: This is created when the farm households use agricultural inputs available in the town and the town's enterprise use agricultural products as raw material for their activities (Tassew, 2002; Tegegne, 2001).
- Consumption linkage: It is produced when the rural households' income obtained from the sale of agricultural produce is spent to purchase consumer goods and services available in the nearby town. It represents the flow of consumption goods and services across the rural-urban continuum (Tassaw, 2002; Tegegne, 2001).
- Marketing linkage: It refers to the selling and buying of goods. In other words rural households sell their agricultural produce to urban households and trades in the market of small towns (White, 2005).
- Public service linkage: This emanates when the rural households use the public services available in the small towns (Tegegne, 2001).
- Environmental linkage: This is manifested when there is flow of natural resources between the two spatial units. Natural resource such as water, fire wood, construction materials etc flow from the surrounding rural areas to the nearby urban center. And wastes are deposited in rural areas from the urban.
- Tourism linkage: This involves a situation when people move away from their permanent residence for recreation, holiday, visiting relatives and the like for short period of time (MoWUD, 2009).
- Infrastructural linkage: This could be physical (such as road and telecommunication) or social infrastructure (like schools, health centers). These infrastructures are expected to provide adequate service to the rural people (MoWUD, 2009).
- Demographic linkage: the two spatial units are linked by rural to urban and urban to rural migration in which labour is the major flow of resource. Migration is one of the few avenues open to poor households to increase income and combat increasing impoverishment (MoWUD, 2009).

- Financial Linkage: The movement of capital between rural and urban area is effected through financial intermediaries. This is the flow of capital through formal (banks and microfinance) and informal (money lender, relatives and friends) institutions between rural and urban areas. It includes remittances from migrants to relatives and communities in sending areas and investments and credit from urban-based institutions (NUPI & MFA, 2003; Tacoli, 2004).

Regarding the strength, intensity and nature of linkages and the factors that shape them, they are not uniform and vary from location to location. A very significant factor that shapes these linkages is the nature of rural economies. Rural economies determine rural income, labor intensity, crop composition, degree of marketing of agricultural products, and hence influence the nature and strength of linkages. For example, rural areas which grow high value crops will have different patterns of linkages from those growing low value crops.

Though linkages may have varying consequences, one effect is on households' livelihood. The impact of any program on rural livelihoods can be assessed from many angles; this study adopts the sustainable rural livelihood approach. As mentioned by Feleke (n.d) the rural-urban linkage can be useful to understand the complexities of people's livelihoods and their strategies. The sustainable livelihood framework will enable understanding the impacts of the rural-urban linkage on the different components of the framework. Sustainable livelihood framework (SLF) is utilized to analyze the role of rural-urban linkage on the livelihood diversification of the rural people in the study area. The framework is not the only and perfect solution, but it has the advantage of developing a common language and tools for understanding poverty, and approaching development issues that is accessible to a range of stakeholders. It is also important to state that there is no single correct formulation of the framework.

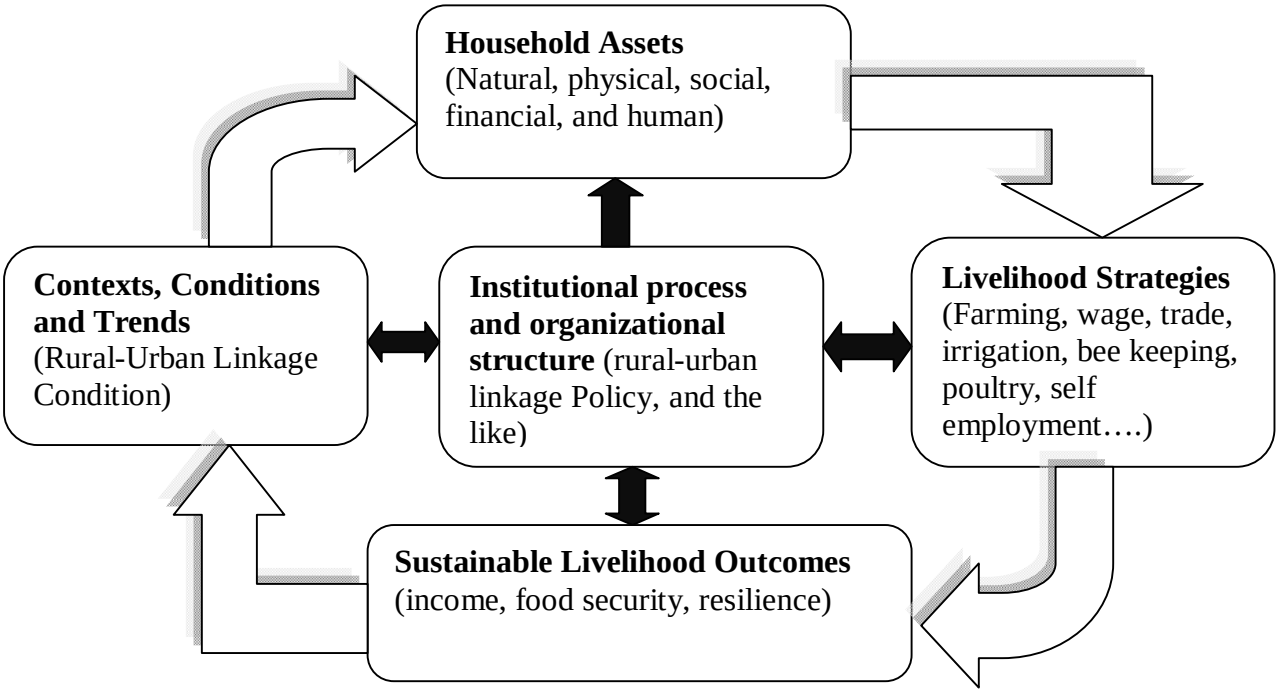
This livelihood perspective has proved to be interesting for scholars from different disciplines and backgrounds, and has, to date, produced studies dealing with a diversity of themes and focusing on diverse categories of people all over the globe, but always

from the perspective of people's day-to-day struggles in making a living. The SLF is considered a suitable tool for analysis of livelihoods in this study because it links the broader socio-economic components of household assets, livelihood activities, outcomes of livelihood activities, and factors mediating access to livelihood activities (Scoones, 1998). In other words, the SLF uses a livelihoods framework as a way of understanding the livelihoods of people and the relationships between the different elements of their livelihoods.

This approach and framework is also useful when the inter-linkages between the livelihoods of rural and urban households are considered. For majority of the world's poor population the local rural-urban linkages are probably far more important than the much global linkages and international migration. The reasons for this are that rural-urban linkages inform spatial economic development and play a central role in either reducing or enhancing vulnerabilities. People often rely on livelihood strategies across rural-urban areas, and it is important to understand the nature and complexities of these linkages and the impact on rural areas.

The context or condition, here refers to the extent of rural-urban linkage how it affects households' livelihood assets. This impact on assets in turn brings about coping strategies and mechanisms, which have implications for household strategies and hence on the overall household livelihood outcomes. Household livelihood outcomes in turn determine the level of future rural-urban linkage. The institutional context is influenced by the extent of rural-urban linkage and household outcomes. At the same time institutional context has implications on the extent of rural-urban linkage, household assets, household livelihood strategies and outcomes. These relationships are illustrated below (Figure 2.1).

Figure 2. 1: Conceptual Framework for Investigating Role of Rural-Urban Linkage on Sustainable Rural Livelihoods



Source: Drawn and Adopted from Scoones (1998)

2.3 Role of Towns in Rural-Urban Linkages

In the 1950s and 1960s, small towns were generally seen as playing a positive role in development as the centers from which innovation and modernization would trickle down to the rural populations. In 1980s, development planners and practitioners have become increasingly aware of the important role of that small towns might play in rural development. It must, however, be noted that programmes on small towns do not explicitly aim at only small town development but also the strengthening of rural-urban linkages with the intent of promoting socio-economic development of small towns' hinterlands, especially agriculture and the stimulation of non-farm employment opportunities (Douglass, 1998).

Small towns are potential catalysts for rural development. Nowadays, small towns are believed to play a vital spatial role in integrating the rural and urban areas. This could be manifested through the provision of goods such as agricultural inputs, consumer goods and the like (Baker; 2006). Small towns play an important role as an intermediary point along the rural-urban linkage. "Small and medium-sized market towns and cities are extremely important to the economic activities of rural households because they provide the economic space for rural households both to purchases their inputs and household items as well as to sell their final products at local markets, thereby linking rural producers to the national and global economy" (Braun, 2007:16).

> *It appears that in the African context, it is those rural households which are most adapt at utilizing small town opportunities and exploiting urban niches, in addition to using agricultural land resources, that are most successful in ensuring household survival and pursuing accumulation strategies* (Baker, 2006:42).

Small towns contribute to regional and local development in many ways. Tacoli (2003) and Satterthwaite and Tacoli (2006) put four points that the small and intermediate towns play a great role in economic development and poverty reduction:

1. As market for agricultural produce: the towns play an important role in smallholder areas stimulating agricultural production in the surrounding rural areas through demand and reinvestments. In these centers, the small-scale traders provide market accessibility for small holders, connecting local markets to intermediate and larger markets.
2. As market for service and manufactured goods for rural residents: they serve as a link for the products of large cities to the rural people. They also provide some services like health, education and the like to the rural people. And this would play an important role in supporting the attainment of the millennium development goals.
3. In livelihood diversification and the development of non-farm occupations: in many rural households the non-farm income is very important and is often reinvested in

agricultural activities. From the non-farm sector trade and services are most important.

4. As destination for migrants: the towns serve as first destination for the rural migrants. In these areas the migrants got low cost of housing and upgrade their skill, which will help them they migrate to be big cities.

Small towns have a crucial role for the stimulation of rural development. They can offer economies of scale, organize the economies of their surrounding rural areas, provide access to basic services and facilities as well as markets. They allow access to transportation and communication and offer opportunities for non-farm employment.

Much rural income is not derived directly from agriculture but takes the form of non-farm income generated by farm households, often in small rural towns. Rural households rely on urban income sources such as through remittances from family members, commuting and the like. In some cases about one-third of rural income in Sub-Saharan Africa is derived from non-farm sources (Baker, 2006; Tacoli, 2006).

2.4 Rural-Urban Linkages in Ethiopia

Rural-urban linkage studies in Ethiopia are limited. There has not been a very systematic and comprehensive study of rural-urban linkages in the country.

The rural-urban linkages in Ethiopia are usually manifested through the flow of agricultural and industrial goods and services, capital and labor, and through the sectoral linkages. In addition to these economic linkages, there are several social and institutional linkages. The flow of grain and livestock between rural and urban areas, which represent the major form of agricultural goods flow, is constrained by several factors including poor marketing infrastructure, subsistence production levels, poor transport infrastructure, poor market information, limited storage capacities, etc. The unbalanced spatial distribution of towns as well as their size, have also constrained the flow of industrial and manufactured goods from urban to rural areas. The flow of labor is also constrained because of low absorptive capacity of urban centers and poor transport infrastructure (Assefa, 2007).

Among the few studies, Mesfin (1995) studied market linkages in Western Shoa Zone and reported that there is poor integration between rural and urban areas and lack of proper infrastructure for enhancing the linkages. A study of some small towns in Arisi region conducted by Tegegne and Tilahun (1995) also shows that the rural-urban linkages in the form of processing, public service and financial linkages are minimal or non-existent. It is the trade linkage in this area which could be worth mentioning. Similar study by (Tegegne, 2001), in Robe and Limu a comparative study on coffee growing (Limu) and non-coffee growing region (Robe) towns indicate that the rural-urban linkages is poor. There is a limited market linkage in which the towns serve as collecting and distribution centers for local products and urban consumption goods. While the financial linkages, forward production linkages and employment linkages between the towns and the surroundings are not observed. He further put that a virtuous circle model of rural-urban linkage is a poor fit in the study area. Rather truncated i.e. partial types of linkages are the phenomena.

Demeke (1998), in his study on rural-urban linkages in North and East Shoa Zone, found that the consumption linkage in non-durable consumption goods is very strong. The production linkage between small towns and their hinterlands are very weak except in Alem Tenna and its hinter land in East Shoa. His study also indicated that markets are the most important factors that link the small towns and their hinterlands in both study sites but other factors vary with the study areas. He further showed that production linkages are relatively stronger in East Shoa due to resource endowment, availability of credit and strong facilities.

Megerssa (2007), in his study on rural-urban linkages in Gimbi and its hinterlands, West Wallaga zone, come up with the findings that the production-consumption linkages are generally weak. This is mainly because of the limited production and consumption capacity of the farmers. Hailu and Wubshet (2004), the rural-urban linkages in Amhara region are poorly developed due to the large subsistence nature of agriculture and low development of manufacturing industries in urban areas.

Eshetu (2007), studied rural-urban linkages under pastoral and non-pastoral farming system in Fentale and Minjar-Shenkora Weredas, reported that the Minjar-Shenkora has relatively strong background production linkages than the Fentale woreda. Regarding the market linkages the same is true for both *Weredas*. That is, the pastorals have relatively weak linkage than the non-pastorals.

Tassew (2002), in his study of farm/non-farm income linkages in Northern Ethiopia reported that agriculture has limited backward and forward production linkage in Tigray region. However, the consumption linkages are found to be relatively stronger than the production linkages.

An attempt is also made by MFA to study urban-rural and urban-urban linkages on four regional capital cities, namely Mekelle, Bahir Dar, Adama, and Hawassa. The main objective of the study was to identity the roles of the urban centers to support the development of their hinterlands and strengthen their capacity to maximize the synergy between them. It also tried to identify the linkages between large and secondary towns to strengthen their mutual development and interdependence (MFA, 2004). The study made on Mekelle mainly focused on the linkages between the city and small urban centers found up to 100 km radius. It was more of general and mainly based on secondary data and gives less attention to backward and forward production linkages.

Study of rural-urban linkages conducted in the region mainly focus on identifying roles of urban centers to support the development of their hinterlands with less emphasis to backward and forward production linkages, and their connection to the sustainable livelihoods of the rural households. This study is expected to fill this gap by assessing the role of rural-urban linkages in Adwa town and its hinterlands to the livelihood diversification of the rural households.

2.4.1 Domains of Policy Facilitating Rural-Urban Linkages

In these recent years, at international and national level, different documents and policies have emerged focusing on the strengthening of rural-urban linkage. A lot of discussions were held by different parties on this issue. For instance, UNDP held a policy discussion paper in an attempt to contribute to the policy debate by identifying key forces driving rural-urban linkages along with several key emerging issues that need to be addressed. In recognition to the fact that, the solutions of many urban problems lie outside of urban areas while solutions to many rural problems can be found in urban area, the issue of rural-urban linkage should be a focus for policy makers and development practitioners. Therefore, the policy issue should have to focus on how to manage processes linking rural and urban areas in a complimentary manner that benefits both rural and urban populations and promotes sustainable human development (UNDP, 2000)

Different documents try to show that rural-urban linkages need to be strengthened, to maximize the poverty impacts, and to take full advantage of the synergies. The five-year based development plans of the country try to address the reduction poverty through such linkage, though the focus varies from time to time. For instance, during the first Five-Year Development Plan had been prepared for the period 1995-1999, with the main objectives of reducing poverty, ensuring food security, achieving ecological improvements and environmental protection, and others in which the case of rural-urban linkage is not a core point.

The second five-year development plan (2000-2005) provides a special emphasis to building implementation capacity at the lower administrative structure, especially at *Wereda* and *Tabia* levels. This is expected to enable and facilitate implementation of various development activities and attaining food security at household level, bring about improved socio-economic status in the region, and an overall improvement in the living standard of the society. Here, we can observe that such activities can be materialized though strengthening the rural-urban linkage.

Moreover, the government adopted an Agriculture Development Led Industrial (ADLI) strategy. The centerpiece of this development strategy lies in creating strong linkage between the agriculture and industrial sectors. This is expected to have some impacts on the social and economic development of small towns and rural areas. This policy focuses on expansion of rural road construction, improving provision of modern agricultural inputs, increasing extension service and the like (Yegremew, 2000). The Sustainable Development and Poverty Reduction Program (SDPRP), which covered the years 2002/03-2004/05, had four pillars of which ADLI was one. In this period ADLI had little consideration for rural-urban linkages. However, the ADLI was evaluated as successful in the previous development plan and more successful in the Growth and Transformation Plan (GTP1) of the country which was implemented from 2010/11-2014/15 (MoFED, 2010).

The newly drafted Plan for Accelerated and Sustained Development to End Poverty (PASDEP) for 2005/06-2009/10 continues to focus on ADLI. The PASDEP document was not urban or rural biased. In terms of rural-urban linkages, PASDEP explicitly mentioned that there is a need to strengthen rural-urban linkages to take full advantage of synergies. The document briefly outlined the areas of involvement to achieve the synergies and the instruments to be used to achieve the goal. Market integration, labor flows and access to income earning opportunities between towns and surrounding rural areas are envisaged to be strengthened through instruments of improving rural access roads, building up of small rural towns, improving telecommunication access, spreading general education and technical vocational training in peri-urban areas, small scale credit markets, and rural electrification (Tegegne, 2007).

In 2005 the government issued its National Urban Development Policy (NUDP). This policy document stated that ADLI is the basis of the NUDP in the sense that rural development is not only the basis of the policy but also determines the direction and rate of urban development. The Strengthening of urban-rural and urban-urban linkages for sustainable development was among the core principles of the NUDP (MoWUD, 2006). The NUDP clearly states that the role of urban centers as market, service, and industry centers is critical for rapid and sustainable rural development (MoWUD, 2006). The most

important aspect of the policy in relation to this study is its provisions on the irreplaceable role of urban centers for rural development, and economic interdependence between rural and urban areas. Ministry of Works and Urban Development (MoWUD) has also prepared a rural-urban linkage manual in 2009. This manual tries to address the issues (types of linkage, data type, and methodology to following while collecting the data) that should be included while studying rural-urban linkages. Generally, the government clearly states that "Ensuring effective rural urban linkages" could play a vital role in speeding up the overall national and regional development process.

2.5 The Sustainable Livelihoods Framework

The concept of sustainable livelihood is increasingly being accepted as providing both a basis for understanding the nature of poverty and for identifying the types of strategies that can reduce poverty in an effective and sustainable manner. It emphasizes livelihood assets, or capital, as the basis for the sustainable improvement of people's livelihoods. The livelihood asset can be seen as a capability or a potential that can be deployed to undertake, or to be 'invested in', livelihood activities (Reddy, V., Reddy, M., Galab, Soussan & Baginski, 2004). The livelihood concept is based on the premise that a rural household has access to assets or capital which can be utilized to fashion out a set of livelihood strategies to improve household welfare (Chambers & Conway, 1991). A household's livelihood is sustainable if it can cope with and recover from shocks and stress; maintain or enhance its capabilities and assets, while not undermining the natural resource base (Chambers & Conway, 1991; Hussein & Nelson, n.d; Sconnes, 1998).

Livelihood resources and institutions are important factors that facilitate or hinder access to alternative strategies (Scoones, 1998). The framework can be applied at a range of different scales with sustainable livelihood outcomes assessed at different levels. An assessment of the impact of socio-economic condition on livelihoods should begin with an analysis of assets. The capitals are complementary to one another and natural capital has a pivotal role in the livelihoods of rural people. Therefore, for the livelihoods to be sustainable, the natural resource must be sustained.

The sustainable livelihoods framework is viewed as equally applicable to urban as to rural survival strategies. Asset in this framework include: human capital (the education, skills and health of household members); physical capital (example farm equipment); social capital (the social networks and associations to which people belong); financial capital (saving and credit); natural capital (the natural resource base) (Ellis, 1999).

Livelihood assets/capitals: are grouped under five types of capital; natural, physical, human, social, and financial capital. This division into five types of livelihood assets is not definitive. It is just one way of dividing up livelihood assets. Other ways may be developed depending on local circumstances. What is important here is that these are all elements of livelihoods that influence households directly or are potentially controlled by them (Messer & Townsley, 2003). The ability to pursue different livelihood strategies depends on the asset people possess (Degefa, 2005).

- ✓ **Natural capital:** for the rural people, natural capital refers to land, water, forest products and livestock that are utilized by people to generate their means of survival (Ellis, 2000). These are obviously of key importance for the production of food and income. These resources play a vital role in rural areas in general whose livelihood is totally or partially dependent up on the natural resource base (Messer & Townsley, 2003).
- ✓ **Physical capital:** refers to the basic infrastructure such as road, market facilities shelter, and irrigation works as well as production equipment which enable people to pursue their livelihoods (Scoones, 1998). Access to these, as well as other forms of infrastructure, such as water supply or health care facilities, will influence people's ability to earn an adequate livelihood (Messer & Townsley, 2003). It involves household level property ownership such as production equipment and other asset possession and community infrastructure.
- ✓ **Human capital:** refers to the labor available to the household and other qualities embedded in it such as education, skill, knowledge, good health and physical capability that are vital to pursue various livelihood strategies (Degefa, 2005). Education can help to improve people's capacity to use existing assets.

- ✓ **Social capital:** refers to social resources involving networks, social claims, associations and social relationships up on which people draw in pursuit of livelihoods (Degefa, 2005). In many communities, different households will be linked together by ties of social obligation, reciprocal exchange, trust and mutual support, all of which can play a critical role, particularly in times of crisis. These can be thought of as social capital, which forms part of a household's livelihood capabilities (Messer & Townsley, 2003).
- ✓ **Financial capital:** refers to the financial resources available to people through saving, supplies of credit, regular remittances or pension and which provide them with different livelihood options either from formal or informal sources. The financial capital available to rural households may come from the conversion of their production into cash in order to cover periods when production is less or to invest in other activities (Messer & Townsley, 2003).

Different households will have different levels of access to this range of assets. The diversity and amount of these different assets that households have at their disposal, and the balance between them, will affect what sort of livelihood they are able to create for themselves at any particular moment. These household assets can be thought of as a pentagon that may be relatively large, well-balanced and regular, implying a relatively strong asset base, or small and distorted, where there are either few assets available or where households are unduly dependent on just a few assets (Messer & Townsley, 2003).

Livelihood strategies: are the combinations of activities that people choose to undertake in order to achieve their livelihood goals. They include productive activities and investment strategies and it is a dynamic process. The choice of strategies is influenced by the access to assets and policies, institutions and process that affect their ability to use these assets so as to achieve positive livelihood outcomes (Haidar, 2009). Most poor rural households depend on agriculture as the main source of their livelihoods and hence rely on the productive use of land. However, livelihood sources have now become diverse across and within countries in which rural households engage in farming, agricultural wage labour, employment in rural non-farm economy and migration. Chambers (1997)

argued that poor people have to engage in diversifying their livelihood sources against risks and uncertainties. Despite increasing diversification of livelihood sources, agriculture continues to play a vital role through its contribution to growth, employment and livelihoods in most of sub-Saharan African countries though food security remains at stake.

Policies, institutions and practices: shape the extent to which people are able to draw on, or develop particular capital assets in order to sustain a livelihood (Toner & Franks, 2006). The structures associated with government, authority, laws and rights, democracy and participation are included in this 'policy and institutional context' (Ellis, 2003). Social relations, institutions and organizations represent critical mediating factors and processes that (re)shape livelihoods. They are critical in a sense that they comprise the agencies that enhance or constrain livelihood choices by individuals or households. These social factors and processes mediating people's access to resources and livelihood strategies are key elements by which they are examined under social capital in a livelihoods approach (Ellis, 2000). People's choice and locally designed institutions are crucial for enhanced rural-urban linkages. The local contexts need to be understood in order to enhance rural-urban linkages and improve livelihoods (Mushi, 2005). The most commonly known institution in the study area is laws and social relations which include community elders, religious leaders and gender. Furthermore, organizations create suitable condition for the community and determine access to livelihood resources. This includes government organization, NGOs and Farmer Service Cooperatives/ Association at different level.

The ability of a livelihood to be able to cope with and recover from stress and shocks is central to the definition of sustainable livelihoods. Assessing resilience and the ability to positively adapt or successfully cope requires an analysis of range of factors, including an evaluation of historical experiences of responses to various shocks and stress (Scoones, 1998). The vulnerability can be minimized either externally or internally. Public actions such as flood prevention, disaster preparedness, and off-season public works to provide employment are among the external measures. While the internal measure is through

private action by the household, in which the household adds to its portfolio (Chambers & Conway, 1991). Policy context of rural economy; trend of socio-economic factors and other exogenous factors determine the type of assets available to the rural households.

Context (trends and shock): A household's access to adequate livelihood assets can be affected by many factors over which household members themselves may have little control. This refers to the external environment in which people exist and negatively affect people's livelihood asset. These include seasonal changes (reduce or increase the availability of resources at different times), trends (changes in population, environmental conditions, patterns of governance, economic conditions and technology), and shocks (natural disaster, war or civil unrest and episodes of disease) (Messer & Townsley, 2003). Livelihood activities pursued are influenced by shocks such as recurrent drought, water logging, flooding, human health, pest damage to crop and livestock diseases and trends such as rapid population growth, deforestation, shrinking size of per capita landholdings, decline in soil fertility and decline in production that are operating in varying degrees exogenous to household and to local circumstances.

Livelihood outcomes: are results of people's livelihood strategies, which could be a combination or one of: more income, food security, resilience and a more sustainable use of the natural resource base. Livelihood outcome is the end result of the interaction of various elements in a system that can be desirable/undesirable or food secure or insecure outcome. According to Degefa (2005), the desirable outcome or 'sustainable livelihood' underlines the livelihoods of negligible proportion of relatively well off households, who have been in a position to accumulate asset over several years and attain food security on a sustainable basis while undesirable outcomes underlines for the rest members of the communities, who have survived under vulnerable livelihood situations and food insecurity rise up on them frequently.

CHAPTER THREE

THE RESEARCH METHODOLOGY

3.1 Research Approach

Researchers distinguish between qualitative and quantitative research approaches. Quantitative purists followed what is called a positivist philosophy. In this philosophy, there is a single (objective) reality and that truth is independent of one's perspective. Quantitative approach uses statistical models to explain the data. By contrast, qualitative approach follows interpretive philosophy. Qualitative researchers are in favor of constructed realities. In social geography, the proponents of quantitative and qualitative approaches ask questions and seek answers for the same problem differently (Degefa, 2005).

Qualitative and quantitative researches are usually carried out for different reasons. Quantitative research is undertaken in order to generalize to a wider population, to make predictions or make explanations for causes of certain events. Qualitative research on the other hand is undertaken in order to make interpretations based on a particular situation and to understand events according to the informant's viewpoint. This would therefore imply different research methods for both types of research to come up with expected results. Many researchers, however, advocate the use of both approaches or mixed approach to improve on the quality of the research. A central precept of triangulation or the multiple-method approach is that the other can counterbalance the weaknesses of one method. Combining both methods aims to attain the widest and most accurate representation of the reality. The use of a mixed research method is partly aimed at overcoming the limitation of one method by another and it allows a comprehensive understanding of the complex social world (Degefa, 2005). The application of multiple methods, both qualitative and quantitative, strengthens a given study as the findings of one method may be corroborated by the findings obtained by the other and particularly complex social phenomena have various dimensions and linkages in which they are best

understood via a range of diverse methods (Creswell et al. 2003). So, a pragmatic approach is used for assessing the role of rural-urban linkages on the livelihood diversification of rural households.

This study combines both qualitative research methods and quantitative household survey methods for the sake of understanding and examining the livelihoods of rural households in relation to the existing rural-urban linkage. The mixed approach that is used in this research employs strategies of inquiry that involve collection of qualitative and quantitative data simultaneously and sequentially to best understand the research problem under investigation. This method involves the gathering of both numeric information as well as qualitative information though the strategies of data inquiry are quite different but the final database represents both quantitative and qualitative data (Creswell, 2003).

Different studies that attempt to understand the role of rural-urban linkages on livelihood have used mixed methods for the sake of gaining better results and understanding. Some of these include Thanh, Ahn and Tacoli (2005), Bezabih (2007), Mohammed (2007), Owuor (2006), Fenton (n.d), and Barrett et al (2001).

3.2 Research Design

This study focused on assessing the nature of rural-urban linkages and the role it plays in the livelihood diversification of rural households. In order to understand properly the existing rural-urban linkages and rural household livelihood diversification, predominantly a cross-sectional survey design was employed. This research design helps to gather data from a relatively large number of cases at a particular point in time. In the context of this study, the "cross-sectional survey", apart from the epistemological considerations, can be implemented within the resources and time available for the study.

3.3 Sampling Method and Sample Size

The study adopted a distance of 5 Kms (the nearest) to 26 Kms (far) from Adwa town to be an area of intensive interaction between the rural and urban areas. This is because the study concentrated only on the rural Adwa *Wereda* as the hinterland of the town. *Tabias* in the hinterland that are free from the influence of secondary market places are included in this study. That means some *Tabias* in the *Wereda* that have a secondary market were not considered in this study in order to see a clear role of the town. Once the broader range of *Tabias* was determined, a two-stage sampling procedure was used in the data collection. In the first stage, four *Kebeles* or *Tabias* from the *Wereda* that are free from the influence of secondary market were chosen. These *Tabias* were chosen purposively to represent different characteristics of *Tabias.* TahitayLogomti is one of the *Tabias* with the highest intensity of irrigation. This *Tabia* was thus chosen to represent *Tabias* with irrigation practices. EndabaGerima is representing *Tabias* that experience stone extraction and tourism. BeteYohannes represents *Tabias* that have industries. Though different *Tabias* are experiencing natural resource conservation practice in the *Wereda*, Soloda *Tabia* is selected to represent the *Tabias* with highest natural resource conservation practice.

In the second stage, 5 percent of the household heads from each *Tabia* were selected randomly. The number of household heads for the survey in each *Tabia* was determined proportionately to the total number of household heads in each *Tabia*. As such, *Tabias* with many household heads had a larger sample drawn from them. With this proportional allocation, 221 rural household heads selected from the sampled *Tabias* of the *Wereda*. The sample rural household heads were selected randomly from the registration list or roster of the respective *Tabias*. This roster served as a sample frame for the rural household heads. The distribution of the total rural household heads and the sampled *Tabias* are shown in Table 3.1.

Table 3. 1: Distribution of Sample *Tabias* and Rural Household Heads

Sampled *Tabias*	Specific feature	Total No. of HHs.	No. of sample HHs.	Distance to town (km)
EndabaGerima	Stone extraction, Tourism	1319	66	18
Soloda	Conservation	846	42	5
BeteYohaness	Industrial	1343	67	10
TahitayLogomti	Irrigation	915	46	26
		4423	**221**	

Source: Computed on the basis of AWSA, 2013

The selection of urban households proceeded first by selecting randomly two *Kebeles* from the town. Accordingly, Abinet and Debrichi *Kebeles* were selected. In the second stage, about 2% with proportional allocation 77 respondents from *Kebele* Debrichi and 54 respondents from *Kebele* Abinet were selected randomly (Table 3.4). The urban registration list or roster of *Kebles* used as sampling frame for the urban household heads.

Table 3. 2: Distribution of Sample *Kebeles* and Urban Household Heads

Town	Sampled *Kebeles*	Total No. of HHs.	No. of sample HHs
Adwa	Abinet	2692	54
	Debrichi	3858	77
Total		**6550**	**131**

Source: Computed on the basis of AOFP, 2013

In addition to this, traders were also selected through stratified random sampling technique from different types of trade activities in the study area. Thus, a total of 47 urban trader respondents (Grain trade-10, Hides and Skin-4, Vegetable and spice-5, Agricultural input suppliers-7, Livestock and livestock products-8 and others such as retailers-13) were selected from the different categories of trading in the town. The registration list of traders from the Transport and Trade Office of the towns was the sample frame for this study. Eight rural vendors found in the study *Tabias* were selected using convenience sampling. These are individuals who were available during the survey period (all shops are not opened every day; they may close their shops when they are too busy). In general, 55 traders were included in this study to strengthen the survey.

3.4 Method of Data Collection

3.4.1 Type and Source of Data

Both quantitative and qualitative data were used in this study. The quantitative data were derived from a household survey. They include data like production, usage of agricultural input, expenditure items, market use, labor use, migration and remittance pattern, off-farm activities, land holding size, livelihood strategies and other related information. Data related to flows of commodities and grains were collected from traders. Information related to marketing linkage, consumption and expenditure were gathered from urban dwellers. Supporting data such as statistical reports of the Central Statistical Authority (CSA), the Rural Development Bureau of the *Wereda*, Municipality of the town, Transport and Trade Office of the town and other governmental agencies of the *Wereda* were also included. Qualitative data related to environmental issues were also collected from rural households and development agents of the respective *Tabias*.

3.4.2 Data Collection Techniques

Since the study uses predominantly a cross-sectional survey type, it mainly relies on quantitative primary data that gathered from the sample through structured questionnaire. In addition, interview, observation and focus group discussion were employed.

Structured Questionnaire

Structured questionnaire was designed separately to collect data from rural households, urban households and traders. Most of the items of the structured questionnaire were close ended with some partially open-ended items. The questionnaire, which was prepared and proofread, was translated in to the local language (Tigrigna language). The questionnaires were piloted in order to determine the clarity and understandability of the question and to assess whether the questionnaire is able to collect the intended information. The final version was prepared after incorporating the necessary modifications. Well-trained enumerators who were supervised by the researcher

administered the questionnaire. It is commonly agreed that the collection of quality data to satisfactorily answer research questions and achieve the objectives depends on the experience, socio-cultural background, academic status and motivation of the enumerators. Hence, well-trained and highly motivated enumerators were recruited to carry out the survey. All the enumerators had familiarity with the community and with the subject with basic academic capability to discharge their responsibility effectively. It was made certain that the enumerators could effectively understand the socio-cultural context and communicate in Tigrigna language to avoid cultural and linguistic barriers while interviewing the local community. During this time, detailed information was collected from the respondents. A re-visit was made to a number of households in each site to insure the reliability.

Interview

In 2013/14 and 2014/15, a return or multiple visit was made to a number of households in each site to conduct in-depth interviews and checking the validity. The households were mainly selected from the questionnaire survey to cover a range of household types varying by age, gender, and economic status.

The in-depth interviews traced the respondents' life, focusing on their changing livelihood experiences. The in-depth information on livelihood strategies and expenditure pattern of remittance were also collected thorough this technique. Based on the information from the survey (one from each economic status group) 12 households were included from four peasant associations to see their livelihood experiences. In addition, 16 rural household sample respondents were randomly interviewed to get supporting information.

Again, a number of interviews were conducted to collect primary data from development agents, traders, and different sector officials. Other related officers were also consulted regarding their customers and activities related to rural-urban linkages. Information regarding processing of output, flow of capital, physical linkage, social infrastructure, flow of resources and other were collected from these different parties.

Observation

To support the questionnaire survey and interview, personal observations held both at town and at rural area of the study areas. Activities on natural resource conservation, flow of natural resources (fuel wood, stone), landfill, waste disposal area of the industries, market places were among the main issues covered by observation. Attending different meetings and discussion were also made in the study area at different times.

The researcher attended a number of meetings organized by the *Tabia* and *Wereda* officials. The researchers' role in such meetings was simply to observe what was going on across the sites regarding development issues, public services and other contemporary issues. In all cases, the researcher gets permissions to attend the meetings from *Wereda* and *Tabia* administrations.

Focus Group Discussion (FGD)

To address the environmental, social, public services, livelihoods and related issues focus group discussions (FGDs) with rural households were held during 2013/14 and 2014/15. Eight focus groups (two FGDs in each peasant association) with each having 6 members were organized. The two FGDs in each *Kebele* were organized with consideration of men and women. Each group included one youth and one adult from the three economic status groups (rich, middle and poor). This technique was used to extract information in a participatory manner so that the communities' perceptions and views were captured and interpreted properly. Suitable atmospheres and dates were set for the discussants so that they were able to describe the issues under investigation precisely in their own language. Most FGDs were conducted on Sundays and off-work days (Religiously non-working days).

Secondary Information

The study also made use of available secondary sources of data to complement the primary data. Secondary information regarding policies and programs that encourage rural-urban linkage were collected from different offices at *Wereda* and regional level. These were research papers, policy and strategy documents, annual reports, and other official documents.

In some cases, materials and evidence collected from documentary sources such as official records, statistical data and other previous publications had to be re-ordered and analyzed for the purpose of this study. To ensure their reliability different sources from different sectors were used and a cross checks with the regional data was also made.

3.5 Measuring Rural-Urban Linkage Index

In this particular study the researcher has developed an index to define the dependent variable. Based on the survey data, two major issues were considered to show the rural households' linkage to the town. These are marketing and non-marketing linkages. Marketing linkage is represented by frequency of visit of rural households to Adwa market to see the marketing orientation and income earned from the sell of items to see the degree of marketing linkage. Farmers from the surrounding area visit urban markets to sell their crops, livestock/livestock products, poultry, vegetable, honey, and forest/forest products. These are the most common items brought to market by farmers. Some of them bring one of the above items to the market while others bring more than one item. Farmers who bring more items to the market are believed to have higher frequency of visits and higher linkage and rely more on the market than those who bring no or limited item to the market. The reason is that the products have different seasons to be brought to the market. As a result, a value of 1 is given for those who bring a specific item to the market and a value of 0 is given if they do not bring the specified item. Finally, the values added up to get the scores of marketing linkage (orientation) for the household. The scores vary between 0 and 6 with 0 representing farmers who bring no output to the market and 6 representing farmers who bring all the six major items to the market. It has to be noted that this measure show the marketing orientation of farmers.

In order to examine the degree/magnitude of the marketing linkage, however, the income gained from the sales of items or from the linkage with Adwa market is also considered as an indicator of the degree of marketing linkage. Thus, income from the linkage taken as the second dependent variable to be explained by the independent variables.

The non-marketing rural household linkage was computed using the frequency of visit of rural households to Adwa town for the non-marketing purpose. This third dependent variable is computed by summarizing the main indicators of non-market visits; mainly the major services related to financial, health, education, jobs, agricultural extension and grain mill. Some of the farmers visit the town to get one service while others visit the town to get more than one services. Farmers who get more services in Adwa town are believed to have higher linkage and rely on these services than those who did not or have limited visit to get the services. As a result, a value of 1 is given for those who get a specific non-market service in the town and a value of 0 is given if they do not get the specified service. Finally, the values added up to get the scores of non-marketing linkage for the household. The scores vary between 0 and 5 with 0 representing farmers who did not get the service in the town and 5 representing farmers who get all the five major mentioned services in the town.

Therefore, these three separate linkages were used to see whether patters in the level of RUL and degree of linkages differ among the sample households and the sites.

3.6 Data Analysis

The primary and secondary data obtained from respondents and documents respectively were processed, classified and tabulated. Investigation of livelihood is very complex and needs to be treated through different techniques depending on the context and objectives of the research. Consequently, a combination of different statistical techniques such as percentages, frequencies and mean, Chi-square, cross-tabulation, One-Way ANOVA, and regression were used to adequately address the objectives of this research and come up with critical findings, conclusion and recommendations. To do this SPSS v.20 was used. The regression model is specified below.

The qualitative data from in-depth interviews and focus group discussions were translated and transcribed. To capture opinions and perceptions, and pictures the data were analyzed with the aid of ATLAS.ti. The frequency of codes and memos were used to identify the major themes from the transcripts.

Model Specification

In order to achieve the fourth objective of this study, that is, to identify the determinants of the existing rural households' rural-urban linkage in the study area based on the hypothesized variables a linear regression analysis was applied. This linear regression model was employed to account for (predict) the variance in an interval dependent based on linear combinations of intervals, dichotomous, or dummy independent variables using the SPSS software. Three separate models (using these predicts) are run to see the determinants of the marketing linkage and non-marketing linkage.

$$Y= f(\beta o+ \beta_1 X_1 +\beta_2 X_2 +\beta_3 X_3+\ldots \beta_{13} X_{12})$$

Where Y is the level of rural-urban linkage, X_1; X_2;X_3; . . . ; X_{12} : are explanatory variables defined below, β_1; β_2; β_3; . . . ; β_{13} are estimated regression coefficients/parameters associated with the explanatory variables (X_1, X_2,X_3,... , X12), respectively, β0 is a constant (random error).

Definition of Variables- Here under are mentioned the dependent variables and independent variables.

Dependent Variable

Y1: The level of rural-urban linkage as measured by marketing rural-urban linkage (focus on the orientation) index is a continuous dependent variable in the model.

Y2: The level of rural-urban linkage as measured by income from marketing rural-urban linkage (the degree) is a continuous dependent variable in the model.

Y3: The level of rural-urban linkage as measured by non-marketing rural-urban linkage index is a continuous dependent variable in the model.

Independent Variables

The literature indicates that there are many factors that can influence the level of rural-urban linkage at a household level. These factors pertain to the demographic and economic characteristics of a household. In addition, access to information and *Kebele* contact will influence a households' linkage. These variables are expected to have a significant impact in determining the level of linkage the rural households may have with urban centers. The following describes the hypothesized variables and the expected relations.

