ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

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IMPACTS OF RURAL PHYSICAL INFRASTRUCTURAL EXPANSION ON THE LIVELIHOOD SITUATION OF RURAL PEOPLE: THE CASE OF *MACHAKEL WOREDA*, EAST *GOJJAM* ZONE

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BY

ASCHALE KASSIE

ADVISOR: ABEJE BIRHANU (PhD)

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Aschale Kassie

Approved by Board of Examiners

Abeje B		02/12/2013
Advisor's name	Signature	Date
Taye Mequessie		02/12/2013
Internal Examiner's name	Signature	Date
Wondemhek Beyene		02/12/13
External Examiner's name	Signature	Date

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Acronyms

EPRDF	Ethiopian People Revolutionary Democratic Front
ETB	Ethiopian Birr
GoE	Government of Ethiopia
GTP	Growth and Transformation Plan
HDI	Human Development Index
IFAD	International Fund for Agricultural Development
ILC	International Labor Conference
MoFED	Ministry of Finance and Economic Development
OECD	Organization for Economic Co-operation and Development
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
RSDP	Road Sector Development Program
SIA	Social Impact Assessment
USA	United States of America

Local terms

Akolkuaye- *Injera* and *tella* given to others in times of occasions such as marriage, *tezikar* and house construction in the form of reciprocity

Ambasha- Bread prepared from wheat powder

Arequi- Local liquor prepared from fermented wheat and maize

Asharo-A mixture of wheat, maize and barely used as ingredients to prepare *arequi*

Balegarey- A person who owns and drives horse driven carts

Baleshaybet- A woman selling tea, *tella, arequi* and *ambasha*

Buda- A person who is believed to have an eye with special power to cause illness on others

Dasmetal- An activity in times of marriage ceremonies involving the construction of broad shelter for relatives and others participating in the ceremony

Debbo- Collaboration by farmers in agricultural activities such as harvesting

Debetera- A priest who quits serving in the church because of the death of marital partner in an orthodox religion

Enjera- A flat bread eaten as stable food in Ethiopia

Fasika- Easter

Firfir- Food type sold in local restaurants prepared from chopped *injera*

Gesho- *Rhamnus Prinoides*

Gott- An administrative unit one level lower than *kebele*

Gulit- A small market in villages where commodities are sold and bought

Kumera- A livelihood activity involving the selling of tea, *tella* and *arequi*

Mererie- Vertisols that accounts about 12.7 percent of soil types in *machakel wereda*

Senebetie- Religious association celebrated on the first Sabbath of each month

Shilela- A traditional way of expressing anger and happiness using own and common poem

Shiro- Bean powder that is used for making sauce

Teff- *Eragrostis tef*

Tezikar- Spiritual ceremony held to remember a dead person on the 40^{th} day

Tsebel- Holy water believed to cure people from disease

ABSTRACT

The aim of this study is to analyze the impacts of physical rural infrastructural expansion on the livelihood contexts of rural people with particular reference to rural people of Machakel Woreda, East Gojjam zone of Amhara regional state. The study employed both qualitative and quantitative research approaches. Different tools of data collection were triangulated. Results of the study are therefore; based on in-depth household and key informant interviews, focus group discussions, field observations and household survey. So as to broadly analyze the issue under study, related literatures have been critically reviewed and sustainable rural livelihoods approach as an analytical tool has been used.

The study shows that the government expansion of physical infrastructures in to rural areas has enabled rural people diversify their income sources through engagement in variety of livelihood activities. People have created new livelihood activities helped by newly expanded physical infrastructures. Rural peoples' access to livelihood assets in the study area was found to have been improved and people acquired several kinds of assets from the time of physical infrastructural expansion onwards.

The study also found that physical infrastructural expansion contributed a lot in the reduction of poverty in rural areas in a number of ways. 1) Rural people are able to widen their income sources thereby getting better income. As people engaged in new income generating activities, they could earn good incomes which enabled them satisfy their basic needs, save cash money and reserve in kind, pursue further livelihood activities, cover costs of services (such as health expenses), and so on. 2) Physical infrastructures also contributed to the health status of rural people. Pure drink water and rural roads as pre-requisites for health posts are essential for healthy and productive rural man power. 3) Physical infrastructures are also important for raised awareness and good educational profile of rural people in the study area.

The study identified both negative and positive impacts of physical infrastructural expansion on the social life of the people in the rural area. These impacts were on social networks and institutions, on the relationship among rural people themselves and on the relationship between rural people and surrounding urban residents. For instance, the unbalanced distribution of physical infrastructure across rural localities created inter and intra-kebele displacements, that in turn affects peoples 'involvement in the social organizations of idir, iquib and mahiber. Rural people created and strengthen their ties, though some others' relationship was disrupted during and after the expansion of infrastructure. The social relationship between rural people of the study area and surrounding urban dwellers was also found to be facilitated.

Key words: Livelihood, diversification, poverty reduction, Machakel woreda, physical infrastructures, social impacts and rural people

Chapter One

Introduction

1.1 Background to the Study

In the present day, Ethiopian government is working on the expansion of infrastructures all over the country including rural areas. The inclusion of infrastructural development as a pillar in the development agendas of the country is one evidence for this emphasis. One of the seven pillar strategies set to achieve the GTP (2010/11-2014/15) by EPRDF is enhancing expansion and quality of infrastructural development. The GTP saw the expansion and maintenance of infrastructure such as road, power and water supply from the stand point of enhancing and sustaining pro-poor growth by way of job creation, initiating domestic industrial development, thereby contribute for poverty eradication efforts of the country (MoFED, 2010:8-9).

Under the GTP, GoE's objective is to improve the efficiency of infrastructure sector and provide access to all *kebele* centers and develop capacity for maintenance and construction. The road sector development program (RSDP) entails ETB 125 billion for construction and upgrading of 97,000 kilometers of roads. Also the governments' priority in the energy sector is to increase electricity access and reliability (African Development Bank Group, 2011:16). Strengthening of infrastructure backbone of the country was also among the pillar strategies under the previous five year development plan PASDEP (2006-2010) (MoFED, 2010:4). This shows that the government of Ethiopia gave due emphasis to the provision of infrastructures in the country.

Rural infrastructural investment has certain impacts on the general socio-economic life of rural people. Infrastructural investments like rural roads, for example bring about reductions in transaction costs, improved diffusion of technology, increased specialization, diversification of livelihood activities, better input and output prices, and improved entrepreneurial ability (Ahmed and Donovan, 1992:29). Electricity is proved to have big favorable impacts on the livelihood of rural people because not only it is useful for lighting and household purposes, but it can also be used for mechanization of agriculture which allows greater productivity at reduced coast (Runsinarith, 2011:5). Roads have such direct benefits to users as travel time saving, safety and reduced vehicle operating costs (OECD, 2012:8). Rural poor people often identify difficulties in accessing markets caused mainly by physical remoteness from centers and high transport costs as a root cause for their inability to improve their living standards (IFAD 2003:16).

Physical infrastructures, rural roads in particular are keys to the easing of constraints on agricultural production and exchange of a country. Provision of adequate and quality infrastructure in rural areas is detrimental for increasing the efficiency and productivity of agriculture in the form of improving credit absorption capacity, enhancing the productivity of crops and livestock, generating massive employment, increasing farmers' income etc (Badatya and Nair, 2004:1). A rural infrastructural program effectively targeted at the poor can reduce poverty (Gunatilaka, 1999:1). Without rural infrastructures, the success of further policies leading to agricultural transformation is undermined (Secondini, 2007/2008). The above writers have indicated the various roles that infrastructure plays in supporting livelihoods and reducing poverty in rural areas.

Infrastructure as an application of new technology is an autonomous system that generates socio-cultural consequences through its "chain effects". That means infrastructure can bring changes to the local communities and in order to acclimatize themselves to the changes, communities may have new behaviors and customs. And these new activities may arouse communities' different awareness about social phenomena and incubate new ideas. Finally, these changes could go deep enough to shape local communities' values in certain level (Haiting, 2011:1-2). An essential characteristic of rural families in developing countries is their adaptation ability in that they are able to change their way of living due to the changes on the circumstances (Ellis, 2000). The availability of physical infrastructures affects the relationship between rural and urban dwellers, brings market to rural populations, and facilitates access to education and health facilities (Fouracre, 2001:4). This shows that rural infrastructures also impact social life beyond an effect on the economic life of rural communities.

In this study, attention is given to the physical infrastructures of rural road, electricity and water supply with a focus on the role of these infrastructures in supporting and diversifying rural livelihoods and poverty reduction. And alongside this, the impact of these rural infrastructures on the social life of rural people is studied. Another focus of the study is the diversity of livelihood activities in the study area.

1.2 Statement of the Problem

The choice of a research topic might be influenced by factors such as scientific field within which the researcher works, researcher's interest, researcher's motivation to solve a particular problem, and the existence of previous researches, and theory (Marczyk et al,

2005:28-30). All the factors mentioned here could have been factors behind the researcher's motive to study the impact of physical infrastructures on rural livelihoods except the existence of previous researches. Research projects work better if the researcher can state a clear and one sentence question before starting, and framing the question is often the hardest part of research process (Ember and Ember, M., 2009:26). The absence of previous studies undertaken on the impact of physical infrastructures on the livelihood context of rural people taking *Machakel woreda* as a case posed difficulty on stating about the research problem and indicating methodological and subject matter gaps.

Even though there are no comprehensive studies that have investigated the impact of expanding physical infrastructures on the livelihood of rural people, a number of studies were conducted and papers had been produced touching the issue under study in one or another way. However, these previous contributions were not conducted in the study area. Some of these studies emphasized net income and/or returns obtained from the establishment and expansion of such infrastructures as rural roads, electricity and access to safe water leaving the social dimensions aside. Badatya (2004:1) argued that strengthening rural infrastructure like, roads and bridges, irrigation, post-harvesting facilities, etc, results in improved productivity/efficiency, reduced production costs, and post-harvest losses, which further enhance income and employment for the rural farming community. Temu et al. (2004), while assessing the role of rural services and infrastructure on rural livelihoods in Tanzania argued that under provision of services and infrastructure in rural areas translates in to high transaction costs of producing and marketing goods, thus perpetuating poverty. Gibson and Rozelle (2003), Fan et al. (1999), and Wanmali and Islam (1995) in

Temu (2004) have shown positive relationship between public investment and agricultural growth.

In most livelihood studies, diversification of rural livelihood was seen as a bi-product of factors other than rural infrastructures. Ellis (2000; 55-75), identified the determinants of livelihood to be necessity versus choice, seasonality, copping and risk strategies, labor markets, credit market failures and asset strategies. Fikiru (2007; 83), in his case study of non-farm rural livelihood diversification in *Lume woreda*, Oromia region, added regional/local agro-ecology, soil quality, rainfall as determinants to livelihood diversification in rural areas. Warren (2002; 5), while discussing the availability of key assets as determinants of livelihood diversification, lost sight of the role of physical infrastructures.

Engida (2011), while studying the factors affecting the livelihood of traditional gold miners in *Sakaro* locality, Oromia region, identified legal provisions, market mechanism and bargaining powers as key factors affecting sustainable livelihoods in the area, giving no regard for the impacts that physical infrastructures may have on rural peoples' livelihood of the area. Nasa et al. (2010:164), when analyzing factors influencing livelihood diversification in *Giwa* local government area of Nigeria, concluded that people diversify their livelihood because of the need to improve income portfolios and ensure themselves from food insufficiency, while rural people may also diversify their livelihood as choices like diversification using established infrastructures as opportunities. Carswell (2000:24), in his study of livelihood diversification in southern Ethiopia identified markets, transport links, and availability of formal credits as prime determinants of

livelihood diversification giving no room for other infrastructures such as power and water supply.

Previous livelihood study in *Machakel woreda* is inadequate, especially there is no contribution made by researchers on the interrelationship between physical infrastructures and rural livelihoods. This can be partly attributed to recentness of the phenomenon (the expansion of physical infrastructures in to rural areas of *Machakel woreda* is a recent event that begun from 2010/11 onwards as part of GTP of Ethiopia). Among the studies conducted in *Machakel* is by Lijalem (2011), where he studied the challenges and opportunities of irrigated agriculture taking *Gedeb* river catchment as a case. Larson (1997), also undertaken a study on agricultural productivity in the *woreda* and argued that the area is high potential agricultural production area. Both of the studies did not make the study of impact of physical infrastructures on rural livelihoods their subject matter.

Emphasizing the neglected issues indicated above, the study is conducted on the impacts of physical infrastructures on rural livelihoods; focusing on diversification impacts, poverty reduction impacts, social impacts and description of already diversified livelihood activities in *Machakel woreda.*

1.3 Objectives of the Study

The main objective of the study is to examine the impact of expanding rural physical infrastructures (road, electricity and water) on the livelihood situation of rural people taking '*machakel woreda*' as a case.

Therefore, the following specific objectives are formulated.

- To describe the different types of livelihood activities that emerged as a result of the expansion of physical rural infrastructure in the area,
- To analyze the role of rural physical infrastructural expansion in diversifying the livelihood of rural people,
- To investigate how expanding rural physical infrastructures play a role in the reduction of poverty in the lives of rural people in the study area, and
- To examine the social impact of rural physical infrastructural expansion on the rural people

1.4 Scope and Significance of the Study

1.4.1Scope of the Study

Now days, the government of Ethiopia is undertaking various rural development projects all over the country. But this study is limited to the assessment of impact of physical infrastructural expansion on the livelihood context of people in rural *machakel woreda*, east *gojjam zone*.

1.4.2 Significance of the Study

The expansion of infrastructures in to rural areas has a lot to do with rural livelihoods, and the general socio-economic development of rural people. But in Ethiopia, infrastructural expansion is at its infant stage. The country need to work more on the sector both in terms of area coverage and in terms of making rural people access several kinds of infrastructures beyond the physical ones. This study has revealed that physical infrastructures positively impacted the general life and livelihood of rural people in the

study area. But this doesn't mean that the expansion of infrastructures was found to be devoid of negative implications. Thus, the study can contribute in terms of informing concerned bodies (such as rural development policy makers and planners) to consider rural development project induced social, cultural and economic problems.

The results, of the study can also be used as evidence that physical rural infrastructural expansion is one area or rural development that the government should work with more organized effort. It is essential that on-going and upcoming development projects can learn a lot from this paper. This study on the impact of physical infrastructures on the livelihood context of rural people is only a beginning that further studies can be undertaken to the future by other researchers. Therefore, the study can serve as a reference for researchers who are interested in the issue under this study.

1.5 Organization of the Paper

As a standard to the organization of certain research report, a title must come first followed by the authors, abstract, introduction, definition of the grapevine, analysis of the grapevine, conclusion, notes and finally references (Woods, 1999:30-32).This research report is organized in to five chapters. The first chapter is an introductory one presenting background of the study, problem statement, study objectives and, scope and significance of the study. The second chapters deal with methods of the research. In this chapter, a discussion is made on the preferred methods of data collection that are used in the data collection process. Description of the study area and definition of certain variables is also included under chapter two.

Chapter three contains relevant discussions on related literatures and theoretical frame work. Concepts like poverty, social impact, livelihood, livelihood diversification, rural infrastructure and so on are discussed. Issues such as the role of rural infrastructure in poverty reduction, the meaning and measurement of poverty, the social impact of rural infrastructural investment, what social impacts are, components of total household income, diversity and diversification, motives and determinants of rural livelihood diversification and others are discussed in this chapter of the paper. In addition, sustainable rural livelihoods framework is discussed in a detailed manner.

In chapter four, the empirical results of the study are presented, analyzed and discussed. This chapter is divided in to four broad sections and a fifth narrower section dealing with the social and demographic characteristics of survey respondents. The first broad section consists of a detailed discussion of the livelihood situation of rural people in the study area. Under this, different kinds of livelihood activities that have emerged as a result of physical infrastructural expansion (which is one of the objectives of the study) are discussed. In the second broad section, the role that rural physical infrastructure has on livelihood diversification is discussed. The impact of physical infrastructures on the reduction of poverty is presented under broad section three.

In the last section, rural physical infrastructure and its impact on the social life of rural people is discussed. Under this section, impacts on social institutions and networks, impact on the social relationship among rural people themselves, and impact on the relationship between rural people and their surrounding urban counter parts are discussed. Finally, the research report ends with conclusions and recommendations that are included in chapter five.

Chapter Two

Methodology of the Study

Methodology connotes a set of rules and procedures to guide research and against which its claims can be evaluated. It is centrally concerned with how we conceptualize, theorize and make abstractions as it is with the techniques or methods which we utilize to assemble and analyze information. It is set of rules and procedures for reasoning, logical structure, and form of communication, that is language. Methodology is therefore fundamental to the construction of all forms of knowledge (Miller and Brewer, 2003:192).

There are two methodological approaches in the social sciences: quantitative and qualitative. The quantitative approach emphasizes numerical measurement of aspects of phenomena and explanation formulated in terms the relationship between variables. The qualitative approach on the other hand is based on intensive study of phenomena, seeking to build understanding by depth. It emphasizes meaning (Miller and Brewer, 2003:192-193).

Quantitative approaches operate based on two types of variables which are dependent and independent variables, and qualitative studies explore what causes what, with a focus on how people make sense of their settings and experiences through symbols, social roles, identities, and other elements of culture and why people think and act as they do (Kalof et al. 2008:80). Quantitative research involve the use of methodological techniques that represent the human experience in numerical categories, and qualitative research provides detailed description and analysis of the quality, or substance of human experience (Marvasti, 2004:7).

In this study, both of the approaches have been used to gather relevant data. Quantitative method (survey) was employed to collect data related to the socio-demographic characteristics of respondents, availability and access to livelihood assets and the role of physical infrastructure in poverty reduction. Also qualitative methods have been used to the satisfaction of study objectives.

2.1 Data Sources

In this study, both quantitative and qualitative tools data collection were used in generating data relevant to objective of the study. Most of the data in the study was obtained from primary sources through the application of primary data collection instruments such as field-observation, in-depth interview, focused group discussion. Household survey has been conducted to generate data regarding the role of rural physical infrastructures on livelihood diversification.

Data obtained from secondary sources includes documented information about the climatic, geographical, socio-cultural, economic and related features of the study *woreda* and its people.

2.2 Data Collection Instruments

To gather relevant data related to the objective of the study, the following data collection instruments were utilized. These include; field observation, in-depth interview, focused group discussion and survey.

2.2.1 Field Observation

Observation was conducted to supplement data obtained by other data collection instruments. The researcher has made observations mainly on physical infrastructures

(rural roads, electric installations and water schemes), the way rural people interact among themselves (on occasions such as *gulit* market days, customers in *tella* and *arequi* selling houses, and natural resource conservation activities), home and living conditions of rural people and trade and service provision settings.

2.2.2 In-depth Interviews

Semi-structured interviews are an attempt to capture something of "control" of structured interviews without the need to use closed-ended questions or force people in to the role of a "respondent" rather than that of an initiator of information. Such interviews involve mildly formal setting where the interviewer and interviewee sit down together in a quiet place (Fife, 2005:94). Depth interviews can provide richer and detailed information about an issue under study. It is possible get a piece of data by enabling each and every interviewee discuss his/her own life experiences related to the topic that the researcher wants generate data about (Kvale, 1996).

In-depth interviews with 9 purposively selected household heads and 6 key informants including *woreda* and *kebelee* officials were conducted. Key informants were purposively selected based on their concern to the issues. Three *woreda* officials (one from rural roads expansion office, the second from rural water schemes development office and the other from rural electrification office) were selected to discuss issues such as the objective of expanding physical infrastructures in rural areas, the contribution of rural infrastructural expansion to poverty reduction in rural areas of the *woreda,* the contribution of rural infrastructure in livelihood diversification, the impact of physical infrastructures expansion on the social life of people in the area , and rural peoples' reaction to physical infrastructural expansion.

Issues discussed in the 9 in-depth interviews with purposively selected household heads include; livelihood activities that have been created after the establishment of physical infrastructures, the contribution of physical infrastructures to the diversification of livelihoods, economic activities that rural people plan to start using the advantage of newly expanded physical infrastructures, the impact of these infrastructures on the social relationship of rural people among themselves and with urban people and new behavior patterns manifested after the foundation of physical infrastructures. *Kebele* officials also gave relevant information regarding the aforementioned and other related issues.

2.2.3 Focus Group Discussion

The fact that group interviews bring together several participants for an open conversation around a specific topic means that the researcher will have a less prominent role than in one-to-one individual interviewing situation (Maykut and Morehouse, 1994:101). Focus groups discussions are important sources of information because many aspects of an issue can be dealt with at a time if the moderator succeeds in enabling each and every discussant discuss the topic under discussion.

Six focus group discussions were conducted revolving on topics such as the role of physical infrastructures in supporting and making livelihood choices diversified, the social life of the community after the establishment of infrastructures, the contribution of physical infrastructures to the improvement of rural peoples' living standard and poverty reduction, and economic activities that rural people started using physical infrastructures.

The six focus group discussions were conducted in three purposively selected rural *kebele*, each *kebele* having two focus group discussions. Three of the discussions were conducted

with groups constituted only by females, and the remaining three by males. This was done for better participation of female discussants as they may hesitate to give information because of men's presence and influence.

2.2.4 Sample Survey

So as to overcome the pitfalls associated with the utilization of a single data collection instrument, household survey was used to collect both supplementary and complementary data. Therefore, sample survey was conducted so as to substantiate data generated by other data collection instruments and obtain data which were not generated by other instruments.

The survey questionnaire comprises both close-ended and open-ended questions and folded in three sections. The first section contains name of the interviewer and questionnaire number, the second contains socio-demographic information and the third assesses issues such as availability and access to livelihood assets, the role physical infrastructures in livelihood diversification and poverty reduction.

Survey questionnaire was administered by the researcher himself because of budget and other constraints. To overcome this problem, the researcher took relatively sufficient time for administering the questionnaire. Questions were filled out by the researcher by reading the question to respondents recording responses right after hearing answers. The researcher was obliged to administer the questionnaire this way because respondents were not capable of filling out the questions by themselves as most of them are uneducated.

2.3 Sampling Design and Sampling Techniques

There are 24 rural *kebeles* in *machakel woreda,* from which three of them were selected to generate representative survey data. These *kebeles* were selected based on the existence of varying climatic zones under which the *woreda* falls. One from the *dega* part, the second from *woina-dega*, and the third from *kola* areas were selected. The features of these three climatic zones are not mutually exclusive and don not necessarily contain the standards. Namely, the three rural *kebeles* are; *Debre-kelemu*, *Amare-yewubesh* and *Gobata-akena* rural *kebeles*.

Rural *kebeles* are administratively sub-divided in to *gotts.* Three *gotts* (each of the three *kebels* being represented by one *gott)* were selected from which actual data were generated. These *gotts* were selected on the basis of availability of physical infrastructures and because of difficulty of including all of the *gotts* though infrastructures are not evenly distributed across all rural areas.

After the above works, survey respondents were selected from a list obtained from respective *kebele* manager offices using simple random sampling type of sampling design. There are 47 households in *tedit gott* (*debre-kelemu kebele*), 58 households in *zebebeb gott (amare-yewubesh kebele)*, and 52 households in *meneharia gott (gobata-akena kebele).* From each of the three *gotts,* 25 samples were selected. The reasons behind the selection of equal number of samples from the three *gotts,* while having different number of households is that the three *kebeles* (within which the *gotts* are found) have nearly similar amount of population. Therefore, 75 people were included in the sample from which 23 were females (that is 30.7 percent).

2.4 Method of Data Analysis and Interpretation

Since most of the data collected for the purpose of this study is qualitative information generated using qualitative data collection methods, the data is analyzed manually by carefully recording, transcribing, organizing, and summarizing in to written form. Since the discussions and interviews were made in the local language, the information collected was directly translated to English by the researcher. In order not to lose ideas and keep their originality, coherence and flow, in-depth interviews were tape-recorded and field notes were be taken on daily basis.

During data interpretation the researcher begun with the point of view of the people under study and tried to grasp how they see the world, define situations, or what things mean to them. Having that in mind, the researcher tried to elicit an underlying coherence or sense of overall meaning in the data. Narratives could be analyzed based on their content (substance of the story), structure (how the story is told), functions (the purpose of the story), and context (in what place and setting the story was told) (Cortazzi, cited in Marvasti, 2004:96). In-depth interview data were carefully narrated and analyzed. Quantitative data obtained through sample survey were coded, categorized and analyzed using simple statistical tools like frequency distribution and tables.

2.5 Ethical Considerations

Securing informed consent of research participants is among the binding ethical principles guiding the conduct of any research undertaking. To achieve this, the researcher followed the following steps. Firstly, in order to secure permission for undertaking the research, the researcher received letter of cooperation written from Addis Ababa University, Sociology department. Then,

a letter of permission from administration of the *machakel woreda* was obtained. Even rural *kebele* chairmen were asked their permission and they have welcomed the study and the researcher.

After making some field visits, the researcher informed research participants about the purpose of the study and showed the letters of cooperation. While introducing himself to the research participants, the researcher made them clear that the study has no any other purpose than for academic end. They were told that the information collected will be used solely for the research purpose and their identity and the information they give will be kept confidential. Finally, this made participants feel secure and willing to participate in the study.

2.6 Delimitation/Scope of the Study

Delimiting the scope of a research problem is an essential task as it is impossible to canvass all aspects of the issue under study. There are a number of issues deserving investigation related to rural people and their life situation. Despite this, the researcher limits the scope of the study only to the assessment of expanding physical infrastructures of road, electricity, Safe water for a variety of reasons. These infrastructures have lots of importance to rural people, having socio-cultural consequences at the same time. People could diversify and support their livelihood by using the advantage of newly expanding rural infrastructures. Related to these activities, people could improve their lives and reduce poverty through the creation of diversified income sources using the advantage of newly constructed infrastructures. Therefore, an examination of this and description of the diversity of livelihood activities is in the scope of the study.

The study focused on the expanding physical infrastructures of rural road, electricity and access to safe water (and not on others like education) because these facilities are very recent in their

foundation and very strange to the rural people. For example, rural people like those in the study area hadn't access to such infrastructures for centuries for a number of reasons. It is only in these very recent times that the Ethiopia's government gave attention to these issues through its rural development policies.

Expanding such infrastructures might involve several social, cultural and economic complexities. For example, rural road construction utilizes the agricultural land of local farmers as this is the case in establishing and expanding rural electrification and access to safe water. Farmers raise a number of grievances as their farm land reduces as a result of utilizations made by expanding physical infrastructures. In addition these infrastructures are not being accessed by all rural *kebeles* of the study *woreda*. The social dimensions of this situation were focuses in this study.

2.7 Description of the Study Area

The following section presents a brief description of the study area, which is divided into two parts. The first part discusses the general profile of *Machakel woreda,* while the second describes the profile of the specific study sample areas, namely *Amare-yewubesh*, *Gobata-akena* and *Debre-kelemo* rural *kebeles*. These specific sample *kebeles* relatively vary each other in their topographic and climatic conditions.

2.7.1 A Glance Look at *Machakel Woreda*

Physical Location: According to *Machakel woreda* planning office report (2011), *Machakel woreda* is one of the *woredas* found in East Gojjam Zone, Amhara regional state. This *woreda* is surrounded by four *woredas* in four directions. These are *Sinan woreda* in the north, *Debre-elias woreda* in the south, *Gozamin woreda* in the east and *Dembecha woreda* in the west. The total area of the *woreda* is 79,558 hectare or 795.9 square kilometer Amanuel is the town in which the

administrative offices of *Machakel woreda* are located, which is 328 kilometers from the city of Addis Ababa. This town is 28 kilometers from the town of Debremarkos and 237 kilometers from Bahirdar town.

Climate, Soil and Topography: According to Machakel woreda planning office report (2011), Machakel woreda is found in an altitude ranging from 1200 to 3200 meter above sea level and have an average annual rainfall ranging from 1500 to 1800 millimeter. There are four climatic zones found in the *woreda*. These are *kola* (0.02%), *dega* (58.76%), *woina dega* (39.1%) and *wurich* (2.12%). Four types of soil exist in *Machakel woreda*, which are red soil (70.2%), gray soil (5.75%), *mererie* soil (12.7%), and brown soil (11.35%). 50 percent of the *woreda* is constituted by a flat kind land feature and the remaining 50 percent is characterized by mountainous land feature.

Agricultural Activities: According to Machakel woreda planning office report (2011), the total area of the land in the *woreda* that can be utilized for agricultural production activities accounts about 40,875.78 hectare. Out of this, the total area of the land utilized for agricultural investment is 378 hectare. The area of the land covered by forests is 4,654.05 hectare and for grazing purpose is 7,648.59 hectare. 26,379.58 hectare of the land in the *woreda* is utilized for other activities, while 8,374.78 hectare is not still utilized for any activity.