Age of household head: Rural households mostly devote their time or base their livelihood on agricultural activities. The older the household head, the more experience he/she has in agriculture or farming; but will be weaker than the young household to produce more and to attend market frequently. Moreover, older persons are risk averters, and mostly they intensify and diversify their production activities only in their base area. They have lower capacity to engage in non-farming activities and attend market in the town. Similarly, older households' frequency of market attendance is expected to decline (this will computed by squaring the age). As a result, such households are expected to show a low linkage with urban center. On the other hand, younger farmers would be more accommodative to new ideas and would invest in new and long term innovations. These households are expected to have relatively a strong linkage than their older counter parts.

Sex of household head: Most of the time women spend their time at home and are expected not to visit the market frequently. In addition, they are discriminated from accessing the improved technologies and information on extension service and credit services; have little capacity to overcome hardships than their male counter parts. Therefore, women household heads may have a lower linkage to market than the male household heads. On the other hand, female could be more engaged in multi-activities that create a good atmosphere to have a strong linkage with the nearby urban centers. Gender is also an important factor in shaping RUL, as reflected by the higher levels of multi-activity among the women generations in Africa (Akkoyunlu, 2013).

Marital status of household: Household heads that are married have more family and social responsibilities than the unmarried household heads. Those who have such responsibilities are expected to visit frequently the town for different needs and services. Hence, marital status of the household head and rural-urban linkage may be correlated positively or negatively.

Educational status of household head: The educational attainment of the head of the household, years of schooling by level were considered. Household heads who have higher education level can early adopt to new technologies and improved agricultural practices. Education also helps the utilization and synthesis of relevant information which are vital for production decisions. Some studies depict that high level of literacy among respondents make them seek access to social amenity, which is not usually available in the rural areas. Thus, education may affect positively the formation and enhancement of strong rural-urban linkage.

Family size: A household with large family members may be forced to diversify their activity in order to feed their family than that of a household with small family size. As a result, some family members may be forced to leave the rural area and work in urban areas. Therefore, household heads with large family size are expected to have a stronger linkage than those with small family size.

Farm size: This variable refers to the total cultivated land owned by the rural household head in the study area. The larger the farm size, the greater the probability to produce surplus. Surplus will be sold at markets in order to earn cash. Farm size thus has a positive influence on the level of rural-urban linkage.

Number of farm plots: It is expected that, as the number of farm parcels of a farmer increase, the attention and care given to proper farming practices reduces drastically, affecting adoption of improved technologies and maintenance of existing structures and finally may fail to get good yield from these parcels. Because of such insufficient yield, the household could not visit the nearby town for marketing. However, the household

may visit the nearby town frequently for searching additional source of income or such different farm plots could create an opportunity to cultivated different items targeting the market. Or the attention and care given to proper farming practices in order to get more yield would consumes more time and finally the household may fail to visit the town frequently. Because of such time shortage, the household could not visit the nearby town for other purposes. For these reasons, the influence of number of farm parcels on level of rural-urban linkage could be negative or positive.

Livestock ownership: This variable refers to the total livestock holding of the household head measured in terms of tropical livestock unit (TLU). It is obvious that livestock is an important source of wealth to the rural household heads. Household heads with larger livestock size have a potential to produce milk, milk products, egg and meat for personal consumption as well as for the market. It thus becomes an important source of income for the rural households. It is expected that a household head with higher value of TLU will have a strong marketing linkage with urban centers. On the other hand, those households with higher TLU will spend more time at home to take care of their livestock that could hinder their frequency of visit for non-market visits. Therefore, the higher ownership of a livestock could be negatively associated with the strength of non-marketing linkages.

Engagement in irrigation: Most of the time farmers engaged in irrigation produce vegetables and fruits that are demanded by the nearby urban dwellers. The equipments and fuel for the generators are available in urban centers. The products of such activity are almost all sold in urban areas. Therefore, engagement in irrigation is expected to have a positive impact on the status of rural-urban linkage.

Number of bee hives owned: This variable refers to total number of bee hives owned per household head in the study area. Those who have bee hives are expected to sell their product in the nearby town and may purchase the hives from such centers. Hence, it is expected that engagement in honey production and the availability of bee hives would have a positive influence on the level of rural-urban linkage.

Possession of cell phones: This variable refers to the ownership of mobile phones. Those who have a cell phone are expected to have an access to information, mainly market information from the nearby town. Hence, it is expected that the possession of cell phone would have a positive influence on the level of a households' linkage with the urban centers.

Distance from the town: The basis of this was that farmers who are adjacent (closer) to the urban center are expected to have higher probability of linkage than those who are far from the town. Therefore, a households' linkage to the urban center could be negatively influenced by the distance from the urban center.

3.7 Validity and Reliability of Data and Research Process

Reliability and validity are the two most important and fundamental techniques of any measurement procedure. Reliability and validity of the instruments and methodology deal with the quality of data and appropriateness of the methods used. Mwanje (2001) indicates that reliability refers to the degree of consistency of results derived from repeated observations of the same phenomenon under the same circumstances. It is the extent to which any instrument produces the same result on repeated trials. Validity, on the other hand, stands for the degree to which the research measures what is purported to measure.

In this research, different instruments were administered and their stability was checked through repeated testing and test-retest procedure with the same group of respondents. The scores were found to be consistent from one time to another.

Validity is the strength of our conclusion or inferences (Mwanje, 2001). Validity in this research was tested or maximized with the purpose of drawing more 'credible and defensible' analytical generalizations of the result about the population of the study sites. This was done through triangulation, pilot survey and discussion with concerned experts and researchers prior to the actual data collection processes. Of these, triangulation was given more emphasis as it involved multiple methods such as observation, questionnaire

survey, interviews and recordings leading to more valid, reliable and diverse construction of realities in the research. Triangulation is to ensure accuracy and provide alternative explanations. It also arises from the ethical need to confirm the validity of the research process and results. In this study, triangulation was carried out using multiple sources of data. This helped to enhance the conclusion drawn from the study.

3.8 Ethical Considerations

While conducting a research, it is important to consider the underlying ethical issues. Before starting to conduct the study, permission was assured from the selected study areas administrators of Adwa *Woreda* and Adwa town Administrators. By elaborating the purpose of the study, consent guaranteed from each respondent. Ethical considerations were seriously taken into account so that the concern, integrity, consents and other human elements of the participants, discussants, and interviewees were protected. Essentially, respondents were told the purpose of the study prior to responding to the questions. They were assured that any information concerning them will never be passed to other unauthorized persons or institutes without their consent and cannot be used for other purpose outside this academic research. The selected study participants were requested kindly whether they agree to participate in the study or not.

CHAPTER FOUR

DESCRIPTION OF THE STUDY AREA AND BACKGROUND OF THE RESPONDENTS

4.1 Description of the Study Area

4.1.1 Location and Physical Features

Adwa *Wereda* is located in the central zone of Tigray National Regional State. It is bordered on the south by Werié Leké *Wereda*, on the north by Mereb Leké *Wereda*, on the west by Laelay Maychew *Wereda* and on the east by Ahferom *Wereda*. The town is completely bordered by Adwa *Wereda* (Figure 4.1). It is found about 1006 kilometers north of Addis Ababa and 220 Kilometers North West of Mekelle (Regional capital) on the Mekelle-Adigrat-Axum main highway.

The town is located at $14^0$12' north latitude and $38^0$56' east longitude. In 2012, the study area (both urban and rural) has an estimated area of 68,921 hectare (out of this 2303 hectare is the area of Adwa town). The whole of Adwa is represented by low relief hills with terraced slopes mostly covered by deep silt clay soils and rectangular drainage pattern. Adwa town is surrounded by chain of mountains to the north, east, and south. Mount "Soloda", which is the landmark in the vicinity, is found to the north of the town.

In a mountainous tropical country like Ethiopia, altitude is by far the most important factor in controlling the climate. Adwa, which is surrounded by mountains, has an elevation of 1650-1990 meters above sea level. Due to this, it is classified under "*Weyna Dega*" or tropical climatic condition; 67% "*Weyna Dega*" and 33% "*Kola*". The area receives annual rainfall of the 600-850 millimeter. Its monthly mean temperature is 22^0c, which ranges from 13^0c minimum to 27.2^0c maximum (AWSA, 2013).

The town of Adwa is old and has been of great political and economic importance. The town originated as a market center inhabited by craftsmen and traders. The name Adwa first mentioned at the beginning of sixth century A.D in the land character of as a 'Gult'

of the nearby monastery of Dabre Aba Gerima. The town of Adwa, however, was first mentioned around the middle of sixth century by the Ethiopian monk Aba Gregorious and was written by the German scholar Thiob Ludlf on his map. According to Henry salt, who came after four decades of the visit of James Bruce (1770), there were about 8000 residents and about 800 habitations (houses). At that time, the town considered as a principal center of commerce for the region north of Tekeze (NUPI, 1995). At present, the town assumes different status of administration and provides various goods and services for the people in center as well as the hinterland. The status of administration coupled with other factors could have a differential impact on the types and pattern of rural-urban linkages.

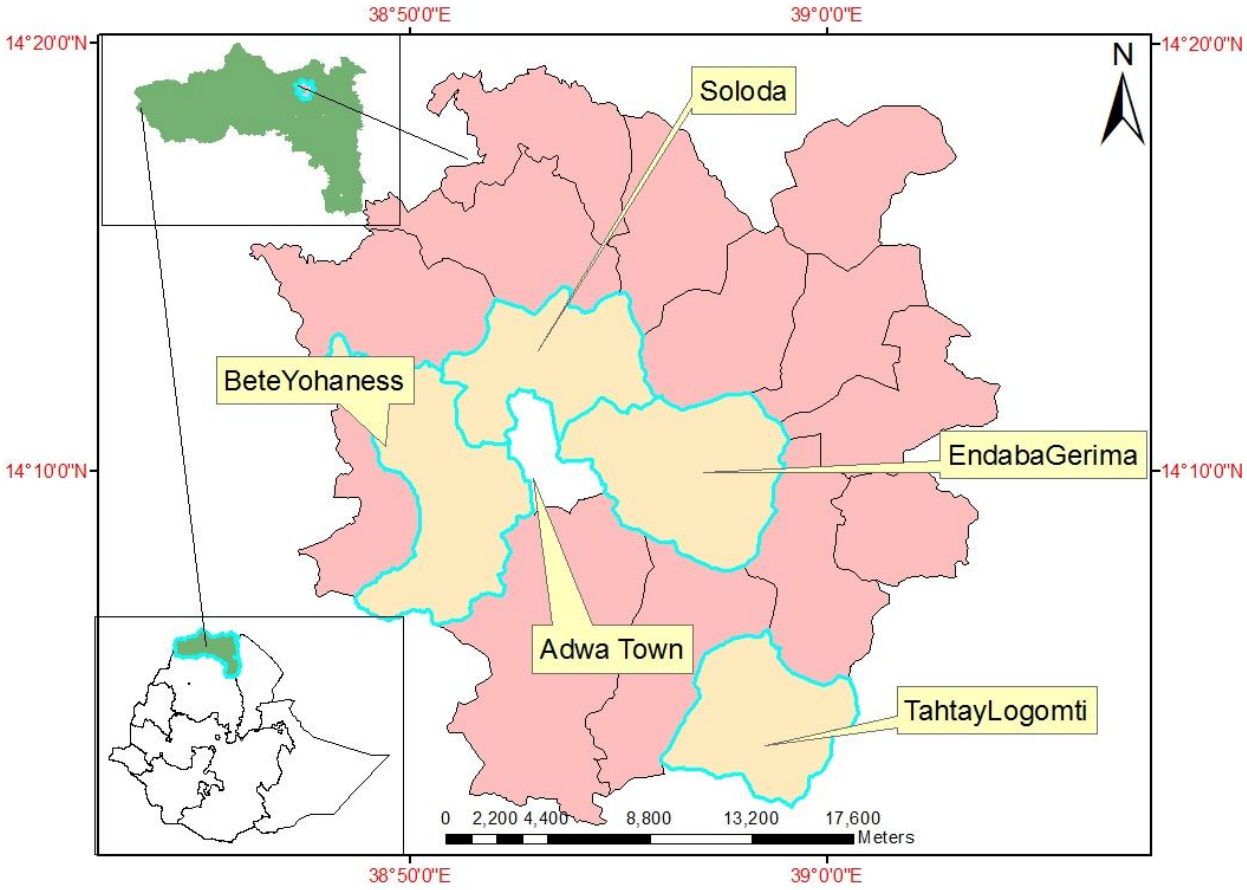


Figure 4. 1: Map of the Study area. Note that: Figures (Latitudes and Longitudes) along the border of the map are for Adwa Wereda

4.1.2 Population and Settlement

The study area is categorized into Adwa town and Adwa *Wereda* (rural). In an aggregated manner, in 2013, the total estimated population of the study area was 165,438. Accordingly, 57,485 live in the urban center, while the rest 107,953 live in rural areas. About 51.48% (50.8% rural and 52.8% urban) were females and 48.52% (49.2% rural and 47.2% urban) were males (CSA, 2013a). In 2012, the population density ranges from 58.7 persons per square kilometer in rural to 281.4 persons per square kilometer in town (CSA, 2012). During 2007, there were about 10,278 migrants in the rural area and 19,025 migrants in the town that account for about 10.3% and 47% of the then total population in the area respectively. This share was lower than the national aggregated migrant share of which 11.9% are in the rural and 52.7% in the urban area (CSA, 2007). Between 2006/7-2011/12 the town experienced annual population growth rate of 2.5, which was similar to the country's 2.6 and region's 2.5 annual growth rates during 2006/7-2013/14.

4.1.3 Land Use

The data on land use obtained from Adwa *Wereda*'s Environmental Protection and Land Administration Office showed that about a quarter of the land use in the *Wereda* was covered by forest land which accounts for about 27 % and almost similar to this, about 23% of the land was under area closure. The settlement and other land use type including the unproductive land accounts for 24% of the land in the *Wereda*. It was only 20.59% of the land which was cultivated by the habitants (Table 4.1).

Table 4.1: Land use Types in Adwa *Wereda*

No	Land use types	Area (ha)	Percent
1	Cultivated land	13,714	20.59
2	Grazing land	3,827	5.74
3	Area closure	15,257	22.90
4	Forest land	17,700	26.57
5	Settlement area and others	16,120	24.20
Total		**66,618**	**100**

Source: AWSA, 2013

4.1.4 Economic Activities

Since the purpose is to provide only a general picture of economic activities in the study area, three major economic sectors briefly examined. These are agriculture, manufacturing, and trade and tourism.

4.1.4.1 Agriculture

Agriculture is the most common economic activity of the rural population of the *Wereda*. The farming system in the *Wereda* was mixed farming, which is both crop production and animal rearing. The major cereal crops produced in the *Wereda* based on their amount from the highest to the lowest were '*Teff*', '*Hanfets*' (a mixture of Barley and Wheat), Wheat, Millet, Maize and Sorghum. While lentils, peas, beans and chickpeas were the main pulses and linseed was an important oil seed. The hinterland was also known for vegetable production on fragmented small plots. Production of Onion, Tomato, Garlic, Potato, Papaya, Guavas, Lemon, etc was very common in the study area. Hops ('*Gesho*') was also highly produced in the study area. In 2012/13 through irrigation about 11, 225 quintal of fruit and 353,292 quintal of vegetables was collected and from this the farmers got 11,781,736.00 and 449,782,457.00 Ethiopian Birr respectively.

The peasants in the *Wereda* keep cattle, goats, sheep and poultry population on their holdings (Table 4.2).

Table 4. 2: Total Livestock Population and Ownership of Adwa *Wereda*, 2012

No	Type of Livestock	Total	Per household head
1	Cattle	82,763	3.35
2	Goats and Sheep	96,662	3.91
3	Pack animals	8,034	0.33
4	Poultry	116,776	4.73
5	Bee hive (Modern and Traditional)	15,127	0.61

Source: AWSA, 2013

Adwa *Wereda* is also known for its honey production. It has a potential to produce more than 2,500 quintals (250,000 kg) annually. In 2012/13 Agricultural year about 240 ton (240,555 kg) of honey was collected from both traditional and modern bee hives. This honey was collected from 14,924 household heads of the *Wereda* (AWSA, 2013).

4.1.4.2 Industry/Manufacturing

Adwa is one of the industrial economic corridors in the region. The availability of abundant water resource and manpower are among the major factors that create conducive environment for the establishment of different industries. Currently there were 22 enterprises under this industry sector. Over the years between 1995 and 2011, a total of 2,190,445,159.70 Ethiopian Birr was registered on investment capital. This is expected to absorb 3,687 permanent and temporary unemployed labor forces.

In the *Wereda* there were one textile industry, two marble manufacturing, one plastic factory, one shoe factory, one flour factory, and tomato packing factory. All these industries were functional. There are winery, garment and marble manufacturing industries that will begin their production soon. The presences of these industries had created employment opportunities for about 571 people in the *Wereda*. This number did not include the labour force in the textile industry (which had an employee of more than 5,200). About 61 cooperatives in the urban center create job opportunity for about 917 people. More than 5,700 members who have a small capital organized under SME in the town until 2013. In rural Adwa *Wereda* there are 25 SME which have about 562 members.

4.1.4.3 Trade and Tourism

Trade and commerce-related activities are the main forms of business from which a significant part of the dwellers generate their income for livelihood. Adwa town is the center of activity of the *Wereda*, its significance as distribution and redistribution center is immense. The *Wereda* mainly get goods and commodities from town retail and wholesale traders (NUPI, 1995). The *Teff*' that was available on the market comes from Nebelet and Edaga-Arbi. It is destined for markets in Axum and some of it to Mekelle through Adwa. Sorghum from Humera and Maize from Gojam are brought into the local Edaga-Arbi market through intermediate markets in Adwa. Goats are sold from Adwa to Rama. Chickens also sold to markets in Shire, Rama, and Adigrat, supplied from Adwa.

There are 2355 traders or public and private trading firms in the town. Out of these 10.53% were wholesale, 48.38% were retail and 41.09% are services of various types. Others believed to operate on informal ground (AOFP, 2013).

Market is also among basic infrastructures. In the town, there are two open markets with an average area of 5 hectare and 1.5 hectare. Even though there is a small market exchange throughout the week, the main market day is Saturday. The open markets were major exchange grounds for agricultural products and urban commodities. The existing general market at Debrchi had good topography and limited facilities such as shelter, store and public toilet, etc. However, it lacks specific areas for different commodities (grains, chickens, egg, etc) and overcrowded. In addition, livestock market was another component of market service in the Adwa town. There was a separate livestock market with an area of about 1ha. It had sufficient space to meet the existing demand. However, there was congestion problem during occasion of holiday market days, and it results in sanitation problems in the town.

Adwa has immense potential for tourism development. It was widely indicated that ecotourism is a big opportunity to the town's economic stimulation. There are number of tourist attracting historical sites like the well-known battle of Adwa that culminated with decisive defeat of the invading Italian army in 1896 and the presence of archeological resources that represent chains of culture and historical development from 8000 B.C to the present. The presence of these multiple attractions in a close proximity to other well established historical sites such as Axum that is 25 km from Adwa (Mulugeta et al., 2007). Monastery of Endaba Gerima which was built in the 6th century was serving as center for religious leaders and the musical notation of St. Yared is found in this monastery. The cemetery of General Alula Aba-Nega also found in this monastery. The famous architecture of the Yeha which was built in 8 century B.C. is found in this *Wereda* at a distance of 25 Km from the central part of the town. Chain Mountains (Mountains in Meeting) of Adwa that believed that they had a great contribution in the battle of Adwa in 1896 with a wonderful landscape are great tourist attraction sites of the study area.

4.1.5 Development of Infrastructure

Development of infrastructure can have significant impact on rural-urban linkages. The availability of road transport, for example, between small towns and their hinterlands could stimulate agricultural production and facilitate rural-urban flow of people, goods and services. Likewise, the presence of other infrastructure like telecommunication, education, and health can also increase the interaction between the rural and urban areas. The following section provides a general picture on the development of infrastructure in Adwa.

4.1.5.1 Transport and Communication

Adwa is located at a cross road connecting Adigrat-Adwa, Abbiy Adi-Adwa, Adwa-Axum and Adwa-Rama (Asmara). These four direction highways are covered by asphalt, while the rest is gravel-surfaced. About 12.3 km of the town is also an asphalt road, and different portion of the town are also covered by cobblestone.

Communication infrastructure like telephone and postal services are also important for social and economic activities of the communities. For example, telephone is one of the most important means of communication used by traders to obtain recent information needed for trade. Hence, it has an impact on rural-urban linkages. In terms of telephone services, Adwa town had digital telephone service and the *Wereda* was also beneficiary of the mobile phone service. In the town, there were about 3330 fixed line telephone customers and 30,531 mobile customers. There were about 153 wireless telephones in the town. In addition, the town is a beneficiary of a dial up internet service (96 dial up and 99 1X customers). There is high demand for mobile phone but the supply is very limited. In the hinterland, in each *Tabia* there were wireless telephone services, though it gives more service for governmental activities. The town has also one public postal service.

4.1.5.2 Health and Education

In Adwa town there were one general hospital, two health centers, seven clinics, and nineteen pharmacies. Similarly, fourteen health posts are available in the rural area of Adwa *Wereda.*

Education is undoubtedly very essential for development. Agricultural research that provide extension services and other inputs; and other technologies that increase production are gained through education. Moreover, the availability of schools and training centers is also essential for linking rural and urban areas through the flows of human, cultural and financial elements. The town had eighteen kindergartens (only one governmental), five primary schools (1-4), thirteen junior schools (1-8), four secondary schools (9-10), one preparatory school, four technical and vocational schools (TVET), and one governmental teachers' education college. In addition to this, there were about four distance education coordinating centers (offices) in the town. Adwa rural *Wereda* had 53 junior schools (1-8) and two secondary schools (9-10).

4.1.5.3 Other Infrastructures

Other types of infrastructure like banking and microfinance services have paramount importance in facilitating interactions between rural areas and urban centers. In Adwa there were five banks and one credit and saving service microfinance. The town had an access to use 29 Megawatt from the 24 hours electricity service. The people and industries also had an access to safe drinking water from the 10 million cubic meter water reservoir dam. Administrative wise, there were municipality, police station, judicial court, and administration offices. There were also livestock breeding and veterinary clinic that serve for both the rural farmers and urban dwellers. Hotels, bars, restaurants, bakery, barbershop and gas stations also found in the town determined in providing services to both urban and rural people living in the study area. In religion aspect, the people had an access to exercise their religion and different ceremonies in their respective religion. Currently, there were nine Orthodox Churches, four Mosques, three Protestant Churches, and two Catholic Churches in the town.

4.2 Background of Rural Respondents

Under this section, the demographic characteristics of the respondents and the nature of the farming practice of the rural households are discussed.

4.2.1 Demographic Characteristics of the Respondents

Table 4.3 showed the basic demographic characteristics of the sample rural households. Tigraway was the dominant ethnic group in Adwa *Wereda*. Similarly, all the sample population households were Tigraway. In terms of religion, the entire sample population followed Orthodox Christianity. Males account for 80% of the samples population. More than 75% of the sample rural households were married; the rest were either divorced or widowed with widowed household heads being the dominant one. In terms of education, about 63.8% of the respondents had attained at least primary school (1-8 grades). This was followed by 24% of households who cannot read and write and 11.8% who attained at least secondary schools. This literacy rate was higher than the national literacy rate and also higher than the regional rural literacy rate that was about 41.3% (CSA, 2013a).

Table 4. 3: Basic Demographic Characteristics of Sample Rural Households

Variable	**Affiliation**		**Number**	**Percentage**
Ethnicity	Tigraway		221	100
Religion	Orthodox		221	100
Education	Illiterate		54	24.4
	Primary		141	63.8
	Secondary		26	11.8
Sex	Male		176	79.64
	Female		45	20.36
Marital Status	Married		169	76.47
	Not Married	Divorced	4 (1.81)	23.53
		Widowed	46 (20.81)	
		Single	2 (0.91)	
Average family size			5.1	
Average Age			44.4	

Source: Field survey, 2013

Households in Ethiopia are largely male-headed. Males head about 74% of the households in the country while 77% males head the rural households (EDHS, 2012). This fact was corroborated by the present study where it was found that on an average 80% of the sample males headed rural households. Similarly, the average household size of the nation was 4.6 and that of the rural population was 4.9 (EDHS, 2012). The average household size of the sample (5.1) was slightly higher than the national average and almost similar with the average household size of the rural population. It was, however, higher than the regional average (4.3) and that of the rural regional average (4.6) (CSA, 2012).

4.2.2 Nature of farming

The nature of farming includes land ownership, livestock production, and crop production of the sample rural population (households).

4.2.2.1 Land Ownership

Land is an important natural capital for people residing in rural areas. It is a critical production factor which determines the type of crops that are grown and the size of the crop harvests. Under the subsistence agriculture system, land holding size plays a significant role in influencing crop production and households' food security. The average land holding size of the sample population found out to be approximately 0.46 hectares. This was similar to the *Wereda'*s average land holding size, which was 0.47 hectares per household. However, it was by far lower than the national average (0.81 hectare per household). Table 4.4 presented three categories of land-holding sizes and the proportion of farmers that fall under each group. Only 17% of respondents had land holding size of greater than 0.5 hectare. The majority of the respondents (47%) owned 0.5 hectare, whereas 36% of households owned less than 0.5 hectare.

Table 4. 4: Land Holding and its Status

Description		Number	%
Land holding (Size in Ha)	>0.5	38	17.2
	=0.5	103	46.6
	<0.5	80	36.2
	Mean	**0.46**	
Number of plots	1-3	107	48.4
	4-6	90	40.7
	7-9	24	10.9
	Mean	**3.8**	
Soil Fertility	Fertile	37	16.7
	Semi-fertile	184	83.3
	Infertile	42	19.0

Source: Field survey, 2013

As illustrated in Table 4.4, the classification of land by fertility level showed that the majority (83%) of the respondents classified their farmlands as semi-fertile and the rest designate their land as fertile and infertile. More than half of the respondents had four or more plots (reaches up to 9 plots per head) with an average holding of 4 plots. The major reason suggested by farmers for such fragmentation was population growth that causes land size to decline due to the system of inheritance. Another important aspect was that the plots were located in different areas with different characteristics (fertility); resulting in each farmer owning different plots with different soil characteristics. This high fragmentation of land implies a considerable loss of energy, time, and resources while ploughing, sawing, weeding, protection against pests, harvesting and the like all of which have adverse impact on farm outputs. However, one benefit mentioned by the interviewed farmers was that the different plots enabled them to grow a wider mix of crops and helped to facilitate the rotation of crops on the various plots. In general, the land tenure of people living in the study area was characterized by small, fragmented and dispersed land holding; and, therefore, low productivity of the crops. The steep terrain also limited agricultural production. Such situation could lead rural households to diversify their livelihood in order to survive.

4.2.2.2 Livestock Production

As is the case elsewhere in the country, livestock in Adwa *Werda* were considered as a means of accumulation of asset. Livestock raising was a necessity for the households in the study area for a variety of reasons. The most important contribution of livestock to agricultural production in many parts of Ethiopia is the use of oxen as draught animals. First, the crop production in the study area is based on oxen plough. The survey results indicated that the majority of the households (95.5%) owned ox/oxen. Second, crop and livestock products are complementary in household food consumption. Livestock in addition to their importance in agriculture, act as reserve wealth or security for the household. Households keep livestock as a way of accumulating wealth to be used when the household needs it most; that is, when all the means of getting money have been exhausted. In general, the main livestock types were cattle, sheep and goats. Whether livestock was used for home consumption or brought to the market depends on the type of animal. For example, cow and chickens mainly kept for their produce (milk and eggs) as opposed to goats and sheep which kept mainly for selling or slaughtering. Chickens were kept for selling or were sometimes for consumption. Goats are the most commonly consumed and sold livestock. Cattle are valuable assets that rarely sold, and hardly ever consumed. Cattle kept for productive agricultural activities, and also serve as an investment that can provide relatively significant income in bad years. In addition, apiculture was a very common practice for a significant number of sample rural households. However, a significant variation observed in the livestock ownership of households within each *Tabias* and between the sample households, though they reported that they had different types of livestock (see Table 4.5).

Table 4. 5: Livestock Ownership of Sample Rural Households and Income Earned

Livestock Type	**Average Number Owned**	***Tabia***							
		B/Yohanes		**Soloda**		**E/Gerima**		**T/Logomti**	
		%	**Average No.**	**%**	**Average No.**	**%**	**Average No.**	**%**	**Average No.**
Oxen- (212)* -95.9%	1.67	92.5	1.7	97.6	1.43	95.5	1.76	100	1.72
Cows- (203)* -91.9%	1.45	91	1.43	97.6	1.45	92.4	1.44	87	1.5
Sheep and Goats- (180)* -81.5%	6.22	86.6	5.52	97.6	11.02	80.3	5.8	60.9	3.43
Pack animals-(136)* -61.5%	0.67	67.2	0.84	71.4	0.74	47	0.47	65.2	0.67
Hens- (209)* -91.6%	7.05	94	7.06	97.6	10.12	93.9	5.74	93.5	6.09
Modern bee hives- (75)* -33.9%	0.67	41.8	1.13	31	0.5	40.9	0.62	15.2	0.2
Traditional bee hives-(61)* -27.6%	0.55	23.9	0.43	4.8	0.1	54.5	1.23	15.2	0.17
Total bee hive (106)* 7.96%	1.22	49.3	1.6	33.3	0.6	69.7	1.9	28.3	0.4
TLU-(220)* -99.5%	4.24		4.26		4.67		4.15		3.95
Average income (in Birr)	**3,800.00**	**3,555.00**		**5,237.00**		**4,376.00**		**2,019.00**	

Source: Field survey, 2013

*Figure in parenthesis are number of respondents who own that particular livestock

The average number of oxen ownership of the sample population is almost two. This had its own implication on the farming system since this is considered as a minimum number needed for ploughing. Almost all respondents or 95.5% and 91.9% owned at least one ox and a cow respectively. On average, the sample households own 3.12 cattle. This number was slightly lower than the regional average that was 4.33 (CSA, 2012). Though few farmers did not own any ox or cow, a big difference was not observed among the *Tabias* in terms of oxen and cow ownership.

The ownership of goat and sheep of the sample population (6.22 per household) was higher than the regional average, that was, 4.89 per household (CSA, 2012). This clearly showed that the area had a potential for goat marketing. The ownership of sheep and goats in the study area showed a variation among the *Tabias.* Farmers in Soloda with average number of 11 have the highest ownership while farmers in TahtayLogomti with average number of 3 had the lowest ownership. The ANOVA test ($F=23.72$, $df=3$, $p=0.001$) for these groups confirmed a significant mean difference (at 99% confidence level) was observed among the *Tabias* in terms of sheep and goat ownership of the sample households. Scheffe's range test found that Soloda differ from other *Tabias* ($p=0.01$). Therefore, the ownership of sheep and goat of the sample rural households was affected by the nature of the *Tabia* (Table 4.6). Since most of the time sheep and goat raised for market purpose, farmers in *Tabia* Soloda could get more income from the sale of these livestock at time of difficulties. Table 4.5 showed that farmers in *Tabia* Soloda earned an average income of 5,237.00 Birr, which is more than two times than that of TahtayLogomti and by far larger than BeteyYohannes. The domestication of such livestock had implications for rural-urban interaction. Generally, such variations indicate that intervention in provision of livestock in the study area should be selective.

Similarly, poultry possession in the study area (7.05 per household) showed a slight difference from the regional average (6.13 per household) (CSA, 2012). Pack animals like horses and mules were not common in the study area. Donkeys however were present in the study area and farmers on average possessed 0.67 donkeys. This number was similar to the regional average of 0.7 donkeys per household. It was however

important to note that, there were farmers who did not own some of the mentioned livestock. In particular, ownership of bee hives was very small. Such small ownership of bee hives could hinder the additional income earned from honey production. The *Wereda* agriculture bureau through credit arranges the provision of modern beehives.

Table 4. 6: Bee, Sheep and Goat Ownership in different *Tabias*

Ownership		***Tabia***			
		B/Yohanes	**Soloda**	**E/Gerima**	**T/Logomti**
Bee Hive	Mean-1.22	1.6	0.6	1.9	0.4
	S.D-1.74	2.31	1.01	1.63	.65
	ANOVA	**10.35*** **			
Sheep and Goat	Mean-6.22	5.52	11.02	5.8	3.43
	S.D-5.02	4.38	4.92	4.61	3.46
	ANOVA	**23.72*** **			

Source: Field survey, 2013 ******* -Significant at α=0.01

The average number of bee hives owned by the sample rural households was 1.22 with a standard deviation of 1.74 beehives (Table 4.6), which was higher than the regional average (0.27 per household). The mean beehive ownership had shown a variation between the *Tabias.* Farmers in BeteYohannnes and EndabaGerima had higher number of beehive possession (1.6 and 1.9 respectively) than their counter parts, that was, Soloda (0.6 bee hives) and TahtayLogomti (0.4 beehives). The One-Way ANOVA test for this variable confirmed a significant mean difference was observed between the *Tabias* and bee hive possession of sample households. This ANOVA result showed an overall significant effect of the location (characteristics) of the *Tabia* on the average ownership of beehives of a household (F=10.35, df=3, p=0.001). Scheffe's range test found that BeteYohannnes and EndabaGerima completely differ from Soloda and TahtayLogomti (p=0.001) at 95% confidence interval but no other significant difference were found. This beehive ownership difference could have its own implication for the marketing linkage. Those *Tabias* with better ownership of beehives could have a better marketing linkage with Adwa in terms of selling the honey production. About half of the respondents were capable of producing honey that primarily produced for market. On average, they produced about half quintal of honey during 2012/13 agricultural year.

4.2.2.3 Crop Production

Farm size and oxen ownership are among the most important factors that affect the volume of crop production of farmers. Farmers in the study area cultivated a wide range of crops on their plots in 2012/13 agricultural year. As it is true for the country, the main crop produced in the study area was cereal (Table 4.7). The major crops produced in the *Wereda* were *Teff*, Sorghum, Wheat, Millet and Maize. Other crops such as lentil, bean, and peas were also produced.

Table 4. 7: Rural Households' Crop Production, 2013

Types of Crops	Reporting Farmers	Average Production (Quintals)
Cereal	221	13.86
Pulses	30	1.05
Vegetable	59	19.02
Honey	108	0.49

Source: Field survey, 2013

Sample farmers were asked to indicate their harvest in 2012/13 by crop types. Table 4.7 showed that the sample rural households produced different types of crops. All sample respondents produced cereals (*Teff*, Barley, Wheat, Maize and Millet); and on average a household head produced about 14 quintals of cereals. This production showed a slight difference from the national and regional average cereal production of private peasant holdings for *Meher* or main season of 2012/13, that was 14.46 quintals and 14.33 quintals respectively. Few households in the study area for market purpose also produced pulses. On average about 1 quintal of pulses was produced in the study area by farmers growing pulses in 2012/13 agricultural year. The sample farmers' production of pulses was slightly lower than the national average (1.25 quintal) and almost half of the regional average of pulses production per household (1.82 quintal) (CSA, 2013b). Those engaged in producing vegetables also focused on market. The vegetable produced include some root crops such as onion and potato. Vegetable production in the study area was by far higher than the national average (5.74 quintal). Such huge production of vegetable was a good indicator of a potential for the existence of a strong rural-urban linkage.

4.2.3 Marketing of Output and Other Sources of Income

It is clear that household that produce for the market have better opportunities to buy agricultural inputs, consumption goods of various types, and to utilize other public services provided by urban centers. As indicated in Table 4.8, about 78% of the sample rural households reported that they produced cereal crops for family consumption as a result they did not sell their product. The bulk of the cereal production was used for consumption. It was sometimes sold when there was a surplus or a need for cash income. However, about 70% of the sample rural households reported that they sold some part of their livestock and livestock products. Similarly, 46% of the sample respondents sold their honey produce and about 27% of the sample sells their vegetable production.

Table 4. 8: Reason for Production and Sale of Product

Type of Production and number of participants	Reason for production		Sold some part	
	For food	Food/Income	Yes	No
Crop	173 (78.3)	48 (21.7)	48 (22)	173 (78)
Livestock	-	210 (100)	155 (70)	66 (30)
Poultry	-	209 (100)	153 (70)	68 (30)
Vegetables/fruit	-	59 (100)	59(27)	162 (73)
Honey	-	108 (100)	102 (46)	119 (54)

Source: Field survey, 2013

Those who did not have surpluses for sale, cover their expenses from income generated by non-farm activities and crop sharing. As indicated in Table 4.9, about 79% of the sample rural households reported that they were engaged in non-farm/off-farm activities to cover their expenses. Similarly, 34% of sample respondents said, they participated in crop sharing to overcome the problem. It is however important to note that, there were farmers who participated both in non-farm/off-farm activities and crop sharing. The rest (8%) of respondents took other measures such as migrating to the western part of the region to collect gum from frankincense tree. The picture indicated that non-farm activities were very important in supporting families with meager income from agriculture. The engagement in non-farm/off-farm activities found to be higher for *Tabia* BeteYohannes and EndabaGerima. This was mainly due to the availability of job in the textile and marble factory for BeteYohanes and the extraction of stone for EndabaGerima

which was sold in Adwa town. It thus appears that rural-urban linkage had a contribution to the improvement of the livelihood of the rural people in the study area.

Table 4. 9: Households by Source of Other Income

Tabia	Source of other income (in %)		
	Non-farm activities	**Crop sharing**	**Other**
BeteYhaness	23.5	15.4	-
EndabaGerima	28.4	4.7	0.47
Soloda	17.7	8.4	0.47
TahtayLogomti	9.3	5.6	7
Total	**78.9**	**34.1**	**7.90**

Source: Field survey, 2013

4.2.4 Economic Status of Sample Rural Households

Stratified household surveys allow a clear understanding of how the nature of local rural-urban linkages affects the livelihoods of different groups (Tacoli, 1998b). The diversity of livelihood activities and the multiple ways by which households combine the available means of livelihoods clearly imply that rural people are quite heterogeneous and unequal in terms of their well-being. In the light of this, attempt has been made to understand how the farmers in the study area perceived the inequalities among themselves and what attributes are mostly considered by them to label a household as either better-off or worse-off. Community's major indicators were used to identify members as poor or non-poor. The informant used the farm size and livestock ownership as a major proxy indicator to categorize the households' economic status.

The sample rural households in the study area were categorized into three strata of well-being: *Haftam* (rich), *Maekelay* (middle), and *Deka* (poor). Here important points must keep in mind when interpreting the farmers' stratification. The concept 'rich' must be understood as a relative term, since 'rich' may not exist in absolute terms in the rural setting under consideration. A household that was considered as rich because of its better-off situation compared to other members in the community might be intermediate (middle-income group) when compared with farmers in another community. It is not

possible to make a clear-cut demarcation between various strata, and it is thus better to think of a continuum between the two extremes, that is, the poor and the rich.

The criteria used by the community were land holding and herd size. Accordingly, farmers in the 'rich' group possessed land > 0.5 ha, oxen ≥ 2, cows ≥ 2, and ≥1donkey; those in the 'middle' group farmers possessed 0.5 ha, two oxen and one cow and those in the 'poor' group possessed land holdings < 0.5 ha and owned one or no oxen, one or no cow and few other. Here the fertility of soil was also taken in to consideration. Some farmers may have two oxen and two cows with 0.5 hectare of farmland but if the soil is infertile they may be categorized under the middle-income group. Accordingly, the share of sample rural households as rich was 44 (20%), as middle-income 77 (35%) and as poor is 100 (45%). The majority of the rural households were non-rich farmers that require more interventions to improve their livelihood.

Socio-Cultural Characteristics by Economic Status

There could be a number of distinctive household characteristics that determine the well being of rural households. This section tried to focus on the basic characteristics of sample rural households and their contribution to the economic status of the respondents in the study area. The socio-cultural characteristics of the sample rural households versus the economic status are described below.

Sex and Education Level

The majority of male-headed (32.6%) and female-headed (12.7%) sample rural households were found under the poor income group. About 30% male-headed and 5% female-headed sample respondents also categorized under the middle-income group. About 17.2% and 2.7% of the rich income group belongs to the male-headed and female-headed sample households respectively. Furthermore, the Chi-square test confirmed that there was a significance systematic association between household head's sex and the economic status at 95% confidence interval. There was a significant association between sex and the household's economic status (X^2=6.58, df=2, p=0.037) (Table 4.10).