According to *Machakel woreda* agricultural office report (2011), there are 128 rivers and 161 streams in the *woreda*. Out of these, 168 rivers and streams are utilized for irrigational activities by the rural people although not on permanent basis because of seasonal fluctuations in the volume of these streams and rivers. The major types of crops that farmers in the *woreda* produce

include sorghum, maize, *teff*, wheat, *nug*, *engido*, *gibto*, bean and *ater* and the animals being reared are cattle, sheep and goat, horse, donkey and mule.

Population and Social Services: There are 25 *kebeles* in *machakel woreda*, where one is Amanuel town and the remaining twenty four are rural *kebeles*. According to the *Machakel Woreda* Administrative and Planning Office report (2011), the total population of the *woreda* is 128, 655. Out of these, 117,887 live in the twenty four rural *kebeles* which is 91.6 percent and that 58,384 (49.5 percent) are males and 59,503(50.5 percent) are females. Out of 10,768 people dwelling in Amanuel town, 5,384 are males (50 percent) and the remaining 5,384 (50 percent) are females.

There are twenty seven sector offices in *Machakel woreda* undertaking administrational and developmental activities. There are twenty five (25) health posts (*tena kelias*), five health stations (*tena tabias*), twenty four first cycle primary schools (1-4), twenty four primary second cycle schools (1-8), one (1) high school (9-10) and one preparatory school (11-12). There are also thirteen alternative satellite schools (1-4) in the *woreda*. Eight veterinary clinics are also functioning in the *woreda*.

Culture and Tourist Attractions: According to *Machakel Woreda* Youth, Culture and Tourism *Office (2012),* 100 percent of the people in the *woreda* speak of Amharic language with a dialect different from other area of Amhara region such as *Wollo* and *Gondar*. The people in the *woreda* have their own ways of cultural dancing and songs although not completely different from other areas in East *Gojjam* Zone. The people are known for their traditional ways of expressing anger and happiness which is known as *kererto* and *fukera*. *Kererto* is also known in its other name *shilela*. More than 97 percent of the people are followers of Orthodox Christianity, the others being followers of Islamic religion. The people are strict in their religious beliefs and practices

Christianity in their religion. The average household size the *kebele* is five members. This rural *kebele* is known locally for its crops such as maize, *teff*, potato and onion. The people also herd cattle and other home animals such as sheep and goat. In this rural *kebele*, there is one farmers' association engaged in the activities of input supply for the local farmers, buying crop products from farmers to sell to the traders in towns, retailing consumer goods, metal work, food oil processing and milk processing. The *kebele* has its own administrative staffs such as a police officer, *kebele* manager, *kebele* chairman and others (*Amare-yewubsh kebele* Administration office Report, 2012).

Profile of 'Debre-Kelemo' Rural Kebele: This rural *kebele* is found in the *dega* part of *Machekel woreda* 12 kilometers far from Amanuel town. It has a mountainous land feature with enough rainfall. There are two sub-*kebeles* and 16 *gotts* in this rural *kebele* with total number of people accounting about 5,053. Out of these, the number of males is 2,325 and that of females is 2,728. There are two types of soil in this *kebele* which are red soil and brown soil, and the area is known for the production of crops such as *engido*, sorghum, potato, bean and wheat (*Debre-kelemu kebele* Administration Office Report, 2012).

Background of 'Gobata-akena' Rural Kebele: This rural *kebele* has three sub-*kebeles* and 25 *gotts* and has been selected to represent all the rural *kebels* found in the *kolla* part of *Machakel woreda*. This area has a population of 5,315 with 2,650 males, the remaining 2756 females. This is the only one out of the three sample *kebeles* where in people of different religion is found. While 95 percent of the people in this *kebele* are Christians, the remaining 5 percent are Muslim. But people of both religions speak the same language that is Amharic. These people dominantly produce *teff, dagusa, telba* and bean and rear home animals such as cattle and sheep and goats.

Chapter Three

Reviews of Related Literature and Conceptual Framework

3.1 What is Rural Infrastructure?

In broad terms, rural infrastructure comprises rural roads, rural housing and rural electrification. Rural road connectivity is an extremely important aspect of rural development. In a more modern environment, it may also include information and communication technologies such as fixed line and mobile telephones, and the internet. The term typically refers to the technical structures that support a society, such as roads, water supply, sewers, power grids, telecommunications, and so forth. Viewed functionally, infrastructure facilitates the production of goods and services; for example, roads enable the transport of raw materials to a factory, farm inputs and services to the farmers, and the distribution of finished products to markets. In some contexts, the term may also include basic social services such as schools and hospitals. Infrastructure is the word used to describe large-scale public system like power, water supply, broad, public transportation etc. infrastructure refers to a set of public works which provide which provide reliable goods and services to facilitate human beings activities for a long period (Haiting, 2011:7).

In the above literature, five types of rural infrastructure are identified. These are transportation infrastructure, energy infrastructure, water and sanitation infrastructure, communication infrastructure, and governance infrastructure such as cooperatives and farmer's groups. Broadly, rural infrastructures can also be divided as physical (such as rural roads, electricity, water and so on) and social (education, health, security and so on) infrastructures. But in this study, only the physical infrastructures of rural road, electricity and water supply are taken as points of emphasis.

3.2 Rural Poverty Approaches, Policies & Strategies in Ethiopia

The Government of Ethiopia has made – and continues to make – significant efforts to address poverty in rural areas. The GTP emphasizes the importance of promoting rapid and broad-based economic growth through seven strategic objectives: these are; sustaining equitable economic growth, maintaining growth focused on agriculture and rural areas, developing industry, expanding infrastructure, enhancing the expansion and quality of social development, building capacity and promoting good governance and promoting empowerment of women and young people (IFAD, 2008).

As part of the country's infrastructure expansion, high-quality asphalt roads and rural community roads have been constructed all over Ethiopia. This expansion has increased road density from 29 km per 1,000 km2, according to official figures for fiscal year 2000-2001, to 44.5 km in 2009-2010. As a result, the average time it takes to reach all-weather roads has been reduced from about 7 hours in 2000-2001 to 3.7 hours in 2009-2010. Meanwhile, hydroelectric power generation capacity has brought electricity access to 41 per cent of the population in fiscal year 2009-2010, up from 16 per cent in 2004-2005. On the telecommunications front, the proportion of the population with access to telecom services within a 5 km radius has reached 50 per cent By committing more than 60 per cent of its total expenditures over the last seven years to poverty-oriented sectors – such as agriculture, education, health, water and road development – the government has maximized its efforts to bring about pro-poor economic growth (IFAD, 2008).

As one can look from the above literature, two of the strategic plans (expanding infrastructure and maintaining growth focused on agriculture and rural areas) particularly concern the rural people of the country. This shows the extent to which rural people and development of rural areas are focuses in the policy and strategic issue of the country. Rural infrastructures such as rural roads, communication, electricity and the like are expanding over time. But it would have been better to include strategies related to the socio-cultural development of the local people than a mere focus on economic growth, or at least there should be attention given to the social and cultural impacts of economic growth and development endeavors.

3.2.1 Poverty: Measurement and Meaning

Poverty can be measured in a number of ways, each with its advantages and limitations. Most often measurements are based on monetary income or consumption. The often cited international poverty lines of US$1 or 2 a day are examples of this approach with US$1 a day considered "extreme poverty" and US$1–2 a day considered "severe-to-moderate". In effect, these are measures of absolute poverty. By these measures, approximately one sixth of the world's population is living in conditions of severe poverty at less than US$1 a day (ILC, 97th Session, 2008:13).

In contrast, relative poverty is context specific and is defined in relation to the standards that exist in a given society and with reference to people in society who are not poor. People experience poverty in many ways, not just in terms of income. Thus, poverty is a multidimensional concept. The Human Development Index (HDI) is a composite measure based on three key indicators of poverty: life expectancy, educational attainment and income. The HDI provides a more integrated, holistic measure of poverty than the poverty

lines but cannot be computed for persons or families, only for territories. The satisfaction of basic needs is another way in which the multidimensional nature of poverty is often addressed. Composite indexes of satisfaction of basic needs are composed by assigning scores to the meeting of recognized basic needs related to housing (and housing quality), access to health and education, employment and income, etc (ILC, 97th Session, 2008:13).

The Copenhagen Declaration saw poverty as having "various manifestations, including lack of income and productive resources sufficient to ensure sustainable livelihoods; hunger and malnutrition; ill health; limited or lack of access to education and other basic services; increased morbidity and mortality from illness; homelessness and inadequate housing; unsafe environments; and social discrimination and exclusion (ILC, 97th Session, 2008:14). Others may argue that not only is poverty multidimensional but that it cannot be measured by income or even by utility as conventionally understood: what matters is not the things a person has or the feelings these provide but what a person is or can be and does or can do, i.e. his or her capabilities (Sen, cited in ILC, 97th Session, 2008:14).

Theories that have been offered to explain rural poverty tend to fall in to two groups corresponding to the distinctions between poverty of persons and poverty of place, or those that focus on individual characteristics and those that target institutional and structural conditions. Even with in these broad categories, there is great variation (and confusion) between those that emphasize the correlates and characteristics of poverty, whether personal or spatial, while others provide theoretical exegesis. Poverty is often

explained by reference to demographic characteristics such as gender, race, ethnicity and marital status, or more theoretically by culture of poverty models that purport to explain why these correlates of poverty status persist. Similarly, the spatial distribution of poverty is often attributed to characteristics such as high unemployment, low levels of human and social capital and so on (Cloke et al,2006:413)

3.3 The Role of Rural Infrastructure in Poverty Reduction

Rural infrastructure is important to our development, such as increasing farmers' incomes, developing the rural markets, expanding domestic demands, accelerating the rural well construction and promoting our national economy with a sustained, rapid and healthy way (Fenglin, 2010). Infrastructure also directly contributes to poverty alleviation by providing and supporting the delivery of key services such as access to safe water and basic sanitation, especially in the very early stage of development (Andersen and Shimokawa, 2006:17).

In the past decades, governments have made investments in rural infrastructure to establish basic requirements for achieving agricultural growth. Investments in roads and irrigation have been found to have the major positive effects on agricultural productivity and are fundamental conditions for agricultural growth. Without those preconditions, the success of further policies leading to agricultural transformation is undermined. This line of thinking is in accordance with the original assumption that there is a particular pace of development which affords different services at different levels of development. The level of development of a region can then be judged according to the access and quality of services provided (Secondini, 2008:22).

Improved infrastructure leads to expansion of markets, economies of scale, and improvement in factor market operations. The development of rural infrastructure helps to enlarge markets with greater access to factors of production (Badatya and Nair, 2004).

Physical infrastructure in the form of roads, communications and power affects both farm and non-farm sectors in the rural areas. The marketable surplus in agricultural production has to be transported to the procurement centers, or delivered to processing units. Mechanical threshers and tillers require electricity, which is also used by then on-farm sector. Road infrastructure is particularly important for the nonfarm sector, where the distance between location of production and that of the market can be large (Mukherjee, 2002:60). Therefore, provision of physical infrastructure affect both farm and nonfarm sectors. Despite this significance, in most developing countries, rural infrastructure is often neglected. Although more than half of the population resides in the rural areas, infrastructure provisions are concentrated mostly in the cities. Moreover, within the rural areas, agriculture gets most of the share of the infrastructure outlay, such as irrigation and research and development. Other types of infrastructure such as roads, communications, education and health do not get adequate attention. This leads to inefficiencies in the distribution of the restricted amounts of infrastructure investment that are actually implemented in the rural areas (Mukherjee, 2002:60).

Fikru (2008:111) argued that local infrastructure is a major constraint on non-farm business development. If there is no rural infrastructural facility like roads connecting

rural *kebeles* with the nearby urban centers, electricity, communication network and so on, it would be difficult to undertake off-farm and even farm activities in a better way.

The above writers had mentioned the significant role of rural infrastructure in agricultural productivity and growth, increasing farmers' incomes, developing the rural markets, expanding domestic demands, and the like, even if there is no an explicit concern given to the role of rural infrastructure in diversifying rural livelihoods. Infrastructural investments in roads, power, and safe water supply to the rural people play a strategic but indirect role in the development process. Infrastructure may not directly increase output, but makes a significant contribution towards rural and agricultural development by increasing the productivity of land, labor and capital in the production process and contributing to livelihood diversification. The development of transport sector through rural road expansion increases accessibility and reduces transport cost. Rural people can simply sell their outputs obtained through diversification of livelihoods to urban dwellers and trades, and buy the inputs they need using improved transport access created by road connections.

A broad body of evidence suggests that rapid poverty reduction in developing countries can be achieved through agricultural and rural development. This is because increased per capita agricultural output and value added tend to have a disproportionately positive impact on the incomes of the poorest, making agriculture and rural development key to pro-poor growth. Strong agricultural growths have been a feature of countries that have successfully reduced poverty, such as those parts of Asia where agricultural productivity

improvements played an important role in combating poverty. In contrast, in much of Africa, per capita food production and yields have largely stagnated, slowing overall growth, impeding structural transformation and increasing hunger and poverty (ILC, 97th Session, 2008:12). Agricultural and rural development is closely linked to the expansion and development of rural infrastructure in rural areas. Agricultural outputs for example could be increased through the use of improved agricultural inputs made accessible by the availability of infrastructures resulting in a relative improvement of the income of rural people and finally contributing to the reduction of poverty (ILC, 97th Session, 2008:12).

3.4 The Social Impact of Rural Infrastructural Investment on to the Rural People

Most studies related to the impact of rural infrastructure tend to emphasize the positive role and contributions it has in agricultural growth and development. For instance, according to Li and Liu (2009), complete rural infrastructure accelerates regional economic development. These studies gave little attention to the social and cultural implications and processes associated with the expansion of infrastructures deeper in to rural areas.

3.4.1 What are Social Impacts?

The Inter-organizational Committee on Guidelines and Principles for Social Assessment (cited in Center for Good Governance, 2006:4), defined social impacts as 'the consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs, and generally cope as members of society'. Social impacts are the 'People impacts' of development actions. Social impact assessments focus on the human dimension of environments, and seek to identify the impacts on people who benefits and who loses.

Social impacts include changes in people's way of life, their culture, community, political systems, environment, health and wellbeing, their personal and property rights and their fears and aspirations (Center for Good Governance, 2006:4).