Table 4. 10: Social Characteristics against Economic Status

Description		Economic status			Chi Square Statistics
		Rich	Middle	Poor	
Sex	Male-176 (79.6)	38 (17.2)	66 (29.8)	72 (32.6)	**6.58****
	Female-45 (20.4)	6 (2.7)	11 (5.0)	28 (12.7)	
Educational Status	Illiterate-54 (24.4)	13 (24.1)	22 (40.7)	19 (35.2)	**13.44****
	Primary-141(63.8)	30 (21.3)	50 (35..5)	61 (43.2)	
	Secondary-26 (11.8)	1 (3.9)	5 (19.2)	20 (76.9)	

Source: Field survey, 2013; **-Significant α=0.05

Regarding the educational status of household heads, the result in Table 4.10 indicated that, household heads that found at the primary and illiterate education level did not show big difference among poor and non-poor income groups. Majority of the households were from the poor and middle-income groups. However, a big difference was observed with those who have secondary school level households. Majority (77%) of the sample households with secondary school level were among the poor categories. It was only 4% of the sample households who attend secondary school and are from the rich income group. The middle-income group accounts for 19% of the sample rural households with this education level. In the same vein, the educational status of household's association with the status of economy found to be significant. Accordingly, the Chi-square test (X2=13.44, df=4, p=0.009) at 95% confidence interval, revealed that education level of the sample households shows a significance systematic association with the economic status. Therefore, for those who are poor but relatively with better education, different strategies can be devised in order to help them.

Age, Family size, Farm size and Number of plots

To see whether there exists statistically significant mean difference among the variables (Age, Family size, Farm size and Number of plots) and the economic status of the sample rural households, One-way ANOVA test was employed. The result is presented below.

Table 4. 11: Socio-Cultural Characteristics against Economic Status

Description		Economic status		
		Rich	**Middle**	**Poor**
Age	Mean-44.4	46.89	46.90	41.39
	S.D-9.74	11.429	8.618	8.792
	ANOVA	**9.396*** **		
Family Size	Mean-5.12	5.27	5.39	4.85
	ANOVA	**2.408**		
Farm Size	Mean0.455	0.61	0.54	0.32
	S.D-0.2	0.17	0.14	0.17
	ANOVA	**66.037*** **		
Number of Plots	Mean3.79	4.61	4.64	2.78
	S.D-1.94	2.01	1.84	1.45
	ANOVA	**31.781*** **		

Source: Field survey, 2013 ******* -Significant at α=0.01

The average age of sample rural households was 44.4 years with a standard deviation of 9.74 years (Table 4.11). The mean age had shown a variation between the three income groups. Those who are under the poor income group were relatively younger (41.39 years) than their rich counter parts (46.89 years) and middle-income groups (46.9 years). The One-Way ANOVA test for this variable confirmed that a significant mean difference was observed between age and economic status of sample households. The result showed an overall significant effect of the average age on the economic status of a household (F=9.396, df=2, p=0.001). Scheffe's range test found that the poor income group differ from the middle-income group (p=0.001) and the rich income group (p=0.006) at 95% confidence interval but no other significant difference were found. This age difference could have its own implication with regard to the accessibility of natural resource, mainly access to farm land since most of the young people have no an access to land.

Regarding the household's family size, the result revealed that (Table 4.11), the mean household size was 5.12 persons, which is above the national average family size of 4.9 persons per household (CSA, 2012). The variation among the income groups was not significant. Contrary to the thinking that poor households have larger families than the non-poor, the results showed that there were no differences between the two groups in household size, although the mean household size for the poor was slightly lower (4.85

members) than the non-poor households (5.3 members). The ANOVA test for the income groups confirmed that a significant mean difference was not observed between family size and economic status of sample households.

The study also depicted that (Table 4.11), the mean farmland size for the total sample rural households was 0.46 hectare with a standard deviation of 0.2 hectare. A visible difference was observed between the poor and the non-poor. The average farm size of the poor sample rural households was 0.32 hectare (far below the national average land holding 0.81 hectare per household) while the middle and the rich household had 0.54 hectare and 0.61 hectare of land respectively. The ANOVA result showed an overall significant effect of the total farm size on the economic status of a household ($F=66.037$, $df=2$, $p=0.001$). Scheffe's range test found that the poor income group differ from the middle-income group ($p=0.01$) and the rich income group ($p=0.01$) and similarly the rich differ from the middle-income group ($p=0.07$). Therefore, the economic status of the sample rural households was affected by farm size.

The study also showed that (Table 4.11), the average number of plots for the total sample rural households was 3.79 with a standard deviation of 1.94. A visible difference was shown between the poor and its counter parts. The average number of plots of the poor sample rural households was 2.78 while the number of plots for the middle and the rich income groups was 4.64 and 4.61 respectively. The result revealed that the mean difference was significant. The ANOVA test confirmed a significant mean difference (at 99% confidence interval) between average number of farm plots and economic status of sample households. The result showed an overall significant effect of the total farm plots on the economic status of a household ($F=31.781$, $df=2$, $p=0.001$). Scheffe's range test found that the poor income group differ from the middle-income group ($p=0.01$) and the rich income group ($p=0.01$) but no other significant difference were found. Therefore, the average number farm plots affect the economic status of the sample rural households. The higher number of plots of land by the rich and middle-income groups could be attributed by the land arrangements made with the poor farmers. It was common to see that the poor give their lands to the rich and middle-income groups for crop sharing (crop share out by the poor and crop share in by the rich and middle-income group farmers).

4.3 Characteristics of Sample Urban Households

4.3.1 Demography

The basic demographic characteristic of the sample urban households is provided in Table 4.12. The entire sample urban households were Tigraway in ethnicity. More than two-third (69.5%) of the sample households were male-headed. This was consistent with the national data that over 64% of urban households headed by males (EDHS, 2012). The average household size of the sample population was 3.28, which was slightly lower than the regional urban average (3.4) and the national urban average (3.7) (EDHS, 2012). Moreover, the majority of the respondents had at least secondary education level that was quite higher than the rural counterparts with only 12% having secondary educational attainment. Only 6% of the sample urban households were illiterate, while for the rural households it reached 24.4%. Similarly, this data was higher than the regional urban literacy rate (77%), and the national urban literacy rate (78.1%) (CSA, 2013a).

Table 4.12: Basic Demographic Characteristics of Urban Households

Variable	Affiliation	Number	Percentage
Religion	Orthodox	95	72.5
	Muslim	34	26.0
	Other	2	1.5
Sex	Male	91	69.5
	Female	40	30.5
Marital Status	Single	42	32.0
	Married	72	55.0
	Divorced	6	4.6
	Widowed	11	8.4
Education	Illiterate	8	6.1
	Primary	34	26.0
	Secondary	50	38.2
	TVET/ Diploma	31	23.6
	Degree and above	8	6.1

Source: Field survey, 2013

4.3.2 Occupational Structure of Urban Households

Factory workers and government employees account for 35% of the sample urban respondents followed by 13.7% of carpenter/builder/weaver. Some respondents were also organized under different cooperatives in the town. Some of the sample respondents, particularly those who were engaged in weaving and petty trade got their inputs (cotton, butter, hen, egg, etc) from the surrounding rural areas. Table 4.13 showed the occupational structure of sample urban households.

Table 4.13: Occupational Structure of Urban Respondents

Occupation Type	Number	Percentage
Factory workers	24	18.3
Government employee	22	16.8
Carpenter/Builder/Weaver	18	13.7
Cooperatives	12	9.2
Repair/Technicians/Driver	12	9.2
Laborers	8	6.1
Pensioner	5	3.8
Other (Hair dressers, Tailor, '*Tella*' sellers,)	30	22.9

Source: Field survey, 2013

4.4 General Characteristics of the Traders in Adwa

Different types of small scale trading activities were carried out in the study area. About 45 (81.8%) of the sample traders were retail traders while the rest 10 (18.2%) were wholesale traders. Majority of these trade activities owned privately. Around 42% of these traders sourced their item from other towns followed by item sourced from the rural area of the *Wereda* (31%) and the town itself (27 %). Mostly traders who were involved in a rural-urban linkage were engaged in retail, grain, livestock and livestock product, rural vendors, suppliers of agricultural inputs, and spice and vegetable trades. Their capital raged between 5000 Birr and 250 000 Birr (Table 4.14). The main features of these types of trade are discussed below.

Table 4.14: Category of Traders and their Major Source of Items

Trade category	Source of item			Export	Capital (000')
	Rural	Adwa town	Outside Adwa		
Grain traders (10)	4	-	6	-	5-100
Livestock (8)	8	-	-	5 (Honey)	25-100
Rural vendors (8)	-	8	-	-	2-40
Agricultural input suppliers (7)	-	-	7	-	12-50
Vegetable and spice (5)	5	-	-	-	1-30
Hide and skin (4)	4	4	-	4	41-150
Retail/Whole sale (13)	-	3	10	-	2-250
Total (55)	**17 (31)**	**15 (27)**	**23 (42)**	**9 (16.4)**	

Source: Field survey, 2013

4.4.1 Grain Traders

Among the sample of urban traders, ten were grain traders. Their capital ranges from 5,000 Birr to 100,000 Birr with an average capital of 48,000 Birr. The sources for their capital were self, relatives and agreement made with other traders. About 50% of the grain trade respondents indicated that they purchased their product from the surrounding farmers. While the rest (50%) of the grain traders mentioned that, they invariably purchased grain from outside the *Wereda* (most of it from outside the region) and the places of purchase vary according to grain type. Gojam, Kemssie, Zarema, Adi-Hageray, Humera, and Addis Ababa were the major suppliers of *Teff*, Millet, Maize and Sorghum to the town. Therefore, though some crops produced in the surrounding rural area of Adwa and exhibits rural-urban linkage, Adwa was also grain-importing town. The main market day for grain traders is Saturday.

4.4.2 Retail and Whole sale Traders

Retail traders in the town were small shop owners. They operate privately and sell consumer goods. Their capital ranges from 2000 Birr to 250,000 Birr with an average of 58,500 Birr. Around two-third or 62% were engaged in retail trade activity. They purchased items from whole sellers in the towns and surrounding farmers. There was

therefore a linkage between retail traders and rural suppliers. Those engaged in the wholesale trade got their items predominantly from Addis Ababa. The customers for the retailers and whole sellers were both the urban and rural dwellers of Adwa. Like the grain traders, their main market day is Saturday.

4.4.3 Hides and Skin Traders

Four hides and skin businesses were owned privately in the town. Their capital ranges from 41,000 Birr to 150,000 Birr. Though they sell their product in the form of wholesale, all of them were under the retail trade type. They collected hides and skins from the urban dwellers and surrounding rural areas. The town is a collecting center to supply the Addis Ababa market and Wukro Sheba Leather factory. Unlike the grain traders and retailers, their main market days are religious holidays.

4.4.4 Vegetable and Spice Traders

Five traders were interviewed under this category. This trade category was a privately owned business activity. Their capital ranges from 1000 Birr to 30,000 Birr. Their sources of capital were self and relatives. The place of purchase is Adwa for vegetables and outside the town for spices and some vegetables. Onion, tomato and potato came from Mekelle while pepper, spices, banana, and orange came from Addis Ababa and other parts of the region. Therefore, Adwa was vegetable and spices importing town. The onion, tomato and potato wholesale traders sell their item to retailers on Friday evening and Saturday morning. While the retailers sell their items on Saturday. In, general, Saturday is the main market day for this type of trade. The traders got vegetables from the rural farmers and again sell the spices to these rural dwellers. This exhibits a rural urban linkage in terms of these products.

4.4.5 Livestock and Livestock Products

Retailers who were engaged in selling and buying of livestock and livestock products were included in this study. They owned a capital of 25,000 Birr to 100,000 Birr to run their business. All of them got their items from the surrounding rural areas of Adwa town and sell these items to the urban dwellers and other traders outside the town and the region. Particularly, those who were participating in collecting and selling honey had customers outside the town like Adigrat, Mekelle and Addis Ababa. So, this trade category was also illustrating rural-urban linkage in the study area.

4.4.6 Rural Vendors

The study had included eight rural vendors who were accessible during the survey. These traders had a capital that ranges from 2,000 Birr to 40,000 Birr. All rural vendors were retail traders who got their items from the urban traders of Adwa town. These rural vendors played a vital role in strengthening the rural-urban linkage in the study area by supplying items to the rural dwellers. This situation had also its own implication on the production capacity of the farmers since farmers can save time they would otherwise have spent by visiting the town.

CHAPTER FIVE

RURAL-URBAN LINKAGES OF ADWA TOWN AND THE SURROUNDING: ITS NATURE AND DETERMINANT FACTORS

It is commonly agreed that rural-urban linkage plays a crucial role in the effort of poverty reduction and economic growth. Cognizant of this fact, understanding the characteristics of the specific local context of rural-urban linkage and recognizing diversity among locality and households have been key elements for researchers, policy makers and development actors.

As indicated in the literature, the linkages between small towns and its hinterland could be categorized into different types: production, marketing, consumption, financial and environmental linkages. The patterns of linkages could be identified from the frequency of visit of farm households to the nearby small towns. The present chapter, therefore, examined the nature, extent and direction of urban-rural linkages in the study area. It also treated the determinants of rural-urban linkage in the study area.

5.1 Production Linkages

Production linkages are manifested in two forms: backward and forward production linkages. Backward production linkage occurs when farmers in the hinterland utilize agricultural inputs such as fertilizers, improved seeds, insecticides, herbicides and the like from the nearby town. Forward production linkages on the other hand involve the processing and distribution of agricultural outputs of the hinterland by firms in the nearby town.

Agricultural inputs help to increase agricultural productivity by nourishing crops with minerals that are necessary for production and controlling pests and weeds. Therefore, small towns are expected to improve farmers' access to agricultural inputs. The extent to which local farmers use agricultural inputs and extension services, and the capacity small

towns to provide these services to the local farmers could reveal the impact or role of small towns on the hinterlands. Moreover, it could reveal the nature of backward production linkages the hinterlands may have with the small towns.

Table 5. 1: Rural Households' Utilization of Agricultural Inputs, 2012/13

Agricultural Input	Reported as "Yes"	Average Expenditure	Source	
	Number (%)		Rural	Urban
Fertilizer	206 (93.2)	1264.78	-	100%
Improved seed	116 (52.5)	279.80	-	100%
Herbicides & Insecticide	150 (67.9)	112.81	-	100%
Modern bee hive	75 (33.9)	-	-	100%
Technology to lift water	52 (23.5)	-	13.46%	86.54%
Total Respondents	**221**			

Source: Field survey, 2013

The backward production linkage was shown in the study area via the use of agricultural inputs. Table 5.1 depicted that the predominant type of agricultural inputs used by the sample rural households in Adwa *Wereda*. These include fertilizers, insecticides, herbicides, improved seeds, modern beehive and irrigation related items. All the households used at least one type of input in 2012/13. However, beside the economic consideration, the degree (for example frequency and quantity) and reason of use differed from household to household. For example, some households may not use improved seed if they do have an early hybridized seed; some households may use natural fertilizer and the like. Regarding the pattern of use of these inputs, commercial fertilizer (Urea and DAP) was the dominant in the study area. As Table 5.1 shows, the overwhelming majority (93.2%) of the sample rural households used fertilizers. The fertilizer was collected from the town and distributed to the households in different *Kebeles* by the cooperatives. Therefore, every household was not expected to visit the town to collect the fertilizer. In this way, the cooperatives and the farmers' union played an important role in facilitating the rural-urban linkage through the supply of fertilizers to the households. However, this does not mean that the households use sufficient amount of commercial fertilizer. The small amount of commercial fertilizer use tends to reduce the amount of crop production. This in turn, could have a negative impact on the linkage by limiting food crop supply to urban centers.

On the other hand, about two-third (67.9%) of the sample respondents used herbicides and insecticides. These chemical were mainly used when weeds and insets occurred. Farmers in the study area were solely dependent on urban area (urban trader in Adwa town) for supply of these herbicides and insecticides. About half or 52.5 % of the sample rural households used improved seeds, which is provided by the agricultural bureau and distributed by the cooperatives. The provision of inputs by the farmers' union and cooperatives saved farmers' time. The backward production linkage in the study area was reflected mainly through farmers' use of herbicides and insecticides supplied from Adwa town.

In addition to insecticides and herbicides, the town also provided technologies for irrigation since about 24% of sample households used water technologies to lift water for irrigation purpose. Of these, about 87% of the farmers purchased the equipments from Adwa town. Backward production linkage was thus supported by the provision of equipments used for irrigation. Similarly, the modern beehives were completely supplied to the farmers from the town. This also created job opportunity for urban residents who were engaged in small and medium scale enterprises in the production or manufacturing of the equipments. Such provisions of inputs had a role in increasing the production capacity of vegetables and honey marketed in Adwa town. In addition, the farmers' union (situated in the town) sells different agricultural equipments such as sickle, sprayer, and hoe to the rural households in the study area. The union was on its verge to own an animal feed processing unit which mainly aims at supporting the farmers in supplying animal feed. Therefore, this type of linkages helped to improve the livelihood of the rural households in the study area.

With regard to the expenditure on agricultural inputs, fertilizer ranked first followed by improved seed and herbicides. On average a farmer spent about 1260 Birr for fertilizer, and this was almost similar to the price of one quintal of fertilizer in the study area. This shows that most of the sample respondents who used fertilizers applied one quintal for their plots. As the data in Table 5.1 shows, 112 Birr was the average expenditure of the sample respondents for the purchase of herbicides and insecticides.

Even though the respondents reported that they used improved seeds, as Table 5.1 shows, the use of improved seed was the least used (about half the respondents used it) from the agricultural inputs that the farmers used to increase their productivity. The main reason reported by the respondents not to use improved seeds was lack of money or high cost followed by unavailability of the desired improved seed. Furthermore, as the farmers mostly used early-hybridized seeds, they ignored to buy and use improved seeds from the Agricultural office. The respondents also suggested that there were different reasons for not using herbicides and insecticides. The major reasons reported by different farmers were high cost and irrelevance of the inputs (mainly they did not face major problems with pests and weeds). In addition, few respondents reported that they did not need to use them, as they had beehives. They believed that the use of these chemicals had a detrimental effect on the bees.

However, the use of small amount of agricultural inputs decreased rural-urban linkage in terms of grain trade and food crop supply to the town. The low usage of improved seeds resulted in low yield. This weakened the flows of agricultural produce to the town and possibly encourages non-farm activities and out-migration of people. This is in line with that of Herani (2008), in Sub-Saharan Africa, diversification can be represented as a failure of agriculture to produce a sufficient livelihood for a substantial proportion of rural dwellers. Yet livelihood diversification may also develop as coping response to the loss of capital assets needed for undertaking conventional on-farm production. In Pakistan, land shortage has played significant role in approaching rural people towards a diversified livelihood strategy. However, this is different from Tegegn's (2007) idea that "the low usage of inputs such as irrigation and fertilizers discourages non-agricultural activities".

Almost all sample households did not sell any part of their farm products to processing plants found in Adwa town because the processing plants were not capable of absorbing products from farmers. Agro-processing industries are the main types of industries with which agriculture has significant forward production linkage. Tomato packing (which has a capacity of processing 18 quintals of tomato per day) and flour factory are established in the town. These industries could strengthen the forward linkage in the study area.

However, the flour factory gets its input (wheat) from the country's capital (most of it imported from abroad). One of the reasons for such weak agriculture and industry linkage in terms of processing agricultural raw material was the subsistence nature of agriculture, which was not capable of producing surplus output to be used as industrial raw material (Tegegne, 2007). However, in case of the tomato packing factory, it did not go with the above mentioned reason. The tomato packing factory was in its early stage to use tomato production of the hinterland. Some farmers were able to produce 150 quintals of tomato hoping that the factory could purchase their product. Though, excessive tomato production was observed in the market, the existing tomato processing and packing plant in Adwa town was unable to absorb such surplus products. Such huge amount of tomato was produced due to the initiatives taken by the development agents (DAs) hoping that the tomato packing factory could absorb the production. The farmers were highly persuaded by such information and able to produce large amount of tomato.

Figure 5. 1: Excess Tomato production selling by farmers on carts, Adwa market, 2013

Figure 5.1 shows that a farmer selling his tomato in a horse driven cart at the town market since he could not get any wholesaler that can buy his product. During the field work, tomato was sold at 3 Birr per Kilogram. It was common to see such carts at the market. This shows that though there was room for the forward production linkage, the town was not in a position to absorb the hinterland's productions.

Thus, there was little or no industrial base linked to the hinterlands. The town has a large industrial base (Textile, marble, shoe, flour), which do not have any meaningful direct link with the rural people or rural production processes in the hinterland. These industrial activities were outward-directed and export-oriented, and hence contributed very little to the overall local economy, except for the few job opportunities they created and associated market opportunities for food crops from the rural hinterland. This is similar to the nation's fashion that there is a dependence of the industrial sector on imported raw materials.

Extension service plays a great role in increasing agricultural productivity of the rural people. The whole sample respondents reported that they had got different services such as farm extension service, agricultural tools and veterinary services from the town. This had a positive impact on strengthening rural-urban linkage in the study area. Those who were engaged in irrigation also got their equipment and fuel from the town. Households also bought the modern beehive from Adwa town. This shows that the production linkage between the town and the hinterland was very strong.

It is believed that the Farmers' Training Center (FTC) would play a great role in improving the production capacity of the farmers and as a result improve their livelihood. The ultimate goal of these FTCs is to improve the overall capacity of farmers to boost their production by equipping them with the necessary knowledge, skill and technology. In line with the provision of agricultural extension, the issue of FTC was raised during the Focus Group Discussions (FGDs). According to the result from the FGDs, the FTCs were not operational in most cases. Some farmers said "We heard that there is an FTC in our *Tabia*". All farmers did not use these FTCs, which were supposed to be demonstration sites for farmers. The FTCs were not organized in a way that they can effectively serve the purpose they are meant for. Each *Tabia* had one or two DA(s). The DAs spent most of their time on the farmers' farm or on the water shade works of their respective *Tabia*. They did not get sufficient time to cover their tasks on the field let alone to do activities in the FTCs and help the farmers to acquire knowledge about the new and better agricultural techniques and technologies. Though the government and the

community spent large amount of money in constructing these FTCs, most of them were not functional. However, this does not mean they did not provide services at all. They were not changing the life of the farmers as expected. Such weak service of these FTCs had its own impact on weakening the rural-urban linkage through the low supply of agricultural productivity.

Generally, the findings disclosed that the level of production rural-urban linkage in the study area was very low or weak. The backward production linkage was relatively better than the forward production linkage. Availability of agricultural inputs in the nearby town was the main facilitator for the existing backward production linkage. The backward production linkage in the study area was reflected mainly through farmers' use of herbicides and insecticides, modern beehives and irrigation equipments supplied from Adwa town. The forward production was almost missing in the study area. Almost all sample households did not sell any part of their farm products to processing plants found in Adwa town. The following section discusses the marketing linkage in the study area.

5.2 Marketing Linkages

Market is a place where products from both urban and rural areas are exchanged between the suppliers and consumers. Market as a channel of exchange can either be formal, set by central or local government, or informal, where trade is spontaneously developed.

Marketing linkage is manifested when the urban dwellers and traders purchase the agricultural produce from the rural households. The input to the process of marketing linkage is, therefore, agricultural produce and the output is the consumption of the produce by the urban consumers. It is also manifested when rural households purchase goods from the town. Usually it includes the flows of agricultural and manufacturing goods between urban and rural areas (White, 2005).

Marketing linkage is the main form of rural-urban linkage. Food grain, livestock and livestock product, vegetable, honey and merchandise flow between urban and rural areas. Marketing channels for agricultural produce are the means by which food grains flow from rural to urban areas. The simplest link between the producers and consumers is where agricultural producers sell their own produces directly to the consumers. However, marketing linkage between the agricultural producers and urban consumers is mostly provided through a network of traders or intermediaries.

The sample rural households stated different reasons why they were engaged in producing different things. Though there was variation among the items produced, all farmers produced for own consumption and for income generation. This shows that all farmers sold at least some amount of their produce (crop, animals, vegetables and fruits, and honey) at the market. About 91% of sample rural respondents confirmed that they sold some part of their output and on average they received about 4008 Birr from the sale of these items in Adwa town (Table 5.2).

Table 5.2: Production Types and Income Earned in 2012/13

Type of Production	**Sold some part of the product**	**Average Income (Birr)**
Crop	48 (21.7%)	3531
Animal	155 (70.1%)	3069
Vegetables/fruits	59 (26.9%)	8446
Honey	102 (46.2%)	3091
Total-221	**200 (90.5)**	**4008**

Source: Field survey, 2013

Though there could be traders and mediators between producers and last consumers, all sample rural respondents sold their livestock and livestock products directly to the consumers. This situation created an opportunity for both the farmers and urban dwellers to bargain fairly on the price and farmers could not be misled by brokers and traders. Therefore, unlike the other cases in which most marketing linkage between agricultural producers and traders was provided by networks and mediators, here producers easily reached the consumers and traders directly.

The detail of agricultural marketing is given below.

5.2.1 Grain Output and Marketing Channels

Although all sample rural households produce cereal crops, the majority did not own enough to meet family subsistence needs. The *Wereda* was not well suited for crop production because of the terrain that limits cultivable land. Many complained that the land did not produce enough for the family. In the study area, agricultural products supplied to Adwa market from the hinterlands were very small. A high share of farmers generated only small surpluses for market sales. As shown in Table 5.2 the majority of the sample rural households (around 78%) reported that they did not sell any part of their agricultural produce (crop) to the town. The main reason was the absence of surplus produces (production deficiency). Some farmers even bought grains from the market. An observation in the market revealed that farmers brought small amount of their agricultural produce to the market. Most of the produces were *'Key Teff'*, Wheat, Beans, Linseed and the like. Most of the persons who sold these produces in Adwa town came from other nearby *Weredas*. The main cereal on the market during the post harvest season from December to March was '*Teff*'. Some of the '*Teff*' that was available on the market came from nearby *Weredas* (Nebelet and EdagaArbi) and some of it destined for markets in Axum and Mekelle. Among the sample respondents, who sold their crop product last year, reported that they sold it directly to the consumers in the town. This has its own implication on the income of the rural households as well as the customers. The existing marketing linkage via grain marketing was limited. The sample farmers who sold these crop products in Adwa market earned an average income of 3531 Birr which ranged from 200 Birr to 22500 Birr. This income was earned by 21.7% of the total sample rural households (Table 5.2).

As evident from Table 5.3, among the rural households with different economic status, it was the middle-income group (about 62.5%) takes the lion share from those who sold their crops to the market. This is followed by the rich (22.9%) and poor (14.6%) income groups. This could have its own implication for invest-reinvestment in different activities by this group; which is important part of their livelihood. These households can invest the income earned from crop sale on other income generating activities such as irrigation, apiculture and the like. However, in terms of income it was the rich income group who

earned the highest income, that was, about 4204 Birr on average per household. The middle-income and poor groups earned on average about 3414 Birr and 1507 Birr respectively from crop sale. The poor earned less than half of the middle-income groups' income. The poor sold their crop product for survival or to purchase other basic items or food stuff. However, in most cases the non-poor sold their product for additional income or to reinvest it in other source of income generating activities.

Table 5.3: Income Earned from Crop Sale and Economic Status of Respondents

Description	Economic Status		
	Rich	Middle	Poor
Crop sale	11 (22.9%)	30 (62.5%)	7 (14.6%)
Average Income (3531 Birr)	4204.55	3414.85	1507.14

Source: Field survey, 2013

5.2.2 Purchase of Grain Crops by Urban Households

Towns are playing a worthwhile role of serving as a collecting and distributing center for the surrounding hinterlands agricultural produce and thereby linking the hinterlands with the wider regional and national economies (Tacoli, 2003). But some towns could get agricultural produces from distant rural areas or from another urban center due to unavailability or quality differences in agricultural produces. One of the marketing linkages of urban households to the rural households is through purchasing of food grain.

Table 5.4: Urban Households' Purchase of Food Grain in Adwa Town (March, 2013)

Type of crops	Reporting Hhs.	Average Consumption		Source of item	
		Kg	Birr	Traders	Farmers
Teff	107 (81.7)	40.79	616.78	66 (56.4)	51 (43.6)
Wheat	46 (35.1)	34.35	359.87		
Sorghum	23 (17.6)	34.78	286.09		
Maize	16 (12.2)	16.25	119.33		
Others	5 (3.8)	22	373.00		
Total-131	**117 (89.3)**	**-**		**117**	

Source: Field survey, 2013

As depicted in Table 5.4, about 89% of the sample urban households purchased at least one crop item in 2013. *Teff* and Wheat were the major grains bought by the urban households. About 81.7% of sample urban households reported that they purchased *Teff*' and on average spent 617 Birr to purchase 41 Kilogram of *Teff*' on a monthly base. In addition to this, a considerable proportion of the sample urban households, that is, 35% and 18% purchased Wheat and Sorghum respectively with an average monthly expenditure of 360 Birr and 286 Birr to purchase 35 Kilogram of the items. However, it was only less than half (43.6%) of the urban households who reported to be dependent upon purchasing directly the crops from the farmers. The rest (56.4%) reported that, they purchased the crops in market from traders. This shows the linkage in terms of crop production between producers and consumers was limited or weak. It could be attributed to the small amount of crop production of the area.

Urban households relied on grain traders who serve as a bridge between the farmers and the urban consumers. This was similar with the region's patterns of food consumption in which over 60% of urban population in Tigray purchase food items from main shops (WFP & UNICEF, 2009). Therefore, this shows that a considerable rural population (at least 43% of urban respondents source the crop from farmers) was leading their livelihood by selling crop product to the urban population. As Table 5.4 indicates, even if most of the urban households (89.3%) bought grain crops, the remaining urban households did not. Those respondents who did not buy crops last year, were mainly engaged in rural agriculture and some received crops from rural relatives. This also clearly showed how the rural and urban areas are linked in terms of crop production supply. Some urban residents who own farm land in the rural area gave their farm land to the rural farmers through the crop sharing agreement. Therefore, the livelihood of some rural population is also supported by such agreements.

In line with the importance of grain traders in supplying grains, grain traders were interviewed from where they purchase the grain crops. All traders sourced the crop items they sold from other traders outside Adwa. Karakore and Zarema are the major sources for *Teff*'. Millet is collected from Adi-Hageray and Adi-Arbaete; Beans mainly came from Mekelle and Gonder. During the drought season from May to September, Sorghum

and Maize are brought into the area from Humera and Gojam respectively. Pulses are brought into the area throughout the year. Thus the hinterland is not the major source of grain for urban households.

In general the hinterland was not satisfying the grain crops demand of the urban dwellers. Adwa town created linkage with other towns in the case of grain crops. However, the town serves as an intermediate market for Maize and Sorghum that were headed to EdagaArbi; and *Teff* headed to Mekelle. This finding was consistent with Tegegne's (2005) result that grain marketing was of course constrained by factors such as subsistence farming.

5.2.3 Livestock and Livestock Product Marketing Channels

Livestock keeping in the study area was undertaken for income, food and social security reasons (focus on income). It was also an indicator of wealth. A rural household without livestock is vulnerable in the case of an urgent financial obligation especially for the poor. As indicated in Table 5.5, about 70% of the sample rural households reported that they sold livestock and/or livestock products during 2012/13. These sample rural households sold their livestock in Adwa town directly to the consumers. This indicates a strong linkage between the farmers and the urban consumers in case of livestock and livestock products. There was enough supply of livestock and livestock products from the surrounding hinterlands to Adwa town. In general, goats, cattle, and chickens dominate the livestock markets. Goats were also sold from Adwa to destination markets in Rama. Chickens are sold to markets in Shire, Rama and Adigrat, supplied from Adwa. However, this does not mean that the hinterland produces sufficient livestock and livestock products. The insufficient grazing area and access to market has an impact for the low amount of livestock owned by the farmers.

An FGD conducted in one of the *Tabias* (TahtayLogomti) revealed that though they had a capacity to produce more milk, they could not get market in the town. This could be attributed to the fact that this *Tabia* is distant (26Km) from the town. They could not supply the milk on a daily basis because it was not easy to transport the milk to Adwa

town. The effect of distance and access to market is witnessed by the situation in *Tabia* TahtayLogomti in which peasants in the village failed to invest in livestock (particularly cow) on commercial basis even if the village was relatively suitable for animal husbandry. Households in this village raised cow mainly as a buffer stock. As a result, almost the whole population of that *Tabia* was forced to have only one milk cow. Such poor marketing linkage with the nearby town could negatively influence the livelihood of the rural households.

Table 5. 5: Marketing on Livestock, Poultry and Honey against Economic Status

Products sold at Adwa town	**Average Income**	**Economic Status**		
		Rich	**Middle**	**Poor**
Livestock -70.1%	2765*	371%, 2713*	81%, 2651*	62%), 2906*
Poultry -69.2%	304*	68%, 342*	79%, 306*	62%), 284*
Honey -46.2%	3091*	46%, 3800*	63%, 3218*	34%, 3946*
Total (221)		**44**	**77**	**100**

Source: Field survey, 2013

*Income ranges for Livestock 100-9100 Birr; Poultry 50-2500; Honey 560-19000

The data in Table 5.5 indicated that sample rural households who sold their livestock and/or livestock product to urban consumers in Adwa markets earned 2765 Birr. More than two-third (69%) of the sample rural households were also engaged in selling their poultry to earn an average income of 304 Birr from Adwa town. In addition to the livestock and poultry, the sample rural households provided honey products to different market centers. About 46% of these sample rural households sold their honey product to consumers. On average, they got about 3091 Birr of income from this honey product. Basis on the observation made and information gathered from agricultural office, there was huge honey production potential in the hinterland. Some cooperatives that collect honey from Adwa and sold it to Adigrat honey purification factory. This shows that there was strong rural-urban linkage between the hinterland and Adwa town as well as with other towns in the region (Adigrat and Mekelle). The honey produced reached even to the capital city, Addis Ababa. The honey had a great demand in the central part of the country due to its best quality. Therefore, the availability of market in the town for these products played a great role in improving the livelihood of the rural households.

The share of average income earned from selling the above items shows a slight difference among the three income groups (Table 5.5). The poor got a higher income from the sale of livestock and livestock products as well as honey than the non-poor group. This could be attributed by the fact that most of the poor households sold the bulk of their products (livestock and honey) at the time of crises. As a result, they could earn more income than the non-poor ones. Therefore, it was conclude that these households use the town market to sell their products at time of difficulties. Therefore, here the rural-urban linkage manifested through the marketing of livestock and livestock product as well as honey was contributing in improving the livelihood of the hinterland population, in particular for the poor.

Table 5.6: Marketing on Livestock, Poultry and Honey against *Tabia*

Market output	***Tabia***			
	B/Yohannes	**E/Gerima**	**Soloda**	**T/Logomti**
Livestock product	25 (16.1%)	59 (38.1%)	38 (24.5%)	33 (21.32%)
Poultry	22 (14.4%)	61 (39.9%)	38 (24.8%)	32 (20.9%)
Honey	34 (33.3%)	43 (42.2%)	12 (13.7%)	13 (11.8%)
Distance to town (Km)	**10**	**18**	**5**	**26**
Average Income (3,800**)**	**3555**	**4376**	**5237**	**2019**

Source: Field survey, 2013

Though all *Tabias* had shown a marketing linkage in terms of livestock and livestock products, poultry as well as honey production with Adwa town, a variation was observed among them. As illustrated in Table 5.6, *Tabia* EndabaGerima has strong linkage and *Tabia* TahtayLogomati had a low linkage. In terms of livestock and livestock products and poultry Soloda and EndabaGerima had better linkage with the town than BeteYohannes and TahtayLogomati. There was also a marked difference in terms of honey production, in which BeteYohannes and EndabaGerima depicted the strong linkage with the town. This shows that there could be a need for selective intervention to improve the market output of livestock and livestock products, poultry and honey product so as improve the rural-urban linkages in the study area. The picture in figure 5.2 depicts that people selling livestock and honey products. The rural farmers directly sold these products to urban consumers at the market. It was common to see livestock on the weekly market (every Saturday), other than holidays. During holidays, the volume tends to be

high. The picture showed the honey sell was taken at a time when there was critical shortage of honey (time when honey was not extracted from the bee hives mainly in-September). However, the supply of honey was observed in the market, though the majority of the farmers supplied in small amount. Thus, even at times of hardship (even when agricultural product was not harvested) they sold their honey to fix their livelihood gaps.

Figure 5. 2: Livestock and Honey marketing, Adwa market, 2013

In general, goats, cattle, and chickens dominate the livestock markets. Honey was also sold in Adwa markets throughout the year. The poor were benefiting from the sale of livestock and livestock products. Therefore, the hinterland population was beneficiary from the marketing of livestock and livestock products, poultry and honey at Adwa markets. Such potential in livestock and honey strengthened the marketing rural-urban linkage in the study area.

5.2.4 Purchase of Livestock and Livestock Products by Urban Households

Marketing linkage can also be manifested, when urban households purchase livestock and livestock products from the surrounding farmers. The urban dwellers of Adwa town buy goat, sheep and poultry from rural households. The following table shows the extent to which urban households purchase livestock and/or livestock products from rural households.

Table 5.7: Urban Households Purchase of Livestock Products within a Month (March)

Type of Livestock	**No. of reporting Hhs**	**Average consumption**		**Source of purchase**	
		(No./kg/Lt)	**(Birr)**	**Farmers**	**Traders**
Goat/Sheep	95 (72.5)	2.25 (Annual)	1366.8	100%	-
Meat/beef	83 (63.4)	7.37	559.2	63%	37%
Hen	103 (78.6)	4.07	383.4	98%	2%
Egg	63 (48.1)	66.54	139.4	100%	-
Butter	17 (13)	1.59	168.52	100%	-
Milk	43 (32.8)	5.54	115.7	-	100%
Honey	34 (26)	2.6	205.0	100%	-

Source: Field survey, 2013

As evident from Table 5.7, it was found that around two-third of the sample urban households bought goat and/or sheep, and about 79% of the respondents bought poultry in the mentioned month. The average annual goat/sheep consumption reported by sample urban dweller was 2.25, though goat is the preferred animal in the study area, while for poultry, it was 4.07. Majority of the reported urban households bought the livestock from farmers. It was only a few urban households who bought poultry from both farmers and traders, and this was mainly due to the reason that they purchased outside the market day. The data in the table indicates the presence of direct and strong rural-urban linkage between the urban consumers and farmers selling livestock in the area. Similarly, more than 63% of the sample urban households purchased beef in the last months. It was found that a fair proportion of urban households bought beef sourced from the rural areas or farmers.

Some livestock products such as egg, milk, meat and butter were also reported to be bought by the urban households living in Adwa town for consumption. Beef and egg have relatively large number of consumers in the town. As shown in Table 5.7, some livestock products (egg and butter) were totally supplied by the rural farmers from the hinterland. Milk was totally supplied by urban dwellers, whereas both urban traders and farmers supplied meat. The data in Table 5.7 shows that farmers were important suppliers of egg and butter for Adwa town households; this was an indication of linkages between the hinterland and the town. Urban traders who were engaged in the trading of livestock, livestock products and skins and hides also mediate the linkage between the town and the hinterland.

Table 5.8: Source of Items for Livestock, and Hide and Skin Traders in Adwa Town

Traders	Source of Inputs		Place of sale	
	Rural	**Urban (Adwa)**	**No.**	**Major Places**
Livestock	8 (100)	-	5 (62.5)	Axum, Rama, Shire, Adigrat
Hide and Skin	4 (100)	4 (100)	4 (100)	Wukro
Total	**12**	**4**	**9**	

Source: Field survey, 2013

As depicted in Table 5.8, traders selling livestock and hides and skins got the items from the surrounding rural areas of Adwa, though the hide and skin traders collected the items from the town too. In addition, the town also served as a center for such items to be exported to others parts of the region and the nation. The entire hide and skin products were headed to Wukro (Sheba leather factory), Tigray regional sate, while some livestock products are also exported to Adigrat, Mekelle and Addis Ababa. .

In general, marketing of the livestock and livestock products revealed a strong linkage between the town and the rural hinterland. Despite this it is also important to note that the town was not capable of consuming the entire marketed products and hence large amount or number of cattle, chicken, goat and honey were transported to Axum, Rama, Shire and Adigrat.

5.2.5 Vegetables Sale and Marketing Channels

Vegetable marketing was a significant manifestation of rural-urban linkage in the study area.

Table 5.9: Marketing of Vegetables against Economic Status and *Tabia*

Vegetable Product	**Economic Status**		
	Rich	**Middle**	**Poor**
Reporting Households (59) 26.7%	15 (25.4)	21(35.6)	23 (39)
Average Income (8446.3 Birr)	13423	8840	4841

Vegetable Product	***Tabia***			
	B/Yohannes	**E/Gerima**	**Soloda**	**T/Logomti**
Reporting Households (59)	30 (50.8)	3 (5.1)	1 (1.7)	25 (42.4)
Average Income (8446.3 Birr)	7464	16250	430	9010

Source: Field survey, 2013

The data in Table 5.9 shows that about a quarter (27%) of the sample rural households who produce vegetables sold their products to urban consumers. The most important produced and sold vegetables were tomato, head cabbage, lettuce, carrot, potato, garlic and green pepper (Figure 5.3). In addition to this, permanent crops (fruits such as guava, lemon, papaya and the like) were also produced and sold at the market. Almost all the vegetables marketed in the study area were produced for marketing purpose (Table 5.2).

Figure 5. 3: Cabbage and Garlic Marketing, 2013

Though excess tomato was produced in the hinterland, a visible difference was observed among the *Tabias* in terms of numbers of producers and income earned. The highest number of producers found in BeteYohannes and TahtayLogomoti and the lowest number of producers found in EndabaGerima and Soloda. The average income however was higher for *Tabias* with less number of producers. For instance, farmers in EndabaGerima obtained nearly twice than those in BeteYohannes and TahtayLogomoti. This could be explained by the fact that farmers in EndabaGerima had large irrigable land and better access to water.

In terms of income group, though the variation was small, more numbers of farmers from the middle and the poor income groups participated in marketing of vegetables. The share of the poor and the middle groups engaged in vegetable marketing was 36% and 39% respectively while the share of the rich was only about 25%. However, in terms of income it was the rich people, who derived the highest average income. The rich derived an average income of 13423 Birr, which was almost three times what was earned by the poor (4841 Birr). Such income disparities occurred due the size of irrigated land. In general, though all income groups earn income from selling vegetables and fruits, effort should be done to maximize the share of the poor in order to improve their livelihood.

5.2.6 Other Rural Products' Sale and Marketing Channels

In addition to the aforementioned rural products (crop, livestock and/or livestock product, honey and vegetables) sold at Adwa town market, there were different items prepared and/or produced by the rural households and sold in the town. Among them the dominant products were household utensils such as pottery and containers for "*Injera*" (made from rattan); agricultural product such as hop and hay (straw); and products of cotton (an input for the traditional clothes-spool or stitch). Figure 5.4 shows different rural female farmers selling their products at the town's market. All the container, pottery and the stitch were made by female rural households. Most of the pottery products came from *Tabia* EndabaGerima, while other products came from all *Tabias* of the *Wereda*. Rural households made money from the sales of these products and support their daily livelihoods. Unlike the raw material used to prepare the pottery, the raw materials for

cotton spins and containers of "*Injera*" were bought from urban traders. It thus appeared that the urban center served at the same time both as a center of raw materials and as center of market for these rural products.

Figure 5. 4: Handcraft products supplied by rural female farmers at Adwa market, 2013

In addition to the aforementioned handicraft products, other agricultural products and by-products of crops were also marketed at Adwa town. As shown in Figure 5.5, hay and hop are very common products sold at the market. "*Tella*" (local beer) is the most preferred (favorite) and common drink in the study area; as a result, the demand for hop is very high. The town is entirely dependent on the supply of hop from the hinterland. However, some rural households also purchased this product in the market. It was also common to see many sacks full of hay (crop residue- mainly straw of *Teff*, Wheat and Barley) on Saturdays at the market. This hay used mainly as animals' fodder in the study area. Both urban agriculturalists and rural farmers were customers of this by-product. Particularly this product was supplied or available at a large amount at times of green fodder constraints. Here, both the buyers and sellers tried to overcome their problems at the same time. Therefore, it was concluded that the rural-urban linkage had a great contribution to improve the livelihoods of the rural households in the study area through earning additional income from these products.

Thus, the market (trade) was the key mechanism by which the urban centre (Adwa town) interacts with the rural parts of the town. Even though there was some form of market in all communities within the *Wereda*, the town's two markets are the biggest, both in terms

of volume of trade and patronage. In addition, the markets attracted buyers and sellers from places beyond the *Wereda*, especially on Saturdays. Even though the markets operated daily, Saturdays market tend to attract more buyers and sellers, as it is a non-farming day in all communities within the *Wereda* and in nearby *Werdas*. As a result, farmers were able to leave the land and come to the market to buy and/or sell goods. The town was also the only source of items for the rural vendors found in the study area.

Figure 5. 5: Sell of hay and hop by rural households at Adwa market, 2013

The important contributions that markets make towards the development of the respective hinterland are vital. These contributions include employment and income generation, especially for women. Besides these contributions, the study also noted that the markets enhanced the utilization of urban services by the rural population. This is because services, such as pharmacies, banks, telecommunications, restaurants and bars (mainly the bars that sold "*Tella*" or local beer) in Adwa were patronized most on market days. There may be an economic motive behind optimizing a single visit to the capital by using various services. On the other hand, it can be said that market patronage offers many rural people the opportunity to utilize urban services, which they would not otherwise have accessed. The market also provided opportunities for social and cultural interaction between the rural population and the residents of Adwa town.

The forgoing can be summarized that crop marketing linkage in the study area was limited as most of the farmers did not produce sufficient surplus. Rural households raised

livestock for income, food (focus on income) and for social security reasons. Livestock was also an indicator of wealth. The marketing linkage via livestock, poultry and honey was very high; even creating a linkage with other towns. Rural households were beneficiaries from such linkage and were able to improve their livelihood. Similarly, there were different items prepared and/or produced at the hinterland and sold at the town. Among them the dominant products were household utensils such as pottery and containers for "*Injera*" (made from rattan); agricultural product such as hop and hay (straw); and products of cotton (an input for the traditional clothes-spool or stitch). All the container, pottery and the stitch were made by female rural households. Rural households derived income from the sale of these items. Therefore, the rural-urban linkage that existed in the study area was contributing a role in the livelihood diversification of the rural households.

Over all, the sustainability of these smallholder farmers in the study area relied on strengthening the connection between rural producers and urban consumers, and supporting the link between agricultural sector and the manufacturing sector, especially food processing (in our case tomato packing and the dairy processing, flour processing) and input production. Therefore, the local government should be at its best place to support the integrated development, by making the established (inaugurated) factories to be more functional, in order to exploit the potential rural-urban linkage in the study area.

5.3 Consumption Linkages

Urban goods and merchandise, which are imported or domestically manufactured, flow from urban to rural areas. Activities that meet the consumer demand of rural households form the basic chain of consumption linkages. That is rural-urban linkages occur when the rural households create demand for urban goods of small towns. This becomes apparent when small towns have the required goods and services in them for interactions to take place between rural areas and urban centers. Towns are the major suppliers of consumer and manufactured goods to rural areas. Though it is difficult to capture and document all types and varieties of these goods, the expenditure pattern of major durable and consumable items are treated under this section.

Table 5.10: Average Expenditure and Place of Purchase of Goods

Goods	Average Expenditure	Reporting Farmers	Place of Purchase	
			Town	Rural & Town
Cloths/ Shoes	2478 (annually)	221(100)	100%	-
Household utensils	436 (annually)	166 (75.1)		
Exercise book, pen & others	445	217 (98.2)		
Total	**3359 Birr**			
Building materials	1515	32 (14.5)		
Coffee/Sugar/Tea	96 (monthly)	218 (98.6)	72.9%	27.1%
Salt/Spices/ Pepper	102 (monthly)	221 (100)		
Oil/Kerosene/Soap/ Dry cells	116 (monthly)	221 (100)		
Others	38 (monthly)	221 (100)		
Total	**352 Birr**			
Total Annual Expenditure	**7587 (Birr)**			

Source: Field survey, 2013

Table 5.10 presents the households' estimated average expenditure on both durable (annual expenditure) and consumable (monthly expenditure) items. As shown in Table 5.10, the entire sample rural households purchased durable (household utensils) goods in Adwa town, while three-fourth of the sample rural households purchased non-durable goods in Adwa town. With regard to the non-durable goods, almost the entire sample farmers purchased consumables such as soap, kerosene, oil, sugar, and coffee. All sample households expend some amount of money for durable as well as non-durable consumable items. On average, each sample household spent 3359 Birr annually for durable items (like for clothing/shoe, household utensils and exercise book). About 15% of the sample rural households spent about 1515 Birr for building materials. The households had average expenditure of 352 Birr monthly for different major consumption goods such as coffee and/or sugar (96 Birr), pepper and spices (102 Birr), oil, kerosene, soap and dry (116 Birr) cell and the like.

With regard to the overall annual expenditure, about 7587 Birr was spent annually to purchase the durable and consumable items. The national annual expenditure in rural areas of Ethiopia was 9192.65 Birr and at a country total level it was 12232.62 Birr (CSA, 2013c). The annual expenditure in the study area was therefore lower than the national average. This shows that the area was relatively poorer than other rural areas of

the nation. The durable items were completely provided from the town market, while the consumable items found both in the rural area and urban markets. This shows that Adwa was the major source for these goods. An interview made with traders revealed that almost all goods (except some plastic shoes) were brought from other larger urban centers particularly from Addis Ababa. Accordingly, expenditure on major items used as bases for rural-urban linkage in the study area. Therefore, the town met the demand of the households for urban goods and services.

With regard to the place of purchase, a difference was observed among the sample *Tabias*. Sample rural households who lived in the relatively far distant *Tabia* (TahtayLogomti) purchased their consumable items from kiosks found in the rural area. However, some sample rural households from BeteYohannes (found at middle distance from the town) also purchased items in rural area. This was due the accessibility of transport. This *Tabia* (BeteYohannes) is found on the way to Axum, which has flow of transport till 8:00 PM. Therefore, distance was not the only factor that forced the rural households to purchase some items in the rural areas since some sample rural households from the nearest *Tabias* also purchased some items in the rural areas (Table 5.11).

Table 5.11: Place of Purchase of Consumable Items across the *Tabias*

Tabia	**Place of purchase for consumable items**			
	Adwa town		**Both Adwa town and rural area**	
	Frequency	**Percent**	**Frequency**	**Percent**
Bete-Yohannes	52	23.53	15	6.79
Endaba-Gerima	66	29.86	-	-
Soloda	42	19.01	-	-
Thatay-Logomti	1	0.45	45	20.36
Total	**161**	**72.85**	**60**	**27.15**

Source: Field survey, 2013

In general, the rural population of Adwa made some expenditure on urban goods. Almost all sample rural households expend some money for both durable and consumable items at Adwa town. Though a difference was noted among the *Tabias* with respect to their place of purchase, the town met the demand of the hinterland for urban goods and services. Therefore, in relative terms, there was a strong consumption linkage in the study area.

5.4 Financial Linkage

The financial linkage of town to its hinterlands is based on the availability of financial institutions in the towns, which will stimulate the rural people to use these institutions for loan and saving. Movement of capital between rural and urban areas is effected through financial intermediaries. There are different types of financial institutions; formal and informal. The formal institutions include banks and microfinance that provide credit and saving services. While the informal financial institutions involve moneylenders, friends and relatives, and traditional arrangement and agreements like "*Equb*" and "*Edir*" as well as migrant remittances.

5.4. 1 Loan and Saving

Loan and saving are among the major components of financial linkage. As indicated in Table 5.12, about 68% of the respondents reported that they took loan from different institutions last year (2012/13) in which more than half of the loan was sourced from urban area, that is, Adwa town. Majority of the respondents (about 63%) reported that they got loan from credit and saving service (microfinance) in which the town was the major source of the loan. However, for those who got the service in rural areas, it did not mean that the institutions were located in the rural areas. In order to facilitate their service, the institutions made an arrangement by moving to the rural areas even if they were based at Adwa town. About a quarter of (23%) respondents got loan from service cooperatives found in the rural areas. The rest 14% got from relatives who lived in the urban and rural areas (which is an example of informal form of financial institution). As it was common in Ethiopia, most of the financial transaction (86% of the loan delivered in the last three years) between rural and urban area was therefore undertaken by formal financial institution. The average amount of loan taken during the previous three years was 2727 Birr, which ranged from 400 Birr to 8000 Birr. Large amount of this loan was delivered by the microfinance; almost all loans of 3000 Birr and above were delivered by the microfinance. The amount of loan taken from service cooperatives and relatives revolved around 1000 Birr and 2000 Birr. The share of microfinance in terms of

customers and amount of loan provided was larger than the share of the service cooperatives and relatives.

Table 5. 12: Distribution, Source and Average Amount of Loan, 2012/13

Source of Loan	Reporting Households (%)	Loan taken		Average loan
		Urban	Rural	
Microfinance- 94	(62.7)	75 (85.2)	19 (30.6)	3343.62
Service Cooperatives- 35	(23.3)	7 (8)	28 (45.2)	1728.57
Relatives- 21	(14.0)	6 (6.8)	15 (24.2)	1633.33
Total- 150	**67.9***	**88 (58.7)**	**62 (41.3)**	**2727.33**

Source: Field survey, 2013; *% is calculated against the total sample rural households

Table 5.12 shows that, no farmer got loan from any bank in the study area. This was due to the collateral system. This finding is consistent with Welday's (2002) cited in Tegegne (2007) that the role of formal banks was limited since banks by nature would not be interested to finance rural people because they were believed to have high risks and transaction costs. However, evidence from Commercial Bank of Ethiopia (Adwa branch) confirmed that about 700 rural farmers got loan from this bank (compared with high population in the *Wereda* this number was very small). Even though they did not use bank, there was a financial linkage between the hinterland population and the urban credit and saving service. In terms of saving, there was however, strong evidence that indicated a large proportion of rural people save their money in banks and microfinance. For instance, about 28000 customers saved their money in the commercial bank of Ethiopia. Out of these, more than 60% were rural based customers. There was a great tendency of using this bank by the rural people who mainly focused on saving and using the interest (most rural people did not use the money they saved; they used only the interest they got from their principal saving).

In line with this, further information was sought from Dedebit Microfinance, which was the dominant financial institution in delivering loan as well saving service in the region. Unlike the other private banks, this microfinance gave loan based on trust than on collateral system. In this institution, there was a good culture of loan, though the area was well known for its saving culture. This financial institution was situated in the town and

farmers visited the town when they were in need of the service. In comparison to the nearby saving associations, this institution (Dedebit Microfinance) was exploiting the potential. It delivered loan service based on different schemes as illustrated below.

Table 5. 13: Total Customers, Amount of Loan and Saving in Dedebit Microfinance

Category for loan	Participants		Loan amount (in Birr)		Groups	
	Male	Female	Male	Female	Male	Female
Rural package	13439	3737	33426490	7019203	3345	208
Petty trade	73	38	632590	204000	-	-
Civil servant	2009	1436	8293930	5146000	524	551
Regular (grouped)	1608	332	6013000	2652000	191	422
Total	**17129**	**5543**	**48366010**	**15021203**	**4060**	**1181**

Saving	
Total customers (in saving)	Total Amount saved (in Birr)
6338	38235430

Source: Dedebit Microfinance, 2013 (computed)

As shown in Table 5.13, the institution provided loan services based on different schemes. A total of 22672 persons (most of them household heads) benefited from a loan service of Dedebit microfinance at different periods. The dominant scheme was the rural package (in which rural farmers got loan for agricultural purpose, to purchase agricultural inputs mainly fertilizer and other things like livestock, bee and modern beehives, irrigation equipment and the like). Though dominated by the male-headed households, these farmers got more than 40 million Birr in the last decade. This amount of money was very vital for their survival, and played a critical role in their livelihoods. It was concluded that the microfinance was playing a great role in the livelihood of the rural people of Adwa *Wereda*.

Such loan has its own target and the recipients use it for different purposes. The sample respondents were asked for what purpose they used the loan. About 42% of the sample respondents reported that they bought shoats as well cow with the loan. Around one-fifth (19%) of the respondents used the loan to purchase fertilizer. Others spent the money to buy bee colonies and modern bee hives (6%), to engage in trade activity (8%), to buy ox for fattening (6%), for irrigation purpose and purchase of pack animals and the like

(19%), (Table 5.14). This finding is consistent with the general credit package of the region that was 'Access to credit is provided through the household credit package'. All income group households were provided with loans to be used mainly to purchase cattle, shoat and beehive with different repayment period. This repayment period ranged between 1-3 years depending on the value of the package. In an FGD, the participants appreciated that they had access to get credit even if they faced some problems particularly when they lost their bee, to pay back the loan on time. This completely contradicted with the principle of the package which states 'Repayment can be deferred in the event of a drought or epidemic'. As a result, some households were forced to sell some of their basic assets. Some households also complained that they could not get access to financial institutions (to get loan) unless they were included under the safety net program. Some poor households were forced to join the safety net program in order to get the loan. However, in general the loan was used to create or accumulate additional asset.

Table 5. 14: Purpose of Loan for the Sample Respondents, 2013

Purpose of loan	Number	%
To buy sheep and goat	32	21.9
To buy cow	29	19.8
Fertilizer	27	18.5
Trade	12	8.2
Fattening	9	6.2
To buy Bee and hive	9	6.2
Others (Irrigation, pack animal, building)	28	19.2
Total	**146**	**100**

Source: Field survey, 2013

The other manifestation of financial linkage is the saving culture of rural people in urban areas. As illustrated in Table 5.15, in general around 82% of sample rural households had a saving habit whether they saved it in the rural area or Adwa town. This type of saving was exercised in terms of cash, livestock and fixed asset. With regard to saving, the size of capital saved and place of saving have implications for linkages. Around 35% of the sample rural households reported that they saved some amount of their earnings in different types in Adwa town. The dominant type of saving in Adwa town was in the form of cash. On average about 4310 Birr was saved in a cash form by 33 (14.9%) of the

sample rural households in the town. This saving was done at the banks and microfinance. As indicated above, the saving culture of rural people in the Commercial Bank of Ethiopia and Dedebit Microfinance in Adwa is showing a good progress. This finding is contrary to that of Mohamed (2007) who found out that, rural households did not save money in town mainly in banks and microfinance. However, a considerable rural population 23 (10.4%) of Adwa *Wereda* reported that they used local informal saving scheme (*Iqqub*) and keeping saving at home. This saving culture in rural areas weakened the rural-urban linkage.

It is obvious that livestock and most fixed asset type of saving are practiced in the rural area. However, it was found that fair proportion of rural households saved their capital in terms of fixed asset (19%) mainly by constructing house and livestock (1.4%) (this was mainly done by agreement with their relatives who live in town and practice urban agriculture) in Adwa town. These households saved a worth of 28 845 Birr livestock and 27000 Birr fixed asset. In most cases, the livestock were cattle. It thus appeared that the financial dimension of rural-urban linkage in Adwa in terms of saving represented a stronger linkage. The saved money used at times of shock and need. It was thus concluded that the rural-urban linkage manifested through this saving was playing its role for the sustainability of the livelihoods of the rural people.

Table 5. 15: Saving Habit, Distribution of Type of Saving and Place of Savings

Saving Type	Reporting Households	Saving place		Average amount saved in the town (Birr)
		Urban	Rural	
Cash	56 (25.3)	33 (14.9)	23 (10.4)	4310
Livestock	39 (22)	3 (1.4)	36 (16.3)	28845
Fixed asset	85 (47)	42 (19)	43 (19.6)	27000
Total	**180** (81.5)	78 (35.3)	102 (46.2)	**3096**

Source: Field survey, 2013

On the other hand, financial linkages can be studied with the help of rural vendors. Eight rural vendors were interviewed regarding their source of finance and the items they sell (Table 5.16). Half of the sample rural vendors got a loan from bank or microfinance located in Adwa town. The source of capital for rural vendors was thus the town. All the

sample rural vendors got their trade items from the town. They purchased different items from urban wholesale traders and retailers. The rural vendors played a role in saving farmers' time since farmers did not need to visit the town to purchase different items every time. This mean that the financial linkage created between the rural and urban area in Adwa via the rural vendors had its own contribution on strengthening the livelihoods of these people. The rural vendors could be beneficiaries from diversifying their livelihood strategies through such trading.

Table 5. 16: Source of Capital and Items for Rural Vendors and Retailers

Description	Source of capital		Place of Purchase		Weekly income
	Microfinance/Bank	Self	Adwa	Other	
Rural vendors (8)	4 (50)	4 (50)	8 (100)	-	533
Retailers (13)	8 (61.5)	5 (38.5)	-	13 (100)	13204
Total	**12**	**9**	**8**	**13**	

Source: Field survey, 2013

5.4.2 Remittance

Though the above (section 5.4.1) describes the financial linkage between Adwa town and the hinterland, an attempt was also made to understand the urban-to-rural flow of money from the migrants who live in Adwa town. It is argued that remittances (which is one of the informal financial flow) from migrants to their places of origin play an important role in the family-linked migration process in developing countries. The flow of remittance to rural areas is often regarded as a critical and as an equalizing mechanism that could reduce economic disparity between rural and urban areas. The intra-national remittance is also significant. This analysis includes sample rural households who sent a member of their family to Adwa town whether temporarily or permanently. In order to arrive at an average income per annum, all respondents who got remittance were asked to quantify all non-cash remittance from their household members in monetary terms. The finding from the household survey indicated that remitted item received by households were mainly cash. The results presented in Table 5.17 revealed that significant proportion (60%) of the rural households who had family members in Adwa town got a remittance. This was in line with the well-established tradition that migrants in town remit money "back home".

Person-to-person financial flows (for example migrant remittances) constitute the majority of financial flows from urban centers to rural areas, because the financial flows to villages from financial institutions, such as banks and credit associations, are very low and are considered to be one of the weakest rural–urban linkages. Therefore, migrant remittances strengthen the financial linkages between urban and rural activities. The migrants in the respondent households sent remittances to their relatives at home, regardless of household income level, and, in many cases, their contribution was a substantial proportion of household income. However, the frequency of sending money and the amount they remit varied. The amount is likely to be higher (3922 Birr) for those who sent twice a year than those who did it annually (2432 Birr). Over all, average households' remittance received per year was estimated at about 3145 Birr, which ranges from 500 Birr to 7800 Birr. Almost equally half of them sent the money once in six-months, while the rest sent it once in a year.

In relative terms, remittances were much more important for the poorest groups. As may be expected, remittances form a lower proportion of the incomes of the wealthier groups. In addition, although town dwellers sent money to the rural areas regardless of their income categories (at home base), a larger proportion of the middle-income households (55%) did get a higher remittance than the low-income households (33%). However, the variation in amount was not very different. The middle-income households received an average of 2294 Birr while the poor received 2169 Birr. The rich sample rural households (12%) got a remittance of 1467 Birr from their family members. This result, therefore, is not consistent with the expectation that the poor were more beneficiaries or recipients (number of beneficiaries) of remittance. The relative higher remittance among the poor and middle-income groups could be an indicator that remittance was contributing in improving their livelihood. Exchange of money also occurred when urban household members visited their rural households. It was common that they normally gave money to their rural household members, parents or other close relatives on most of their visited to the rural areas. Therefore, the argument made was, the urban economy benefited a considerable rural population through the remittance of urban migrants.

There were different reasons why the urban residents sent money to their rural based families. The response from the survey household heads revealed that a large proportion of remittance was used to support the agricultural activity (most probably to purchase inputs and the like). Apart from this other transfers occurred during festive occasions. Money was also sent at the beginning of the school period for paying school fees and to purchase educational material. As the FGDs show, money also sent during social ceremonies such as wedding or a funeral or for medical purposes. Therefore, remittance was playing an important role or contributed to the agricultural production to a number of rural households in the study area. Such remittances played a very important role in supplementing incomes of the receiving households. Additionally, the increase in purchasing power of receiving households can stimulate the local economy, and in the particular case of rural areas, increased remittance receipts can stimulate the rural non-farm economy (Thanh et. al. 2005).

Given the tension between the rising need and the high cost of living, it was surprising that over 70% of the households sent money back home more frequently now than before. Around three-fourth (71.4%) of the households had experienced an increasing trend during the last three years in getting the remittance, while 16% had experienced a decline in the remittance they received, it was only 12% of the sample rural households who received the same amount of remittance. The indications are that the frequency continues to grow or increase. This finding contradicts with Owusu (2005) that the decline in remittances in amount and real terms is a consequence of increasing employment insecurity and the cost of living in town.

A difference was observed also among *Tabias*. As shown in Table 5.17, *Tabia* Engabagerima received more remittance than the other *Tbias* in the study area. About two-third of the remittance moved to this *Tabia*; in contrast, Soloda almost did not get remittance. Therefore, since the family links and connection to 'home-base' (that is rural place of origin) was still very strong, remittances serve as a means to maintain strong connections or contact with one's 'home' or place of origin.

Table 5. 17: Remittance Status Adwa *Wereda*

Description	**Alternatives**	**No. (%)**	**Amount**
Remitting money to rural areas from Adwa (81)	Yes	49 (60.5)	-
	No	32 (39.5)	
Type of remittance (49)-22.2%	Cash	48 (98)	-
	Kind	1(2)	
Frequency of sending money	Annually	25 (51)	2432 Birr
	Once in six months	22 (45)	3922.7 Birr
	Once in two months	2 (4)	4500 Birr
Reasons for sending money	Summer/Agricultural activity	32 (65)	2142 Birr
	Holiday	12 (25)	2167 Birr
	Beginning of school time	5 (10)	1975 Birr
Change in frequency of sending money (49)	Increased	35 (71.4)	-
	Decreased	8 (16.3)	
	No change	6 (12.3)	
Amount of remittance send (per annum)	Minimum	-	500 Birr
	Maximum	-	7800 Birr
	Average	-	3145 Birr
	Standard deviation	-	1765
Tabia	Beteyohannes	9 (18.4)	1339 Birr
	Endabagerima	32 (65.3)	2425 Birr
	Soloda	1 (2)	3000 Birr
	Tahtay Logomti	7(14.3)	1829 Birr
Economic status	Rich	6 (12)	1467 Birr
	Middle	27 (55)	2294 Birr
	Poor	16 (33)	2169 Birr

Source: Field survey, 2013

The overall conclusion from the surveyed households contrasts with many previous studies that found remittance flow to rural households not only higher but also critical for the survival of these households. As the majority of the recipients were non-poor and the total recipients were less than a quarter (22 %). However, consistent with that of Owuor (2006), a large proportion of high-income households sent somewhat more frequently than the low-income households. This played a great role even in maintaining or improving the social capital.

5.5 Environmental Linkage

It is natural to see environmental linkages between urban and rural areas with their positive and negative dimensions. Environmental linkage is manifested when there is flow of natural resource between the two spatial units. Flow of natural resource from the surrounding rural areas to the nearby urban center and the deposition of waste in rural areas from the urban area are the major forms of rural-urban environmental linkages. Under this section marketing of forest and forest product, the use of fuel wood and charcoal as sources of energy for cooking by urban households and dumping of domestic and industrial wastes were treated cognizant of the fact that environmental linkages shaped the livelihoods of households in the study area. The marketing of forest and forest product by the rural households to Adwa town is shown in Table 5.18.

Table 5. 18: Marketing of Forest and Forest Products by Sample Rural Households

Market output	**Description**	***Tabia***			
		B/Yohannes	**E/Gerima**	**Soloda**	**T/Logomti**
Forest product	Sold- 57 (26%)	19 (33%)	34 (60%)	-	4 (7%)
	Average Income (692.8)	541.60	728.80	-	1105.00
Type of forest product	Firewood	7	14	-	1
	Charcoal	5	3	-	0
	Construction	7	17	-	3
	Total-221	**67**	**66**	**42**	**46**

Source: Field survey, 2013

Table 5.18 depicts that more than a quarter (26%) of the sample rural households reported that they sold forest product to Adwa town. There was however, big difference between *Tabia* EndabaGerima where 60% of the households reported forest products sell and *Tabia* Soloda where no household sold forest products. The dominant types of forest and forest products are wood for construction, firewood and charcoal (Figure 5.6). All the sample rural households sold the forest and forest products directly to urban consumers. Rural households engaged in sell of forest products got an average income of 693 Birr, though the income ranged between 1105 Birr for *Tabia* TahtayLogomti to 541 Birr for *Tabia* BeteYohannes. This variation is due to the particular item brought to the market. Higher income is earned from selling eucalyptus than from selling fire woods or charcoal.

Figure 5. 6: Fire wood and charcoal marketing at Adwa town, 2013

Urban households in the study area used charcoal and wood as the main source of energy for cooking. Around 94% of the sample urban households used charcoal and/or fire wood for cooking purpose (Table 5.19). Almost all of the sample urban households purchased these products directly from rural retailers. This was consistent with the finding of WFP and UNICEF (2009) that at national level over 90% of households in urban centers use either wood or charcoal as the primary source of cooking fuel.

Table 5. 19: Type of Energy Used for Cooking by Sample Urban Households

Type of Energy	**Source of Energy**		
	Purchasing from rural retailers	**Collecting from rural areas**	**Not Applicable**
Charcoal (64.1)	84 (71.2)	-	-
Firewood (29.8)	34 (28.8)	5 (100)	-
Electricity (6.1)	-	-	8
Total-131	**118 (90.1)**	**5 (3.8)**	**8 (6.1)**

Source: Field survey, 2013

The use of construction materials such as stone from rural areas by the urban households is also an Environmental rural-urban linkage. As illustrated in Table 5.20, about 13% of the sample rural households reported that they sold stone (for construction) at Adwa town. EndabaGerima accounts for more than 60% of those who sold the resource. About 86% of these sample rural households were found under the middle and poor economic status group. It thus appears that the middle and the poor households benefited more than the rich did from this type of linkage.

Table 5. 20: Stone Extraction and Marketing to Adwa Town by Rural Households

Market output	Description	*Tabia*			
		B/Yohannes	**E/Gerima**	**Soloda**	**T/Logomti**
Stone	Sold -28 (12.7%)	6 (21%)	17 (61%)	5 (18)	-
	Total-221	**67**	**66**	**42**	**46**
		Economic Status			
		Rich	**Middle**	**Poor**	
	Sold -28 (12.7%)	4 (14%)	14 (50%)	10 (36%)	
	Total-221	**44**	**77**	**100**	

Source: Field survey, 2013

Environmental linkages can also have a negative element. The solid, liquid and air-borne wastes generated within the town and transferred to the surrounding rural areas have negative environmental impacts, especially on water bodies. These negative impacts will be high when liquid wastes are disposed of without adequate treatment and when solid wastes are dumped on land sites without any measures to limit their effects. The negative impact of environmental linkage of Adwa town on the surrounding rural areas is presented below.

Figure 5. 7: Domestic waste and by products of marble factory at and near rural farm lands of Adwa *Wereda*, 2013

Demand for land around cities has increased to build residences, industries, and transport corridors such as roads and highways, as well as for the disposal of urban waste (both industrial and household). Urban areas release waste in local waterways, contaminating the water, which can in turn cause health problems for downstream users and damage aquatic systems (Braun, 2007). Landfill is a site for disposal of waste materials, the oldest form of waste treatment. It is the most common method of organizing waste disposal in many parts of the world. The same is true for Adwa town, though it is not well organized. The local authority found it difficult to locate a new landfill in the study area. The solid waste was collected (by outsourced associations) and dumped in a place known "Atero"; a traditional landfill situated in the periphery of the town (the rural area of Adwa *Wereda*). As illustrated in Figure 5.7, the solid waste was not dumped in an organized matter (they try to burn some of it; it was an open dumping site). The nearby area was an agricultural land and it was common to see domestic animals and children playing in this area. Large portion of the nearby farm land was affected by the waste that was accelerated by wind. Children and some animals were also suffering from different health problems due to this waste disposal. The same was true also for the liquid waste (waste from toilets) disposal, which was dumped in this area and other sites. There were complaints from the farmers that they were not happy with the disposal of this waste near to their farm land. So, the rural-urban linkage via the disposal of waste had negative effects. The rural households were not beneficiaries from this linkage. It was only 7 (3.2%) of the sample rural households who used the waste (from toilet) from the town as manure for the farm land. In general, this linkage affects the livelihood of the rural households.

It is not only the disposal of the waste by the municipality that affected the life of rural households in the *Wereda*, the two big industries (Almeda Textile and Saba Stone) were located in one of the target *Tabias*, that is, BeteYohannes were also responsible. Two pictures depicted in Picture 5.7 (at the bottom) are the byproduct of Saba stone. As can be seen from the photo, there is football field, where children play. However, it was surrounded by the fine byproduct of marble. Resident houses and government offices also surrounded this area. This byproduct disseminated by wind easily, which can affect or cover large area in the *Tabia*. So, large agricultural area and many people were affected

by this waste. The same history works for Almeda textile, though the factory officials said that they released a treated waste to the agricultural land. The people were not satisfied with this disposal of byproduct, though some of their family members got job in the factory.

An FGD held with sample rural people of BeteYohannes also confirmed that the waste from the textile was highly affecting their farmland, water and health. They complain that there was a very bad smell and smoke, which they believed was affecting their health. The so-called 'treated' waste was also affecting the water they used for their livestock and irrigation. The farmers were trying to minimize its impact on the soil by using natural fertilizers; however, until now the quality of the soil was deteriorating from time to time. The interview held with the DA of this *Tabia* also supported the idea mentioned by the farmers. Even the downstream farmers were affected by this pollution, mainly the drinking water. The aquatic life (that of fish) in the downstream was also affected by the discharge of this 'treated' waste from the textile. The farmers believed that the factory officials who claim, "The waste is treated before it is released to the drainage", cheat them. The farmers were strongly complaining and their appeal reaches even to the regional level, though they did not get a response from the regional state, they got a deaf ear. The DA reflected the demand of the farmers by saying "Even they were not ready to give compensation, not in cash, but rather by building dams and check dams. More than 200 hectare can be irrigated if such dams are materialized in the area by the factory". Constructing such small dams in the area by the factory is too easy; the factory has the capacity (financial strength) to do this if the officials (top leaders of the company) are willing. As opposed to Almeda textile, Saba Dimensional Stones was participating in helping the nearby society mainly in schooling.

Figure 5. 8: Gere'a Dam, Adwa, 2013

Most demand for water is for domestic urban and urban industrial uses, which compete with agriculture, while most sources of water are located in rural areas. Adwa town as well as the historical town of Axum got the drinking water from Gere'a dam (Figure 5.8), which is located on the northeastern of Adwa town, *Tabia* Soloda. This dam is not only the major source of drinking water for the people of Adwa and Axum, but also a supplier to the big industries (Almeda textile, Saba stone and soap factory) which consumed huge amount of water. This dam constructed in 2001 with a budget of 110 million Birr. It covered 7500 hectares with a capacity of 10 million meter cube water. This dam almost completely placed on previous agricultural land and large proportion of adjacent farmlands was free from any agricultural activities to minimize the siltation problem. As a result, considerable rural households displaced from their agricultural land. Since the amount of compensation was not sufficient, most of the displaced farmers were suffering many problems in relation to shortage of farmland in study area. Therefore, the rural households from *Tabia* Solda were not benefited from this environmental rural-urban linkage. As a result, some of the farmers are cultivating the land (illegally) which would have an impact on the service of the dam mainly a sedimentation problem.

5.6 Rural Households' Visit to Adwa Town

Social reciprocity (interactions) between rural and urban areas can be analyzed within the context of regular visits that occur mainly by the rural-based members. Nearby towns are important to their hinterlands people by providing several goods and services. Adwa town was the most frequently visited center by all of the sample rural households. The frequency of sample rural households' visits to the urban area differs from household to household and from *Tabia* to *Tabia* and was likely to be influenced by factors such as the distance to the rural area, the purpose of the visit and the relationship of the household head to the urban-based household and family members. On average, in 2013, more than one-third of the sample rural households had visited the town most frequently while another one-third visited at least sometimes (Table 5.21).

As shown in this Table 5.21, the frequency of visit of the sample rural households to Adwa town generally ranges from daily to once in a month. Almost 40% of the respondents visited the town on a daily base, while around 34% of the rural population visited the town at least once in two weeks or biweekly. It was only 12% of the sample rural households who visited the town rarely or once in a month. This is also a good indicator of the rural-urban linkage in relation to their livelihoods. Based on this data the variation among the *Tabias* was clear. Majority of the sample rural households who visited the town were from Beteyohannes and Soloda, while those who visited rarely were from TahtayLogomti that was the distant *Tabia* from the town. The Chi-square test (X^2=115.96, df=12, p=0.001) at 99% confidence level also confirmed that there was significant association in frequency of visit with distance from the town.

Table 5. 21: Rural Households' Frequency of Visit to Adwa Town

Frequency of Visit	*Tabia*				Chi-Square test
	B/Yohanes	E/Gerima	Soloda	T/Logomti	
Most frequently-daily (38.9)	32 (37)	21 (25)	32 (37)	1(1)	
Frequently-3-6 days (2.3)	4 (80)	1(20)	-	-	
On average-weekly (13.1)	12 (42)	7 (24)	3 (10)	7 (24)	**115.96*** **
Sometimes- biweekly (33.5)	17 (23)	35 (47)	6 (8)	16 (22)	
Rarely-monthly (12.2)	2 (7)	2 (7)	1(4)	22 (82)	
Distance (Km)	**10**	**18**	**5**	**26**	

Source: Field survey, 2013 ***: Significant at 99%

The data presented in Table 5.22, shows a vivid difference in the frequency of visit among the three income groups. Unlike other studies, it was the poor (72%) rather than the rich (16%), who visited Adwa town most frequently. Those who commute daily to the town for work could attribute such high frequency of visit. The Chi-square test shows that there was a significant association between the income group or economic status and frequency of visit (X^2=98.22, df=8, p=0.001) at 99% confidence level.

Table 5. 22: Households' Frequency of Visit to Adwa Town against Economic Status

Frequency of Visit	Economic Status			Chi-Square test
	Rich	Middle	Poor	
Most frequently-daily (38.9)	7 (16)	7 (9)	72 (72)	
Frequently-3-6 days per week (2.3)	2 (5)	2 (3)	1(1)	
On average-weekly (13.1)	12 (27)	12 (16)	5 (5)	**98.22*** **
Sometimes- biweekly (33.5)	19 (43)	45 (58)	10 (10)	
Rarely-monthly (12.2)	4 (9)	11 (14)	12(12)	
Total-221	**44**	**77**	**100**	

Source: Field survey, 2013 ***: Significant at 99%

Towns provide numerous services and functions to the hinterland people. These services and functions include market, employment, education, administration and the like. The major reason for visiting the town is market followed by the need for a job. In answering to the question about the main reason for visiting (Table 5.23) Adwa town, the majority (87.3%) sample rural households mentioned that they visited the town mainly for marketing purpose. More than two-third (68.3%) of the sample rural households visited the town to work or seek a job. Visiting the town could also be to visit the health center at

Adwa town. More than half (55%) of the total sample households or their family members had been treated in health centers. About 13% of the sample rural households also visited the town for educational purpose. It was only about half of the sample rural households from EndabaGerima who visited the town for marketing and education purpose. Therefore, the town played a role on the livelihoods of the rural population in terms of employment, marketing, health and education.

Table 5. 23: Rural Households' Major Reasons to Visit Adwa Town

Major Reasons of Visit	***Tabia***			
	B/Yohannes	**E/Gerima**	**Soloda**	**T/Logomti**
Market-193 (87.3)	61 (31.6)	66 (34.2)	22 (11.4)	44 (22.8)
Seeking job -151 (68.3)	40 (26.5)	55 (36.4)	22 (14.6)	34 (22.5)
Health-122 (55.2)	33 (27.1)	53 (43.4)	25 (20.5)	11 (9)
Education-28 (12.7)	6 (9)	-	20 (48)	2 (4)
Distance (Km)	**10**	**18**	**5**	**26**

Source: Field survey, 2013

With regard to employment, it is at the center of all rural-urban migration theories because the search for job is the primary, if not the only, motivation for migration. Heads from the low-income households were more likely to come to Adwa to look for work than those from high-income households. As depicted in Table 5.24, nearly half of those who visited Adwa town for job seeking were from the poor income group. The share of the rich income group in visiting the town for health treatment was also smaller than the other income groups. The majority of the households who visited the town for health purpose are from the poor (54%) and the middle-income groups (58%), however, the difference was not significant.

Table 5. 24: Distribution of Reason for Households' Visit and their Economic Status

Reason of Visiting	**Economic Status**		
	Rich	**Middle**	**Poor**
Market-193	39 (88.6%)	72 (93.5)	82
Seek job-151	30 (61.2)	50 (64.9)	71
Health-122	23 (52.3)	45 (58.4)	54
Education-28	5 (11.4)	5 (6.5)	18
Total-221	**44**	**77**	**100**

Source: Field survey, 2013

With regard to education, most students who attended secondary schools in Adwa town came from the hinterland. For instance if we look at the share of students who came from the rural areas of Adwa *Wereda* and attended in Adwa high school, it reached about 69% in 2012/13. Table 5.25 shows that, students who joined Adwa high schools and attended grade nine increased with time. In 2008/09 it was 61.5%, and this share reached 69% in 2012/13. Most students preferred to attend their high school education in Adwa high schools mainly due to school's good quality, better facility (library and laboratory), and to get money from their parents. It was common that students got clothing and shoe when they go to urban centers. Students therefore preferred to go to Adwa even if they (some) had access to education in their locality. It was therefore concluded from this that the town was fulfilling the interest of students whose target was to get a better education. Therefore, the rural-urban linkage was playing a crucial role in improving the human capital (through education and health service) of rural households in the study area.