According to the Center for Good Governance (2006:5), the term social impact also includes cultural impacts involving changes to the norms, values, and beliefs that guide and rationalize their cognition of themselves and their society, and there are five types of social impacts falling in to five overlapping categories. These are;

• Lifestyle impacts – on the way people behave and relate to family, friends and cohorts on a day-to-day basis

• Cultural impacts – on shared customs, obligations, values, language, religious belief and other elements which make a social or ethnic group distinct

• Community impacts – on infrastructure, services, voluntary organizations, activity networks and cohesion

• Quality of life impacts – on sense of place, aesthetics and heritage, perception of belonging, security and livability, and aspirations for the future

• Health impacts – on mental, physical and social wellbeing, although these aspects are also the subject of health impact assessment

Social impacts are generally reflected in changes in the ways in which a community is organized. These could include such organizational structures as residence patterns, the ethnic composition of a neighborhood, or the number and types of community organizations which are active at some given time. Cultural impacts are the most difficult to deal with as they are the hardest to quantify and they are generally elicited through

informant interviews, participant-observation in the community, or through research in secondary sources such as local histories (Turnley, 2002:8).

3.5 Rural Livelihood Diversification

Livelihood strategies denote the range and combination of activities and choices that people make in order to achieve their livelihood goals. Livelihood strategies include: how people combine their income generating activities; the way in which they use their assets; which assets they chose to invest in; and how they manage to preserve existing assets and income. Livelihoods are diverse at every level, for example, members of a household may live and work in different places engaging in various activities, either temporarily or permanently. Individuals themselves may rely on a range of different income-generating activities at the same time (Warren, 2002: 13).

This definition of livelihood strategies lacks an important element, which are the access modifying institutions and relations. Ellis's (2000) definition of livelihood can be a remedy to this, where livelihood is defined as it comprises the assets (natural, physical, human, financial and social capital), the activities and the access to these (mediated by social institutions and relations) that together determine the living gained by the individual or household.

Rural livelihoods diversification has generally occurred as a result of an increased importance of off-farm wage labor in household livelihood portfolio or through the development of new forms of on-farm/on-site production of non-conventional marketable commodities. In both cases, diversification ranges from a temporary change of household

livelihood portfolio (*occasional diversification*) to a deliberate attempt to optimize household capacity to take advantage of ever-changing opportunities and cope with unexpected constraints (*strategic diversification)* (Warren, 2002:4)).

3.6 Components of Total Rural Household Income

Total household income in rural areas can be disaggregated in to three components. These are; farm income, off-farm income and non-farm income. Farm income refers to income generated from own-account farming whether on owner-occupied land, or land accessed through cash or share tenancy. Off-farm income on the other hand refers to wage or exchange labor on other farms (with in agriculture). It includes labor payments in kind such as the harvest share systems and other non-wage labor contracts. It also includes income obtained from local environmental resources such as firewood, charcoal, house building materials, wild plants and so on. Finally, non-farm income relates to non-agricultural income sources. It comprises non-farm rural wage or salary employment, non-farm rural self-employment, sometimes called business income, rental income obtained from leasing land or property, urban-to-rural remittances arising from within national boundaries, other urban transfers to rural households-example, pension payments to retirees, and international remittances arising from cross-border and overseas migration (Ellis, 2000:10-13).

Diversification can be divided into two categories, on-farm and non-farm diversification. On-farm diversification means maintenance of a diverse spread of crop and livestock production activities that interlock with each other in various ways. Non-farm diversification refers to seeking business or employment opportunities other than

traditional crop production and livestock rearing. Even non-farm diversification is related to agriculture as it includes processing and trading of agricultural produce. Also, non-farm activities include service provision and manufacturing (Kim, 2006:13).

3.7 Diversity and Diversification

Rural livelihood diversification is defined as a process by which rural households construct an increasingly diverse portfolio of activities and assets in order to survival and improve their standards of living (Ellis, 2000; 15). Ellis described diversity and diversification as; diversity refers to the existence, at a point in time of, many different income sources thus also typically requiring diverse social relation to underpin them, and diversification on the other hand relates to the creation of diversity as on-going social and economic process, reflecting factors of both pressure and opportunity that cause families to adopt increasingly intricate and diverse livelihood strategies.

People may earn living based on different income sources at the same time and this relates to the already existence of diversity whereas diversification is a process of having at least more than one income sources.

3.8 Motives and Determinants of Rural Livelihood Diversification

Multiple motives prompt households and individuals to diversify assets, incomes, and activities. The first set of motives comprise what are traditionally termed "push factors": risk reduction, response to diminishing factor returns in any given use, such as family labor supply in the presence of land constraints driven by population pressure and landholdings fragmentation, reaction to crisis or liquidity constraints, high transactions

costs that induce households to self-provision in several goods and services, etc. The second set of motives comprise "pull factors": realization of strategic complementarities between activities, such as crop-livestock integration or milling and hog production, specialization according to comparative advantage accorded by superior technologies, skills or endowments, etc. These micro level determinants of diversification are mirrored at more aggregate levels. From the "push factor perspective," diversification is driven by limited risk-bearing capacity in the presence of incomplete or weak financial systems that create strong incentives to select a portfolio of activities in order to stabilize income flows and consumption, by constraints in labor and land markets, and by climatic uncertainty. From the "pull factor perspective," local engines of growth such as commercial agriculture or proximity to an urban area create opportunities for income diversification in production and expenditure-linkage activities (Barrett, Reardon and Webb, 2001:2).

Livelihood diversification is pursued for a mixture of motivations and these vary according to context: from a desire to accumulate in order to invest, to a need to spread risk or maintain incomes, to a requirement to adapt to survive in eroding circumstances, or some combination of these (Hussein and Nelson, cited in Fikiru, 2008).

The reasons that individuals and households pursue diversification as a livelihood strategy are often divided into two overarching considerations, which are necessity or choice. Necessity refers to involuntary and desperation reasons for diversifying. Examples might be the dispossession of a tenant family from its access to land, fragmentation of farm holdings on inheritance, environmental deterioration leading to declining crop yields,

natural or civil disasters such as drought, floods or civil war resulting in dislocation and abandonment of previous assets, or loss of the ability to continue to undertake strenuous agricultural activities due to accident or ill-health. Choice, by contrast, refers to voluntary and proactive reasons for diversifying. For example, seeking out seasonal wage earning opportunities, travelling to find work in remote locations, educating children to improve their prospects of obtaining non-farm jobs, saving money to invest in non-farm businesses such as trading, utilizing money obtained off the farm to buy fertilizers or capital equipment for the farm enterprise (Ellis 2000; 291-292). Ellis further identified seasonality, risk strategies, labor markets, credit market failures and copping and adaptation as determinants of rural livelihood diversification.

3.9 Sustainable Rural Livelihoods Framework as Analytical Tool

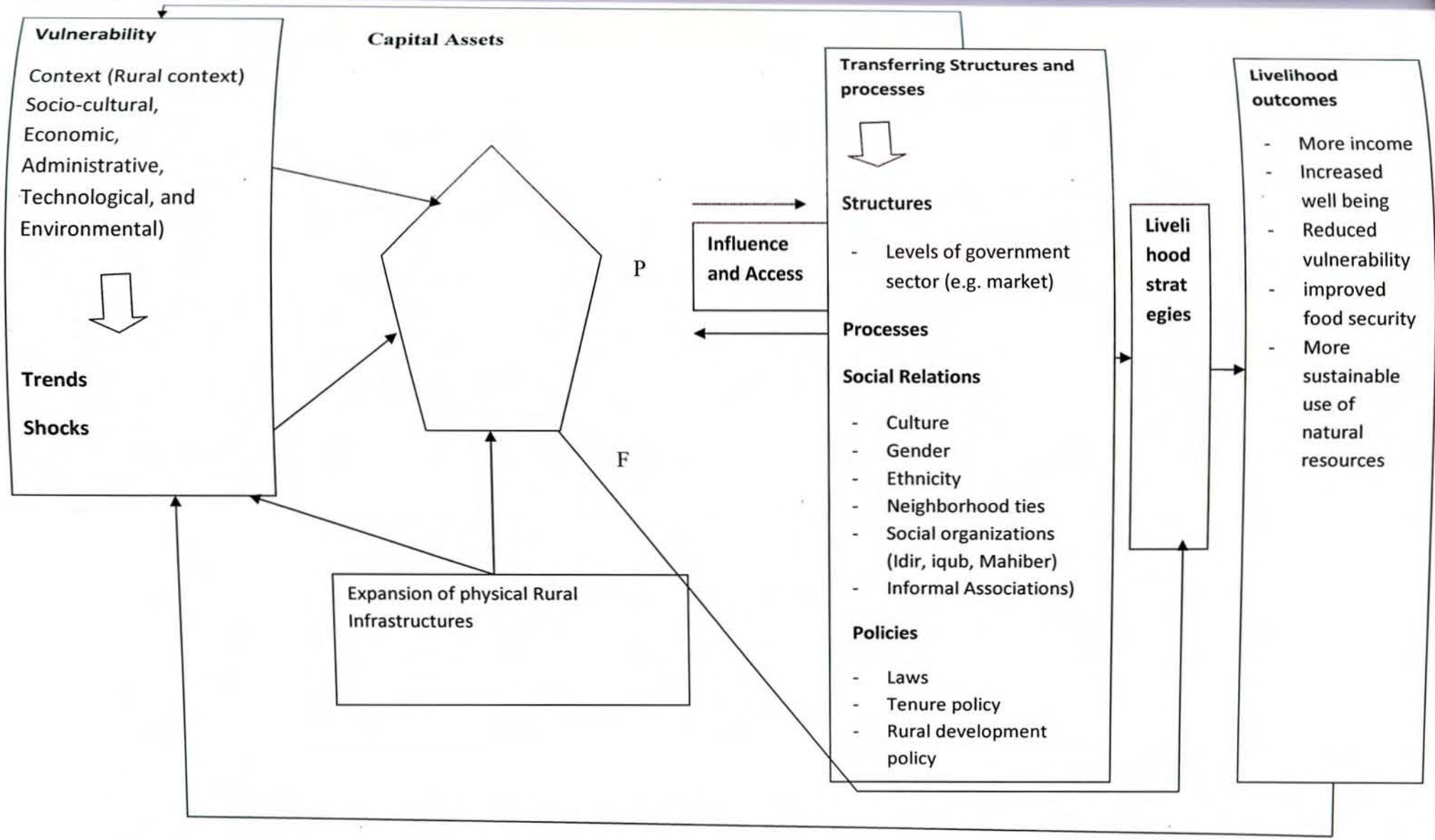
3.9.1 Introduction

In this work, Rural Livelihoods Framework was used as an analytical tool in an effort to develop a holistic understanding of how rural people of *Machakel Woreda* pursue their livelihood strategies in the presence of newly founded physical infrastructures. Sustainable livelihood framework works at three different levels in any empirical investigation; these are: as development objective, as set of development principles and as analytical tool (Farrington, Chapman, and Slaymaker, in Farrington et al, 2002). Sustainable livelihood framework aims to enhance the livelihood security and sustainability of poor people as a development objective. It also comprises in its theoretical essence, set of livelihood principles which emphasizes among others, that development should be people centered, community sensitive, holistic(multi-level), sensitive to the environment, and should consider equity issues (see Meikle, et al, 2001). As an analytical tool, sustainable

livelihood framework allows an understanding and analysis of the nature and complexities of livelihoods (Farrington, et al, 2002). This framework (sustainable livelihoods framework) was not taken as an arsenal to wholly shape the study. Rather it was used as a guide and I made an effort to contextualize its underlying views specific to the problem under study.

3.9.2 The Framework

Key components of the framework for analyzing the livelihoods of individuals and the community are their capital assets, their vulnerability context and the transforming structures (layers of organizations both in the private and government sectors) and processes (laws, policies, incentives) which shape and influence the livelihood strategies which they adopt (Fouracre, 2001:4). A framework for livelihood analysis focuses on assets (basic building blocks up on which households are able to undertake production, engage in labor markets, and participate in reciprocal exchanges with other households), mediating processes (social relations, institutions and organizations), contexts such as trends and shocks, and livelihood strategies(Ellis, 2000:30). The sustainable livelihoods framework is presented in the following figure.



Keys: H= Human capital,S=Social capital, N= natural Capital, F= Financial Capital, P=Physical Capital

Figure1. DFIDframework used to Analyze the livelihoods of rural people under Infrastructural Expansion (adopted from Fouracre, 2001:3).

Venerability Context: Vulnerability is a precarious state in which individuals, households and communities encounter a risk of encountering livelihood deprivations that threaten their well-being (Fernando, 2003). It is the potential to be adversely impacted by shocks, stresses and trends (Kelly and Adger, 2000). Vulnerability is a high degree of exposure to risk, shocks and stress; and proneness to food insecurity (Chambers and Davies, cited in Ellis, 2000: 62). Vulnerability has the dual aspect of external threats to livelihood security due to risk factors such as climate, market or sudden disaster, and internal coping capability determined by assets, food stores, support from kin or community and so on (Ellis, 2000). For Ellis, the most vulnerable households are those that are prone to adverse external events and lacking in the assets or social support systems that could carry them through periods of adversity.

To be mentioned along with the concept vulnerability are trends and shocks. Trends include population trends, migration trends, technological change, policies and economic trends, whereas shocks relate to drought, flood, diseases, and pests and like threats. In this study, vulnerability context of rural people in the study area is not given due emphasis as the study focuses on the expansion of physical infrastructures as opportunities.

Livelihood Assets: Assets are the basic building blocks upon which households are able to undertake production, engage in labor markets, and participate in reciprocal exchanges with other households. They are stocks of capital that can be utilized directly, or indirectly to generate the means of survival of the household or to sustain its material well-being at different levels above survival (Ellis, 2000; 31). Different researchers have made different

categories of asset. For instance, Swift divides assets as investments (include human, individual and collective assets), stores (such as food stores, items of value and money in the bank), and claims which include reciprocal claims on others Swift (in Ellis, 2000). Again Maxwell and Smith (in Ellis, 2000) in a food security context divide assets between productive capital, non-productive capital, human capital, income and claims.

The above different categories of assets by different researchers contain some elements in common and in this study, a classification made by Ellis (2000; 32-36) used to identify the asset basis of rural people in the study area. This categorization consists of five types of capitals which include; natural, physical, human, financial and social assets. Following is a brief description of these asset types as presented in Ellis (2000).

Natural capital comprises the land, water, and biological resources utilized by people for making survival, and are thought to jointly comprise environmental resources. Physical capital consist capital created by economic production processes. It includes buildings, roads, and machines and so on. Human capital relates to the labor available to the household: its education, skills and health. The fourth type of asset is financial capital which refers to the stocks of money to which the household has access, which is likely to be savings, and access to credits. Lastly, social capital refers to community and wider social claims on which individuals and households can draw by virtue of their belongingness.