Table 5. 25: Students' Enrollment in Adwa Town High Schools

Academic Year	**9th Grade**		
	Total	**Rural Origin**	**Urban Origin**
2008/09	3497	2148 (61.4)	1349 (38.6)
2009/10	3521	2282 (64.8)	1239 (35.2)
2010/11	3053	1956 (64.1)	1097 (35.9)
2011/12	3192	2124 (66.5)	1068 (33.5)
2012/13	3769	2590 (68.7)	1179 (31.3)

Source: Wereda Education Bureau, 2013 (Computed)

In addition to the above mentioned major reasons to visited Adwa town, huge number of rural population visit the town for a religious (social) reason. The town is also known for having many churches. There are at least nine big Orthodox churches (namely Michael, Gebriel, Tsion, Slassie or Trinity, Medhanealem, KidaneMihret, Giorgis, Teklehaimanot and AbuneAregawi) and each church has its own annual anniversary which falls in different months (mainly in October, November, December, January, February, March, April and July). These religious holidays are known as *Kusmi*, which is almost equivalent to pilgrimage. During such ceremonies, large number of rural and urban people from other churches flees to the hosting church. The social life manifested at this time is very colorful and interesting. Therefore, the tourism linkage, which is highly religious, has its

own contribution on the social capital of the rural people of Adwa. Similarly, the monastery of EndabaGerima (In which one of the nine saints, Abune Gerima prefer it as his holy place) found in the study area. Huge amount of people from the rural area and the town celebrate a very colorful ceremony in September 29 Ethiopian calendar. At this time large amount of people, visit the town and spent two days. Therefore, the rural-urban linkage influences the social capital of rural households in the study area.

Table 5. 26: Mode of Transport Used to Visit Adwa Town

Mode of transport to travel	***Tabia***			
	B/Yohannes	**E/Gerima**	**Soloda**	**T/Logomti**
On foot (72.4)	49 (73.1)	66 (100)	36 (85.7)	9 (19.6)
Vehicles (27.6)	18 (26.9)	-	6 (14.3)	37 (80.4)
Total	**67**	**66**	**42**	**46**
Average Time	80Minutes			

Source: Field survey, 2013

Majority of the sample household preferred to use their foot to come to the town though they believed that there was no any transport problem in area. More than 72 % of the sample households went to Adwa town on foot. This was due to the proximity of the *Tabias* to the town and inability to afford the transport cost. It was more than a quarter (28%) who used car to travel to Adwa, particularly those from TahtayLogomti *Tabia* (it is 26 km from the town), Table 5.26. The average time to reach the town was one hour and twenty minutes. Those who travelled on foot took them maximum of four hours. They used donkeys to transport items from home to the town as well as from the town to their home. Those with no donkey or other pack animal carried items on their back. Such long hours of travel may have its own impact on their production and contradicted with what the government sets to be the minimum distance farmers should to travel.

5.6.1 Migration Status

Rural families often allocate their labor asset over spatially dispersed location in order to reduce risk. Some members continue to intensify their work in rural areas, while others seek earning in nearby or distant locations as migrant workers. Migration is an important dimension of household income diversification. This was true in the study area too. Migration had long been an essential element of livelihood strategies in some of the respondent households. People moved from place to place in search of employment and income to improve their living standards. Therefore, the rural-urban linkage can also be manifested through internal migration. Small towns believed to serve as attraction point for the surrounding people. This function of small towns can reduce the migration of the surrounding people to other big centers. Households in the study area migrated to Adwa town, to other parts of the region and nation and to other countries in order to improve their livelihoods. The survey data show the migrants' remittance account a significant share of households' income in the study area, that is, 3.2% (Table 6.7). This result is in agreement with Thanh *et al.* (2005) who found in Vietnam a share of remittance that ranges from 2.28% to 17.18%.

As illustrated in Table 5.27, majority (68%) of the survey respondents' households had at least one member who migrated temporarily or permanently. Indeed, while some family members left their home village to find job elsewhere, they did not permanently left their home or their land. About 37% of the rural households have at least one migrant in Adwa town with permanent residence. The rest (31.7%) of the households had family members who moved to Adwa town and stayed temporarily from three to four months and back to their rural base. Thus, the area had high level of out-migration. About half of those who sent their family members to Adwa were from EndabaGerima (49%) (this was due to the fact that the land tenure of this *Tabia* was characterized by very small holding and the steep slope also limit the agricultural production), followed by BeteYohannes (25%) and TahtayLogomti (23%). However, almost half of the households who sent their family members to Adwa for job blame that they faced a problem on their agricultural activity. This mainly happened during the agricultural season. Nevertheless, around 60% of the

sample respondents who sent their family members to Adwa town got some remittance from the family members who were in town.

Table 5. 27: Status of Migration to Adwa and Remittance flow

Family members move to Adwa for job seeking	**Status of stay in the town**	
	Permanent	**Temporary**
Yes-151 (68.3)	81 (36.7)	70 (31.7)
No-70 (31.7)	-	-
Total-221	**81**	**70**

Description	***Tabia***			
	B/Yohannes	**E/Gerima**	**Soloda**	**T/Logomti**
Live and work at Adwa	20 (25)	40 (49)	2 (3)	19 (23)
Remittance -49	9 (18.4)	32 (65.3)	1 (2)	7 (14.3)
Total	**67**	**66**	**42**	**46**

Source: Field survey, 2013

In line with rural-urban migration in the study area, the urban households were also asked about their migration status. The migration status of the sample urban population of Adwa town revealed that the majority of the urban households were migrants.

Table 5. 28: Migration Status and Reasons for Migration

Description	**Alternatives**	**Number**	**%**
Place of previous residence -85 (64.9)	Adwa rural Wereda	53	62.4
	Other town	29	34.1
	Other rural areas	3	3.5
Length of residence in Adwa	0-5	16	18.8
	6-10	12	14.1
	11-15	26	30.6
	16-20	3	3.5
	21-25	5	5.9
	26 + years	23	27.1
Selected reason for migration	To get better job	49	57.6
	Education	18	21.2
	Marriage	10	11.8
	Others	8	11.4

Source: Field survey, 2013

As shown in Table 5.28, around 65% of the sample urban households' previous residence was outside Adwa town. About 62% the sample urban households came from rural areas of the *Wereda*, while the rest (38%) of the respondents came from other areas outside the *Wereda*. Most of them came from different parts of region and Eritrea. One-third of the migrant households came to Adwa town 20 years ago, while another one-third came between 11 and 15 years ago. Near to one-fifth of the migrant households can be regarded as recent migrants, as they came to Adwa town in the last 5 years. The recent status also shows that the rural-urban migration is a continuous process. Those who stayed for 16-20 years are those associated with the Ethio-Eretria war that attracted large number of the active population from both the town and the surrounding rural areas. At that time, people from other parts of the region were not willing to come to the town since it is located near to the border (30Kms from Rama, a border town in the Northern part of the nation or Mereb River).

People move mainly for employment, although migration was common for pursuing education. Education is traditionally highly valued in the study area. In urban areas, 29.3% and 17.2% of migrants were those who migrated in search of work and for education respectively (Seid, 2007). In the study area, it was found that about 58% and 21% of urban migrants in Adwa town were those who migrated in search of work, and for education, respectively. Similarly about 12% of migrants changed their original residence to the town due to marriage arrangements. This finding was substantiated with the above mentioned reasons of migration for rural households. This implied that, rural households had an opportunity to diversify their source of income in the town. Migrants were asked whether they visit their relatives in rural areas and send remittance. Most of them reported that they visited their relatives but did not send remittances except during the time of their visit.

5.7 Determinants of Rural Households' Linkages

At the local level, the nature and scope of rural-urban interactions influenced by the nature of agricultural land, population density and distribution patterns, farming systems and the availability of roads and transport networks (Tacoli, 2006). Positive interactions between rural and urban areas facilitate an all rounded development in both areas. The strength of interaction and interdependence of these spatial units, however, are influenced by several factors such as farming system, access to natural resource, accessibility and affordability of transport, income (measured from volume of crop production and number of cattle owned), and the like. All people have been linking with the urban system for various purposes and the diversified socio-economic settings of the rural households have made possible variation on the forms and magnitude of the linkage with the urban system. The contribution of rural-urban linkages to livelihoods varies depending on households' and individuals' wealth and status, their gender, and age. To capture further factors affecting the rural-urban linkage in the study area, it is important to see first the level of rural-urban linkage.

Here sample households were categorized as having strong and weak rural-urban linkages. In this study, sampled households were categorized as first, second, third and fourth linkage quartile in terms of their score of marketing and non-marketing linkage indices (Table 5.29). In this sense, sample rural households who had a strong rural-urban linkage would have a better access to information, frequency of movement (market and other non-market purposes) and utilization of financial services than their counter parts, that is, those who had a weak level of rural-urban linkage.

Table 5. 29: Composition of Sample Rural Households' Level of Linkage

Linkage Type	Level of Linkage Quartile				Total
	I	II	III	IV	
Marketing	51 (23%)	58 (26%)	57 (26%)	55 (25%)	221
Non-Marketing	35 (16%)	70 (32%)	22 (10%)	94 (42%)	221

Source: Field survey, 2013

According to the survey result (Table 5.29), large proportion of the households (42%) and little proportion (16%) of the households were grouped in the two extreme non-marketing linkages, strong and weak or fourth and first quartile respectively. Similarly, the difference among the second and third quartile was big. However, if aggregated the third and fourth quartiles as a strong linkage and the first and second quartiles as having a weak linkage, almost half (48%) of the sample households did fall in the weak non-marketing linkage and the rest half (52%) under the strong non-marketing linkage. In the marketing linkage, the share of first (23%) and fourth (25%) quartile was with little difference. There was no any difference among the second and third quartile (26% each). Generally, 49% the sample households showed a weak marketing linkage (first and second quartiles) and the rest 51% fall under the strong marketing linkage (third and fourth quartiles). The first rural-urban linkage quartile implies very weak linkage while the fourth quartile implies very strong linkage. However, for this study, those households who did fall in the first and second quartile were considered to be weak linkage and those who did fall in the third and fourth quartiles were considered as having a strong linkage.

Table 5. 30: Sample Rural Households' Level of Linkage and Economic Status

Type of Linkage	Linkage Index	Economic status			Chi Square statistics
		Rich	Middle	Poor	
Marketing Linkage	Strong - (49.8)	26 (23.6)	56 (50.9)	28 (25.5)	**36.72*****
	Weak - (50.2)	18 (16.2)	21 (18.9)	72 (64.9)	
Non-Marketing Linkage	Strong - (52.5)	19 (16.4)	25 (21.6)	72 (62)	**29.17*****
	Weak - (47.5)	25 (23.8)	52 (49.5)	28 (26.7)	
Total (221)		**44**	**77**	**100**	

Source: Field survey, 2013 ***Significant at 99 %

As shown in Table 5.30, about 62% of the sample poor respondents experienced a strong non-marketing linkage, which is by far higher than those who are rich in economic status (16.4%). Majority (49.5%) of the middle-income group had a weak non-marketing linkage as compared to poor (26.7%) and rich (23.8%) income groups. This shows that the poor income group had a frequent visit to the town to get additional income from different urban-based income generating activities. The Chi-square test also confirmed that there was a significance systematic association between household head's level of

non-marketing linkage and the economic status at 99% confidence interval. There was a significant association between level of non-marketing rural-urban linkage and the household's economic status (X^2=29.17, df=2, p=0.001). This is quite different from the common experience by which the rich income group expected to have a strong linkage than the poor. The better off tend to diversity in the form of non-farm business activities (trade transport, shop keeping, etc).While the poor tend to diversify in the form of casual work, especially on other farms. Diversification by the poor therefore tends to leave them still highly reliant on agriculture, while that by the better off reduces such dependence (Ellis, 2004).

In case of the marketing linkage, majority (about 65%) of the sample poor respondents experienced a weak marketing linkage, which is by far higher than those who were rich (16.2%) and middle (18.9%) in economic status. While majority of the middle (50.9%) and rich (23.6%) income group had a strong marketing linkage as compared to poor (25.5%) income groups (Table 5.30). This shows that the non-poor income group had a frequent visit to the town to sell their product and get more income from these outputs. The Chi-square test also confirmed that there was a significance systematic association between household head's level of marketing linkage and the economic status at 99% confidence interval. There was a significant association between level of marketing linkage and the household's economic status (X^2=36.72, df=2, p=0.001). This is consistent with the common experience by which the rich income group expected to have a strong marketing linkage than the poor. The better off tend to diversity in the form of non-farm business activities (trade transport, shop keeping, etc).While the poor tend to diversify in the form of casual work, especially on other farms. Diversification by the poor therefore tends to leave them still highly reliant on agriculture, while that by the better off reduces such dependence (Ellis, 2004).

Table 5. 31: Distribution of Sample Rural Households' Level of Linkage in *Tabias*

Type of Linkage	Linkage Index	*Tabia*				Chi Square Statistics
		Bete-Yohannes	Endaba-Gerima	Soloda	Tahtay-Logomti	
Marketing Linkage	Strong -(50%)	20 (18)	46 (42)	17 (15)	27 (25)	**24.03*****
	Weak - (50%)	47 (42)	20 (18)	25 (23)	19 (17)	
Non-Marketing Linkage	Strong - (52%)	50 (43)	29 (25)	32 (28)	5 (4)	**56.51*****
	Weak - (48%)	17 (16)	37 (35)	10 (10)	41 (39)	
Total (221)		**67**	**66**	**42**	**46**	

Source: Field survey, 2013 ***Significant at 99 %

This level of linkage had also shown a difference among the target *Tabias* (Table 5.31). In the marketing linkage, EndabaGerima has a strongest marketing linkage with Adwa, followed by TahtayLogomoti. About 42% households from EndabaGerima and 25% households from TahtayLogomoti created a strong marketing linkage with town. This was mainly attributed due to the marketing of livestock products and honey production. However, this does not mean that the other *Tabia* did not create a strong marketing linkage with the town. The big share went to the mentioned *Tabias*. In relative term, the two *Tabias* namely BeteYohannes and Soloda have a weak marketing linkage with the town. About 42% and 23% of households from BeteYohannes and Soloda had created a weaker linkage with Adwa respectively. To see if there could be a systematic association between the nature (characteristics) of *Tabia* and level of marketing rural-urban linkage, a Chi-square test carried out. Accordingly, the Chi-square test confirmed that there was a significance systematic association between household head's residence or *Tabia* and the level of marketing linkage at 99% confidence interval. There was a significant association between *Tabia* and the household's level of marketing linkage (X^2=24.03, df=3, p=0.001). This shows that the characteristics or nature of a *Tabia* had an effect on the level of marketing linkage.

In case of the non-marketing linkage (Table 5.31), BeteYohannes had a strongest linkage with Adwa, followed by Soloda. About 43% households from BeteYohannes and 28% households from Soloda created a strong non-marketing linkage with town. This mainly attributed due to the relative advantage of proximity to the town. Households from these *Tabias* visited the town frequently to get different services and job. Particularly the

distant *Tabia*, TahtayLogomti had only 4% households who had a strong non-marketing linkage with town. Therefore, the big share of households with a strong non-marketing linkage went to the mentioned *Tabias*. The other two *Tabias*, EndabaGerima and TahtayLogomti had relatively a weak non-marketing linkage with town. To see if there could be a systematic association between the nature of *Tabia* and level of non-marketing linkage, a Chi-square test carried out. Accordingly, the Chi-square test (X^2=56.51, df=3, p=0.001) confirmed that there was a significance systematic association between household head's residence or *Tabia* and the level of non-marketing rural-urban linkage at 99% confidence interval. This shows that the characteristics or nature of a *Tabia* had an effect on the level of non-marketing linkage. So, such variations attributed by different factors that would be treated here under.

Linear Regression Model Result

This section presents the results of econometric analysis or the linear regression model, to estimate the determinants of rural-urban linkage in the study area. A number of factors were postulated that can influence the level of households' rural-urban linkage (both marketing and non-marketing linkages). Twelve variables were hypothesized that can significantly influence the household's level of rural-urban linkage in the study area. These variables are; Household head's age (AGE), Household head's sex (SEX), Marital status of the household head (MSTA), Education level of the household head (EDU), Family size of the household (FAMS), Total farm size of the household (TFS), Number of farm plots owned by the household head (NFP) Total livestock ownership of the household (calculated in terms of Tropical Livestock Unit-TLU), Engagement in irrigation (IRR), Bee hive ownership (BHO), Cell phone possession (CPP) and Distance from the town (DIT). These variables are summarized below in Table 5.32.

Table 5. 32: Summary of Variables Considered

Variables	Meaning	A priori Sign
AGE	Household head's age (in years)	Positive /Negative (+/-)
SEX	Sex of the household head	(+/-)
MSTA	Marital status of the household head	(+/-)
EDU	Education level of the household head	(+)
FAMS	Total family size of the household	(+)
TLU	Livestock ownership (in TLU)	(+)
TFS	Total farm size of the household (in hectare)	(+/-)
NFP	Number of Farm Parcels	(+/-)
BHO	Bee hive ownership	(+)
CPP	Cell phone possession	(+)
DIT	Distance from the town	(-)
IRR	Engagement in irrigation	(+)

Source: Author, 2013

Prior to running the regression model, the problem of multicollinearity among the explanatory variables checked by using collinearity diagnostics or Variance Inflation Factor (VIF). As it is presented in the attached annex (Appendix I), the value of VIF for each variable proved that the assumption of multicollinearity was not violated or there was no a serious problem among the variables, as VIF values for each variables are less than 10. Similarly, using the Durbin-Waston autho collinearity checked and found that there was no any authocollinearity problem.

Table 5.33: Linear Regression Estimates of Variables for Marketing Linkage

Variables	**Marketing Linkage (Visit)**				**Marketing Linkage (Income)**			
	Coefficient	**Std. Error**	**t- Ration**	**P- Value**	**Coefficient**	**Std. Error**	**t- Ration**	**P- Value**
Constant	-3.921	1.598	-2.454	.015	5814.721	9896.343	.588	.557
AGE	.228	.070	3.277	.001**	76.397	430.797	.177	.859
SEX	-.271	.279	-.969	.334	-471.384	1729.188	-.273	.785
MSTA	-.251	.136	-1.843	.067	-968.327	843.746	-1.148	.252
EDU	.230	.156	1.473	.142	561.120	964.810	.582	.561
FAMI	-.053	.052	-1.018	.310	-558.840	320.150	-1.746	.082
TFAS	.419	.444	.944	.347	3634.648	2750.979	1.321	.188
NFP	.149	.047	3.159	.002**	94.453	292.138	.323	.747
TLU	.154	.048	3.238	.001**	1264.259	295.356	4.280	.000***
DIT	.111	.079	1.395	.165	-1149.441	491.669	-2.338	.020**
BHO	.163	.042	3.872	.000***	720.463	260.007	2.771	.006**
CPP	-.413	.150	-2.751	.006**	-2577.468	929.888	-2.772	.006**
IRR	.337	.171	1.969	.050**	6532.648	1058.617	6.171	.000***
Age Squared	-.002	.001	-3.142	.002**	-1.418	4.514	-.314	.754
Observations	221				221			
R-squared	.363				.342			
Adj R-squared	.323				.300			
F(13, 207)	9.058				8.262			

Source: Model output, 2013; N.B: **, *** denotes significant at 95% and 99% level of confidence respectively

5.7.1 Determinants of Marketing Linkage

Farmers from the surrounding area visit the market to sell crops, livestock/livestock products, poultry, vegetable, honey, and forest/forest products. These are the most common items brought to market by farmers. Some of them bring one of the above items to the market while others bring more than one item. Farmers who bring more items to the market believed to have higher frequency of visits and higher linkage and rely more on the market than those who bring none or limited item to the market. The reason is that the products have different seasons to be brought to the market. As a result, a value of 1 was given for those who bring a specific item to the market and a value of 0 was given if they did not bring the specified item. Finally, the values were added up to get the scores of marketing linkage (orientation) for the household. The scores varied between 0 and 6 with 0 representing farmers who brought no output to the market and 6 representing farmers who brought all the six major items to the market. It has to be noted that this measure show the marketing orientation of farmers.

In order to examine the degree of the marketing linkage, however, the income gained from the sales of items or from the linkage with Adwa market was also considered as an indicator of the degree of marketing linkage. Thus, income from the linkage was taken as the second dependent variable to be explained by the independent variables.

Table 5.33 depicted the regression estimates of the model and the Adjusted R-squared with a value of 0.323 indicated that the model explained the variation in the level of marketing linkage in the study area for 32.3 percent of the sample. The ANOVA statistic of 9.058 (13 df) shows that the model is different from zero and significant at 99 percent of confidence level. In other words, the model is fit at 99 percent confidence level.

Most of the variables in the regression model had the correct sign as hypothesized in the a priori expectation except the possession of cell phones. By removing the most insignificant variables the regression model result show that only six variables namely Number of farm plots (NFP), Livestock ownership (TLU), Bee hive ownership (BHO),

Engagement in irrigation (IRR), Cell phone possession (CPP) and Age (AGE) had significant effect on the level of marketing linkage (its orientation) in the study area.

In a similar fashion, a linear regression model was also used to identify the variables that affect the degree of marketing linkage. The degree of marketing linkage was measured by the income derived from the visits of market places. The Adjusted R-squared of 0.30 indicated that the model explained the variation of level of marketing linkage in the study area for 30.0 percent of the sample. The ANOVA statistic of 8.262 (13 df) shows that the model is different from zero and significant at 99 percent of confidence level. The model is fit at 99 percent confidence level. Most of the variables in the regression model had the correct signs or the hypothesized signs as expected. The Result showed that Livestock ownership (TLU), Bee hive ownership (BHO), Engagement in irrigation (IRR), Cell phone possession (CPP) and Distance to the town (DIT) had significant effect on the level of income earned from marketing linkage in the study area (Table 5.33). The following provided a discussion of the results.

Total livestock holding (TLU): Households with different livestock ownership could have a better understanding of marketing information and diversification as well as boost their overall production capacity. Total livestock holding of a household that calculated in terms of TLU, is thus, hypothesized to have a positive influence in enhancing level of marketing linkage. The result showed that livestock ownership of the household head is associated with level of marketing linkage of the household head positively and significantly (p=0.001) at 95 percent of significant level. A unit of change in TLU of a household has an effect on the level of marketing linkage (its orientation) of that household by 0.154. The status of livestock ownership of the household head is also associated with level (degree) of marketing linkage of the household head positively and significantly (p=0.001) at 95 percent of significant level. A unit of change in TLU of a household has an effect on the degree of marketing linkage of that household by 1264.259. This finding is consistent with the findings of other studies Demssie and Workneh (2004), which found out that livestock holding generates income through sale and is an important asset for enhancing livelihood diversification. The income earned

from livestock and/or livestock product could be reinvested in other agricultural and non-farm activities that would have a significant influence in strengthening the level of marketing linkage.

Table 5. 34: TLU Ownership of the Three Income Groups

Economic Status	**Min**	**Max**	**Mean**	**SD**	**ANOVA**
Rich-44	4.22	11.07	5.88	1.33	**85.08*** **
Middle-77	2.27	7.31	4.73	1.01	
Poor-100	0.0	6.65	3.13	1.34	

Source: Field survey, 2013; *** Significant at 99%

Though there was a significant difference in the mean of livestock holding among the three income groups (Table 5.34: F=85.08, df=2, p=0.001), having higher number of livestock holding was revealed to have a strong marketing linkage. This livestock holding was among the major indicators of a household to be a rich or a poor. As a result, those who had a higher TLU were those who were rich. In the previous section it was founded that those who were rich had strong marketing linkage than their poor counterparts.

Engagement in irrigation (IRR): Most of the time farmers engaged in irrigation produce vegetables and fruits that are demanded by the nearby urban dwellers. The equipments and fuel for the generators are available in urban centers. The products of such activity are almost all sold in urban areas. Therefore, there is an expectation that those who are engaged in irrigation would have a positive impact on the level of marketing linkage. The result revealed that those household with irrigation are found to have a positive and significant (p=0.05) influence on their orientation of marketing linkage at 90 percent of confidence level. An engagement in irrigation increased the orientation of marketing linkage of the household by 0.337. The result also revealed that those household heads who engaged in irrigation found to have a positive and significant (p=0.001) to influence on their degree of marketing linkage at 99 percent of confidence level. Taking other variables constant, an engagement in irrigation increased the degree of marketing linkage of the household by 6532.648. This implies that those who were engaged in irrigation would have a strong marketing linkage/visiting with town and earn

more income than those who did not. This finding is consistent with that of Seid (2007) who indicated that access to irrigation scheme encourages households to focus on items that have high demand in urban market. Irrigation thus contributed to improve the livelihood of the rural households.

Number of bee hives owned (BHO): Those who produced honey sold their product in the nearby town and purchased bee hives from such centers. It is thus expected that engagement in honey production and the availability of beehives would have a positive influence on the level of marketing linkage. The result revealed that bee hive ownership is found to have a positive and significant (p=0.001) influence in the households' orientation of marketing linkage at 99 percent level of confidence. An increase in the ownership of beehives by a unit had an impact of increase in the visit of market linkage of a household by 0.163. In line with this hypothesis, bee hive ownership was also found to have a positive and significant (p=.006) influence in the households' level of marketing rural-urban linkage at 95 percent level of confidence. The ownership of bee hives is affecting the degree of marketing linkage of a household by a factor of 720.463.

Cell phone possession (CPP): Those with cell phones expected to have an access to information, mainly market information from the nearby town. Understanding markets is essential for farmers. Direct access to information on consumer preferences and price could determine the practices of farmers attending markets. Based on the market information famers could be selective to visit the market only in periods when the price is favorable for them. Hence, it is hypothesized that the possession of cell phone would have a positive influence on the level of a households' marketing linkage with the urban centers. In line with this hypothesis, possession of cell phone had a negative and significant (p=0.006) influence in the households' orientation and level of marketing rural-urban linkage at 95 percent level of confidence. This attributed by the fact that those who got market information would be selective in visiting the marketing. Instead of supplying their items to the market all days without assessing the price and back without selling them; farmers would be more strategic and bring their items when the market price is suitable for them. This implies that those who manage to get market information

probably would have a better opportunity to spent more time in the rural area and able to produce more production which leads them to boost their income and may not be forced to create a strong marketing linkage with the nearby town to seek additional source of income.

Number of Farm Parcels (NFP): It is expected that, as the number of farm parcels of a farmer increases, the attention and care given to proper farming practices reduces drastically, affecting adoption of improved technologies and maintenance of existing structures and may lead to poor yield. This may reduce household's intention to visit towns for marketing purposes. On the other hand, the household may visit the nearby town for additional source of income. For these reasons, the influence of number of farm parcels on level of rural-urban linkage in indeterminate a priori. The result showed that the number of farm parcels had a positive sign and was statistically significant (p=0.002). This implies, other variables held constant, the probability of creating a strong marketing linkage in the study area increased as the number of farm parcels increased by 0.15 units. However, this variable did not have a significant impact on the degree of marketing linkage. The mean number of farm parcels in the study area is 3.79 with a maximum number of 9. This large number of farm plot was mostly owned by the rich and middle-income group households as they tend to share crop with the poor households. As a result, the rich diversify their income that would enhance the farmers' visit to towns for marketing.

Age (Age-Squared): Age of the household head was expected to have either positive or negative effect on level of rural-urban linkage. Older farmers are likely to be relatively reluctant to attend markets and diversify their income. Hence, their rural-urban linkages would be limited. On the other hand, older farmers are likely to have more farming experience and would therefore be likely to be more receptive to new technologies that would strengthen their linkage. Younger farmers would be more accommodative to new ideas and would invest in new and long-term innovations. For these reasons, the influence of age on level of marketing linkage could not be determined a priori. The result in this study showed that age had a negative sign and it was significant (p=0.002) at

95% confidence level. This implies that older farmers were likely to have weak marketing linkage than their younger counterparts. The finding is consistent with other researcher's finding which noted that 'the younger generations are more able to have higher levels of rural-urban linkages Africa' (Akkoyunlu, 2013).

Distance from the town (DIT): Greater physical access to market improves farm and non-farm earnings opportunities. Therefore, longer distance to the nearest market expected negatively affects the rural-urban linkage due to high transaction and transport costs as well as lack of market information. Income depends on market access simply because people must be able to sell their processed products, handicraft or labour. As expected, the distance to urban center coefficient had turned out to be negative and significant (p=.020) influence in the households' level of income earned from marketing linkage at 95 percent level of confidence. With an increase of distance to the urban center, the level of income earned from the marketing linkage of a household decreased by 1419.441. Therefore, households closer to the town were more advantageous in getting income from different activities than distant households from the town.

The above results summarized that those households who were younger, with large number of farm plots, with larger amount of TLU, with mobile phone services, who own beehive colonies, who were engaged in irrigation schemes and those who were close to the town were more likely to have a strong marketing linkage. TLU, beehive ownership, cell phone ownership and engagement in irrigation were significant predictors at the 99% level, while number of farm plots, distance and age were significant predictors at the 95% level. The adjusted R-square were 0.323 (market orientation) and 0.3 (income-degree of marketing linkage) indicating that the fit of the model to the data was very good or more than moderate. The F statistic which tests the significance of the R-square statistic or, in other words, the null hypothesis that all regression coefficients are zero, is 9.058 and 8.262 respectively and significant at 1 % level of significance. It implies that the independent variables were related to the dependent variables. An attempt to improve the status of these factors, no doubt, contributed greatly to the enhancement of marketing linkage of the households.

5.7.2 Determinants of Non-Marketing Linkage

Non-marketing linkage in this study was measured by using the frequency of visit of rural households to Adwa town for the non-marketing purpose. This third dependent variable was computed by summarizing the main indicators of non-market visits; mainly the major services related to financial, health, education, jobs, agricultural extension and grain mill. Some of farmers visited the town to get one service while others visited the town to get more than one services. Farmers who got more services in Adwa town believed to have higher linkage and relied on these services than those who did not or had limited visit to get the services. As a result, a value of 1 was given for those who got a specific non-market service in the town and a value of 0 was given if they did not get the specified service. Finally, the values were added up to get the scores of non-marketing linkage for the household. The scores varied between 0 and 5 with 0 representing farmers who did not get the service in the town and 5 representing farmers who got all the five major mentioned services in the town.

The Adjusted R-squared of 0.195 indicated that the model explained the variation of level of non-marketing linkage in the study area for 19.5 percent of the sample. The ANOVA statistic of 5.11 (13 df) shows that the model is different from zero and significant at 99 percent of confidence level. The model is fit at 99 percent confidence level.

Majority of the variables in the regression model had the correct a priori signs or the hypothesized signs as expected. By removing the most insignificant variables, the regression model result showed that only four variables namely Sex of the household head (SEX), Total number of family members (FAMI), Number of farm plots (NFP) and Livestock ownership (TLU) had significant effect on the level of non-marketing linkage in the study area. The variables that are statistically significant with the level of non-marketing linkage of the households are estimated and presented in Table 5.35.

Table 5.35: Linear Regression Estimates of Variables for Non-Marketing Linkage

Variables	**Non-Marketing Linkage**			
	Coefficient	**Std. Error**	**t- Ration**	**P- Value**
Constant	8.400	2.163	3.883	.000
AGE	-.111	.094	-1.182	.239
SEX	-1.023	.378	-2.706	.007**
MSTA	-.217	.184	-1.178	.240
EDU	-.012	.211	-.058	.953
FAMI	.127	.070	1.812	.071*
TFAS	-.813	.601	-1.352	.178
NFP	-.246	.064	-3.855	.000***
TLU	-.129	.065	-2.004	.046**
DIT	-.018	.107	-.165	.869
BHO	.032	.057	.570	.570
CPP	-.086	.203	-.422	.673
IRR	.077	.231	.334	.738
Age Squared	.001	.001	1.159	.248
Observations	221			
R-squared	.243			
Adj R-squared	.195			
Root MSE	9.722			
F(13, 207)	5.111			

Source: Model output, 2013;

N.B: *,**, *** -Significant at 90%, 95% and 99% level of confidence respectively

The following provided a discussion of the results.

Sex (SEX): This variable refers to being male and female-headed household. More importantly, farming as an activity is a male dominated enterprise because of its strenuous nature. A household head who is female, could take more family and social responsibilities that are activities carried out at the rural areas. The sex of a household head is associated with the level of non-marketing linkage negatively and significantly (p=0.005) at five percent of probability. Thus, if a female heads the household, the level of non-marketing linkage decreased by a factor of 1.023. Moreover, the responsible household heads perhaps more needs for services and can frequently visit the town.

Household heads that are male would have an opportunity to visit the town to search additional income, purchase different items or inputs, and the like. However, this finding is not consistent with that of Seid (2013) that shows rural-urban linkage between Bahir-Dar and its surrounding rural areas in Ethiopia benefitted female the most through the participation in the non-farm activities. Similarly, with that of Akkoyunlu (2013) and Tacoli (2004) who states the women are more likely to engage in petty trade and secondary occupation.

Family Size: This is among determinants in the level of rural-urban linkage a household has, especially with respect to poor resource farmers who depend solely on family labour to maintain their farms. It was not surprising that household with larger family members to have a better rural-urban linkage. Household size influences the decision of farmers to undertake different income generating activity measures given household labour is the whole supplier of the required labour for undertaking the farming and other activities. Households with abundant labour supply are believed more likely to engage in livelihood diversification or have a higher participation in non-agricultural activities. Labour-rich households feel less constraint to send some of their members to non-farm activity. Thus, as household size increased, intra-household specialization increased. The family size of a household head was associated with the level of non-marketing linkage positively and significantly ($p=0.071$) at ten percent of probability. The coefficient implies that one unit increased in family member of household head increased the probability to have a strong non-marketing linkage by 0.127, keeping other variables in the model constant.

Total livestock holding (TLU): In line with what was hypothesized at the outset of this study, TLU determined the level of non-marketing linkage negatively. In this study, the status of livestock ownership of the household head is associated with level of non-marketing linkage of the household head negatively and significantly ($p=0.046$) at five percent of significant level. An increase in TLU of a household declined the level of non-marketing linkage of that household by 0.129. This finding is inconsistent with other studies. Therefore, the income earned from livestock and/or livestock product could be

reinvested in other agricultural and non-farm activities that would have an insignificant influence in strengthening the level of rural-urban linkage.

Those who have more oxen spend more time on their farms than their counterparts. Therefore, it was not a surprise to get negative sign of the TLU in this regression model. Number of oxen owned also contributed for the low production in the study area. This small ownership of oxen forced one farmer to make an agreement with other farmer to plough their land turn by turn. This situation led the poor farmers to visit the town when their ox occupied by other partner. Therefore, this affected the linkage in a negative way.

Number of Farm Parcels (NFP): It is expected that, as the number of farm parcels of a farmer increase, the attention and care given to proper farming practices will consume more time. Or the attention and care given to proper farming practices in order to get more yield would consumes more time and finally the household may fail to visit the town frequently. As a result, of such time shortage, the household could not visit the nearby town for other purposes (non-market reason). As expected, in the analysis for this study, number of farm parcels took a negative sign and was statistically significant ($p=0.001$). Other variables held constant, the probability of creating a strong non-market linkage in the study area reduced as the number of farm parcels increases by 0.25 units. This seems to be quite logical, as due to lack of time to manage the farm plots in the study area most of the households have to spend more time and leading to lower the level of visiting the town for non-marketing purpose. The population pressure leading to fragmentation of farmlands in the area could be linked to this finding.

In general, using linear regression model, the major factors influencing a household's level of non-marketing linkage were investigated. The final regression model indicated that rural households, those who were male-headed, those having large family size, those with small amount of TLU, and those who had small number of farm plots were more likely to have a strong non-marketing linkage. TLU and sex were significant predictors at the 95% level while number of farm plots is at 99%. The adjusted R-square was 0.20 indicating that the fit of the model to the data was very good or more than moderate.

5.8 Summary

The major crops produced in the *Wereda* were *Teff*, Sorghum, Wheat, Millet and Maize. Other crops such as lentil, bean and peas were produced too. All sample respondents produced cereals (*Teff*, Barley, Wheat, Maize and Millet); and on average a household head produced about 14 quintals of cereals. The bulk of the cereal production was used for consumption. Considerable sample rural households were producing pulses for market purpose. About half of the respondents were capable of producing honey (about half quintal) which was primarily produced for market. Those engaged in producing vegetables also focused on market. Such huge production of honey and vegetables were good indicators of a potential for the existence of a strong rural-urban linkage.

Although all sample rural households produced cereal crops, majority did not own enough to meet family subsistence needs. Many complained that the land does not produce enough for the family. Therefore, they tried to fill the gap by engaging in other activities, which enables them to purchase from market. The engagement in non-farm/off-farm activities found to be higher for *Tabia* BeteYohannes and EndabaGerima. This was mainly due to the availability of job in the textile and marble factory for BeteYohannes and the extraction of stone for EndabaGerima that was sold in Adwa town. Therefore, the rural-urban linkage had a contribution on the improvement of the livelihood of the rural people in the study area.

The findings disclosed that the level of production rural-urban linkage in the study area was very low or weak. The backward production linkage was relatively better than the forward production linkage. Availability of agricultural inputs in the nearby town was the main facilitator for the existing backward production linkage. The backward production linkage in the study area reflected mainly through farmers' use of herbicides and insecticides and irrigation equipments supplied from Adwa town. The forward production was almost missing in the study area. Almost no sample households sold any part of their farm products to agro-processing plants found in Adwa. Thus, there is little or no industrial base linked to the hinterlands. The town has a large industrial base (Textile,

marble, shoe, flour), which did not have any meaningful direct link with the rural people or rural production processes in the hinterland. These industrial activities were outward directed and export oriented and hence contributed very little to the overall district economy, except for the few job opportunities they created and associated market opportunities for food crops from the rural hinterland.

In the study area, crop products supplied to Adwa market from the hinterlands were very small. Therefore, the marketing linkage through crop was very weak, as most of the farmers did not produce sufficient surplus. However, the marketing linkage via livestock, poultry and honey was very high; even creating a linkage with other towns. In general, goats, cattle, and chickens dominate the livestock markets. The households were beneficiaries from such linkage and able to improve their livelihood.

In addition to the major rural products (livestock and/or livestock product, honey and vegetables) sold at Adwa town market, there were different items prepared and/or produced in the hinterland and sold at the town. Among them the dominant products were household utensils such as pottery and containers ("Mesob") for "*Injera*" (made from rattan); agricultural products such as hop and byproduct like hay (straw); and products of cotton (an input for the traditional clothes-spool or stitch). From selling of such products, the rural households make income to support their daily livelihoods. Therefore, in terms of the marketing of these materials, the rural-urban linkage was playing a great role in the livelihood of the surrounding rural areas' households by increasing their livelihood diversification.

The supply of forest and forest product to the urban centers was one among the manifestations of environmental rural-urban linkages. More than a quarter or around 26% of the sample rural households reported that they sold forest product to Adwa town. The dominant types of forest and forest products were items used for construction, fire wood and charcoal. Similarly, about 13% of the sample rural households reported that they sold stone (for construction) at Adwa town. About 86% of these sample rural households found in the middle and poor economic status group. Therefore, in terms of rural-urban

linkage through the sale of stone, the middle and poor economic status groups show a better or strong linkage as compared to the rich one. This shows these groups were getting more income to cover some of their expenses by selling stone to the town. So, these off-farm activities considered as survival strategy to these groups of people.

The financial linkage of town to its hinterlands is based on the availability of financial institutions in the towns, which would stimulate the rural people to use these institutions for loan and saving. About 68% of the respondents reported that they took loan from different institutions (in 2012/13) in which more than half of it sourced from Adwa town. Majority of the respondents (about 63%) reported that they got loan from credit and saving service (microfinance) in which the town is the major source of the loan. Such loan had its own target and the recipients used it for different purposes. About 42% the sample respondents reported that they bought shoats as well cow with the loan. Around one-fifth (19%) of the respondents used the loan to purchase fertilizer. Others spent the money to buy bee colonies and modern bee hives (6%), on trade activity (8%), to buy ox for fattening (6%), for irrigation purpose and purchase pack animals and the like (19%). Such loan created a suitable atmosphere for the rural households to diversify their livelihoods.

Migrants' remittances also strengthened the financial linkages between urban and rural activities. The migrants in the respondent households sent remittances to their relatives at home, regardless of household income level, and, in many cases, their contribution was a substantial proportion of household income. The response from the survey households heads revealed that a large proportion of remittance used to support the agricultural activity (most probably to purchase inputs and the like). Apart from this, other transfers occurred during festive occasions. Money also sent at the beginning of the school period for school fees and purchasing educational material. Given the tension between rising need and high cost of living, it was a surprising that over 70% of the households sent money back home more frequently now before. Therefore, migration (one of the livelihood strategies) was also contributing a great role in the livelihoods of the rural people in the study area.