Mediating Processes: Livelihoods are not exclusively affected by vulnerability contexts. They are also affected by transforming structures and processes (Farrington, et al, 2002). Social relations, institutions and organizations are critical mediating factors for livelihoods because they encompass the agencies that inhibit or facilitate the exercise of capabilities and choices by individuals and households (Ellis, 2000; 39).Specifically, mediating processes include culture, gender, social organizations, laws, policies and the like, and structures include levels of government, private sectors such as the market and so on.

Livelihood Strategies and Outcomes: The asset status of households mediated by processes and structures results in the adoption and adaptation of livelihood strategies. Livelihood strategies are dynamic in that they respond to changing pressures and opportunities. Livelihood strategies are composed of activities that generate the means of household survival (Ellis, 2000; 41). Livelihood outcomes are the results of interplay of assets, contexts and strategies and they are desired positive outcomes of the interaction between livelihood strategies.

Chapter Four

Data Presentation, Analysis and Interpretation

4.1 Socio-demographic Characteristics of the Respondents

This section presents the socio-demographic characteristics of the respondents. As indicated in the methodology part, the study employed both qualitative and quantitative research methods. Therefore, so as to understand the basic socio-demographic background of sampled respondents, respondents' socio-demographic characteristics by gender, age, marital status, household size and educational status are shown in the following table.

Table 1, Social and Demographic Characteristics of Respondents

General Characteristic	Category	Frequency	Percentage
Gender	Female	23	30.7
	Male	52	69.3
	Total	75	100
Age	20-30	13	17.3
	31-41	24	32
	42-52	30	40
	53 and above	8	10.7
	Total	75	100
Marital status	Never married	16	21.3
	Married	43	57.3
	Divorcee/e	14	18.7
	Widow/er	2	2.7
	Total	75	100
Household size	1-3	18	24
	4-6	23	30.7
	7-9	31	41.3
	10-12	3	4
	Total	75	100
Educational status	Illiterate	47	62.7
	Read and write	11	14.7
	Read only	8	10.7
	Completed primary school	4	5.3
	9-12	3	4
	Certified with a training	2	2.7
	Total	75	100

Source: Own Household Survey

As can be noticed in table 1 above, the majority of sample respondents (69.3%) are male in terms of gender. But female respondents also constitute a considerable number which is 30.7 percent. Sample respondents were household heads and the considerable number of

females in the sample shows the presence of female headed families where the mother is breadwinner, which is uncommon especially in rural areas.

The majority (57.3%) of the respondents are married as regards the marital status of respondents. Widows represent only 2.7%. Never married sample respondents constitute 21.3 percent and that of divorced respondents amount about 18.7 percent. Regarding household size, 41.3 % of sample respondents lead seven to nine members in their household, whereas 30.7 % of the respondents lead four to six individual persons in their home. 24 % of the respondents have one to three persons in their home including themselves. It is only 4% of the sample respondents who lead relatively larger family size. In terms of education, 62.7 % of the respondents are illiterate and hence cannot read and write. 14.7 % of them can read and write, 5.3% had a primary education, 4% attended high school education and the remaining 2.7% have trainings with certification.

4.2 Livelihood Situation of Rural People in *Machakel Woreda*

This section presents the general livelihood situation of rural people in the study area in the face of already established physical infrastructures such as rural roads, electricity and pure drink water based on data from the survey, focus group discussions, interviews and field observation. The livelihood context of rural people in *Machakel woreda* has shown changes overtime with social contexts, economic contexts and livelihood activities changing from time to time depending on to what extent rural physical infrastructure are expanded into these areas. Therefore, a discussion of these issues is presented below.

4.2.1 Context of Livelihood of Rural People in *Machakel Woreda*

This section presents the socio-cultural, economic, administrative, technological and environmental contexts of livelihood of people in the study area entirely based on data obtained from in-depth interviews, focus group discussions and field observation.

Socio-Cultural Context: Rural people in *Machakel woreda* have their own socio-cultural features that are transforming overtime due to governments' effort to eliminate traditional beliefs and practices by educating rural people themselves and through legal prohibitions. For instance, in the earlier times, children were obliged to marry at their early ages. But now days, it is legally condemned for a person to get married below the age of 18 for both sexes. Marriages are also carried out with pre-marriage medical examinations on behalf of both partners so as to check whether or not both parties are free of HIV/AIDS and other STDs.

Rural people in the area also used to spend many resources on cultural ceremonies and feasts such as on weddings, *tezikar, kiristina* and other yearly and monthly celebrated holidays. But now, with the teachings of different bodies from the government, these extravagant habits are lowering in their extent even though not eliminated at all. Marriage ceremonies or weddings decrease in number considerably. This has been elaborated by a key informant, who is a *kebele* chairman aged 38 years as:

> *Before, there had been many weddings in each and every gott that were held from January to May..., during 'fasika' and 'kibela'. Up to50 'akolkuayes' were consumed by the people who are celebrating in the weddings and the event takes more than a month from the time of `das metal' to 'melash'. We use to consume a lot in the ceremonies; up to four oxen were slaughtered in a single marriage ceremony. But these days, the*

peoples' awareness is raised and children no more getting married below the age of 18.

People have the culture of help and cooperation to one another in times of happiness and problems through their social institutions of *Idir, Iqub, mahiber, wonfel and debbo.* Majority of the residents in the *woreda* are Christianity followers. The religious beliefs and practices are seriously taken and the people are known for fasting and for not working on Sabbath and monthly holidays known as *keberebeales.* Some members of the people are also criticized for a belief in *tenquaye* and *debetera.*These people undertake their practices in a way which is not disclosed to others. There is also a belief in *budda* in the area.

Generally, the rural people are escaping from the so called traditional beliefs and practices. People are thinking in a different way form the past and their awareness about issues such as bad cultural habits, STDs, environment, technology, family planning and so on is raising highly.

Economic context: Previously, rural people were known for their strong value for and emphasis on properties such as cattle, land and so on. But now days they are also valuing money and storing their assets in the form of cash using both the traditional institutions of *iqqub* and formal institutions like the banks.

Despite increasing interconnection with urban areas because of the expansion of infrastructure, rural people in *Machakel woreda* are the least attacked by the current price inflation of goods and services as compared to urban dwellers. This is because rural people are mostly dependent up on their own local products such as *teff* and other

produces. In addition, the market prices of their agricultural products are increasing overtime.

Credit facilities are well established in the rural areas of *Machakel woreda* by a regional credit and saving institution known as ACSI. People are receiving credits organizing themselves in to groups by using their assets such as houses as collateral. The purpose of giving credits is to help farmers strengthen and diversity their livelihoods by engaging in side activities such as fattening, sheep and goat rearing and so on. But it is only some of the credit takers who meet this purpose because of insufficient advices and follow upon behalf of the credit givers (ASCI). Most of the time credits are used for unintended purposes.

Despite the failures of ACSI to meet its goals in rural areas of *Machakel woreda*, some people are saving money than ever before by converting their produces, cattle and other properties in to cash money. Using the money, they are constructing houses, grain mills, and starting other livelihood activities both in their own localities and nearby towns.

Administrative Context: As described in the proceeding sections, the whole of *Machakel woreda* is divided into twenty five *kebeles*; one being the Amanuel town (seat of *woreda* administration) and the other twenty three rural *kebeles*. Each rural *kebele* is sub-divided into sub-*kebeles* and again sub-*kebeles* into *gotts*. Each rural *kebele* has its own administrative apparatus headed by a *kebele* chairman, appointed from respective villages. Each *kebele* has a *kebele* manager, health post, and at least a first-cycle primary school.

There are also local courts known as *mahiberawi firidbets*-organized to solve civil crimes in the rural *kebeles*. Members of these local courts are run by socially acceptable and

skilled members of the community selected by the people. Policemen are also appointed in every *kebele* by the government. Police men try to control disputes arising among local dwellers legally; and transfer to *woreda* police if not possible to do so. Land use and management issues in the rural *kebeles* are also managed by appointed personnel.

Technological Context: Rural people in the *woreda* are becoming users of different technological products than before despite sticking to the very traditional tools and ways of farming. From field observations, I have seen that numbers of people are users of mobile phones even though services are restricted by poor network coverage. Telecommunication service in a standard way is available in the *woreda* within five kilometer radius from the center, i.e. Amanuel town. People are benefiting a lot anyway form mobile phones especially in terms of saving time, getting latest information regarding market prices of agricultural products and so on.

Not only these people get information through mobile telephones, they are also becoming users of radio and television facilitated by the establishment of electric infrastructure. People in the *woreda* are also users of fertilizers to enhance agricultural productivity and sometimes insecticides and pesticides. The use of agricultural inputs or technologies was off course there before the establishment of rural infrastructure, though nowadays rural roads are contributing in terms of transporting these inputs to different farmer unions.

Environmental Context: Rural areas are known for their good air because of being devoid of major pollutants such as motor vehicles and industries. *Machekel woreda* rural areas are also safe in terms of pollution from such technologies. But persons who know their

localities for decades described as key informants that temperature is rising nowadays, soil fertility is declining and forest coverage was at a very good state in the earlier time.

The *woreda* has favorable topographic feature for farming. The problem is increasing pressure on agricultural lands as household members and the resulting demand for natural resources becomes higher overtime. Now days, farmers are constructing terraces and other natural resource conservation mechanisms to conserve their resources. Even, every personnel form the *woreda* sector offices is participating in guiding and motivating natural resources conservation endeavors in the rural areas.

4.2.2 Major Livelihood Activities in the Area

Farming as agricultural production is the major livelihood activity in the rural areas of *Machakel woreda* though people are making their income sources or livelihood activities diversified using the opportunities of expanding infrastructure deeper into remote rural areas. Farmers in the *woreda* produce crops and rear animals side by side. But these days, they are also engaging in other livelihood activities which are considered to be activities carried out by urban people. This sub-section draws on data obtained from survey and the other tools of data collection. The following table therefore presents the major types of livelihood activities which were treated as household occupations in the survey.

Table 2; Respondents' Household Occupation or Major Livelihood Activities

Types of Livelihood Activities	Frequency	Percentage
Farming	57	46.7
Animal Fattening	11	9
Kumera	14	11.5
Trade Activities	13	10.7
Local Service Provision	9	7.4
Renting out Farm land	8	6.6
Wage Labor	6	4.9
Other Activities	4	3.3
Total	122	100

Source; Own Household Survey

As the table above suggests, total frequency (the total number of respondents engaged in each type of livelihood activity) is 122, which is greater than the actual number of sample respondents. This implies the engagement of a single respondent in more than one type of livelihood activity and hence, the diversification of livelihoods.

There are eight types of livelihood activities as presented in the table which are discussed one by one using additional data from in-depth interviews and focus group discussions. In each type of livelihood activity, there is specific livelihood activities grouped together based on their common features. These types of livelihood activities may not be mutually exclusive that *kumera* (*tella, arequi* and tea selling)for example share features of both

livelihood activities of trade and informal local service provision, though it has been separately discussed for analytical convenience.

Crop production and Animal Husbandry: Rural people followed an economic life based on farming for centuries and still continue to be dependent up on it although it is not the only base of life now a days. 57(46.7%) out of the 75 sample respondents are engaged in farming though not exclusively. Not only these people depend on agriculture for centuries, they also rely on ancient technologies and means of production. They use strictly the same farming tools as their grandparents were using. The only change in this respect is a use of technologies such as insecticides, pesticides, and fertilizers such as DAP and urea to increase the fertility of the soil and for enhancing agricultural productivity. An interviewee in a key informant interview elaborated this as follows:

> *In the earlier times, our parents and grandparents had used nothing to enhance the fertility of the soil and increase productivity. It was possible to obtain a huge amount of agricultural product (example 'teff") from a certain acre of farm land with no modern technologies added than the traditionally made tools and ways of farming. But now days, crop products are minimal even though we use several kinds of technological aids such as improved seed varieties, DAP, Urea, insecticides, pesticides and so on.*

Whatever the changes happened to the agricultural sector in rural areas, farming continues to be the base up on which the life of the rural people relies. Rural people in *Machakel woreda* produce dominantly *teff* that is mostly used for the purpose of household consumption. They also produce crops such as maize, wheat, barley, which are dominantly used for the production local drinks such as *arequi* and *tella.* These people also produce *nug* for getting income in the form of cash that would be in turn used for covering the expenses of buying agricultural inputs such as DAP, urea and similar technologies.

Rural people in *Machakel woreda* also use to keep animals as part of their livelihood activity. They rear animals such as cattle, sheep and goats, and sometimes donkey, horse and mule. Cattle rearing and crop production are inseparable activities in *Machakel woreda* as people use oxen and sometimes cow to plough their land. Cattle are off-greatest importance in crop production starting from plaguing the land to the activity of harvesting.

People keep lots of cattle with traditional way of rearing except some people who manage their small in number cattle in a relatively better way. As the number of herds becomes increased, there happens a difficulty of managing because of inability to supply cattle with necessary grazing, water and medication. Keeping animals also include raring sheep and goats. Farmers carry out this activity in line with crop production and rearing cattle. Taking care of sheep and goats is mostly a task given to children beyond the activities they perform in crop production, home activities and so on.

Fattening of Animal: Fattening is the other livelihood activity that rural people in the *woreda* carryout to lead their life. This activity is a recent one associated with the expansion of rural infrastructures. A number of people fatten oxen, sheep and goat so as to receive better income in the form of cash by selling to hotels and merchants in the nearby towns or urban areas. In the survey, 11 people (9%) out of 75 respondents are engaged in fattening activities.

Now days, fattening has two faces in these rural people. One is that there are some people who fatten animals in a modern way assisted by the advices and help of local developmental association workers. These people spend most of their time by taking care of animals supplying necessary better inputs, constructing better quarters for animals and

so on. This modern type of fattening benefits the owners and the owners tend to specialize on the activity giving relatively lower emphasis to other livelihood activities such as crop production.

The other aspect of fattening is the one undertaken in a traditional manner. In this case, oxen that were being used for plaguing purpose for several years are fattened. The chance of getting good income by the sale of fattened oxen is difficult because of traditional mechanism of fattening. In this case, fattening is carried out traditionally with no expert advice, nutritious fodder and other inputs. The likelihood of becoming fat is minimal because of increased age of oxen and absence of modern facilities applied. Any ways, fattening of cattle and sheep and goats is one of the livelihood activities that rural people in the area carry out to support their livelihood.

Preparing and Selling 'Tella", 'Arequi" and Tea *(Kumera):* As the survey data indicates, 14 respondents (11.5%) are engaged in *tella, arequi* and tea preparation and selling. Preparing and selling *tella, arequi* and tea is the activity mostly carried out by women in their attempt to make livelihood. *Tella* is a local drink prepared form *bikil*, *gesho* and *asharo* and, *arequi* is traditionally distilled liquor with the same ingredients used, but different in terms of its distillation and preparation mechanism. Both are liked local drinks in the area that people enjoy most of the time and cause intoxication if taken in relatively higher amount. Both have alcoholic content.

A number of women use to distill *arequi* in their own homes for the purpose of selling it either directly to their customers or to traders who trade in the nearby towns of Amanuel and Dembecha. Especially, preparing *arequi* for the purpose of selling it to traders in

higher amounts is a profitable economic activity than selling to customers in one's own home. A woman in a focus group discussion explained this as follows:

> *Preparing `arequi' for the purpose of selling it to merchants in the towns is an important livelihood activity. Even sometimes it is possible to earn money two times higher than the cost of producing it out of the sale of distilled 'arequi'. Every woman in the locality distill `arequi' to support themselves and their families. But sometimes there may be unexpected failures in the process of distilling due to erroneous mechanism of preparation.*

Tella is prepared in every home though this may not be necessarily for the purpose of selling to customers. In *Machakel woreda* and other areas of *Gojjam*, *tella* is a cultural drink and people prefer to drink it than water while they need something to drink.

In addition to home uses, women also sell it to customers especially on market days, monthly celebrated holidays and weekends. This is because customers visit *tella-bet* in these days when agricultural activities are prohibited by the local church. Beyond this, *tella* can't be sold daily because of the need for extra days for its preparation. In addition to *tella* and *arequi*, women in the localities sell tea and locally prepared bread, known as *ambasha*. *Ambasha* is flat bread that a *bale-shehaybet* bake form wheat powder.

From field observations, I have seen that most of the time, *tella, arequi* and tea are sold to customers altogether in the same house even though the days may differ. For instance, if there is *tella* in a woman's home, the chance of getting other drinks like *arequi* and tea is very low. This is because sellers want to sell all the prepared *tella* in a certain round by providing their customers this drink only.

Trade Activities: In the sample, 10.7 percent, that is 11 people are doing trade activities. Trade activities in the rural localities of *Machakel woreda* include small retailer shops,

trading of crop product, cattle, sheep, goat and sometimes donkey. Farmers sell their agricultural products such as *teff*, maize, wheat and *nug* and animals to the local merchants who make profit by selling these crop products and animals in the nearly urban areas.

A number of small retailer shops also operate in the localities. These shops sell most of the time consumer goods such as salt, soap, coffee, tea, spice and so forth to local people. Owners of some retailer shops also earn income by charging mobile phone batteries of local people, loading music on memory cards and through photography. Photography benefits more in times when junior school students are required to provide photographs of their own for of national exam requirements.

Informal Local Service Provision: 9 (7.4%) people in the sample are engaged in local service provision activities. Informal service provision is the other economic activity that rural people engage in an effort to make livelihood. It includes activities such as grinding food grains by grain mills, cutting hair (barbershops), hand and horse-driven carts and house rent. All these activities are informal limiting their service to the local people. Grain mills are off great importance to the local people.

Women who prepare *tella* for sale and those who distill the local liquor *arequi* benefit more from grain mills because they use the grain mills to grind their inputs of preparing such local drinks. Grain mills also save the energy and time of females by producing flour for *injera*, which was performed traditionally in the earlier times.

Those who work in barber shops also receive incomes in the form of cash by cutting the hair of local people. Rural people visit these barber shops whenever their hair grows up.

Previously, people were using scissors for cutting their hair which would have caused transmittable diseases in a village as they use the material commonly.

Due to the expansion of rural roads and the resulting interconnection between different rural *kebeles* and *gotts,* a number of people started working on horse driven carts to transport different kinds of articles from place to place with returns in the form of cash negotiated between the service givers (*balegary)* and service takers (local people). There are also hand driven carts made of small tire and wood that young people use to make money by transporting goods with in localities. Hand driven carts are functional especially on *gulit* market days.

Following the construction of roads by the initiative of government in rural areas, a number of houses had been built by local people alongside roads. Owners of these houses most of the time use their physical assets for the purpose of renting to *tella* and *arequi* sellers and sometimes owners themselves use to live in. Informal service provision in the rural areas of *Mackakel woreda* also includes those peoples' activity of selling food such *as shiro, misir, beyaynet* and *firfir* to local customers. These houses (food houses) actually lack the standards of restaurants in urban areas.

Renting out Farm Land: In the survey, 8 (6.6%) household heads use to rent their farm land. Those who give up to plough their farms decided to rent their land for those who haven't a farm land at all or to those who desire to plough huge amount of land for extra agricultural produce. This might be due to old agedness, divorce happened in families or a complete shift of livelihood bases from farming to non-farm activities.

When women in rural areas get divorced, they decide to rent a house built alongside rural roads from owners by renting out the farm land they share from their husbands to other farmers and selling other properties such as cattle. Finally those who rent out their farm lands receive a share of products obtained from the farm land or may totally receive returns in the form of cash annually most of the time.

Wage Labor: The survey data indicates that 4.9 percent of the respondents earn wage from engagement in wage labor. From field observations, I have seen that a number of wage laborers gather somewhere in the villages in the morning waiting for people to hire them. Wage labor is not limited to those who don't have farm lands or other livelihood bases, rather others also work any time while they are not busy of their own works in their agricultural field. Wage laborers receive a wage of 20-30 ETB per a day, which is more possible especially in the harvest season, construction of houses for residence and construction of local administrative offices.

There are also some people engaged in the activity of loading and taking down commodities from cars in the rural villages and working as local brokers to make buyers and sellers agree when there are agricultural products to be sold in huge amount to the urban merchant. Local brokers also involve when farmers sell their natural resources such as trees and land.

Other Livelihood Activities: These are livelihood activities that are available only in some rural villages in the *woreda,* but still contributing to the life of workers. They include activities such as wood and metal work, milk processing and working as guards. The first two are carried out by rural young people of both sexes by forming associations with the

help of local administrators and the later is done by both young and adult persons of male gender only. Metal and wood workers prepare materials such as doors and windows, bed and others to sell to local people and to the towns. Guards protect schools, health posts, farmer training centers, *kebele* administration offices and homes of government employees form robbery and any kind of danger. In each of the twenty four *kebeles,* there are guards to protect the above things. Milk processing involves receiving milk from local farmers, which are regulars or customers and processing it to give butter, cheese and other products finally selling to people of the village and to the urban people by using transport facilities.

4.3 The Impact of Rural Physical Infrastructure on Livelihood Diversification

The expansion of physical rural infrastructure such as rural roads, rural electrification and pure drink water schemes was found to benefit rural residents in different dimensions. One is that it helped them diversity their livelihood bases and /or income sources. The access of rural people to different types of assets has been found to improve over recent years. People have created new livelihood activities using the advantage of newly expanded physical infrastructure in addition to farming. These diversified activities would contribute a lot to the livelihood security of rural people. The following sub-section presents the access of rural people to different types of assets or capitals that people acquired by the help of physical infrastructures.

4.3.1 Households' Access to Livelihood Assets as a Result of Rural Physical Infrastructural Expansion

Access to assets can improve, deteriorate or stay the same over time relating to the changes made in the general life of any society. For instance, the establishment of physical

infrastructures in the study area has had caused a shift in the state of access to livelihood assets. The existence of mere assets with no accessibility may not have importance in livelihood making and diversification, rather an additional factor (access) is an essential component of livelihood making. The following table shows the state of access to livelihood assets accompanying the expansion of infrastructures in rural areas.

Table 3: Respondents' Level of Access to Different Types of Livelihood Assets

Level of Access to Livelihood assets	Frequency	Percentage
Improved	61	81.3
Remained the same	14	18.6
Total	75	100

Source: Own Household Survey, 2013

As table 3 shows, more than 81 percent of the respondents' access to different types of asset (physical, natural, human, social and financial) has been improved accompanying the expansion of rural infrastructure. People's access to livelihood assets in the *woreda* has improved due to the contribution of rural physical infrastructure, which is likely to affect all other sorts of infrastructure such as social infrastructure (which includes health services and schools).

Respondents were asked regarding the assets they have acquired in the last five years (starting from the time that physical infrastructural expansion in the rural areas of *Machakel woreda* had begun) and open-ended responses were post-coded to be tabulated

as follows. There is also a discussion of general asset based on type, of rural people of the area next to the tabular presentation.

Table 4; Assets Acquired Following Physical Infrastructures Expansion

Asset Types	Specific Assets
Human Asset	• Improved awareness as regards different issues • Skills of work and knowledge • Trainings in farming, natural resource conservation, home sanitation, personal hygiene keeping and so on. • Improved health status • Educated community members, and • Employees of government
Social Asset	• Social networks (membership in *iddir, iqub* and *mahiber* as people displace in to center *gotts* where infrastructures are already made available) • Customer relationship • Neighborhood ties, and • Relations with urban dwellers
Physical Asset	• Established physical infrastructures • Houses (both for residence and livelihood making) • Entities like grain mills, carts, machines, home materials
Financial Asset	• Diversified income sources and better income • Saving and credit access • Cash money
Natural Asset	• Planting trees for sale • Fattened animal

Source; Own Household Survey, 2013

The above table presents only the assets that people acquired through the help of infrastructures based on the 75 respondents' responses. Following is a discussion of general assets in the area based on the above survey data and data obtained from other data collection tools employed in the study.

Human capital: Own labor is the chief asset possessed by the poor and human capital refers to the labor available to the household; its education, skills, and health, which can be increased by investment in education and training as well as by the skills acquired through pressing one or more occupation (Ellis 2000: 33-34). The skills and knowledge of rural residents was limited to their local wisdoms relating farming, traditional medication and the like. But now days, because of their engagement in new livelihood choices such as trade, local service provision and other related activities, they are horizontally increasing their knowledge and skills.

The technological knowhow and access of rural people in the area is increasing rapidly than ever before as facilities such as rural transportation, electrification, and telecommunication are made possible. Watching televisions and accessing information which was difficult even for the urban people once up on a time is now possible in the rural areas. This has increased the awareness of rural farmers about different aspects of life such as art and music, health related issues, politics, market prices and so on. Lots of rural farmers are users of mobile telephones because they could operate just by learning one from the other.

As people could diversity their livelihood into series of activities, they would have able to develop their skills of work than having a constrained horizon of skills and knowledge

limited to their agricultural fields. For instance, skills of modern fattening, wood and metal work, *arequi* distillation, milk processing, cart construction and repair, photography, customer treatment, food preparation, and so on. When they work such activities, their skills could have been broadened and get enhanced.

Now days, rural people are getting training in areas such as natural resource conservation, farming, home sanitation, personal hygiene and the like by trained people both from respective *kebeles* and the *woreda* sector offices. Beyond trainings, farmers are building terraces, planting trees in their farm lands so as to treat and conserve the depleted soil.

Farmers also started using toilets constructed by themselves through the help of health extension workers, which has a paramount effect on their health situation. Health extension workers also train rural dwellers how to keep personal hygiene how to arrange home materials and seats, and how to build the house of animals such as cattle, sheep and goats. All these are partly made possible by the availability of roads, electric light and other facilities as it would have been difficult for government employees to move to rural areas to give trainings and stay on permanent bases serving rural people.

Closely associated to the human capital of rural people is their health and education. Many households have members who had received better education. These educated members of the household could have been teaching the uneducated members of the household and other members of the village. The awareness and knowledge that can be brought in to existence through such manner is very important. Educated members of rural households are likely to criticize the old-fashioned thinking's, beliefs and practices of their parents and grandparents by showing other better alternatives instead. Educated people who are

there in the rural areas because they have completed their educational carrier, or failed to do so for instance, started livelihood activities such as barbershop, shop keeping, food selling, cereal trading and fattening. These people want to reside there because rural physical infrastructures allow them facilitate their activities. A focus group discussant further elaborated this in the following way (the idea was shared by other discussants also).

> *Before, it was very difficult for an educated person to reside in rural areas, because of the opportunities in urban areas and the absence of favorable working condition in such rural areas/villages ..., but now the trend seems to be changing, it is possible to engage in so many livelihood activities using the advantage of newly expanded physical infrastructures. So many young educated persons are investing in their own local context and changing their own life and the life of the whole community in terms of thinking, behavior and so on. Actually it is a great failure to live in a rural village for an educated person in the eyes of our old parents and grandparents, although this is declining over years.*

In each rural *kebele*, there are health posts giving service to the local community members. These health centers can be more efficient in their construction and service provision only by the existence of roads, electric light and pure water, as the facilities are essential to give medical care and aid properly. For example, there are ambulance facilities serving the rural people in times of occasions such as physical damages because of conflict and other causes, birth giving due to pregnancy and other illness. For ambulance cars to be functional, roads contribute a lot. Diseases are minimal now days in these rural *kebeles*. A key informant made it explicit as follows (*kebele* chairman aged 35).

> *In the earlier days, there were transmittable diseases killing lots of people in a single village, even in a single household; such diseases include malaria. But now a day, we became very lucky, even no people die with young age except because of conflicts between people and the aged. We use health centers in our 'kebele' when we feel sick and receive medical service. We use*

toilets; have pure water that we are no more victims of communicable diseases.

Social Capital: Social capital is an indispensible category of assets that rural people possess. By using their social networks and social organizations rural people facilitate their livelihood activities. Social ties in the rural areas of *Machakel woreda* include social organizations such as *mahiber, senbetie, idir, iqub* and social help and cooperation by Muslim people of the area-known as *mawlid.*

Mahiber is a monthly or annually held meeting by members done in the name of saints in an orthodox Christianity religion dogma. It has two aspects; the first is when its members are men (husbands or household heads), where the meeting is on monthly basis. In this aspect of this social organization, people help each other in times of happiness and problems such as the death of a farmer's oxen, death of family members and solve conflicts and disputes created between members. The other aspect of *mahiber* is the one based on family ties where members may not necessarily be from the same locality. It is known as *yezemed-mahiber*, and both men and women are member. In both types, there is preparation of food and drinks such as *tella.*

Senbetie is also a monthly celebrated religious social organization where meetings are in the compound of churches. It is held on the Sabbath monthly. *Idir* is a *gott* based social organization that members use to help each other, whereas *iqub* serves mostly economic functions.