The rural population of Adwa made some expenditure on urban goods. Almost all sample rural households expend some money for both durable and consumable items at Adwa town. The town met the demand of the hinterland for urban goods and services. This linkage was strong reflection of consumption linkage.

Social reciprocity (or interactions) between rural and urban areas were analyzed within the context of regular visits that occurred mainly by the rural-based members. Nearby towns are important to their hinterlands people by providing several goods and services. Adwa town was the most frequently visited center by all of the sample rural households. The frequency of visit of the sample rural households to Adwa town generally ranges from daily to once in a month. Almost 40% of the respondents visited the town on a daily base, while around 34% of the rural population visited the town at least once in two weeks or biweekly. It was only 12% of the sample rural households who visited the town rarely or once in a month. This was also a good indicator of the rural urban linkage in relation to their livelihoods.

The major reason for visiting the town was market (87.3%), followed by the need for a job (68.3%). Visiting the town also manifested through the visit of health center at Adwa town. More than half (55%) of the total sample households or their family members had been treated in health centers. About 13% of the sample rural households also visited the town for educational purpose. In line with visiting, most students who attended secondary schools in Adwa town came from the hinterland. For instance if we look at the share of students (ninth grade) who came from the rural areas of Adwa *Wereda* that attended in Adwa high school reached about 69% in 2012/13 from 61.5% in 2008/09. In addition to the above-mentioned major reasons, huge number of rural population visited the town for a religious (social) reason. Therefore, the rural-urban linkage was contributing in developing the social capital of rural households in the study area.

Different income group households show different level of marketing and non-marketing linkage with the nearby town. Nearly, two-third or about 62% of the sample poor respondents had experienced a strong non-marketing linkage, which was by far higher

than those who were rich in economic status (16.4%). Majority (49.5%) of the middle-income group had a weak non-marketing linkage as compared to poor (26.7%) and rich (23.8%) income groups. This shows that the poor income group had a frequent visit to the town to get additional income from different income generating activities. In case of the marketing linkage, majority (about 65%) of the sample poor respondents had experienced a weak marketing linkage, which was by far higher than those who are rich (16.2%) and middle (18.9%) in economic status. While majority of the middle (50.9%) and rich (23.6%) income group had a strong marketing linkage as compared to poor (25.5%) income groups. This shows that the non-poor income group had a frequent visit to the town to sell their product, while the poor to get more income from the urban based income-generating activities. Therefore, the non-marketing linkage was facilitating the livelihood diversification of the poor to improve their livelihood.

The research also set out to identify the major factors determining the marketing linkage. Accordingly, access to irrigation scheme, livestock ownership, beehive ownership, access to mobile phone, number of farm plots, age and distance were found to be the most important determinants of marketing linkage of the households. The final regression model indicated that rural households: who were younger, with large number of farm plots, with larger amount of TLU, with mobile phone services, who own bee hive colonies, those who were engaged in irrigation schemes and those who were close to the town were more likely to have a strong marketing linkage (both its orientation and magnitude). TLU, beehive ownership, cell phone ownership and engagement in irrigation were significant predictors at the 99% level, while number of farm plots, distance and age were significant predictors at the 95% level. The adjusted R-squares were 0.323 and 0.3, indicating that the fit of the model to the data was very good or more than moderate. The F statistic which tests the significance of the R-square statistic or, in other words, the null hypothesis that all regression coefficients are zero, is 9.058 and 8.262 respectively and significant at 1 % level of significance. It implies that the independent variables are related to the dependent variables. An attempt to improve the status of these factors, no doubt, contributed greatly to the enhancement of marketing linkage of the households.

Similarly, sex of household head, family size, livestock ownership and number of farm plots were found to be the most important determinants of non-marketing linage of the households. The final regression model indicated that rural households who:, were male-headed, had large family size, had small amount of TLU, and own small number of farm plots were more likely to had a strong non-marketing linkage. TLU, number of farm plots, and sex were significant predictors at the 5% level. The adjusted R-square was 0.20 indicating that the fit of the model to the data was very good or more than moderate.

CHAPTER SIX

RURAL-URBAN LINKAGES OF ADWA WEREDA AND THE RURAL LIVELIHOODS

Under the sustainable livelihood framework the issues of livelihood strategies, asset or capital and livelihood outcomes are very important aspect. In this section, these major components of livelihood framework are treated in relation to rural-urban linkages in the study area.

6.1 Major Livelihood Strategies and Rural-Urban Linkage

Rural livelihood diversification is defined as the process by which rural households construct increasingly diverse portfolio of activities and asset in order to survive and improve their standard of living. People diversify by adopting a range of activities. They can combine a number of livelihood activities like agricultural crop production, livestock production, wage work, cottage industry etc. to provide or supplement income. Thus income sources may include farm income, non-farm income (non-agricultural income sources) and off-farm income (Ellis, 2000). Diversification can be described as an accumulation strategy for households with farming assets and with access to urban networks, and who often re-invest profits from urban-based activities in agricultural production and vice-versa, resulting in capital and asset accumulation (Tacoli, 2004). Livelihood diversification would include both on- and off-farm activities undertaken to generate income additional to that from the main household agricultural activities. Households may diversify through the production of other agricultural and non-agricultural goods and services, sale of waged labour, or self-employment in addition to other strategies undertaken to spread risk.

The empirical observations from this study go in line with the argument that rural households need to diversify in order to attain sustainable livelihoods. Most of the sample rural households in the study area had diversified their sources of subsistence and follow

different livelihood paths, which was clearly evident in a number of ways. Crop and livestock production are complementary to one another, since the by-product of the one has been widely used as the input to other (manure as a source of fertilizer and crop residue as a source of fodder). Similarly, farming depends on access to farm oxen. It is well known that agricultural operations are seasonal in nature which leaves a room for working in non-farm activities during the dry seasons. Given the very small farm sizes and the large number of landless people (particularly the young age group), there is an excess of labour that can be economically utilized in diverse activities in order to generate additional income. It is believed that different livelihood activities could have different level of vulnerability to external shocks. For instance, when crops fail because of drought or other factors, the immediate coping mechanism for a household is deriving income from livestock sale or engaged in other source of income mainly wage labour.

Though all farmers' main occupation is farming, they were also engaged in different agriculture related and non-agricultural activities which made their base both in the rural and urban areas. As shown in Table 6.1, the sample rural households were engaged in bee keeping, irrigation, casual daily labour and trade activities. These were their main livelihood strategies next to farming. More than 63% of sample rural households participated in the daily wage labour and got an average income of 5973 Birr per annum. Casual wage labour was the second largest preferred livelihood strategy for the sample rural households, followed by bee keeping and irrigation in terms of number of participants. Around half of these sample rural households were also engaged in bee keeping with an average income of about 3091 Birr per annum. Here large proportion of landless households (mainly the young ones) were engaged in this apiculture activity by developing and keeping (preserving) the hill sides from grazing. About 26.7% and 10% of the rural households took irrigation and trade as their additional livelihood strategies with an average annual income of 8446 Birr and 6257 Birr, respectively. All these activities were highly related to the nearby Adwa town. All the products of honey and vegetables are sold in the town. Those who were engaged in daily labour earned the income from the town. Therefore, these strategies were results of the rural-urban linkage in the study area and improve the livelihood of the rural people.

Table 6. 1: Livelihood Strategies of the Sample Households

Livelihood Strategy-No. (%)	Average Income	Amount Saved
Farming-221(100)	6164	4135
Bee keeping-106 (48)	3091	
Irrigation-59 (26.7)	8446	
Casual wage labour-139 (62.9)	5973	2154
Trade- 23 (10.4)	6257	3771

Source: Field Survey, 2013

The highest income in the form of cash was earned from irrigation followed by trade and casual wage. The incomes earned from casual wage labour, bee keeping, and irrigation is related to urban linkages. Though farming is major income generating activity for the households; it was from wage labour and trade that most of the income saved. Particularly the income generated from the casual wage and trade has a great linkage with urban centre. So, we can conclude that these livelihood strategies, which had a great linkage with urban centers, had a great role in the sustainability of the livelihoods. The rural-urban linkage manifested through these livelihood strategies made a vital contribution to the sustainable livelihood of the sample rural households in the study area. These livelihood strategies were urban-based livelihood diversifications which clearly show the contribution of rural-urban linkage on the sustainability of rural livelihoods.

Non-farm and Off-farm Activities

Households in order to maintain a certain standard of living or even to survive, in addition to their main economic activity or occupation, engage in a wide range of other income-generating activities or sources of livelihood (Owuor 2006). Broadly, these supplementary income-generating activities can be referred as “non-farming” activities. This categorization is intended to capture the various livelihood sources for rural households, it is particularly important because the focus of this study is to see the rural and urban-based livelihood sources for rural households.

The major non-farm activities mentioned by the sample rural households are trade, daily labour, stone and gold extraction and gum collection. However, a variation is observed among the three income groups in the participation of non-farm activities as their source of income (Table 6.2). The Chi-square test (X^2=35.83, df=6, p=0.001) at 99% confidence level confirmed that there is significant association between participating in non-farm activities and the economic status of the sample rural households. In addition, households are engaged in selling of forest and handicraft products.

Table 6. 2: Major Nonfarm Activities against Economic Status of Respondents

Type of activity	**Economic Status**			**Chi-square test**
	Rich	**Middle**	**Poor**	
Trade (10.4%)	6 (13.6%)	7 (9.1%)	10	
Daily labour (builder/labour) (55.7%)	20 (45%)	30 (39%)	73	
Stone extraction and Daily labour (19%)	4 (9%)	28 (36%)	10	**35.83*** **
Other (Gold and Incense collection) (12.7%)	10 (22.7%)	12 (16%)	6	
Total-216 (97.7)	**44**	**77**	**100**	

Source: Field survey, 2013; Note: ***-Significant at 99%

The data from the present study indicates that at least 55.7% of the households studied, are engaged in non-agricultural activities (daily labour or builder). The reported annual average incomes from non-farm/off-farm activities range between 693 Birr from sale of forest products and 6791 Birr from trade (Table 6.1 and 6.4). The types of activities are too numerous to fully list here, though the major ones among the local wage employment is *Sheqli* (wage labour) which includes the daily labour, sesame harvesting and gum collection, while among self-employment activities petty trading, firewood and charcoal selling, stone extraction and handicrafts are the main activities. A brief account of the main non-agricultural sources of livelihood based on empirical material from the households is presented in the following.

Daily Labour or *Sheqli*

There are quite a large number of households that purely depend on waged agricultural labour and are working within or outside their own community. Employment in either of these agricultural operations constitutes the major livelihood opportunity and is closely linked to the seasonal variations in the demand for labour. The crop weeding and harvesting season is a peak time in which most peasants look for additional labour.

At the study area, the wage rate related to the availability of labourers. The rate per day normally ranges between 60 Birr and 70 Birr for males; and between 40 Birr and 50 Birr for females. In most cases labourers are also given an incentive (a local beer- *Tella* which costs up to 5 Birr in addition to main wage) by the employers particularly in urban center (Adwa town) for different urban activities. However, wage is higher during the harvesting and/or weeding times. They also get higher wages when they go to the western part of the region (Humera, Sheraro and Dansha) to harvest sesame and incense (in most cases for harvesting sesame, the investors provide food (porridge) as an incentive).

As depicted in Table 6.2, the majority of the sample rural households were engaged in daily labour as income generating activity and their main livelihood strategy. This strategy was preferred almost by all sample rural households who were found at different economic status. This strategy accounts for the lion share of the non-farm income generating activities; it was carried out by 45%, 39% and 73% of the rich, middle-income and poor sample rural households respectively. Labour sales were major source of income and food particularly for poor households.

A considerable number (12.7%) of respondents are also engaged in traditional gold mining and in collection of gums (male household members migrate to the western part of the region for this activity). On average, the sample rural households received about 6236 Birr per annum and 1122 Birr saved from this non-farm income generating activity. These findings are consistent with Reardon's findings from Burkina Faso, where off-farm employment provided enough cash in labour earnings or savings to weather the effects of

drought, thereby giving those with rural non-farm incomes superior coping capacity. Among the livelihood strategies mentioned by the sample rural households, the casual wage labour was ranked as the first strategy in terms of income source (Table 6.5). About 45% of the total sample rural households took this strategy as their main source of income next to the farming and a few households ranked this strategy as their first source of income. This finding is by far higher than the case in some parts of southern part of Ethiopia (Wolayta). As the case by Carswell (2002), the casual labour is the second most diversification activity with 4% of adults involved. This implies the engagement in casual labour is a crucial livelihood strategy in the study area. These households are mainly those who have a critical problem in farming land or those who have very small and fragmented farm land. Therefore, this livelihood diversification, which was mainly carried in Adwa town, had a great contribution in enhancing the income of households. The rural-urban linkage conveyed by engagement in daily labour had a clear effect in the livelihood diversification (which is urban based diversification) of the households.

Table 6. 3: Wage Labour Distribution across the *Tabias*

Activity	***Tabia***			
	B/Yohannes	**E/Gerima**	**Soloda**	**T/Logomti**
Trade	8 (11.9)	6 (9)	2 (4.8)	4 (8.7)
Daily labour	48 (71.6)	32 (48.5)	32 (76.2)	11(23.9)
Daily labour & stone extraction	0	24 (36.4)	4 (9.5)	14 (30.4)
Other (Gold, sesame)	5 (7.5)	3 (4.5)	3 (7.1)	17 (37)
Total (N)	**67**	**66**	**42**	**46**

Source: Field survey, 2013

A comparison of the daily labour opportunities between *Tabias* is presented in Table 6.3. The Table shows that 76% and 72% of the households in Soloda and BeteYohannes respectively had been involved in daily labour, while it was only 24% of the households who had been involved in the activity in TahtayLogomti. This difference in labour involvement was likely a result of the location and proximity of the *Tabias* to the town since Solodo and BeteYohannes are located very close to the town while TahtayLogomti is far from the town.

Forest and Forest Product Selling

Although this strategy was expected to be dominated by the female-headed households, the result depicts that 41 (18.6%) of male-headed sample households were participants in this activity. It is only 16 (7.2%) female-headed households who were engaged in selling of fire wood and charcoal as their option for survival. In most cases, it is the teenagers who provide the firewood and charcoal to the urban market. Next to wage labour, a large number of households (26%) relied on this activity, (Table 6.4). What makes forest product selling different from other income-generating activities is the easy access to join the activity as long as one is able to collect and transport the material to market places. However, there are two major challenges people encounter while attempting to make a livelihood from this activity. First, the sources of wood become very inaccessible during the rainy season. Second, there is a significant restriction on tree cutting and charcoal making due to the existence of state forest in the area. Individuals mostly plant eucalyptus tree in their holding which is sold for construction.

Table 6. 4: Selling of Forest Products and Stone by Sample rural Households

Market output	**Description**	***Tabia***			
		B/Yohannes	**E/Gerima**	**Soloda**	**T/Logomti**
Forest product	Participants -57 (25.8%)	19 (33%)	34 (60%)	-	4 (7%)
	Average Income (693)	541.60	728.80	-	1105.00
Type of forest product	Fire wood	7	14	-	1
	Charcoal	5	3	-	0
	Construction	7	17	-	3
Stone extraction	-	6 (21%)	17 (61%)	5 (18)	-
Total-221		**67**	**66**	**42**	**46**

Source: Field survey, 2013

The supply of forest and forest product to the urban centers is one of the results of environmental rural-urban linkages. As shown in Table 6.4, more than a quarter (around 26%) of the sample rural households reported that they sold forest and forest products to Adwa town during 2012/13. However, big difference was observed among the *Tabias*,

which ranges from 60% of *Tabia* EndabaGerima to nothing for *Tabia* Soloda. It was mentioned that the peculiar feature of Soloda is natural resource conservation. As a result, there is a high restriction (common consensus by the population) on cutting of trees and preparing charcoal and it is not surprising that there were no sample rural households from this *Tabia* that sold forest and/or forest products. All sample rural households who sold forest and forest products to the town sold it directly to urban consumers. These households got an average income of 692 Birr from these products, though it ranges from 1105 Birr for *Tabia* TahtayLogomti to 541 Birr for *Tabia* BeteYohannes. Such variation was attributed to the type of the forest product sold; those who sold forest products used for construction got more income than those who sold for fire wood. The dominant types of forest products were items used for construction, fire wood and charcoal. *Tabia* EndabaGerima had more sample rural households (about 63%) who sold more forest product items used for construction. This rural based off-farm livelihood diversification is highly linked with the urban center through the marketing linkage. Therefore, the rural-urban linkage contributes to the livelihood diversification of the hinterland population via the marketing of these forest and forest products. It also had a great contribution for the financial capital of the teenagers who were engaged in selling forest products.

Trade

There are multiple forms of petty trading activities undertaken by the sample rural households of the study sites, including livestock trading, kiosks, grain trading and trading that combines a variety of crop and livestock products (depending on market situations, availability of items and the financial capacity of the traders). However, there were households that mainly depended on trading for their livelihoods or who made this activity their first source of livelihood. Most of the sample rural households participated in petty trading in order to supplement household incomes. About 10.4% of the sample rural households made trading as their additional source of income. For most sample households who run this strategy, it was ranked as their third source of livelihood. This activity was also highly interlinked with the urban area. Most of the items are supplied

from Adwa town. Those who were engaged in grain and livestock trading buy and sell the items in the town. In most cases one family member is responsible to run such activity and it is carried out during non-agricultural period (off-season), from December to May. These households earned an average income of 6791 Birr per year. From this income, they saved on average about 2787 Birr (Table 6.1). The saving is used at the time of difficulty or when the households face different shocks. We can thus conclude that these livelihood strategies, which had a great linkage with urban centers, had a great role in sustaining of the livelihoods and making households more resilient. The rural-urban linkage manifested through this livelihood strategy made a vital contribution to the livelihood of the sample rural households in the study area. This urban based livelihood diversification was highly attributed to the rural-urban linkage.

Stone Extraction

The other major livelihood diversification carried out by the sample rural households in the study area was extracting stone used for construction sold in Adwa town. About 12.7% of the sample rural households were engaged in stone extraction, most of which were from EndabaGerima (36.4%) and from TahtayLogomti (30.4%) (Table 6.3). About 36% from the middle-income and 10% of the poor sample rural households took this activity as their additional source of income for their livelihood (Table 6.2). It can thus be said rural-urban linkage in terms of selling stones for construction purposes, was helping the middle and poor economic status groups to diversify their livelihood. The rich were not more beneficiary in this regard.

Handicrafts

Handicraft products were also among the livelihood diversifications in the study area. It was very common to see every Saturday a lot of handicraft products of the pottery in the market (Figure 6.1). Other handicraft product of weaving, containers and items made from palm tree leaves (rattan) were among the supplementary sources of income (Figure 6.2). Except for the black smith, handicrafts were run by female members of the

community. Therefore, these handicrafts were undertaken by the women as supplementary source of income. Majority of the inputs for the handicraft were supplied from the town and simultaneously the products (outputs) were sold in the town market. This livelihood diversification which is highly interlinked with the urban center is one of the livelihood strategies for the poor and middle-income groups of people in the study area. The study area had developed forward and backward linkages with the production of weaving and handicrafts.

Figure 6. 1: Potters' products in Adwa market, 2013

Figure 6. 2: Handicrafts of "*Enjera*" containers and Weaving input in Adwa market, 2014

In the upcoming sub-section, the rank of the major livelihood strategies and their income share are discussed.

Rank of Major Livelihood Strategies and Income Share

The rural households were asked to rank their livelihood strategy and indicate the income they earn as this provides an indication of the importance of the different livelihood strategies. Farming was ranked first by 89.6 % of the rural households (Table 6.5).

Table 6. 5: Distribution of Rank of Livelihood Strategies and Average Income Earned

Type of activity	Rank and Income (in Birr)								Remark
	1st	Income	2nd	Income	3rd	Income	4th	Income	
Farming	89.6	6580	10	4021	-	-	-	-	1st
Casual wage	7.7	6321	45	6862	9	3547	7	1157	2nd
Bee keeping	-	-	14	4800	33	2453	4	-	3rd
Irrigation	2.7	4267	18	11230	15	1919	1	-	4th
Trade	-	-	9	6684	2	2250	2	-	5th

Source: Field survey, 2013

Casual wage labour was ranked as the second strategy in terms of income source by the majority of households (Table 6.5). About 45% of the total sample rural households took this strategy as their main source of income next to farming and earn an average income of 6862 Birr per annum. However, there were also few (7.7%) households who used this strategy as their first source of income. These households were mainly those with critical problem of farming land or those who had very small and fragmented farm land or were among the poor income group. These households earned an average income of 6321 Birr from casual labor which is greater than their second source of income, i.e. farming (4021 Birr). About 33% of the sample rural households used bee keeping activity as their third source of income next to the farming and casual wage labour, while for 14% of households, bee keeping was their second source of income which enabled them to got 4800 Birr annually. Nearly one-fifth or 18% of the sample rural households considered irrigation as their second source of income. In general, casual wage labour, bee keeping and irrigation were ranked second, third and fourth respectively following farming. These activities are directly and indirectly linked with the urban center implying the livelihoods for considerable number of households are linked with the town.

These livelihood strategies were practiced by all income groups with variations in the study area. As illustrated in Table 6.6, the casual wage labour was relatively dominated by the poor while other activities are dominated by the non-poor income groups. However, a considerable number of the poor rural households also participated in other activities. Contrary to the thinking that the poor households have a little room for diversification, significant rural poor households were diversifying their activities and spread the risks. For instance, the trade business was almost equally open to the poor (10%) and the non-poor (about 10%) households in the study area. The finding that the poor are heavily engaged in livelihood diversification particularly, in the study area, supports the findings of Barrett et al (2001) who mentioned that 'the poor, mean while, have little choice but to diversify out of farming into unskilled off-farm labour, whether in agriculture or not'.

Table 6. 6: Major Livelihood Diversifications and Economic Status

Type of activity	**Economic Status**			**Remark**
	Rich	**Middle**	**Poor**	
Casual wage labour	18 (40.9)	50 (64.9)	71	**139**
Bee keeping	23 (52.3)	48 (62.3)	35	**106**
Irrigation	15 (34.1)	21 (27.3)	23	**59**
Trade	6 (13.6)	7 (9.1)	10	**23**

Source: Field Survey, 2013

Most commonly, different scholars group households by shares of income earned in different sectors of the rural economy. Similarly, this study considered income shares of each livelihood activity as a means to understand the contribution of each strategy to household's livelihood. In most rural location, there has been an increase among the rural households in the time devoted to and the income share derived from non-farm activities. For instance the proportion of rural households' incomes derived from non-farm sources, including migrant remittances, is between 30% and 50% in sub-Saharan Africa, (Tacoli, 2004). Time devoted to, as well as the income share derived from, non-farm and off-farm activities are therefore substantial parts of the lives of rural households. In most cases rural households try to exploit the urban opportunities by combining agricultural

production with non-farm and off-farm income generating activities. As evident from Table 6.7, the major income generating activities in the study area were contributing their share in different degree to the respective households. This study is consistent with observations of Tacoli (2004) and Barrett et al. (2001). In the study area it was found that about 33% of the sample households' income is generated from non-farm activities; mainly casual wage labour, trade and remittance. This share is higher than in Southern part of Ethiopia which is 22.8% (Adugna and Wagayehu, 2009). So here, as the number of households engaged in casual wage labour is significant, the overwhelming importance of this activity becomes apparent.

Table 6. 7: Income Share of Major Income Generating Activities

Major Activity	**Household Level**	
	Income	**Share (%)**
Agriculture	1,362,384	41.3
Apiculture	315,295	9.6
Irrigation	498,330	15.1
Wage	830,210	25.2
Trade	143,900	4.4
Remittance	105,450	3.2
Forest product	39,490	1.2
Farm	2,176,009	66.0
Nonfarm	1,079,560	32.8
Off-farm	39,490	1.2

Source: Field Survey, 2013; N.B: Agriculture includes income from crop and livestock

Migrants' remittances are not only contributing to rural economies, but are also important parts of household livelihoods, household income diversification and risk strategies (Barret et al., 2001). As evident from Table 6.7, the share of remittance reached up to 3%. Therefore, migrant remittances strengthened the financial linkages between urban and rural activities. To a large extent, it is this non-farm income that allows further investment in agriculture at the household level. In other words, the profits from urban based activities are often re-invested in agricultural production, resulting in capital and asset accumulation. This indicates that rural households rely on non-farm (including migrant

members' remittances) and off-farm activities. However, the share of off-farm income was only 1.2%; this is far lower than the share (13.1%) in Sothern part of Ethiopia (Adugna and Wagayehu, 2009). The non-farm activities of rural households were part of a survival strategy that aims to reduce risk. Therefore, the rural households were benefiting from the rural-urban linkage which is manifested through these non-farm and off-farm activities.

6.2. Asset and Rural-Urban Linkage

Assets are the core of the households' strategy to survive, meet their future needs or reduce their exposure to risks. A household's asset portfolios determine the level of resilience and responsiveness to risks, events and shocks. These asset portfolios are linked to the livelihood strategies through the household's management of the assets. Assets are transformable and transformation depends on household's decision. One type of asset could be used to secure other asset as in case of financial asset being used to secure health and education or a social asset may entitle a household to access a credit or other equipments from the community. Similarly, the status of one asset may negatively influence the condition of other asset. For instance the status of a natural asset (depleted grazing land and highly eroded farm land) may influence the financial asset of a household. An issue relating to access to assets and how the access can be improved is key to the SL model (Walker et al, 2002).

Rural-urban linkage has a potential to contribute to poverty reduction. This will only occur in a climate in which policies, social relations, institutions and incentives allow an equitable access to the assets (physical, natural, social and financial) necessary to support sustainable livelihoods (Tacoli, 1998b). The following examines the major assets (mainly the social, natural and human capitals; some physical and financial capitals are already treated in the previous chapter) of the sample rural households in the study area.

Social Capitals

Social capital refers to resources that societies possess in the form of institutions, networks, associations, power, values and norms. Social capital is a development enhancing institution consisting of decisive components of social assets in sustainable livelihoods framework such as societal cooperation, family support, friendship, relationships of trust/exchange and partnership. Reciprocity that may be based on kinship or neighborhood among households is a widely cited feature of social capital. Social capital can provide a form of livelihood asset that is made up of social relations- an equivalent to economic capital which is built up through economic relations. It is social resources upon which people draw for their livelihood outcomes such as networks and connectedness that increase people's trust ability to cooperate or membership in more formalized groups and their systems of rules, norms and sanctions (CCRDA, 2012; Scoones, 1998)

In many communities, different households may be linked together through social obligation, reciprocal exchange, trust and mutual support, all of which can play a critical role, particularly in times of crisis. These can be thought of as social capital, which forms part of a household's livelihood capabilities (Messer & Townsley, 2003). Social assets are derived from membership of social network. Social assets are believed to minimize the risks to livelihood insecurity and mitigate the effects of adverse condition through networks and reciprocity. The capacity to respond to changes to external environment depends both on community level trust and social cohesion embedded in households and inter-household level relationship (Tegegne, 2011).

In this regard, attempts were made to briefly investigate the existing cooperation in the study area in view of its input to sustainable livelihoods improvement. It had been found that the existing traditional cooperation was tremendously remarkable and said to be one of the most productive socio-cultural setups in augmenting livelihood resources.

The sample respondents were asked about support from neighborhoods and urban relatives. The data depicted that, about two-third (63.8%) of respondents got support from their neighbors and around 39.4% of them got support from urban relatives (Table 6.8). Most of the time, the support (loan and equipment) from the neighborhoods was received during critical periods. Here the reciprocity was very high, in which both sides were beneficiaries from the support. The relation to family members who are outside the household (because of marriage or work living in Adwa town) was valuable, since these members are usually called for help in times of hardships. Most sample rural households got support in cash form (mainly during summer time to purchase agricultural inputs) and labour (mainly during harvest time). What we can conclude from this is that, due to such support, households were able to tackle the shocks they may be facing. The Chi-square test (X^2=7.55, df=2, p=0.023) at 90% confidence level confirm that there was significant association between support from urban relatives and the economic status of rural sample households. Therefore, the rural-urban linkage played a role in strengthening the social capital of household with an implication in livelihood diversification.

Table 6. 8: Support from Urban Relatives and Neighborhoods

Description	**Economic Status**			**Total (%)**	**Chi-square**
	Rich	**Middle**	**Poor**		
Support from neighborhoods	28 (63.6)	48 (62.3)	65	141(63.8)	NS
Support from urban relatives	10 (22.7)	37 (48.1)	40	87 (39.4)	7.55**
Total	**44**	**77**	**100**	**221**	

Source: Field survey, 2013 N.B. ** Significant at 90%

Urban households were asked regarding the purpose of their visit of rural areas. It was found that there were various reasons for visiting the rural areas (origins). Typical of kinship and family ties, urban dwellers are obliged to now and then visit their family members and relatives who live in the rural areas. Essentially, these visits are meant to maintain and foster kinship and family relations. It is for these reasons that almost all of the urban households (Adwa town) whose origin is from the study area visited their rural household or family members and relatives (Table 6.9). However, we have to bear in mind that while “seeing” or visiting their rural family members and relatives, urban

households accomplish a lot of other things as well. For more than 60% of the urban households, one of the reasons for visiting was farming-related, that is, to attend to (rural) farming activities. Urban households visited the rural areas occasionally to participate in on-going farming activities. A considerable number (29%) of urban households visited rural area of Adwa for religious ceremonies and holidays. The third reason for visiting rural areas was to attend family functions and events such as weddings and funerals. Without these visits, and without the social cohesion provided by the regular interaction, the strength of rural-urban links would be weakened, as migrants will lose touch with their rural situations. Such strong ties between urban and rural households are based on the principle of reciprocity. Therefore, such visits were crucial in strengthening the social capital of rural households in the study area.

Table 6. 9: Major Reason to Visit Rural Origin by Urban Dwellers

Reason to visit rural relatives	**No.**	**%**
Visit/support	32	(61.5)
Religious	15	(28.9)
Other	5	(9.6)
Total-53	**52**	**(100)**

Source: Field survey, 2013

In addition to the above, remittances can also be viewed as a form of social security. It is argued that remittance from migrants to their places of origin play an important role in the family-linked mentioned process in developing countries. Family link is very important, particularly in African context where connection or attachment to home is very strong (Tacolli, 2002). In the study area family links and connections to home (origin) were still very strong, remittance served as a continuous means to maintain strong connections or contacts with one's home or place of origin. As depicted in Table 5.17, about 22% of the rural households got remittance from their family members who lived in Adwa town.

Social network is one significant aspect of social capital. FGDs were held with the sample participants to assess the status of social capital related to the networks. In the

study area it was found that the one to five networking is critical to solve their problems. They used this network to solve the problems related to health, education and irrigation. This network serves as base for innovation (new technologies) as well as for receiving credits. Each network is expected to put into practice the new innovations forwarded by the government. Particularly, such networks were found to be more strong in three *Tabias* namely, EndabaGerrima, BeteYohannes and Soloda, but weak in *Tabia* TahtayLogomti. However, the development group (which consists of 25-30 members) was found to be very strong in TahtayLogomti. Large number of the FGD participants believed that such network in particular and the social capital in general, is a versatile resource. So, this result is consistent with the results of CCRDA. Call for assistance may come at difficult times. Therefore, through such networks, the farmers can solve their problems, share their knowledge (human capital), get loan and save some amount of money (financial capital).
Social institutions (formal and traditional) are important in influencing the social capital of households. Some of the most significant and common economic-based informal social institutions in the study area that depict rural-urban linkage are briefly discussed.

Informal social institutions: Among the most significant informal social institution that show an implication on RULs, *Wefera* and *Tewefrti* are briefly discussed beneath.

Wefera: is one form of traditional social institution based on mutual-support in labor supply and was widely practiced in the area in order to perform a household's farm task within a short period of time, usually in a day. These were part of the community's day-to-day subsistence farming practices benefiting both the poor and better-off households whenever they faced labor shortfalls. *Wefera* is a crucial social practice carried out when a household head requests her/his companions to accomplish a specific farm work on a fixed day. The one who arranges *Wefera* is expected to feed the fellowmen on the specific workday and should reciprocate the services upon similar request. This *Wefera,* on the other hand, can be arranged by the voluntarily members of the community in order to support each other upon sudden death of a family member particularly the main income generator (bread winners) or for elder community member (in most cases for those who are martyrs' parents). This is also a very crucial source of labor in that it

involves working on the farm of each other in group, turn by turn, to offset the possible agricultural burden arising from labor deficit. The *Wefera* holder is expected to provide the co-workers with food and drinks (*Tella*) for that specific day. In such arrangements, a considerable number of urban residents are participants particularly in the harvesting period. Therefore, the rural-urban linkage also played an important role in supporting the rural households via this social institution.

Tewefrti: involves a direct renting or using of one or two farm oxen through grain transaction. The one who is ox-deficit household or labor deficit (mainly female-headed households who have not young male members) gives his/her land to the ox owner for exchange of grain paid during the harvest time. This agreement could be done with neighbors or relatives. The amount of grain for the exchange depends on the agreement. Most of the time, on average, the leaseholder receives half of the grain yield in that production year from the ox owner. About 35% of the sample rural households with ox-deficit or labour deficit and households with oxen reported that they were beneficiaries from this local institution to fill their requirements of draft animal and get more crops respectively. The well-off sample households are major sources of oxen for *Tewefrti* institution in the study area. Here households who make their home at the urban center and have a farm land in the rural area are also engaged in such agreement. In most cases the urban households who have a farm plot in the study area gave their land to rural household in this agreement. Since land is expropriated if a holder leaves the place for two years, most urban households are forced to visit the rural area and stay for three to four months with their relatives in the rural area. Therefore, this social institution was strengthened by the rural-urban linkage in the study area as most urban households prefer the arrangement and participate in it. Though Tegegne (2007) stated that the physical presence requirements of land tenure policy in the country lessens rural urban linkages, the presence of social institution such as *Tewefrti* actually allow urban households to continually engaged in farming which enhances rural-urban linkages.

Human Capitals

Human capital refers to the labor available to the household and other qualities embedded in it such as education, skill, knowledge, good health and physical capability that are vital to pursue various livelihood strategies (Degefa, 2005). While human capital is broadly defined to include schooling, expenditures in medical care, and other related issues, education and training are considered to be the most important investments in human capital. This capital enables people to pursue different livelihood strategies and achieve their livelihood objectives. Education can help to improve people's capacity to use existing assets. The existing labour, which can be seen in terms of its quality and quantity, is vital for the livelihood of a household. As can be seen from Table 6.10, about 61% of the total sample rural households had a family size of four to six, which lie in the range of the average family size in the study area, that is, 5.24 household size. This share was higher than the national average, in which 47% of rural households have a family size of 4 to 5 (EDHS, 2012). This if followed by those who had a family size of four to six which accounts about 23% of the sample households. The rest 16% of the sample rural households had a family size of 0 to 3. This large family size has its own contribution to the livelihood of a household. Those who had large family members can easily tackle the shocks and risk they faced. Relatively the poor income group had large family size. Thus, they used their labour to engage in different income generating activities.

Table 6. 10: Distribution of Family Size in Relation to Education Level

Education Level	**Total Family size**			**Total**
	0-3	**4-6**	**7-9**	
Illiterate	10	40	4	**54 (24.4)**
Primary first cycle (1-4)	6	52	26	**84 (38)**
Primary second cycle (5-8)	6	33	18	**57(25.8)**
Secondary (>9)	13	10	3	**26 (11.8)**
Total	**35 (15.8)**	**135 (61.1)**	**51 (23.1)**	**121**

Source: Field survey, 2013

Education, which is a very important human capital component, is a potential indicator of a household's labour. The data on Table 6.10 depicts that about two-third (38% primary first cycle and 26% with primary secondary cycle) of the sample rural households had attained at least primary school. As in most cases, the family size declines as the education level increase from primary first cycle to the secondary level. Similarly, the current family planning practices is also making a contribution to have a small family size. About a quarter (24%) of the sample were illiterate and having large family members. These groups may face a problem in increasing their income, particularly when it requires more skill and knowledge. It is only 12% of the population who had at least secondary level education. Relatively this group had small family size; their educational status helped them to earn more income than their illiterate counter parts; particularly in activities which require knowledge and skill. The ability to read and write is an important asset, enabling the household to have more opportunities in life. As elucidated in the Table 6.11, those households who were engaged in irrigation that attained secondary school (27%) were slightly higher than those households with primary education (22.7%). Though the share of illiterate households who practice irrigation was higher than the educated ones, households with more educated heads seem to produce more vegetables and earn more income for their family than their counterparts. This clearly shows that education was contributing an important role to maximize the income earned from irrigation. These households were more systematic on exploiting the opportunities of irrigation. These household attained their education in Adwa town. Therefore, the rural-urban linkage had a paramount contribution in improving the human capital of rural households by creating conducive atmosphere to attend education in the town.

Table 6. 11: Level of Education (heads') and Vegetable Production per Household

Education Level	Participation in irrigation	Vegetable produced/Hh (Kg)	Average income earned (Birr)
Illiterate-54	20 (37%)	168.09	7,442
Primary-141	32 (22.7%)	346.55	8,533
Secondary-26	7 (27%)	391.91	10,921
Total-221		**305.59**	

Source: Field survey, 2013

The health status of a household head's and his/her family members is also a good indicator of human capital. Those who are found in good health condition are believed to be more efficient in earning income and improving the livelihood of that household. If the head and family member are visiting health centers repeatedly, the livelihood of that household would be seriously affected. They are expected to spend more money as well as their precious time in visiting the health centers. In this study, it was found that about 71% of the sample rural households visited health centers found in their community in Adwa town in the year 2012/13 (Table 6.12). These households spent an average of 204 Birr per year (23Birr to 800 Birr). At least one family member visited the health centers last year, and for some households it reached till four family members. Those who attend primary education take the lion's share (65%) of those who visited (any family member) health centers. However, the share of those who attend secondary school was very small (12.7%). This shows as households attain higher level of education, the probability of visiting health centers decreases. So, households with sick family members may suffer more during the time of ploughing, weeding and harvesting or trashing. This again forces them to spend more money to hire additional labour. The health centers found in the town were providing service to these households and hence they were contributing to the human capital of the rural households.

Table 6. 12: Education Level and Average Medical Expense (2012/2013)

Education Level	**Family members visit health center**	**Average medical expense (Birr)**
Illiterate-54	35 (22.3%)	205.91 (N-33)
Primary-141	102 (65%)	215.75 (N-98)
Secondary-26	20 (12.7%)	142.75 (N-20)
Total-221	**157 (71%)**	**203.91**

Source: Field survey, 2013

Physical Asset

Physical assets include privately owned assets, public owned economic infrastructure (such as road) and social infrastructure (schools and health centers) (DFID, 2001). The physical capital comprises the basic infrastructure and goods needed to support livelihoods, such as affordable transport, adequate water supply, affordable energy and access to information as well as equipments. Its influence on the sustainability of a livelihood system is best fit for representation through the notion of opportunity cost, as a poor infrastructure can preclude education, access to health services and income generation. Since infrastructure is expensive, not only its physical presence is important, but also the pricing for the poorest groups of society must be considered.

With respect to the publicly owned assets, the results of the empirical studies revealed that the people's access to public assets (school and medical) from Adwa town was good, though the perceived quality of education and educational institutions is low (deteriorated from time to time). The result in the study area showed that, majority of the sample rural households had access to road transport, education and health services (Table 6.13).

Table 6. 13: Access to Basic Services and their Status

Service	**Access (No. & %)**	**Status/Remark**
Health	221 (100%)	Limited staff, not well equipped
Transport	106 (48%)	Route and over tariff
School	221(100%)	Quality deteriorated
Market	217 (98.2%)	Irrigation spare parts, price (21)
Drinking water	198 (89.6%)	

Source: Field survey, 2013

Travel was possible via mid-buses and min-buses. However, there were no any allocated vehicles to the *Tabias* (particularly TahtayLogomti and EndabaGerima), while those from BeteYohannes use the route to Axum (though in most cases forced to pay above the tariff). Three sample *Tabias* are located on the major high ways of Adwa-AbiyiAdi, Adwa- Axum and Adwa- Rama (way to Asmara). Relatively majority of the sample rural

households from these three *Tabias* had an access to road transport. However, there were a lot of sample rural households from *Tabia* Endaba-Gerima who did not get proper access to road transport. The roads connecting the *Tabias* to the town were relatively good. During the rainy season, some roads (Particularly EndabaGerima) became almost inaccessible. Even, the road constructed which lead to the offices of the *Tabia* was highly deteriorated. As can be seen from Figure 6.3, it was difficult to reach the office via vehicle. During, the survey time the researcher was forced to visit the office on foot. Such deteriorated roads could highly hinder the overall economic development of the area. However, the situation was getting better for TahtayLogomti since the main highway which crosses this village was under construction.

Figure 6. 3: Road status, way to Endaba-Gerima, 2014

With regard to access to energy, some of sample rural households near the main road had an access to electricity. The government offices in the *Tabias* used technologies that require electricity.

The availability of durable consumer goods is another indicator of a household's socioeconomic status. Moreover, particular goods have specific benefits. For instance, a radio or a television can provide household members with information and new ideas. More recently, the availability of cell phones has considerably increased the exposure, particularly of rural households, to communication and information (EDHS, 2014).

Exposure to information on radio can increase knowledge and awareness of new ideas, social changes and opportunities and can affect an individual's perception and behavior, including those about health. In line with this, the data presented in Table 6.17 showed that about 82% of the sample rural households had access to technology, particularly to cell phones and radios; which are very vital to get market information. More than 57.7% and a quarter (24.9%) of the rural households in the study area possessed cell phones and radios respectively. This data is higher than the national average which shows that 33.7% and 12.8% of rural households possessed cell phone and radio respectively (EDHS, 2012). All economic status groups had an access to these technologies, though a slight variation was observed. As expected, the rich income groups had better access to cell phones. About 61% of the rich and 55% of the poor had access to cell phones. This is quite a substantial number which implies that the cell phones are playing a great role in improving the livelihoods of the hinterland population. In addition, different agricultural equipments (vital for their livelihoods) were completely supplied from Adwa town. As discussed in previous chapter, the majority of those who had a strong linkage with town were from the poor income group. Therefore, the poor were improving their livelihood by using these cell phones.

Table 6. 14: Sample Rural Households' Access to Technology

Type of technology	**Economic Status**		
	Rich	**Middle**	**Poor**
Cell phone- 127(57.5)	27 (61.4)	45 (58.4)	55
Radio- 55 (24.9)	7 (15.9)	26 (33.8)	22
Not Applicable-39 (17.6)	10 (22.7)	6 (7.8)	23
Total	**44**	**77**	**100**

Source: Field survey, 2013

Generally, the rural-urban linkage via these infrastructures (road, technology, access to services) is playing a crucial role in improving the physical asset (capital) of the sample rural households in the study area.

Natural Capitals

Natural capital is the term used for natural resource stock from which resource flows and services (such as land, water, forest, air quality, erosion protection and rate of changes in these resources and so on) useful for livelihoods are driven. It is of special importance for those who drive all or part of their livelihood from natural resource-based activities (such as farming, forest and mineral extraction), as it is often for the poor stakeholders.

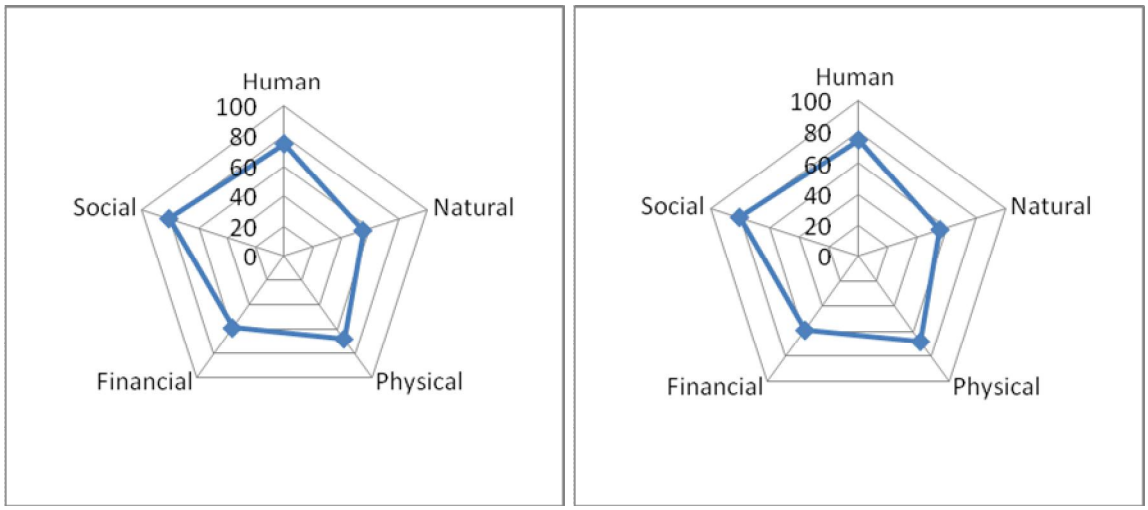
The results from the FGDs revealed that, some part of the study area was affected by externalities. For instance, with a special case of BeteYohannes, the agricultural land and the aquatic life of the downstream were affected by the so called 'treated' wasted from the textile company. Similarly, the farm land and health of people as well as their livestock (air quality) were suffering from the byproducts of marble factory found at the area. One-fourth of sample household respond that their resource were affected by externalities, particularly those who lived around the textile and marble processing plants. Some farmers also complained that rural households were being displaced from their farm land for the purpose of constructing a dam, which was sole source of tape water to the town. In addition to this, the solid waste deployed from the town affects the farm land of households found in one *Tabia*. The above exposition showed that rural-urban linkage was resulting in the deterioration of the natural capital of rural households.

The foregoing discussion on assets indicated that different households had different levels of access to this range of assets and these assets were related to RUL. The diversity and amount of these different assets that households had at their disposal, and the balance between them, would affect the sort of livelihood they were able to pursue for themselves at any particular moment. These household assets could be depicted in an asset pentagon. Households with strong asset base would have a large, well-balanced and regular pentagon while those with limited asset base would have small and distorted pentagon.

This asset pentagon can provide a useful starting point for household livelihood analysis, as it encourages investigators to take into account all the different kinds of assets and resources that are likely to play a role in household livelihoods. Poor people in rural areas

may have only their labour capacity (human capital) and the financial capital they can generate through their labour, but will have very limited direct access to natural capital, low levels of education and knowledge, and a very low social status that weakens their social capital base. The poorest households may have extremely reduced "livelihood pentagons" with extremely limited livelihood assets of any kind at their disposal.

In sum, the five capitals were put in a diagram. As can be seen from the diagram below the social capital and human capital were found in a better status, both around 80%. But, as most common in other findings (CCRDA, 2012), the financial capital and natural capital of the sample rural households were found to be least accumulated or achieved asset. Here the opportunities of having better social and human capitals (which are highly attributed by the existing rural-urban linkage) can be used for other multipurpose. If the households get intensive support from the government and other stakeholders, these two capitals can be easily versatile or used to improve their physical and natural capitals. It would be more appreciated if they got financial supports so as to improve their overall livelihoods. The results of this study however showed there was no major and visible difference between the rich and poor households in terms of asset base as the pentagons showed similar shape (Figure 6.4). This could be attributed to the fact that in general the difference among the poor and rich in study area was not significant.



A. Poor Households' asset pentagon B. Rich households' asset pentagon

Figure 6. 4: Summarized Asset Statuses of the Sample Rural Households, 2013

6.3. Sustainable Livelihood Outcomes and Rural-Urban Linkage

Livelihood outcomes are results of people's livelihood strategies, which could be a combination or one of more income, food security, resilience and a more sustainable use of the natural resource base. Livelihood outcome is the end result of the interaction of various elements in a system that can be desirable/undesirable or food secure or insecure outcome. In this study, to see the livelihood outcomes, respondents were asked issues related to their current food security and income related to rural-urban linkage was also considered.

Improvement in Food Security

In this study food security was viewed from what respondents express regarding their perception on food security. Detailed quantitative data on the exact type and frequency of meal and the nutritional mix of food stuff consumed by family members was not gathered as this was beyond the scope of the study. As can be seen from Table 6.15, around two-third or 61% of the sample rural households believed that they were food secured at that time. From those who were food secured, about 40% of them had a strong rural-urban linkage with Adwa town. The rest 60% were under the weak rural-urban linkage. Within each group, about half of those who had a strong rural-urban linkage were food secured. Among those who have a weak linkage, around 70% feel that they are food secured. As mentioned in the previous chapter, majority of those who had a strong rural-urban linkage were from the poor income group. Therefore, from this we can conclude that, the rural-urban linkage was played a great role in improving the food security status of the sample rural households in the study area as about 47% of the poor were food secured.

Table 6. 15: Perception of Food Security Status against Level of Rural-Urban Linkage and Economic Status

Description	Category	Food secured	
		Yes	No
Level of RUL	Strong RUL-106	54 (50.9)	52 (49.1)
	Weak RUL-115	80 (69.6)	35 (30.4)
	Total	**134 (60.6)**	**87 (39.4)**
Economic Status	Rich-40	27 (67.5)	17 (42.5)
	Middle-77	60 (77.9)	17 (22.1)
	Poor-100	47 (47)	53 (53)
	Total	**134 (60.6)**	**87 (39.4)**

Source: Field survey, 2013

Income

The income component of the rural-urban linkages' impact has two dimensions. The first is the direct financial income generated from output (such as from grain, livestock, honey, vegetable and forest product) sales and the other is income earned from urban-based activities (wage labour and remittance). However, the general income is already discussed in the livelihood strategies as well as in the marketing linkages. Here, the specific share of income earned from each activity based at the town and outputs sold at the town is presented in Table 6.16. As evident from the Table, About 42% of the households' income was sourced from the non-farm activities on the town. Out of the total cash source, about 56.6% was earned from the town by selling their agricultural products (crop, livestock, honey and vegetables). We then observed that the rural households earned income by selling their outputs as well from different urban based income generating activities such as the wage labour and remittance. The existing rural-urban linkage played a role in improving the income of the sample rural households, which is one manifestation of the sustainable livelihood outcomes.

Table 6. 16: Distribution of Income Sourced from Adwa Town by Rural Households

Major Source of Income	Household Level		Economic Status (Share in %)		
	Income	Share (%)	Rich	Middle	Poor
Agriculture-216	644,675	25.0	35.0	42.1	22.9
Apiculture-102	315,295	12.2	40.1	35.3	24.6
Irrigation-59	498,330	19.4	56.5	29.8	13.7
Wage-139	830,210	32.2	21.6	41.8	36.6
Trade-23	143,900	5.6	32.9	46.3	20.8
Remittance-49	105,450	4.1	14.8	59.5	25.7
Forest product-57	39,490	1.5	30.3	44.6	25.1
Farm	1,458,300	56.6	44.1	36.1	19.8
Nonfarm	1,079,560	41.9	22.6	44.2	33.2
Off-farm	39,490	1.5	30.3	44.6	25.1

Source: Field survey, 2013

As mentioned in the previous section, the income diversification literature roughly agreed with Bryceson (1999) were 40% of African rural income on average is derived from nonfarm sources. Table 6.12 revealed that those households in the whole sample derive about 42% of their income from non-farm sources. The data also showed that the poor (33.2%) benefited more than the rich (22.6%). For instance, the poor got 33.2 % of their income from urban based activities (Table 6.16).

6.4 Summary

The intent of this chapter was analyzing the livelihood strategies that the households pursue and understanding the status of sample households in light of the sustainable livelihood framework (focusing on assets and institutions attributed by rural-urban linkage). The observations revealed that regardless of the type of livelihood systems on which people depended, each household wanted to diversify its sources of livelihood. For some the driving force was a 'choice' (in most case non-poor households), while for others (the majority) it was a 'necessity'. As in the study area, the major driving force was land scarcity and it was the poor rather than the rich who mainly engaged in non-farm activities or forced to diversify their activities related to farm land constraints. Therefore, for most of them it was necessity than a choice.

Though all farmers' main occupation was farming, they were also engaged in different agriculture related and non-agricultural activities which made their base both in the rural and urban areas. Off-farm and non-farm activities were becoming increasingly important in people's livelihoods, and were playing a stronger role in their strategies for dealing with livelihood insecurity. Based on the study findings, a number of off-farm and non-farm activities, appeared to be contributing (to different degrees) to livelihood security. The sample rural households were engaged in bee keeping, irrigation, casual daily labour, trade and forest product selling activities. These were their main livelihood strategies next to farming. An increase in the involvement in non-agricultural activities, most notably in paid labour work in Adwa town, had been observed. Casual wage labour was the second largest preferred livelihood strategy for the sample households, followed by bee keeping and irrigation in terms of number of participants. These activities are highly related with the nearby Adwa town. The products of honey any and vegetables were all sold in the town. So, we concluded that these livelihood strategies, which had a great linkage with urban centers, had a great role on the sustainability of the livelihoods or they make the households more resilient. These livelihood strategies were urban-based livelihood diversifications which clearly showed the contribution of rural-urban linkage on the sustainability of rural livelihoods.

Although, selling forest and forest product strategy was expected to be dominated by the female-headed households, the result depicted that 41 (18.6%) of male-headed sample households were also participant in this activity. It was only 16 (7.2%) female-headed households who were engaged in selling of fire wood and charcoal as their option for survival. The other major livelihood diversification carried out by the sample rural households in the study area was extracting stone used for construction to be sold in Adwa town. Nearly one-fifth (19%) of the sample rural households were engaged in stone extraction, most of which were from EndabaGerima (36.4%) and from TahtayLogomti (30.4%). About 36% from the middle-income and 10% of the poor sample rural households took this activity as their additional source of income for their livelihood. It can thus be said that in terms of rural-urban linkage through the sale of stone, the middle and poor economic status groups showed a strong linkage as compared

to the rich one. This showed these groups were getting income to cover some of their expenses by selling stone to the town. So, it can be considered as survival strategy to these groups of people. This livelihood diversification was also facilitated through rural-urban linkage in the study area.

Handicraft products were also among the livelihood diversifications in the study area. It was very common to see every Saturday a lot of handicraft products of the pottery and rattan in the market. Other handicraft product of weaving, containers and items made from palm tree leaves (rattan) were among the supplementary sources of income. This livelihood diversification which was highly interlinked with the urban center was one of the livelihood strategies for the poor and middle-income group people in the study area. The study area had developed forward and backward linkages with the production of weaving and handicrafts.

These asset portfolios were linked to the livelihood strategies through the household's management of the assets. The sample rural households replied that they had access to different natural resources mainly the agricultural land, grazing land and water for irrigation. The results from the FGDs revealed that, some part of the study area was affected by externalities. With a special case of BeteYohannes, the agricultural land and the aquatic life of the downstream were affected from untreated or so called 'treated' wasted from the textile company. Similarly, the farm land and health of people as well as their livestock were suffering from the byproducts of marble factory. One-fourth of sample household responded that their resource was affected by externalities, particularly those who lived around the textile and marble processing plants.

It has been found that the existing traditional cooperation was tremendously remarkable and said to be one of the most productive socio-cultural setups in augmenting livelihood resources. The data depicted that, about 39.4% of the households got support from urban relatives. There were various reasons for visiting the rural area (origin). Typical of kinship and family ties, urban dwellers were obliged to now and then visit their family members and relatives who lived in the rural areas. Essentially, these visits were meant to

maintain and foster kinship and family relations. It is for these reasons that almost all of the urban households (Adwa town) whose origin from the study area visited their rural household or family members and relatives. In the study area family links and connections to home (origin) were very strong, remittance served as a continuous means to maintain strong connections or contacts with one's home or place of origin. About 22% of the rural households got remittance from their family members who lived in Adwa town. Therefore, these urban linked phenomena were playing a great role in developing the social capital of the rural households in the study area.

Contribution of education on irrigation was clearly shown on the rural households. Though the share of illiterate households who practiced in irrigation was higher than the educated ones, households with more educated heads seem producing more vegetables and earn more than their counterparts. This clearly showed that education was contributing an important role to maximize the income earned from irrigation. These households were more systematic on exploiting the opportunities of irrigation. These household attained their education in Adwa town. Therefore the rural-urban linkage had a paramount contribution in improving the human capital by creating conducive atmosphere to attend education in the town and as a result able to increase or improve their source of income from irrigation.

The asset pentagon provided useful starting point for household livelihood analysis, as it encourages investigators to take into account all the different kinds of assets and resources that are likely to play a role in household livelihoods. Poor people in rural areas may have only their labour capacity (human capital) and the financial capital they can generate through their labour, but very limited direct access to natural capital, low levels of education and knowledge, and a very low social status that weakens their social capital base. The poorest households may have extremely reduced "livelihood pentagons" with extremely limited livelihood assets of any kind at their disposal. However, in the study area a visible difference was not observed between the poor and rich income groups. They had almost similar asset pentagon shape. This could be attributed by the fact that the difference among the poor and rich in study area was not significant.

Around two-third (61%) of the sample rural households believed that they were food secured at that time. From those who were food secured, about 40% of them had a strong rural-urban linkage with Adwa town. The rest 60% were under the weak rural-urban linkage. Within each group, about half of those who had a strong rural-urban linkage were food secured. From those who had a weak linkage, around 70% felt that they were food secured. As mentioned in the previous chapter, majority of those who had a strong rural-urban linkage were from the poor income group. Therefore, it is concluded that, the rural-urban linkage was playing a great role in improving the food security status of the sample rural households in the study area.

In general, households earned about 44% of their income from the non-farm activities sourced from the town. From the total cash source, about 56.6% of the income was also earned from the town by selling their agricultural products (crop, livestock, honey and vegetables). The rest 2 % of income was earned from off-farm activities. Therefore, from that data the sample rural households were in a position to earn more income by selling their outputs as well from different income generating activities which made their base on the urban center, mainly the wage labour and remittance. The existing rural-urban linkage in the study area was playing a vital role in improving the income of the sample rural households through livelihood diversification, which was one manifestation of the sustainable livelihood outcomes.

Similarly, it was clearly evident that the poor (33.2%) benefited more than the rich (22.6%). The households try to increase their income from the different livelihood activities they carried out which have a connection to the town. They strived to earn as much income as possible from different activities. Therefore, the rural-urban linkage was playing a crucial role in the livelihoods of the poor in the study area.

CHAPTER SEVEN

REFLECTION ON RURAL-URBAN LINKAGE AND LIVELOHOOD DIVERSIFICATION

This section presents the implications of the findings to the literature and the methodology in the field of rural urban linkages. This is made on the assumption that although the insights and observations of the study seem to be specific to the study area, they form bodies of knowledge on the role of rural-urban linkage and sustainable livelihoods.

7.1 Theoretical Reflections

It is necessary to explain the junction and the departure between the theories and findings. To a certain extent, junctions imply the efficiency of the existing understanding on nature of the rural-urban linkage and its effect on livelihood diversification, while departures challenge the existing theories and add insights.

There are two parallel and competing views regarding the need to diversify livelihoods at household or individual level: pro-diversification and anti-diversification. The findings of this study are in line with the proponents of the need to diversify the households' sources of earnings. Diversification has been induced by both 'necessity' (push factors) and 'choice' (pull factors) (Ellis 2000). For most rural households in the study area the major factor deriving diversification was 'necessity'. This was mainly attributed to the fact that the major driving force for livelihood diversification was land constraint. However, a small portion of the non-poor households diversified their livelihood or source of income by choice.

The poor households have little room to diversify out of farming and become less able to spread risk (Barret et al, 2001; Tacolo, 2004). This means that the entry for livelihood diversification is too little for the poor households. However, this study showed that the

poor households did not show significant difference from that of the better-off in diversifying their livelihoods. They were able to participate in different non-farming activities to minimize their risk. Therefore, this implies that when we are considering the diversification portfolios we should not treat the poor and the non-poor separately. While reliance on nonfarm income diversification is widespread in rural Africa, not all households enjoy equal access to attractive nonfarm opportunities. Reardon's (1997) reviewed of the available data in Africa found a strong positive relation between nonfarm income share and total household income, or an even more pronounced relationship between the level of nonfarm income and total income. The same holds true in general for household landholdings (Tacoli, 2004). The finding from this study, however, indicated that the non-farm income share did not go with the level of total income. In other words, the poor in the study sites got higher share from the non-farm income than the rich households.

In general, it is understood that the poor households tend to use remittances for subsistence, whereas investment is more likely to be undertaken by better-off households. In this sense, migration can be interpreted as part of survival strategies (for the poorest groups), or as a key element of capital accumulation strategies by wealthier groups (Tacoli, 2004). In the study area however it was found that remittance serves as a survival strategy for all income groups; as most of them get the remittance during the summer time to purchase agricultural inputs.

The better off tend to diversify in the form of non-farm business activities (trade transport, shop keeping, etc), while the poor tend to diversify in the form of casual work, especially on other farms. Diversification by the poor therefore tends to leave them still highly reliant on agriculture, while this is reduced for the better-off (Ellis, 2004). Therefore, the rich is expected to show a strong rural-urban linkage. Consistent with this experience, it was found that the rich has a strong marketing linkage with urban area than the poor households. However, on the other side, quite different from the common experience, the poor respondents have experienced a strong non-marketing linkage than

those who are better-off in economic status. This shows that the poor income group has a frequent visit to the town to get additional income (through non-marketing).

The asset pentagon provides a useful starting point for household livelihood analysis, as it encourages investigators to take into account all the different kinds of assets and resources that are likely to play a role in household livelihoods. Poor people in rural areas may have only their labour (human capital) and the financial capital they can generate through their labour, but very limited direct access to natural capital, low levels of education and knowledge, and a very low social status that weakens their social capital base. The poorest households may have extremely reduced "livelihood pentagons" with extremely limited livelihood assets of any kind at their disposal (Messer and Townsley, 2003). However, in the study area a visible difference in the asset pentagon is not observed between the poor and rich income groups. Both the poor and the rich have almost similar asset pentagon. This could be attributed by the fact that in general the difference among the poor and the rich in study area is not significant.

This dissertation is also believed to have a contribution in bringing to mind the interface between the existing theories and concepts. The sustainable livelihood framework has been discussed ahead of the analysis sections with the intension of providing lens that shapes what is looked at and the questions asked by different scholars. Thus, this dissertation adds to the existing theoretical and conceptual views of the investigated subject matter in bringing to light the existing academic discourses in view of the aforementioned theory. The sustainable livelihood approach was used as organizing and guiding concept in this study. The strength of the approach is that it recognizes the complex range of assets to analysis of the livelihoods. Resources are dynamic that they can be combined, used or transformed to construct livelihoods. The resources play wide number of roles in the livelihood strategies essential to livelihoods. Understanding how the combination of resources natural, economic, social and cultural importance and how values are attributed to these resources is essential for understanding rural livelihoods. The ability to pursue different livelihood strategies is dependent on the basic material and

social, tangible and intangible resources that people have in their possession and it relates to wide set of issues (Scoones, 1998).

The sustainable livelihood framework presented in this study identified the diverse resources that contribute to peoples' livelihoods through the rural-urban linkages. The framework here had not been used as such to measure each of the resources and performance needed to achieve a sustainable livelihood. Instead it was used to identify the diverse resources, interrelationships and importance in contributing to peoples' livelihood strategies in relation to the existing rural-urban linkages in the study area. The approach showed that household livelihood strategies were cross-sectoral and diverse among the studied people. The SLF has enabled the identification of the critical factors in the socioeconomic environments that influence household livelihood decisions, represented by the different livelihood portfolios. Through this approach, it is possible to see that the rural-urban linkage is affecting households' assets, diversification and living outcomes. Different households were accumulating assets, diversifying their livelihoods through urban based (directly and indirectly) different livelihood strategies and able improve their livelihood outcomes as a result of rural-urban linkages. Moreover, the approach helped to prioritize intervention needs of the area on which livelihoods support is needed. It has also revealed the close links and influence of formal and informal institutions on livelihoods resources and outcomes.

7.2 Methodological Reflections

The methods for both field data generation and the analysis of the materials were progressively refined in the course of the research process. In this section, it was focused on various aspects of the approach adopted in this research which could be helpful for similar studies in the country to address the issues of rural-urban linkage in relation to ensuring sustainable rural livelihood.

With reference to data analysis, various techniques and models were used in this dissertation so as to deeply understand the matter from different angles. A linear

regression model was among the major techniques employed in this dissertation. In most cases to determine the factors that affected the rural-urban linkage, the determinant factors were treated in a way that how they influenced the linkage in a holistic approach. However, three separate regression models were run to see the determinant factors of marketing rural-urban linkage and non-marketing rural-urban linkage. To quantify the level of linkage, an index of rural-urban linkage was developed for each model separately. Such indices help to clearly identify the determinants of marketing and non-marketing linkages in an explicit way. Therefore, this technique will also be valuable for similar studies in the area.

Therefore it is argued that, though it was not claimed that the approaches that were revisited in the forgoing were completely new, the methodology, employed for the analysis in the course of the study could be helpful for other related studies in rural-urban linkage and livelihood diversification in Ethiopia and future research will find the approach useful.

7.3. Suggestions for Further Studies

This study has added an important phenomenon to the nature of rural-urban linkage and its role on livelihood diversification in Adwa *Wereda*. Thus, this research is the beginning of future research endeavors. There are some issues which this study lacks or don't touch. Future research is thus necessary to provide more insights into the dynamics of livelihood diversification. Hence, the following points, seem attention-grabbing for future investigation, are not clearly addressed by this research.

- The units of analysis of this research are households, as opposed to individuals. Hence, it would be interesting to explore the status of the population on individual basis. This is because even if a household has a strong linkage with urban center at large, there could well be various factors (health, education, gender etc) which may hinder an individual in the household not to access or exploit the opportunities in the urban center.

- It is needed to expand the respondents of the primary research into a vast hinterland (including the major towns in the Region) of the study area. The research about the linkage among the hinterlands could help to identify the direct value chain actors and support the households to benefit more.
- The next study should trace how the activities of the industries affect the total strategic activities (livelihood diversification) of the rural households and the effects of these chemicals on the human health.
- The sustainable livelihood approach was used as organizing and guiding concept in this study. The SLF presented in this study had identified the diverse resources that contribute to peoples' livelihoods. The framework here had not been used as such to measure each of the resources and performance needed to achieve a sustainable livelihood. Instead it was used to identify the diverse resources, interrelationships and importance in contributing to peoples' livelihood strategies. The approach showed that household livelihood strategies were cross-sectoral and diverse among the studied sample households. Therefore, the next studies should focus on longitudinal base at household or individual level.
- The contribution of the infrastructure at household level should be treated in future research works.

CHAPTER EIGHT

CONCLUSION AND RECOMMENDATIONS

8.1 Conclusion

The main objective of the study was to explore the nature of rural-urban linkages and its effect on rural livelihood diversification in Adwa town and its surrounding rural areas. In order to achieve the objectives of the study, the necessary data were drawn both from primary and secondary sources. Random sampling was mainly used to select sample rural households. Household sample survey key informant interview, focus group discussion and field observation were the principal means to acquire the primary data. Secondary data were also used to supplement the primary data. In analyzing and interpreting these, both quantitative and qualitative techniques had been employed. Quantitatively, statistical tools such as percentages, cross tabulation, chi-square, one-way ANOVA and regression were employed. Livelihood framework was adopted holistically to examine the overall well-being of the rural households in relation to the existing rural-urban linkage. This chapter presented the conclusion on the nature and extent of rural-urban linkage and its effect on livelihood diversification in Adwa *Wereda*. Following the conclusion on the key issues, the paper also provides some recommendations. It is important to underline that some of the recommendations were drawn from the studied households themselves and thus reflect the local needs and interests towards improving living conditions at community level.

Nature and Extent of Rural-Urban Linkage and its Effect on Livelihood Diversification

The sustainable development of both rural and urban areas requires a mutual relation between these two spatial units. The findings disclosed that the level of rural-urban linkage in the form of production linkage in the study area was very weak. The backward production linkage was relatively better than the forward production linkage. Availability of agricultural inputs in the nearby town was the main factor for the existing backward

production linkage. The backward production linkage in the study area was reflected mainly through farmers' use of herbicides and insecticides and irrigation equipments supplied from Adwa town.

Agro-industries are the main types of industries with which agriculture will have significant forward linkage. This forward production linkage was almost absent in the study area. Almost all sample households did not sell any part of their farm products to processing plants found in Adwa town because the processing plants were not capable of absorbing products from farmers. Thus, there was little or no industrial base linked to the hinterlands. The town has a large industrial base (Textile, marble, shoe, flour), which do not have any meaningful direct link with the rural people or rural production processes in the hinterland. These industrial activities are outward-directed and export-oriented, and hence contribute very little to the overall district economy, except for the few job opportunities they created and associated market opportunities for food crops from the rural hinterland.

Although all sample rural households produced cereal crops, the majority did not own enough to meet family subsistence needs. The *Werda* is not well suited for crop production because cultivable land is limited by the terrain. Many complained that the land does not produce enough for the family. In the study area, crop products supplied to Adwa market from the hinterlands were very small. Therefore, the marketing linkage through crop was very weak, as most of the farmers did not produce sufficient surplus. Livestock keeping in the study area was undertaken for income and food (focus on income) and social security reasons and it was also an indicator of wealth. However, the marketing linkage via livestock, poultry and honey was very high and created linkage with other towns. In general, the livestock markets were dominated by goats, cattle, and chickens. The households were beneficiaries from such linkage and were able to improve their livelihood.

In addition to the major rural products (livestock and/or livestock product, honey and vegetables) sold at Adwa town market, there are different items prepared and/or produced

at the hinterland and sold at the town. Among them the dominant products are household utensils such as pottery and containers for "*Injera*" (made from rattan); agricultural product such as hop and byproduct like hay (straw); and products of cotton (an input for the traditional clothes-spool or stitch). All the container, pottery and the stitch are made by female rural households. Most of the pottery products come from *Tabia* EndabaGerima, while other products come from all *Tabias* of the *Woreda*. Rural households make income to support their daily livelihoods from the sales of these products. Thus in terms of the marketing of these materials, the rural-urban linkage was playing a great role on the livelihood of the surrounding rural areas' households by increasing their livelihood diversification. Similarly, forest and forest product as well as stone were sold at Adwa market by the rural households. Therefore, the RUL that existed in the study area contributed to the livelihood diversification of the rural households.

The rural population of Adwa made some expenditure on urban goods. Almost all sample rural households expended some money for both durable and consumable items at Adwa town. The town met the demand of the hinterland for urban goods and services. This linkage was strong reflection of consumption linkage.

The financial linkage of town to its hinterlands is based on the availability of financial institutions in the towns, which will stimulate the rural people to use these institutions for loan and saving. Loan and saving are among the major components of financial linkage. About 68% of the respondents reported that they took loan from different institutions (in 2012/13) in which more than half of it was sourced from Adwa town. In terms of the sources of loan, the majority of the respondents (about 63%) reported that they get loan from credit and saving service (microfinance) in which the town is the major source of the loan. As it is common in Ethiopia, that most of the financial transaction (86% of the loan delivered in the last three years) between rural and urban area was therefore undertaken by formal financial institution. Such loan has its own target and the recipients use it for different purposes. About 42% of the sample respondents reported that they bought shoats as well cow with the loan. Around one-fifth (19%) of the respondents used the loan to purchase fertilizer. Others spent the money to buy bee colonies and modern

bee hives (6%), on trade activity (8%), to buy ox for fattening (6%), for irrigation purpose and purchase pack animals and the like (19%). Such loan creates a suitable atmosphere for the rural households to diversify their livelihoods.

The other manifestation of financial linkage was the saving culture of rural people in urban areas. Around 35% of the sample rural households reported that they saved some amount of their earning in different types in Adwa town. The dominant type of saving in Adwa town is in the form of cash. On average about 4310 Birr was saved in a cash form by 33 (14.9%) of the sample rural households in the town. The saved money could be used at times of shock and need. Such deposit and investments (livestock and fixed assets) in Adwa town indicates a strong linkage.

Migrant remittances also strengthen the financial linkages between urban and rural activities. The migrants in the respondent households send remittances to their relatives at home, regardless of household income level, and, in many cases, their contribution is a substantial proportion of household income. Over all, average households' remittance received per year was estimated at about 3145 Birr, which ranges from 500 Birr to 7800 Birr. Almost equally half of them sent the money once in six-months, while the rest sent it once in a year. In relative terms, remittances are much more important for the poorest groups. The response from the survey households heads revealed that a large proportion of remittance was used to support the agricultural activity (most probably to purchase inputs and the like). Apart from this other transfers occurred during festive occasion. Money is also sent at the beginning of the school period for paying school fees and to purchase educational material. Given the tension between rising need and high cost of living, it is surprising that over 70% of the household's members sent money back home more frequently than before. Around three-fourth (71.4%) had experienced an increased trend during the last three years in getting the remittance, while 16% had experienced decline in the remittance they received, it was only 12% of the sample rural households who received the remittance without any change. Therefore, migration (one of the livelihood strategies) was also playing a great role to the livelihoods of the rural people in the study area.

The supply of forest and forest product to the urban centers is one among the manifestations of environmental rural-urban linkages. More than a quarter or around 26% of the sample rural households reported that they sold forest product to Adwa town. The dominant types of forest and/or forest product are items used for construction, fire wood and charcoal. Therefore, the town has a great contribution on the livelihood of the surrounding rural people by purchasing their forest and/or forest products. Environmental rural-urban linkage can also be shown through the use of natural resources such as stone by urban people, which is extracted from the nearby rural areas and sold by the rural farmers. About one-fifth (21%) of the sample rural households reported that they sold stone (for construction) at Adwa town. About 86% of these sample rural households were found under the middle and poor economic status group. So, in terms rural-urban linkage through the sale of stone, the middle and poor economic status groups showed a strong linkage as compared to the rich one. This showed that these groups were getting income to cover some of their expenses by selling stone to the town. So, these off-farm activities can be considered as survival strategy to these groups of people.

Social reciprocity between rural and urban areas can be analyzed within the context of regular visits that occur mainly by the rural-based members. Nearby towns are important to their hinterlands people by providing several goods and services. Adwa town was the most frequently visited center by all of the sample rural households. The frequency of visit of the sample rural households to Adwa town generally ranged from daily to once in a month. Almost 40% of the respondents visited the town on a daily base. Around 34% of the rural population visited the town at least once in two weeks, whereas, only 12% of the sample rural households visited the town rarely or once in a month. This was also a good indicator of the rural urban linkage in relation to their livelihoods.

The major reason for visiting the town was market (87.3%) followed by the search of job (68.3%). Visiting the town could be also manifested through the visit of health center at Adwa town. More than half (55%) of the total sample households or their family members were treated in health centers last year. About 13% of the sample rural households also visited the town for educational purpose. In line with visiting, most

students who attended secondary schools in Adwa town came from the hinterland. For instance if we look at the share of students (ninth grade) who came from the rural areas of Adwa *Wereda* that attended in Adwa high school it reached about 69% in 2012/13 from 61.5% in 2008/09. In addition to the above mentioned major reasons to visit Adwa town, huge number of rural population visited the town for a religious (social) reason. Therefore, the rural-urban linkage was contributing in developing the social capital of rural households in the study area.

Determinants of Rural-Urban Linkage

Different households with different income status may show different level of marketing and non-marketing linkage with the nearby town. Nearly, two-third or about 62% of the sample poor respondents had experienced a strong non-marketing linkage, which was by far higher than those who were rich in economic status (16.4%). The majority (49.5%) of the middle-income group had a weak non-marketing linkage as compared to poor (26.7%) and rich (23.8%) income groups. This showed that the poor had a frequent visit to the town to get additional income from different income generating activities. In case of the marketing linkage, majority (about 65%) of the sample poor respondents had experienced a weak marketing linkage, which was by far higher than those who were rich (16.2%) and middle (18.9%) in economic status. While majority of the middle (50.9%) and rich (23.6%) income group had a strong marketing linkage as compared to poor (25.5%) income groups. This showed that the non-poor income group had a frequent visit to the town to sell their product and while the poor to get more income from urban based activities. Therefore, the non-marketing linkage was facilitating the livelihood diversification for the poor so as to improve their livelihood.

The research also set out to identify the major factors determining the marketing (both its orientation and magnitude) linkage. Accordingly, access to irrigation scheme, livestock ownership, bee hive ownership, access to mobile phone, number of farm plots and age were found to be the most important determinants of the orientation of marketing linkage of the households. The magnitude of marketing linkage of households was also

influenced by access to irrigation scheme, livestock ownership, bee hive ownership, access to mobile phone and distance to the town. The final regression model indicated that rural households, those households who were younger, with large number of farm plots, with larger amount of TLU, with mobile phone services, who own bee hive colonies, those who were engaged in irrigation schemes and close to the town were more likely to have a strong marketing linkage. TLU, bee hive ownership, cell phone ownership and engagement in irrigation were significant predictors at the 99% level, while number of farm plots, distance and age were significant predictors at the 95% level. Hence, in order to maximize households' benefit from the marketing linkage, attempts should be made to enhance the households' access to irrigation, agricultural technologies and rural road programs.

Similarly, sex of household head, family size, livestock ownership and number of farm plots were found to be the most important determinants of non-marketing linkage of the households. Remarkably, the linear regression analysis pointed out that rural households who were male-headed, having large family size, own small amount of livestock and have small number of farm plots were more likely to have a strong non-marketing linkage. Livestock ownership and sex were significant predictors at the 95% level while number of farm plots at 99%. An attempt to improve the status of these factors, no doubt, contributes greatly to the enhancement of marketing linkage of the households.

Major Livelihood Strategies and Rural-Urban Linkage

The empirical observations from this study go in line with the argument that rural households need to diversify in order to attain sustainable livelihoods. Most of the sample rural households in the study area had diversified their sources of subsistence and follow different livelihood paths, which was clearly evident in a number of ways. Though all farmers' main occupation was farming, they were also engaged in different agriculture related and non-agricultural activities which made their base both in the rural and urban areas. As shown in Table 6.1, the sample rural households were engaged in bee keeping, irrigation, casual daily labour, and trade activities. These were their main livelihood

strategies next to farming. More than 63% of sample rural households participated in the daily wage labour and got an average income of 5973 Birr per annum. Casual wage labour was the second largest preferred livelihood strategy for the sample rural households, followed by bee keeping and irrigation in terms of number of participants. Around half of these sample rural households were also engaged in bee keeping with an average income of about 3091 Birr annually. Here large proportion of landless households (mainly the young) were engaged in this apiculture activity by developing and keeping (preserving) the hill sides from grazing. About 26.7% and 10% of the rural households took irrigation and trade as their additional livelihood strategies with an average annual income of 8446 Birr and 6257 Birr, respectively. The highest income in the form of cash was earned from irrigation followed by trade and casual wage. All these activities were highly related to the nearby Adwa town. The products of honey any and vegetables were all sold in the town. Those who were engaged in daily labour earn the income from the town. Therefore, these strategies were results of the rural-urban linkage in the study area and improved the livelihood of the rural people.

Although this strategy was expected to be dominated by the female-headed households, the result depicted that 41 (18.6%) of male-headed sample households were participants in this activity. It was only 16 (7.2%) female-headed households who were engaged in selling of fire wood and charcoal as their option for survival. In most cases, it was the teenagers who provided the firewood and charcoal to the urban market. Next to wage labour, a large number of households (26%) relied on this activity. The supply of forest and forest product to the urban centers was one of the results of environmental rural-urban linkages.

There were multiple forms of petty trading activities undertaken by the sample rural households of the study sites, including livestock trading, small shops, grain trading, and trading that combines a variety of crop and livestock products (depending on market situations, availability of items, and the financial capacity of the traders). About 10.4% of the sample rural households made trading as their additional source of income. For most sample households who run this strategy, it was ranked as their third source of livelihood.

These households earned an average income of 6791 Birr per year. From this income, they saved on average about 2787 Birr (Table 6.1). The saving was used at the time of difficulty or when the households faced different shocks. It is thus concluded that these livelihood strategies, which had a great linkage with urban centers, had a great role on the sustainable of the livelihoods or they make the households more resilient. The rural-urban linkage manifested through this livelihood strategy made a vital contribution to the livelihood of the sample rural households in the study area. This urban based livelihood diversification was highly attributed to the rural-urban linkage.

The other major livelihood diversification carried out by the sample rural households in the study area was extracting stone used for construction to be sold in Adwa town. Nearly one-fifth (19%) of the sample rural households were engaged in stone extraction, most of which were from EndabaGerima (36.4%) and from TahtayLogomti (30.4%). About 36% from the middle-income and 10% of the poor sample rural households took this activity as their additional source of income for their livelihood. It can thus be said rural-urban linkage in terms of selling stones for construction purposes, helped the middle and poor economic status groups diversify their livelihood. The rich were not beneficiary in this regard.

Handicraft products were also among the livelihood diversifications in the study area. It was very common to see every Saturday a lot of handicraft products of the pottery in the market (Figure 6.1). Other handicraft products of weaving, containers and items made from palm tree leaves (rattan) were among the supplementary sources of income. The inputs for the handicraft were almost supplied from the town and simultaneously the products (outputs) are sold in the town market. This livelihood diversification, highly interlinked with the urban center, was one of the livelihood strategies for the poor and middle-income group people in the study area. The study area had developed forward and backward linkages with the production of weaving and handicrafts.