The expansion and/or construction of water schemes, electricity and roads in rural area were found to have a contribution in strengthening the social bonds among different *gotts* from the same *kebele* come together and participate cooperatively. Not only these people

establish and strengthen their social ties, they also avoid their previous conflicts so as to use water together. Rural roads also facilitate fast and smooth physical contact between people of same or different localities. Whereas people could also establish and strengthen their neighborhood ties as they use electric devices such as an electric meter (a device which counts the amount of electric power used) in common as sometimes this may also cause conflicts.

When people move from remote rural areas in the *woreda* into areas where rural infrastructures are available to change their residence, they establish new social ties with the host members of the area and with customers. This is strictly true when they engage in trade and service provision livelihood activities. Following is a brief description of this phenomenon by a female focus group discussant that other group discussants also agree.

> *I have good communication and contact with my neighbors and customers. We treat each other in peaceful and respectful manner. They are (especially customers) the basis of my activity, which is selling 'arequi', 'tella', tea and bread. People of the area bring me the goods I want (bread for instance) when they go to Amanuel town for their own purpose, and those who distill 'arequi' sell for me and then I resell it to my customers. Therefore, all these social ties are important to my life. If I wouldn't have established such relationships with my neighbors and customers, I wouldn't be able to facilitate my livelihood activities in a smooth manner.*

Rural people are also strengthening their previous ties and establishing new ones with these people in urban areas. This has been facilitated especially by the availability of road infrastructure and mobile cell phones.

Physical Capital: When one thinks over the physical capital of rural people in *Machakel woreda*, what comes to mind are the newly expanded physical infrastructures of rural

roads, electrification and that of water schemes. Rural roads are built in three directions starting from Amanuel town and stretching deeper into the remote rural areas.

One is from Amanuel to a rural *kebele* known as *dega-segnen*, the second from Amanuel to *workima* and the last from Amanuel to *kuashibana-akababiw*. Each of these rural roads pass through a number of rural *kebeles* and some other rural *kebeles* are also located in areas where the main Addis Ababa to Bahirdar asphalt road is found. Following these road lines, rural electricity is expanded in centers *gotts* and/or sub-*kebeles* where *kebele* administrations are placed. Water schemes are also built using the road lines as roads are prerequisites for transporting inputs such as stone, sand, cement and other construction materials.

Houses both for residential and renting out purpose, wood and metal work machines, grain mills, carts and so on are the other physical assets of rural people of the area in addition to home, farming tools, home materials, school, health and related buildings.

Financial Capital: Financial assets in the rural areas of *Machakel woreda* relate to the savings in the form of both traditional associations such as *Idir* and *Iqub,* and formal financial institutions such as banks, credits (both formal and informal) and activities obtain saving and credit *Idir* and *Iqub* also serve the functions of cooperation and self-help among members.

Saving and credits in formal financial institutions were previously uncommon in rural area, because of several reasons. One is the absence of need for institutions. Another factor was that farmers do not most of the time convert their assets into cash and they didn't have extra money to be saved. Lastly, what is produced was being used for home

consumption purpose as there were no diversified livelihood activities targeted at the purpose of receiving cash income. Now days, people are saving, and accessing credit facilities from ASCI-a regional saving and credit institution that operates in Amhara region. Informal credit facilities include the service given by the church. When rural people face unconditional problems such as death of oxen, the church provides credit in the form of money. The church then benefits from this through interests obtained from credits given to farmers.

Natural Capital: Rural areas are richer in their natural assets as compared to urban areas. Natural capital of farmers in *Machakel* include home animals, trees, forest resources, rivers and streams, good natural environment, sufficient rainfall and agriculturally productive soil.

Cattle are the most important natural assets of rural people as farmers use this natural asset for many purposes such as from plaguing the land to harvesting. Cattle are nowadays becoming more valuable than ever before because of fattening activities and existing market situation. Rural roads expansion is becoming essential for the environment of villages because farmers are planting trees both for commercial and natural resource management purposes.

4.3.2 The Diversity of Livelihood Activities in the Study Area

Respondents were asked whether or not they have created new livelihood activities using established physical infrastructures. In the survey, respondents were also asked regarding the number of livelihood activities they are engaged in at the time that the survey was conducted. Respective discussion of the responses is presented as follows.

Table 5; Whether or not Respondents have Created New Livelihood Activities Using Expanded Physical Rural Infrastructures

	Categories	Frequency	Percentage
Have you created new livelihood activities?	Yes	62	82.7
	No	13	17.3
	Total	75	100

Source; Own Household Survey, 2013

As it can be noticed from the table above, 82.7 percent of the respondents have created new livelihood activities using the advantage of expanded physical infrastructure. Based on this, respondents were asked to list out the new livelihood activities they have created in an open-ended question. The livelihood activities they listed out include retailer shops, animal fattening, hand and horse driven carts, *tella* and *arequi* selling, grain millhouses, wood and metal works, milk processing, cereal trade, barbershops, food selling, tea and bread selling, working as guards, farm land and house renting, wage labor, etc. (see also sub-section 4.2.2 Major Livelihood Activities in the Area).

Table 6; Number of Livelihood Activities that Respondents are engaged in from the time of Infrastructural Expansion Onwards

Number of livelihood activities	Frequency	Percentage
Two	13	17.3
Three	29	38.6
Four	23	30.6
Five	10	13.3
Total	75	100

Source: Own Household Survey, 2013

Farmers are known for several times for their dependence on single livelihood activities than a number of livelihood bases. But none of the sample respondents rely on a single activity as the above table shows. More than 38 percent of the respondents engage in three livelihood activities. Also 30.6 percent of the respondents are also making their livelihood based on four activities.

But the mere existence of diversified livelihood activities may not necessarily mean that the activities are results of physical infrastructural expansion. Therefore, the above survey data has been supplemented by data obtained from other tools of data collection. Most of the activities except farming are created and enhanced by rural roads expansion, rural electrification and the construction of pure drink water schemes, and even agriculture has been positively influenced through the introduction of these physical infrastructures in several ways. For instance, livelihood making based on horse-driven carts is dependent on rural roads while the construction of water schemes facilitated the activities of *tella* and *arequi* preparation and selling. Rural roads contribute to trade activities because people could use the transportation facilities created. In addition the contribution of electric power is paramount. An interviewee, who is a grain mill owner and 48 years old, forwarded the role of rural electrification in the creation and facilitation of livelihoods as follows;

> *Electric power is the most essential thing we have in the recent time. It is very important for grain mills, barbershops, wood and metal workers, shops, tella and arequi houses and son. For example, I started this activity (livelihood based on grain mills) soon after the foundation of electric light, and there are also other people who plan to start the activity. It is benefiting me a lot which helps me lead my family's life in a better way. It is very essential.*

Another woman (who is engaged in *tella* and *arequi* preparation and selling) with the age of 31, elaborated the role of physical infrastructures in facilitating livelihood activities in the following way.

> *I have a television in my home that it attracts lots of customers who drink tella, tea, arequi and eat ambasha. Electric light is very important, it reduces expenses for kerosene. The water scheme helps me to prepare quality tella and other things, and to wash drinking glasses properly. I can use transportation facility so as to sell the arequi in Amanuel and Denbecha in huge amounts. I have to daughters who help me in arequi distillation and tella preparation and I have a small shop.*

4.4 The Impact of Rural Physical Infrastructure Expansion on Poverty Reduction

The expansion of physical infrastructures (rural roads, rural electrification and pure water schemes) was found to have contribution in efforts to reduce poverty in rural areas. This could be viewed in terms of dimensions such as improving income through livelihood diversification, rising of living standard of rural people, improving health status, raising awareness and educational opportunity of rural families, improving access to livelihood assets, agricultural productivity and so on.

4.4.1 The Status of Income Sources after the Expansion of Infrastructures

Using the newly expanded infrastructures, rural people created a number of income sources. Following is a table showing respondents' status of income sources after the establishment of rural infrastructures in the study area.

Table 7: Trend of Income Sources after the Expansion of Physical Infrastructures in Rural Areas

Status of income sources	Frequency	Percentage
Increased	61	81.3
Remained the same	14	18.7
Total	75	100

Source; Own Household Survey, 2013

As presented in the table above, the majority (81.3%) of the respondents' income sources has increased as physical infrastructures expanded in rural localities, and no one's of the respondents' number of income sources has shown decrement. In addition, no change has been noticed in the number of income sources of more than eighteen percent of the respondents.

In relation to the status of number of income sources after the expansion of income sources, respondents were asked whether increased number of income sources contribute to the reduction on of poverty and the way it actually did. Open-ended responses (after post-coding) relating to the manner in which diversified income sources contribute to poverty reduction in rural areas are presented in the following table.

Table 8; the Way Diversified Income Sources Contribute to Reduction of Poverty in the Study Area

	Importance
Diversified income sources	• Satisfaction of basic needs such as food, shelter, clothing • Savings in formal financial institutions such as banks • In-kind reserves such as cereals stored in the home • Capability of covering costs for services such as health services, children's education, and so on • Ability to pursue further livelihood activities • Capability to buy inputs for livelihood activities like farm inputs • Capability of buying home materials and/or utensils

Source; Own Household Survey, 2013

Those whose number of income sources stagnates in its number were found to stick to farm activities than diversifying their livelihood activities or income sources. The reasons behind this are; 1) small household size- when household members are small in number, there happens a shortage of labor that could engage in livelihood activities other than farming. 2) Efforts to diversify livelihood activities are only plans to be materialized in the future. These people are potential diversifiers capable of diversifying their livelihood activities just waiting for undetermined length of time for preparation. 3) Lack of resources to engage in diversified activities. Because people lack resources such as land, finance and others, they could not start other activities.

A simple increment in income sources did not necessarily indicate that the actual income of respondents has increased and did not mean that poverty is reduced, as poverty is not all about economy. The survey data on the number of income sources is supplemented by

FGD and in-depth interview results. Results from these data collection methods showed that peoples' income has actually increased as people added extra income generating activities on the previous livelihood activity, which was farming than a complete change of their livelihood base. Some farmers had off course reduced the number of their herds and the amount of farm land they use to plough in an effort to start other activities such as establishing grain mills, building extra houses, buying carts and starting trade activities.

Income sources in the rural areas of *Machakel woreda* can generally be disaggregated in to three components. These are; farm income, off-farm income and non-farm income. *Farm income;* includes cash income obtained from the sale of agricultural products such as *teff, nug*, maize, wheat, and etc.; cattle, sheep and goat; livestock owned; and in-kind home consumption. This category of income has supported rural people and continues to be a major contributor in their livelihood. *Off-farm income;* comprises income obtained from such activities as wage labor, fattening and planting of trees for commercial purpose. People are no more the beneficiaries of local environmental resources such as wild plants, animals and forests because of legal prohibitions and the deterioration of resources due to deforestation and illegal hunting. *Non-farm income;* consists of non-agricultural income sources such as working as guards, uploading and taking down commodities from cars in the localities, working as local brokers, renting out farm land and houses, non-farm self-employment (includes small retailer shops, *tella, arequi* and tea selling, barber shops, working on horse-driven carts, trade of grains and food selling), and grain mill houses. This category of income sources is where diversification takes place to a large extent. (See sub-section 4.2.2 for more clarification).

4.4.2 Physical Infrastructure and the Health Situation of Rural People

This sub-section presents the interrelationship between physical infrastructural expansion and health situation of rural people in the study area depending on FGD, in-depth interview and survey data.

The Way Access to Clean Drink Water Positively Affects Health Condition of Rural People: Water is an essential pre-requisite to the survival of creatures including human beings on the earth. It may also on the contrary be source of illness and death if polluted. People in rural areas are vulnerable to water born and communicable diseases due to unavailability of pure water supplies. Now days, pure drink water schemes are being expanded in the rural areas of *Machakel woreda* though people from already built schemes so far for the last four years.

Water schemes vary based on mechanism of operation and depth of the holes down in to the ground. These varieties are; hand-dag wells, shallow wells, deep wells, developed springs, and rope pumps. These water schemes are built by the contribution of government (in terms of budget, expert knowledge and raw material supply) and beneficiaries (labor). UNICEF is the NGO which supports the local people by facilitating the construction of schemes together with the *woreda* administration. The following table presents access to pure drink water in the three sample rural localities.

Table 9: Access to Safe Drinking Water

Access to safe drinking water	Frequency	Percentage
Yes	50	66.7
No	25	33.3
Total	75	100

Source; own household survey

As can be noticed from the above table, nearly 67 percent of the respondents have access to clean drinking water. On the other hand, 33 percent of the respondents don not have this access due to maintenance problems.

In both instances, it is possible to understand the contribution of pure drink water to the good health condition of rural people. For instance, those whose access has stopped because of lack of maintenance of water schemes made it explicit that the absence of pure drink water causes huge burden on rural people including ill-impact on their health. As opposed to this, pure drink water availability in rural areas has such advantages as good personal hygiene, better home sanitation, energy and time saving, avoidance of water born diseases, safe preparation of food and cleanness of home utensils and facilitation of livelihood activities.

Rural people in the study area could keep their personal hygiene better as compared to the previous times before the construction of water schemes. This is because they could easily access pure water from water schemes built within an average distance of one and half kilometer from their homestead. The nearness of water schemes had avoided the need for extra time and energy for fetching water. In addition, water obtained from is purer than

water could be obtained from land surface, which can be easily polluted by pollutants such as animals, heavy rain and wind. Therefore, people could wash their clothes and body whenever they get dirty. Not only rural people better keep their personal hygiene, they also improve the way they clean homes, cooking materials and safely prepare food.

Energy and time saving is the other major importance of established water schemes. Women with access to pure water no more travel long distances facing difficult topography to fetch water from rivers and streams, which has killed their energy and time for centuries. Female group discussant made the idea clearer as follows.

> *Earlier, it was very difficult to find clean water from rivers and streams during both summer and winter, because in the winter season these water sources dry and stop giving water; and during summer, rivers and streams are polluted by eroded soil driven by heavy rainfall. Beyond this, rivers and streams are far from residential homes that it was difficult to travel long distance carrying heavy pots full of water. But now, thanks to God we have a water scheme near my homestead.*

Rural people could also avoid diseases caused by polluted water. In rural areas, water pollution is triggered by the absence of toilets. People used to execrate everywhere they want with no regard for the consequences. But now days, farmers are constructing their own toilets by the help of *kebele* health extension workers. Therefore, through clean water use, rural people improve their health status.