Asset and Rural-Urban Linkage

Assets are the core of the household's strategy to survive, meet his/her future needs or reduce his/her exposure to risks. A household's asset portfolios determine the level of resilience and responsiveness to risks, events and shocks. These asset portfolios are linked to the livelihood strategies through the household's management of the assets. The sample rural households replied that they had access to different natural resources mainly the agricultural land, grazing land and water for irrigation. The results from the FGDs revealed that, some part of the study area was affected by externalities. For instance, with a special case of BeteYohannes, the agricultural land and the aquatic life of the downstream was affected by the so called 'treated' wasted from the textile company. Similarly, the farm land and health of people as well as their livestock were suffering from the byproducts of marble factory. This showed that rural-urban linkage was resulting in the deterioration of the natural capital of rural households.

It has been found that the existing traditional cooperation was tremendously remarkable and said to be one of the most productive socio-cultural setups in augmenting livelihood resources. The data depicted that, about 39.4% of the households got support from urban relatives. In case of the urban support, most sample rural households got support in cash form, mainly during summer time (when most of them were in need of cash to purchase agricultural inputs) and labour mainly during harvest time. As a result of such support, households were able to tackle the shocks they might face. Therefore, the rural-urban linkage played a role in strengthening the social capital of household with an implication on livelihood diversification.

It was found that there were various reasons for visiting the rural area (origin). A considerable number (29%) of urban households visited rural areas of Adwa for religious ceremonies and holidays. Similarly, urban residents visited rural areas were to attend family functions and events such as weddings and funerals. Essentially, these visits meant to maintain and foster kinship and family relations. It was for these reasons that almost all of the urban households (Adwa town) whose origin from the study area visited their rural

household or family members and relatives. In the study area family links and connections to home (origin) were still very strong, remittance served as a continuous means to maintain strong connections or contacts with one's home or place of origin. About 22% of the rural households got remittance from their family members who live in Adwa town. Therefore, such visits were crucial in strengthening the social capital of rural households in the study area.

Education, which is a very important human capital component, is a potential indicator of a household's labour. Those household who were engaged in irrigation that attained secondary school (27%) were slightly higher than those households with primary education (22.7%). Though the share of illiterate households who practice irrigation was higher than the educated ones, households with more educated heads seemed to produce more vegetables and earned more income for their family than their counterparts. This clearly showed that education was contributing an important role to maximize the income earned from irrigation. These households were more systematic on exploiting the opportunities of irrigation. These household attained their education in Adwa town. Therefore the RUL had a paramount contribution in improving the human capital of rural households by creating conducive atmosphere to attend education in the town.

This asset pentagon can provide a useful starting point for household livelihood analysis, as it encourages investigators to take into account all the different kinds of assets and resources that are likely to play a role in household livelihoods. Poor people in rural areas may have only their labour capacity (human capital) and the financial capital they can generate through their labour, but will have very limited direct access to natural capital, low levels of education and knowledge, and a very low social status that weakens their social capital base. The poorest households may have extremely reduced "livelihood pentagons" with extremely limited livelihood assets of any kind at their disposal. The result of this study however showed insignificant difference between the rich and poor households in terms of asset base as the pentagons show similar shape. This could be attributed to the fact that in general the difference among the poor and rich in study area is not significant.

Sustainable Livelihood Outcomes and Rural-Urban Linkage

Around two-third or 61% of the sample rural households believed that they were food secured. About 40% of the food secured households had a strong rural-urban linkage with Adwa town. The rest 60% were under the weak rural-urban linkage. Within each group, about half of the households with a strong rural-urban linkage were food secured. Around 70% of household with weak linkage felt that they are food secured. As mentioned in the previous chapter, majority of household with a strong rural-urban linkage are from the poor income group. Therefore, it was concluded that, the rural-urban linkage was playing a great role in improving the food security status of the sample rural households in the study area.

The major income generating activities in the study area were contributing their share in different degree to the respective households. In general, those households who engaged in the non-farm activities sourced about 41.9% of their income from the town. From the total cash source, about 56.6% of their income was earned from the town by selling their agricultural products (crop, livestock, honey and vegetables) and the rest 1.5 % of income was also earned from off-farm activities. Therefore, the result indicated that data the sample rural households were in a position to earn more income by selling their outputs as well from different income generating activities that make their base on the urban center, mainly the wage labour and remittance. The existing rural-urban linkage in the study area was playing a vital role in improving the income of the sample rural households through livelihood diversification, which is one manifestation of the sustainable livelihood outcomes. Similarly, it was clearly evident that the poor (33.2%) benefited more than the rich (22.6%) from the non-farm activities. The households tried to increase their income from the different livelihood activities they carried out which had a connection to the town. They strive to earn as much income as possible from different activities. Therefore, the rural-urban linkage played a crucial role in the livelihoods of the poor in the study area.

8.2 Recommendations

Based on the observations made so far, the following recommendations are made in order to promote the existing rural-urban linkages and thereby to stimulate the sustainable rural livelihood.

- Lack of well-networked marketing system and the producers' inability to directly access the consumers was found to be the households' critical problem (mainly tomato and milk) in the study area. This led the producers to have little or no bargaining power and forced them remain price takers, as a result of which they were obliged to sell their little surplus agricultural products at cheaper and unfair price. This coupled with lack of storage facility and value-adding machines, certainly resulted in the vicious circle of financial impoverishment to sustainably boost agricultural production in the area. Hence, it is highly recommended that local government officials should establish efficient marketing networks (at least encouraging the established packing factories of tomato and milk) so that the farmers obtain fair price for their products. It also seems right to recommend the establishment of storage facilities where farmers store their product and bargain for fair price to take full advantage of their products. This surely maximizes the effectiveness of the marketing network. Similarly, the establishment of value adding agro-processing industries is highly recommended. As the area has a great potential for honey production, establishing such factory will increase the linkage between the hinterland and the town as well as it enhances the farmers' source of income. In order to insure this, strong and determined cooperatives should be built and led by community elites in collaboration with concerned government offices with the focus of ensuring better livelihoods for all.

- Expand the existing industries which are found in the town, to create more job opportunity for the rural people. This in turn results on reducing population pressure on agricultural land in the hinterlands. The rural households can have sufficient agricultural land; as a result their productivity will boost.

- In order to improve the livelihood of rural households through diversification, it is important to give them access to financial capital, and promote their human capital by enabling them to become literate and healthy. Having access to sufficient finance and better working skills in non-farm activities, it can help greatly in diversifying household earnings beyond growing subsistence crops and rearing livestock. Therefore, provision of public services particularly quality health and educational institutions have to be strengthened. Through this the human capital of the population can certainly contribute a great deal in the sustainable livelihood of the population.

- Large proportion of the households at Adwa *Wereda* secures their means of survival by engaging in various non-farm and off-farm activities. In reality, both the relatively well-off and the poor segment of the population have adopted this system. The difference lies in the types of activities, as the better off mostly work in self-employment establishments while some of the poor secure their means of subsistence through waged labour of varying types. Therefore, a conducive atmosphere should be set to exploit the potential of these different livelihood strategies.

- It is important to promote diversification into non-farm self employment as these activities such as petty trade and handicrafts are important not only to overcome temporary shocks but also to reduce chronic poverty. It increases the liquidity of rural households and enables them to possess assets. But non-farm self employment activities are undertaken by few households. Measures, such as provision of training to develop their marketing and entrepreneurial skills, and access to credit, need be taken to expand these activities and minimize technical and liquidity constraints that limit households to join these activities.

- It is possible to enhance the livelihood of many people by providing an access to transport services. Making the transport service an accessible and affordable would strengthening the rural-urban linkage. Such services could create an opportunity to use the marketing linkages in the study area.

- Strict measures should be taken not to release untreated liquid waste of the Almeda textile industry and State of the art technology should be implemented in the Saba marble factory that can filter the dusts and protecting the environment and the health of the society. By doing this, minimizing the negative dimension of rural-urban linkage, it is possible to improve the human capital in the nearby areas and able to harvest more fish as well as get healthy fodder for livestock. Or the company should participate in developing water harvesting structures (check dams) so as to engage the households in irrigation as a means of compensation.

- The study area is characterized by small farm size and large family members. This precludes farmers from producing sufficient yield. It is therefore essential to improve agricultural productivity and enhance family planning as a means to reduce poverty and improve their livelihood. Enhancing irrigation and usage of modern inputs have the greatest impact on poverty reduction. Thus, the current water harvesting system widely applied in the region to supplement rain-fed agriculture with irrigation need to be accompanied by a wider use of modern inputs. Training, consultancy and information provision can facilitate the implementation of these mechanisms. The function of FTCs is so crucial in this regard. It is also important to create awareness on family planning in order to reduce the pressure on agricultural land in the study area.

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Appendices

Appendix I- Variance Inflation Factors (VIF)

Coefficients[a]							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	5814.721	9896.343		.588	.557		
Sex of the household head	-471.384	1729.188	-.025	-.273	.785	.371	2.692
Marital status of the household head	-968.327	843.746	-.106	-1.148	.252	.373	2.683
Education level of head	561.120	964.810	.044	.582	.561	.559	1.788
Total family size	-558.840	320.150	-.129	-1.746	.082	.585	1.711
Total farm size	3634.648	2750.979	.096	1.321	.188	.597	1.675
Number of farm plots	94.453	292.138	.024	.323	.747	.563	1.776
Livestock ownership in TLU	1264.259	295.356	.274	4.280	.000	.774	1.292
Time taken to travel to the town	-1149.441	491.669	-.140	-2.338	.020	.887	1.128
Bee hive owner	720.463	260.007	.167	2.771	.006	.880	1.136
Cell phone pos	-2577.468	929.888	-.169	-2.772	.006	.852	1.174
Irrigation	6532.648	1058.617	.384	6.171	.000	.821	1.218
AgeSq	-1.418	4.514	-.167	-.314	.754	.011	88.805
age of the household head	76.397	430.797	.097	.177	.859	.011	94.752
a. Dependent Variable: Income (Marketing Linkage)							

Model Summary										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.584[a]	.342	.300	6308.82854	.342	8.262	13	207	.000	1.52
a. Predictors: (Constant), age of the household head, Bee hive owner, Time taken to travel to the town, Irrigation, Sex of the household head, Total farm size, Cell phone pos, Total family size, Livestock ownership in TLU, Education level of head, Number of farm plots, Marital status of the household head, AgeSq										

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4275113101.772	13	328854853.982	8.262	.000[b]
	Residual	8238872734.880	207	39801317.560		
	Total	12513985836.652	220			
a. Dependent Variable: Income (Marketing Linkage)						
b. Predictors: (Constant), age of the household head, Bee hive owner, Time taken to travel to the town, Irrigation, Sex of the household head, Total farm size, Cell phone pos, Total family size, Livestock ownership in TLU, Education level of head, Number of farm plots, Marital status of the household head, AgeSq						

Coefficients[a]							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-3.921	1.598		-2.454	.015		
Sex of the household head	-.271	.279	-.088	-.969	.334	.371	2.692
Marital status of the household head	-.251	.136	-.168	-1.843	.067	.373	2.683
Education level of head	.230	.156	.109	1.473	.142	.559	1.788
Total family size	-.053	.052	-.074	-1.018	.310	.585	1.711
Total farm size	.419	.444	.068	.944	.347	.597	1.675
Number of farm plots	.149	.047	.234	3.159	.002	.563	1.776
Livestock ownership in TLU	.154	.048	.204	3.238	.001	.774	1.292
Time taken to travel to the town	.111	.079	.082	1.395	.165	.887	1.128
Bee hive owner	.163	.042	.229	3.872	.000	.880	1.136
Cell phone pos	-.413	.150	-.165	-2.751	.006	.852	1.174
Irrigation	.337	.171	.121	1.969	.050	.821	1.218
AgeSq	-.002	.001	-1.643	-3.142	.002	.011	88.805
Age of the household head	.228	.070	1.770	3.277	.001	.011	94.752
a. Dependent Variable: Market Orientation (Visit)							

Model Summary										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.602[a]	.363	.323	1.01891	.363	9.058	13	207	.000	1.74
a. Predictors: (Constant), age of the household head, Bee hive owner, Time taken to travel to the town, Irrigation, Sex of the household head, Total farm size, Cell phone pos, Total family size, Livestock ownership in TLU, Education level of head, Number of farm plots, Marital status of the household head, AgeSq										

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	122.254	13	9.404	9.058	.000[b]
	Residual	214.904	207	1.038		
	Total	337.158	220			
a. Dependent Variable: Market Orientation (Visit)						
b. Predictors: (Constant), age of the household head, Bee hive owner, Time taken to travel to the town, Irrigation, Sex of the household head, Total farm size, Cell phone pos, Total family size, Livestock ownership in TLU, Education level of head, Number of farm plots, Marital status of the household head, AgeSq						

Coefficients[a]							
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	8.400	2.163		3.883	.000		
age of the household head	-.111	.094	-.696	-1.182	.239	.011	94.752
Sex of the household head	-1.023	.378	-.269	-2.706	.007	.371	2.692
Marital status of the household head	-.217	.184	-.117	-1.178	.240	.373	2.683
Education level of head	-.012	.211	-.005	-.058	.953	.559	1.788
Total family size	.127	.070	.143	1.812	.071	.585	1.711
Number of farm plots	-.246	.064	-.311	-3.855	.000	.563	1.776
Livestock ownership in TLU	-.129	.065	-.138	-2.004	.046	.774	1.292
Time taken to travel to the town	-.018	.107	-.011	-.165	.869	.887	1.128
Bee hive owner	.032	.057	.037	.570	.570	.880	1.136
Cell phone pos	-.086	.203	-.028	-.422	.673	.852	1.174
Irrigation	.077	.231	.022	.334	.738	.821	1.218
AgeSq	.001	.001	.660	1.159	.248	.011	88.805
Total farm size	-.813	.601	-.106	-1.352	.178	.597	1.675
a. Dependent Variable: Non-Marketing Linkage							

Model Summary[b]										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.493[a]	.243	.195	1.379	.243	5.111	13	207	.000	1.294
a. Predictors: (Constant), Total farm size, Cell phone pos, Total family size, Time taken to travel to the town, Education level of head, Bee hive owner, Sex of the household head, Irrigation, Livestock ownership in TLU, AgeSq, Number of farm plots, Marital status of the household head, age of the household head										
b. Dependent Variable: Non-Marketing Linkage										

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	126.387	13	9.722	5.111	.000[b]
	Residual	393.749	207	1.902		
	Total	520.136	220			
a. Dependent Variable: Non-Marketing Linkage						
b. Predictors: (Constant), Total farm size, Cell phone pos, Total family size, Time taken to travel to the town, Education level of head, Bee hive owner, Sex of the household head, Irrigation, Livestock ownership in TLU, AgeSq, Number of farm plots, Marital status of the household head, age of the household head						

Source: Model Output

Appendix II- Correlation Matrix of Variables

A. Marketing Linkage (Income/Degree)

	Sex	MSTA	EDU	FAMI	TFAS	NFP	TLU	DIT	BHO	CPP	IRR	AgeSq	AGE
SEX	1.000												
MSTA	-.762	1.000											
EDU	.120	-.150	1.000										
FAMI	.187	-.100	-.037	1.000									
TFAS	.118	-.186	-.164	.043	1.000								
NFP	.155	-.154	-.349	.001	.542	1.000							
TLU	.055	-.062	-.118	.233	.344	.218	1.000						
DIT	-.020	-.016	-.034	-.032	.054	.088	-.017	1.000					
BHO	.042	-.063	.022	.126	.235	.084	.272	-.038	1.000				
CPP	.088	-.134	.126	-.097	-.010	.035	.037	-.184	.032	1.000			
IRR	.026	-.088	-.096	-.107	.028	.266	.077	-.010	-.074	.250	1.000		
AgeSq	.102	.059	-.558	.234	.206	.242	.226	.011	.021	-.144	-.031	1.000	
AGE	.083	.080	-.570	.295	.198	.243	.233	.035	.026	-.147	-.040	.991	1.000

B. Marketing Linkage (Visit/Orientation)

	SEX	MSTA	EDU	FAMI	TFAS	NFP	TLU	DIT	BHO	CPP	IRR	AgeSq	AGE
SEX	1.000												
MSTA	-.762	1.000											
EDU	.120	-.150	1.000										
FAMI	.187	-.100	-.037	1.000									
TFAS	.118	-.186	-.164	.043	1.000								
NFP	.155	-.154	-.349	.001	.542	1.000							
TLU	.055	-.062	-.118	.233	.344	.218	1.000						
DIT	-.020	-.016	-.034	-.032	.054	.088	-.017	1.000					
BHO	.042	-.063	.022	.126	.235	.084	.272	-.038	1.000				
CPP	.088	-.134	.126	-.097	-.010	.035	.037	-.184	.032	1.000			
IRR	.026	-.088	-.096	-.107	.028	.266	.077	-.010	-.074	.250	1.000		
AgeSq	.102	.059	-.558	.234	.206	.242	.226	.011	.021	-.144	-.031	1.000	
AGE	.083	.080	-.570	.295	.198	.243	.233	.035	.026	-.147	-.040	.991	1.000

C. Non-Marketing Linkage

	AGE	SEX	MSTA	EDU	FAMI	NFP	TLU	DIT	BHO	CPP	IRR	AgeSq	TFAS
AGE	1.000												
SEX	.083	1.000											
MST	.080	-.762	1.000										
EDU	-.570	.120	-.150	1.000									
FAMI	.295	.187	-.100	-.037	1.000								
NFP	.243	.155	-.154	-.349	.001	1.000							
TLU	.233	.055	-.062	-.118	.233	.218	1.000						
DIT	.035	-.020	-.016	-.034	-.032	.088	-.017	1.000					
BHO	.026	.042	-.063	.022	.126	.084	.272	-.038	1.000				
CPP	-.147	.088	-.134	.126	-.097	.035	.037	-.184	.032	1.000			
IRR	-.040	.026	-.088	-.096	-.107	.266	.077	-.010	-.074	.250	1.000		
AgeSq	.991	.102	.059	-.558	.234	.242	.226	.011	.021	-.144	-.031	1.000	
TFAS	.198	.118	-.186	-.164	.043	.542	.344	.054	.235	-.010	.028	.206	1.000

APPENDIX III

Addis Ababa University

School of Graduate studies

Faculty of Social Sciences

Department of Geography and Environmental studies

This questionnaire is primarily designed to collect data to examine the role of rural-urban linkage on sustainable livelihoods of rural households in the surrounding rural areas of Adwa town. The research is for the partial fulfillment of the PhD Degree in Geography and Environmental Studies. I strongly ensure you that the study is carried out only for academic purpose, thus your response and name will never be deployed for other purpose. Towards this end, your general cooperation in providing reliable information is crucial. You are therefore, kindly requested to provide all the necessary information included in the questionnaire.

Your answers are confidential.

Great thanks for your cooperation.

1. Questionnaire for Rural Households

Identification

Name of enumerator _____

Date of enumeration_____

Code _____

I. Profile of Respondents

- Age _____ age of your family members _____
- Sex _____ Sex of your family members in number M_____F_____
- Marital status _____
- Educational background of the household head _____
- Educational background of your family members _____
- Ethnic background of the household head _____
- Religion of the household head _____

II. Questions on Landholding

1. How much is your farm size? _____ (Hectare/Timad)
2. Total area allotted for the following last agricultural year

Type	**Area in hectare /Timad/**
A. Cultivated land	_____
B. Garden/Irrigated land	_____
C. Forest land	_____
D. Grazing land	_____
E. Fallow land	_____
F. Other (specify)	_____

3. How many farm plots do you have? _____
4. Area of farm land by fertility (Hectare/Timad/)

   Fertile_____ Semi fertile _____infertile _____

5. Is the farm land that you own enough for your family? A. Yes B. No
6. If your answer to question number '5' is 'No' how do you overcome the problem?

   A. By renting in additional plot of land B. By engaging on Non-farm activities

   C. By crop sharing D. Other means (specify) _____

7. If your answer to question No. '6' is "B" in what kind of non-farm activity or activities are you engaged? A. Trade B. processing Activities

   C. Daily labor D. Others (specify) _____

III. Agricultural Production and Marketing

1. Houses hold agricultural production in 2005 E.C. Please fill out the following table.

product type	**Area (Timad)**	**Produced amount (kg)**	**Share of amount**			**Place of sale**	
			Consumed	**Sold**	**Other**	**Urban**	**Rural**
Teff							
Wheat/ Barley							
Sorghum/ Maize							
Millet							
Pea and bean							
Vegetables							
Fruits							
Honey							
Others (list)							

2. Animal production ownership

Type	Number
Ox	_____
Cow	_____
Sheep and Goat	_____
Pack animal	_____
Poultry	_____
Bee (No. of hive)	Modern_____Traditional_____
Other (specify) _____	_____

3. Reason for crop production and animal production

Production	**Reason**			
	Need for food	**Need for income**	**Income diversification**	**Other**
Crop				
Animal				
Vegetable and fruits				

4. Is the crop you produced enough for your family consumption? A. Yes B. No

5. If your answer to question number '3' is 'No' how do you overcome the problem?

A. By purchasing from market B. By aid

C. By income earned from other activities D. Remittance

E. Sending children to relatives F. Others (specify) _____

6. In comparison with last year, how do you evaluate that of the 2005E.C agricultural year? A. Increasing B. Decreasing C. Constant (No change)

7. If your answer to question number '5' is 'A' what do you think the reason is?

A. Good rainfall B. Extension packages

C. Application of irrigation technologies D. Others (specify) _____

8. If your answer to question number '5' is 'B' what do you think the reason is?

A. Shortage of rain B. Decrease of soil fertility

C. Lack of extension services D. Shortage of land

E. Others (specify) _____

9. Did you sale any part of your last year's production? Fill the following table

A. Yes B. No

Description	Customer					Place of sale		Income earned
	Consumers	Retailers	Wholesellers	Broker	Others	Rural	Urban (Adwa)	
Crops								
Livestock								
Livestock products								
Poultry								
Vegetables								
Fruits								
Honey								
Forest product								

10. Indicate your reason of preference for the above-mentioned place of market?

A. Proximity B. Better price C. Better Services D. Others (specify) ____

11. If you did not sale your products, what is the reason?

A. Lack of market B. Lack of surplus C. Others (specify) _____

12. If you did not sale your products, how can you afford for other expenses like tax, clothing, health services and the like?

A. By non-far activities B. By loan C. Remittance D. Other (specify) ___

13. Please indicate your mode of transport and time you take to travel from your home to the market.

Mode of transport	Time needed to travel	Reason to use
On Foot		
Animal back		
Vehicles		
Others (specify)		

14. Is there any transport problem that you face to transport people and goods?

A. Yes B. No

15. How many times do you visit this market town?

A. Daily B. Three/Six times a week C. Once / twice a week

D. Once in two weeks E. Once in a month F. Others (specify) _____

16. Do you have any saving habit? Fill the following table A. Yes B. No

Type of saving	**Amount (value) of saving in Birr per year**	**Where do you save it**	
		Rural	**Urban**
In cash			
In crop			
In fixed assets			
In livestock			
Other, specify_____			

17. Did you get loan this last three years? A. Yes B. No

18. From where did you get the loan? A. Rural B. Urban C. Both

19. If 'Yes' how much? _____ Birr

20. If your answer to question number '18' is 'Yes' what is your source of loan?

A. Bank B. Relatives C. Friends D. Service cooperatives

E. Micro finance F. Money lender (Arata) G. Other (specify) _____

21. What is your reason for the loan? _____

IV. Production Linkages

1. Did you use commercial fertilizers and related inputs during the last agricultural year?

A. Yes B. No

Inputs and services	**Quantity (kg/ No /Ltr)**	**Expenditure (Birr)**	**Source (**)**	**Place of purchase**	**Remark**
Improved seeds					
Fertilizers					
Herbicides					
Insecticides					
Other					

** Sources of modern agricultural inputs urban traders, cooperatives, rural agricultural bureau, and others.

2. If you did not use commercial fertilizer last year, what are the reasons for not using?

A. Lack of money B. Lack of access to credit

C. High cost of commercial fertilizer D. Others (specify) _____

3. If you did not use improved seeds, what is the reason for not using?

A. Lack of money B. High cost of seeds

C. Lack of access to credit D. Desired seed not available

E. Seed not available F. Others (specify) _____

4. If you did not of use herbicides or insecticides last year, what is the reason not to use?

A. Lack of money B. High cost

C. Not available D. Others (specify) _____

5. Do you use any technology to lift water for irrigation? A. Yes B. No

6. If 'Yes' from where do you get them? A. Urban B. Rural

7. Please indicate whether you got the following services from Adwa town or not and from where you got them if your answer is 'no'

Service type	**Alternatives**		**If you said 'no' from where you get them?**
	Yes	**No**	
Farm extension service			
Agricultural tools			
Repair agricultural tools			
Veterinary services			
Storage for agricultural product			
Grain Mills			
Schooling			
Health services			
Market			
Telecommunication services			

8. Did you sale any part of your last year's production to the processing sectors in Adwa town?

A. Yes B. No If 'Yes' list them _____, _____, _____.

V. Consumption Linkages

1. Annual purchases of consumer durables and from where you purchase.

Item	**Total expenditure (Birr)**	**Source of purchases**	
		Name (town)	**Distance (km)**
Clothing			
Shoe			
Household utensils			
Building materials			
Others (specify)			

2. Monthly purchases of basic consumption good and sources of purchase

Item	**Total expenditure (birr)**	**Source of purchase**	
		Name (town)	**Distance (km)**
Coffee			
Sugar/Tea			
Salt			
Spices			
Pepper			
Oil			
Kerosene			
Soap			
Dry cells			
Others (specify)_____			

VI Migration Linkage

1. Did any member of your family go to Adwa town for seeking a job? A. Yes B. No

2. If 'Yes', is it permanently or temporary? _____

3. If 'Yes', do you face any problem in your agricultural activities? A. Yes B. No

4. Did any of these members send cash or goods to the family? A. Yes B. No

5. If 'yes', how much did they send last year? In cash _____ Birr, kind _____and for what purpose did you use the money? Describe it_____

6. How often did you get remittance?

A. Monthly B. Quarterly C. Once in six month D. Annually E. Other (specify) _

7. What is the change of remittance in the last three years?

A. Increase B. Decrease C. No change

8. If you got remittance when they send it more often?

A. Religious holiday B. Summer time (to purchase seed, fertilizer….)

C. Beginning of school time D. Social ceremonies (marriage, funeral)

E. Other_____

9. Did you or your family frequently visit Adwa town? A. Yes B. No

10. How often did you visit Adwa town?

A. Daily B. Three times in a week C. Twice in a week

D. Once in a week. E Once in a month . F. Other (specify) _____

11. For what purpose did you visit the town? A. Market B. Education

C. Health D. Visit relatives E. Veterinary F. Other (specify) _____

12. Are there goods and services which are important for your agricultural activities that you did not get from Adwa town? A. Yes B. No

13. If your answer to question number '12' is 'Yes' please list the types of goods and services that you did not get in the town.

A. _____ B. _____

C. _____ D. _____

14. Where did you go to get the above-mentioned goods and services?

Name of the town _____ Distance from home _____ (km/hr)

15. Are there any problem/s created due to absence of these goods and services in Adwa town on your agricultural activities? A. Yes B. No

16. If your answer to question number '16' is 'Yes' please list the problems?

A. _____ B. _____

C. _____ D. _____

17. Do you or does any member of your family visit health center for medical treatment last year? A. Yes B. No

18. If 'Yes' Where? A. Rural B. Urban (Adwa) C. Other _____

19. If 'Yes' how much do you spend? _____

20. If 'Yes' how many members of your family were sick and unable to work last year?_____

VII Environmental (Resource) Linkage

1. Do you use any waste deployed by the town municipality? A. Yes B. No

2. If 'Yes' how do you access it?

3. Did you sale any forest product last year to the town? A. Yes B. No

4. If 'Yes' which products did you sold

A. Fire wood B. Charcoal C. Construction D. Other _____

5. Did you sale any resource such as stone to the town? A. Yes B. No

VIII. Assets

1. Do you have access to technology such as cell phone, radio, TV? A. Yes B. No

   which one most important_____

2. Are you willing to attend trainings or school or access preventive medical services?

A. Yes B. No If not why?

_____

   List the type of trainings _____, _____, _____

3. Are you excluded from accessing the above services? A. Yes B. No Why? _____

4. Do you feel mutual trust in team works? A. Yes B. No Why? _____

5. Do you participate in managing common natural resources and maintaining infrastructure? A. Yes B. No Why? _____

6. Is there any new social capital developed in your community recently? A. Yes B. No

   if so, how do apply?_____

7. In how many groups are you registered as a member? _____

8. Did you rely on the social capital to tackle some crises? A. Yes B. No

   what strategies did you use at the time of crises?_____

9. Do you have an access to natural resources? A. Yes B. No

10. How do you access the natural capital? Private or rental or communal

Natural capital	**Accessed by**			
	Private	**Rented**	**Communal**	**Other (specify)**
Land				
Water for irrigation				
Grazing land				

11. How do you rate the productivity of the natural capital?

Description	**Current Status**			**Reason**
	Increase	**As it is**	**Decrease**	
Fertility of land				
Availability of water				
Availability of grazing land				
Other				

12. Does your resources affected by externalities? A. Yes B. No

   if so, explain_____

13. Are the resources versatile? Yes/No to what purpose_____

14. How versatile is your financial capital? To what kinds is it converted? _____

15. Do you get services at reasonable price? Yes/No

16. Do have a trust on the microfinance? Yes/No if no, why?_____

17. Do you have an access to drinking water? Yes/No How far is it? _____ Km/Hr

18. Fill out the table regarding your social asset

Description	Status		Remark
	Yes	No	
Participation in community services			
Support from neighborhoods			
Support from urban relatives			
Women on decision making			

IX. Livelihood Strategies

1. Do you and other household members take part in non-farm activities?
   A. Yes B. No
2. On the basis of your households in the village, can you say that taking part in non-farm activities is advantageous to rural households?
   A. Yes B. No
3. For what purpose you use the money earned from non-farm activities? Can choose more than 1
   A. To buy food items for the Hhs B. To buy cloth to Hh members C. To pay land taxes
   D. To pay tuition fee of children E. To cover social costs, like Eder, Equb etc
   F. To pay wage labour G. To plant trees H. To buy cattle/sheep/goat/poultry
   I. To rent land J. Any other, specify_____
4. What are some of the conditions that you urge you particularly in non-farm activities?
   A. Household size B. Land scarcity C. worsening living conditions
   D. Decreasing agricultural per capita produce/income
   E. Improving agricultural income F. Any other, specify_____

5. Fill the following table regarding your livelihood strategies accordingly

Job/Activity	No. Hhs	Sex		Time spend (month /day)	Income earned	Savin g	Rank
		M	F				
Farming							
Regular employment							
Self employment (artisanal) ***							
Casual wage labour							
Bee keeping							
Irrigation							
Trade in rural area							
Trade in urban area							
Other ***							

(***) List them in the rank column

6. From the above mentioned livelihood activities rank from 1 to 9 the most important in your household (start with the most important and more income generating activity)

X. Outcomes

1. How do exercise and ensure your rights? _____

2. Do you feel secured for your life and your assets? Yes/No explain_____

3. Whihc information is open to you? List them _____,

_____, _____, _____

4. To what extent are you participated in political process? _____

5. How do rate the access of different groups to core services? _____

Service	Rate			Remark
	Good	Fair	Poor	
Agricultural				
Health				
Education				
Justice				

APPENDIX IV

Addis Ababa University

School of Graduate studies

Faculty of Social Science

Department of Geography and Environmental studies

This questionnaire is primarily designed to collect data to examine the role of rural-urban linkage on sustainable livelihoods of rural households in the surrounding rural areas of Adwa town. The research is for the partial fulfillment of the PhD Degree in Geography and Environmental Studies. I strongly ensure you that the study is carried out only for academic purpose, thus your response and name will never be deployed for other purpose. Towards this end, your general cooperation in providing reliable information is crucial. You are therefore, kindly requested to provide all the necessary information included in the questionnaire.

Your answers are confidential.

Great thanks for your cooperation.

2. Questionnaire for Urban Traders/Rural Vendors

Identification

Name of enumerator _____

Date of enumeration_____ Code _____

Profile of Respondents

- Age_____
- Sex_____
- Owner's residence_____
- Marital status_____
- Family size of the household____
- Educational back ground of the household head_____
- Ethnicity_____
- Religion_____

1. What type of trade do you undertake?

A. Wholesaler B. Retailer

2. Type of business ownership

A. Private B. Family C. Share D. Other _____

3. How much is your capital? _____ Birr.

4. What is your source of capital?

A. Bank B. Microfinance C. Self D. Relatives

E. Others (specify) _____

5. Your average weekly sale _____ Birr.

6. From where do you purchase the products you sale?

A. Surrounding rural areas B. Adwa town

C. Out of the region D. Others (specify) _____

7. List the items that you purchase from the surrounding rural areas

Item

_____

_____

_____

8. List the items that you purchase from other places outside Adwa wereda

Item	Place of purchase
_____	_____
_____	_____
_____	_____

9. Do you have adequate purchasers? A. Yes B. No

10. If you have adequate purchasers, how much did you sale per week?

Type	Amount (in Kg/Quental/No.)	Birr
_____	_____	_____

11. Do you have adequate sellers for your enterprises? A. Yes B. No

12. What is/are the peak market day/s? _____

13. If you have adequate sellers, how much do you purchase per week?

Type	Amount (in Kg/Quental/No.)	Birr
_____	_____	_____
_____	_____	_____

14. List the items that you sell to other places outside Adwa wereda

Item	Place
_____	_____
_____	_____

15. What are the main marketing problems associated with the town?

A. Shortage of warehouses near the market B. Lack of transportation facilities C. Lack of surplus production in the town

D. Lack of financial institutions E. Others (specify) _____

16. What is the role of local governments to foster the marketing linkages between the town and the surrounding rural areas?_____

APPENDIX V

Addis Ababa University

School of Graduate studies

Faculty of Social Science

Department of Geography and Environmental studies

This questionnaire is primarily designed to collect data to examine the role of rural-urban linkage on sustainable livelihoods of rural households in the surrounding rural areas of Adwa town. The research is for the partial fulfillment of the PhD Degree in Geography and Environmental Studies. I strongly ensure you that the study is carried out only for academic purpose, thus your response and name will never be deployed for other purpose. Towards this end, your general cooperation in providing reliable information is crucial. You are therefore, kindly requested to provide all the necessary information included in the questionnaire.

Your answers are confidential.

Great thanks for your cooperation.

1. Questionnaire for Urban Households

Identification

Name of enumerator _____

Date of enumeration_____

Code _____

I. Profile of Respondents

- Age _____
- Sex _____
- Marital status _____
- Family size of the household_____
- Educational background of the household head _____
- Ethnicity _____
- Religion _____

II. General Survey

1. What is your main occupation in the town? _____
2. If you are self employed from where you get the inputs?
   A. Urban B. Rural C. Both
3. If you self employed and get the inputs from rural areas, list down the inputs
   _____, _____, _____, _____
4. Do you engaged in any income generating activity at the rural areas? A. Yes B. No
5. Did you or any of your family members engage in agricultural activities in 2005?
   A. Yes B. No
6. If you said 'Yes' for question number '2'. Why?
   A. To earn money B. For self consumption C. Other (specify) _____
7. If you choose alternative 'A' for question number '5', how did you get the cultivable land?
   A. Crop sharing B. Rent C. Other (specify) _____
8. For how long you lived at Adwa town _____year _____ month
9. If you came from other place, where is your previous residence?
   A. Urban B. Rural
10. If you came from other place, from where did you come?
    A. From other town outsides the Wereda. B. From rural areas wit in the Wereda C. From rural areas outside the Wereda D. If other specify ____
11. If you came from another area, why did you come to this town?
    A. To get alternative job opportunities B. For education
    C. Due to marriage D. For better life E. Other (specify) _____
12. If you came from rural areas of Adwa, do you have relatives in there?
    A. Yes B. No
13. If 'Yes', did you send remittances to your relatives? A. Yes B. No
    How much? _____ At what frequency? _____
14. Did you visit your relatives in the rural area frequently? A. Yes B. No
15. If you visit the rural area for any reason, what was the main reason?
    A. To visit relatives B. Religious ceremonies D. Funeral ceremonies
    D. Other _____

16. Did you get any support from rural relatives? A. Yes B. No

17. If get any support in what form do you get it?

A. Material/kind B. Financial C. Other _____

II. Marketing Linkage

1. Did you purchase any agricultural produce this year (2005)? A. Yes B. No

2. If yes, how do you evaluate the supply of agricultural produces by the surrounding farmers? Please fill the following table.

Types of agricultural produces	**Supply situation**			**Remark**
	Unsatisfactory	**Satisfactory**	**Excess**	
Food grains				
Vegetables				
Fruits				
Pulses & Oil seeds				
Livestock				
Livestock and other animal products				
Poultry				
Honey				
Forest/ forest product				

3. If you said 'Yes' for question number '1'. Please indicate the amount and types of agricultural produce you have purchased per month.

Types of crops	**Monthly Expenditure**		**Place of purchase**
	Average amount (Kg)	**Average amount (Birr)**	

4. Why did you prefer to purchase food crops in that town?

A. Proximity to home B. Better quality of crops C. Better availability

D. Better price E. Other (specify) _____

5. From whom did you purchase the agricultural produce?

A. Directly from producers B. From traders

C. Both traders and producers D. Others (specify) _____

6. If you said 'No' for question number '1', from where did you or your family get food crops?

A. By farming (cultivating the land) B. Food crops obtained from rural relatives

C. Other (specify) _____

7. Did you purchase any animal and animal products this year (2005E.C)?

A. Yes B. No

8. If you said 'yes' for question number.'7', please indicate where the animal and animal products have been purchased and consumed by you and your families with in the last six months ?

Types of animal or animal products	**Monthly Expenditure**		**Place of purchase**	**From whom you purchase 8A**	**Reason 8B**
	Average (No/Kg/Lt)	**Average (Birr)**			
Goat/sheep					
Ox/cow meat					
Poultry					
Egg					
Milk					
Butter					
Honey					

Code for 8A

A. Directly from farmers B. From traders C. Other (specify) _____

Code for 8B

A. Proximity to home B. The quality of the livestock C. Price of livestock

D. Availability of livestock E. Other (specify) _____

9. If you said 'No', for question number '7', from where did you get for you and your family's animal and animal products consumption?

A. By rearing livestock B. By obtaining from relatives C. Other (specify) _

10. What did you use for cooking and making 'Enjera'?

A. fire wood B. Charcoal C. Electricity D. Other (specify) _____

11. If you use fire wood and charcoal, from where you get it?

A. Collecting from rural areas B. Purchase from rural retailers C. Other ____

APPENDIX VI

Focus Group Discussion points

1. How do you evaluate the changes in social capital in your community?
2. What is the contribution of the social network on facilitating innovation and development as well as share of knowledge?

   _____
3. Describe the changes in the quality and quantity of natural capital.
4. What are the major factors for the variation in the mentioned natural capital?
5. Contribution of other factors to support the natural capital
6. Flow of waste from urban to the rural area and its contribution
   - Types of waste moving, why and for what purpose
   - Consistency
   - Advantage and disadvantage
   - If affected by the waste what do you suggest in minimizing its impact?
7. How do evaluate the flow of people to Adwa town?
   - Who moves and Why they move
   - With whom do they stay
   - In what IGA do they engaged
   - What problems do they face when they arrive
8. What organizations are operating in the area in development work? What is their main target?
9. How do the poor and the rich survive?
10. To what extent does the female participate in the overall activities that require decision making?
11. How do you evaluate the role of the farmers' training center (FTC) in promoting RUL
12. The availability of the processing plants such as tomato packing, milk product….
13. Is there any inflation? The problem of inflation and its connection with RUL

Glossary

Birr - Ethiopian currency (20.92 Birr = 1 US Dollars, according to 2015)

Hinterland- refers to the rural areas around a town which is served by urban center or town.

Household- group of people who live together and make common provision for cooking food or other essentials of living.

Injera- Ethiopian common/traditional pancake or bread made from 'Teff'

Kebele- a term used to indicate the lowest administrative unit at the grassroots level in urban centers.

Meher - Main growing season for annual crops that are normally planted in summer, to be harvested in autumn

Kola - Lowland agro-climate

Sheqli - Wage labour

Tabia- a term used to indicate the lowest administrative unit at the grassroots level in the rural area (which is equivalent to 'Kebele').

Teff- a term used to indicate locally most important cereal crops in Ethiopia which used to make 'injera'.

Tella- local beer prepared from finger millet, malt and hop.

Tewefrti- using of farm oxen through grain transaction.

Tigraway- an individual who/she belongs to the Tigray ethnic group

Wefera- Labour exchange among community members in rotation or labour organization whereby other community members assist an individual (to support the elders and households who lost the bread winner) for free.

Wereda- refers to district, including a number of rural 'Tabias' and urban 'Kebeles'.

Weyna Dega - Midland agro-climate