A one more function of water schemes identified in the study is the importance it has in carrying out livelihood activities. Those who prepare *arequi* and *tella* for selling purpose greatly benefited from constructed water schemes as they need pure water from a nearby place. Access to pure water is also detrimental to activities such as milk processing and local restaurants.

Rural Roads' Contribution to the Good health Status of Rural People: People die because of inability of getting timely medical support among many other causes of death. Receiving timely medical help in times of emergent ill-ness cases is partly determined by the availability of transportation facilities. These days, rural roads are considerably contributing to the medical service access of rural people in *Machakel woreda.* In such cases as when a woman is about to give birth, physical harm because of conflict, and serious stages of malaria, people can get medical care both in their own localities and in the towns using ambulance facility. It is also possible to use assigned mid-buses to transport the ill to the health station found in Amanuel town. Also for rural health posts to be functional in giving medical aid to the local people, rural electrification is contributing a lot.

The expansion of physical and social infrastructures in rural areas has brought a slight change in attitudes towards the use of modern medication. Rural people in the study area tended to prefer in the earlier times cultural and religious mechanisms of health treatment over modern ones though this reliance is declining now a days. An explanation of this made by an interviewee is following.

> *Previously, people in my locality prefer religious and cultural healing mechanisms of health illness. They use to believe in 'debetera', 'awaqui' or 'tenquaye' and 'tsebele' than using hospitals or health stations. The reasons for this preference were attitude, belief in traditional healers, inaccessibility of health centers, and economic factors. But now this phenomenon seems to be changing that people have good attitude towards health centers and modern medication which are accessible, people are having cash money in their pocket so that they can afford the expenses for medical service and the belief in traditional healers is declining. Of course, 'tsebel' is still well taken by people.*

4.4.3 The Role of Physical Infrastructures in Improving the General Awareness and Educational Profile of People in Rural Areas

Today, the awareness of rural people regarding issues relating to their lives such as natural resource management, STDs, home sanitation, technology, relevance of formal education and so on has improved profoundly. Children are receiving better education, farmers know more about issues which were said to be urban issues before and they are respecting laws as they are aware of it.

Before the expansion of physical infrastructures, high school students from rural families were obliged either to travel on foot for hours to reach to the school or rent a small quarter from house owners in the town where the high school is located. The case is straight forward especially in high school educational carriers because of the existence of a single high school in the *woreda*. The great difficulty for students was the food they use to eat. They used to eat *enjera* get dried by sun light which is uncomfortable for body due to inappropriate preparation.

Now days, transport facilities are available connecting Amanuel town (where the high school is found) and center *gotts*. Students can use this facility to meet their families and receive things they need. Moreover, rural students of any cycle are benefiting from electric light because it enables them to study for longer time during the night. This is crucial because most of the time students from rural families are busy of work in the agricultural field during the day time.

Rural families are using the transport facilities made available by *woreda* administration and learning appropriately without worrying about their food as their families and people

from their localities supply them on time. Moreover, electric light availability is benefiting students by enabling them to study for longer time during the night. In the day time, it is very difficult for students in rural areas to study because they use their time more for undertaking agricultural activities. Parents' awareness regarding the importance education is also improving which in turn help students attend their education with good motivation.

4.5 The Impact of Rural Physical Infrastructural Expansion on the Social Life of Rural People

This section consists of a discussion of the impact of rural physical infrastructure expansion on the general social life of rural people residing in the *woreda*. More specifically, it highlights impact on social institutions and networks, impact on patterns of social behavior, impact on the social relationship of the community and tries to uncover what seems the social relationship among member people of the rural area, and between member people of different localities and urban residents of anywhere.

In this part, the results are analyzed based on data obtained through the utilization of tools of data collection such as field observation, in-depth interviews and focus group discussions. The impact of rural physical infrastructural expansion on social life of rural people of the area is discussed by taking both the negative and positive impacts in to consideration with no disaggregation.

4.5.1 Impact on Social Institutions and Social Networks

It was found in the study that the expansion of rural roads and the accompanying expansion of rural electrification and water schemes had a tremendous impact on the

social institution (especially that of marriage and the family), and social networks such as *mahiber*, *iddir* and *iqub*.

The establishment of rural physical infrastructures only is some center *gotts* and/or sub - *kebeles* of many rural *kebeles* has created an internal movement of people such as divorced ones, those who want to diversity their livelihood using infrastructures and others into center *kebele* areas on permanent and temporary basis. Most of the time, internal displacements are starting from very remote areas. For instance the majority of *tela*, *arequi*, and tea sellers are divorces who did not want to sustain their family (marital relationship) with their husband. These women list out several reasons for this which includes the possibility of leading their own life (even together with their children) by themselves with no one's help as they could earn income from livelihood activities they established in localities where infrastructures are available. This has been clarified by 36 years old who stated as;

> *Earlier, the only fate for a divorced female/woman was to live together with her families (parents) if she has, or live alone by building her own shelter, usually a hut made of wood, grass and mud. Such women did not have opportunities to engage in livelihood activities unlike the present situation. But these times, thanks to the government, which is ensuring our rights and expanding infrastructures, divorcees are getting legal backing and leading their life independently working their own livelihood activities. We could for example, start our own livelihood activities by coming here. Some of us rent houses while others build their own homes using the property they have shared from their husbands.*

The availability of physical infrastructures as new phenomena in rural localities had created a confidence on the part of women as they realized the possibility of leading life by themselves in addition to legal protections by the law. Family breakdown such as divorce is not seen as a difficult and impossible way of solving crisis and conflicts within

the family institution. Divorce is no more being seen as socially shameful act; it is becoming easier overtime. This situation in turn continues to create single parent families which disenable children to get family love, protection and sense of belongingness that could be obtained from an intact family.

From focus group discussions, it is apparent that as people displace from relatively remote localities (areas where infrastructures are unavailable) to center areas or *gotts* (areas where infrastructures are already made available), their membership in social networks such as *mahiber* and *iddir* faces a problem. This is due to physical dislocation of displaced people with their own intention from the rest of people they have been a part. It is difficult to meet with *mahiber* and *iddir* members in cases meeting are mandatory by travelling distances. Moreover, establishing social relationship and membership in *mahiber* and *iddir* in host localities takes time until getting adaptation to the situations and as new membership has its own procedures. This gap (absence of membership neither with the previous localities nor in the new ones for a period of time) is dangerous for the displacing people as they may encounter problems such as death of a family member, which highly requires help and support through the networks of *iddir* and *mahiber*.

4.5.2 Impact on Social Relationship among Rural People

The expansion of physical rural infrastructures in the rural localities of *Machakel woreda* has been found to have a lot to do with social relationship among members of same rural *kebeles*, among members of different rural *kebeles* and among different rural *kebels*. This phenomenon could be viewed in terms of two dimensions; the first is the situation that happened in relation to the social relationship of rural people on varying scales during the process of constricting and/or expanding infrastructures. The other is the one that rural

people had experienced changes in their social relationship after the expansion of infrastructures in their localities.

As it has been described in the preceding sub-sections, the impact of rural physical infrastructural expansion on the social life of rural people in the area is viewed in terms of both of its positive and negative consequences on the social life of the people. Therefore, both positive and negative impacts are discussed altogether with no disaggregation. The following discussion highlights the impact of physical rural infrastructure on social relationship among rural people during the process of expansion.

During the construction of infrastructures, there happened social phenomena such as establishments of new social ties and intensification of former ones, weakening and ending up of previous social ties, and conflicts among rural people. An informant in an in-depth interview, who is a *kebele* chairman with the age of 42, explained the phenomenon as follows.

> *When infrastructures are established, many things happen in the social life of kebele members. Some people for instance become socially related who were not known to each other deeply. On the other hand, some other members may enter into dissolution of their social ties and conflict. These things might be caused by different reasons. For example, during the construction of water schemes, rural people contribute 20% of the total expenses in terms of labor. When people participate in such activities as digging holes, transporting construction materials like stone and sand, they could establish new social ties or strengthen it as the work is done in groups. Conflicts between assigned people who are responsible for following up the construction and local dwellers could also arise when ordinary members of the locality refuse to participate because of their own reasons. Not only under such cases social ties or conflict between members of the locality could arise in the process of expending electric power line. For example, some people claimed the setting up of electric power transformers to be held at their homestead while expert' decision was not that. Food for the power line workers was provided by the local people in group turn by turn. In doing such activities, people relate socially to each*

other. In addition, some farmers refused to give their farmland for roads construction as they would have lost their plots, while others want the roads to pass through their farm land calculating future benefits that they may obtain such as building and renting out houses alongside the roads.

As the above key informant data indicates, the construction of physical infrastructures would have caused decline or intensifications in social ties among individuals and groups. This is mainly because the expansion process required the participation and resources of local people. Rural people might quarrel each other when their benefit especially land is taken over for other purpose as they may become socially close when their benefits are secured. Occasions such as celebration of the accomplishment of constructions, feeding in group of construction workers and, the likes would have strengthen or disrupt social ties. Therefore, such situation would finally lead to establishment of new strengthening of previous social ties, weakening and ceasing of previous social contacts or the creation of conflict among local people.

The expansion of physical infrastructures in the rural areas of *Machakel woreda* has positively impacted the social relationship of people among each other once after the accomplishment of the construction processes as it did during the construction period. People of different localities could strengthen their social ties as they use physical infrastructures in common. From focus group discussions, I understood that when people use infrastructures like water schemes in common, they could also share their social issues which intensify the bond among them.

On the contrary, the social ties and contact, among people of localities were found to have been negatively affected are result of the expansion of infrastructures. Actually it is not rural infrastructural expansion creating problems by itself; rather it is the unbalanced

availability of such infrastructures across *gotts* with increasing demands on the behalf of local people. Focus group discussion results for instance, indicated that the shortage of electric meters (a device measuring the amount of electric power used in a certain place) is endangering the neighborhood ties in the localities. Those who own the device engage in conflict with those without the device regarding payments and uses of service (electric power).

When water schemes fail to provide water to users in a given locality or *gott*, members of the *gott* go to nearby *gotts* so as to fetch water, which as a result creates pressure on the host *gott* dwellers. As a result, people enter in to unnecessary disagreements, which might have affected their social contacts.

The other problem which is affecting rural people socially is unpredicted gaps or stoppages in electric light services. When electric light service ceases due to problems in the power lines, owners of grain mills took an informal responsibility of recovering the problems so as not to lose their own benefits which could be obtained by electric light availability. But such problems had been found to be frequent when people consciously cut down power lines expecting payments for maintenance again from owners of gain mils. An informant who is a vice *woreda* administrator and took the role of overseeing rural electrification with the age of 46 elaborated the phenomenon as follows.

> *There occur repeated conscious or unconscious breakages of power lines by individuals. Those who break the power lines are suspected to be local electric experts, who might have been knowingly cutting the power lines to benefit through maintenance payments, usually from grain mill owners. The problem becomes even worse when owners of grain mills take a prime responsibility of covering costs of maintenance by their own will. But when similar problems occur in other times, other people in the localities refused*

to contribute to maintenance costs as they know that grain mill owners would take the responsibility.

Such problems of frequent breakups in power lines and refusal of non-grain mill owner people might have affected the social interaction between grain mill owners and the rest majority which could create social differences beyond the already existent economic disparity.

4.5.3 Impact on the Social Relationship between Rural People and Urban Residents

Among the three newly expanded physical rural infrastructures (rural electrification, roads and water provision), the impact of rural roads, is highly magnified in terms of affecting the social interactions and ties between rural people of *machakel woreda* and urban people of nearby towns of Amanuel, Dembecha, Rebu-gebeya and Debre-ellias. The construction of roads and resulting interconnection between rural *kebeles* and the aforementioned *woreda* towns is narrowing both the social and physical (topographical) disparity between people of rural and urban areas. In terms of topographic disparity, rural roads reduced the amount of time that people may need to travel on foot as it is made possible to use transplant facilities. On the other hand, the impact of rural roads on the social life of rural people partly lies on the process of increasing connection and declining social disparity between people, and here lies the focus of this sub-section, which is dealt with in the following paragraphs.

The connection of rural *kebeles* to urban areas (such as the *woreda* towns) resulted in the intensification of social interaction between people of the two areas. Rural people are becoming aware of urban mode of life helped by infrastructural development in the area. They use transport facilities, drink pure water, access national and global in formations

and begun to appreciate urban way of life. Urban dwellers are also participating in rural social issues and organizations better than ever before through involvement in *mahiber* and other related ceremonies such as yearly spiritual ceremonies known as *negis* or amet *beales*. The availability of road transport eases travel between rural *kebeles* and towns. As focus group discussions showed, strengthening social interactions are also facilitating economic relationships between people from both areas. For example, traders in Amanuel town who has social bond in rural *kebeles* buy different kinds of commodities from rural people. Simply those who are socially bonded are also economically interdependent as they would have become customers.

Chapter Five

Conclusion and Recommendation

5.1 Conclusion

The study was intended to examine the impact of rural physical infrastructural expansion on the general livelihood situation of rural people taking *machakel woreda* as a case. Specifically, it was conducted with the specific objectives of describing different types of livelihood activities that have emerged as a result of rural physical infrastructural expansion, analyzing the role that rural physical infrastructure plays in the diversification of rural livelihoods, investigation of the ways by which rural physical infrastructure play a role n the reduction of poverty in the study area, and examination of the social impact of rural physical infrastructure on the rural people of *machakel woreda*. Bath quantitative and qualitative data were collected through 15 in-depth interviews, 6 focus group discussions and field observation. Quantitative data was collected from a sample of 75 household heads through sample survey.

The results of the study have indicated that the general livelihood situation of rural people in *Machakel woreda* is improving as a result of the expansion of physical infrastructures. This improvement was found in the study to be magnificent especially in terms of economic dimension of the life of the rural people in the study area. Physical infrastructures are supporting the already existing economic activity (farming) of the people and becoming a vehicle for the start and facilitation of new livelihood activities.

As the study results show, rural people of *Machakel woreda* engage in a variety of livelihoods activities, some of the activities being created after the establishment of

physical infrastructures. Though farming still remains to be the dominant livelihood activity up on which the people rely, people have created set of activities from which they could earn cash and in-kind income helped by expanded infrastructure. Rural physical infrastructural expansion has positively affected the livelihood of people through creating favorable conditions for livelihood diversification.

Livelihood diversification was possible in the area as peoples' access to livelihood assets get improved, that enable more further diversification and possession of property. The different types of assets of the people have been found to improve. Majority of the people engage in more than one livelihood activities.

Rural physical infrastructural expansion has also a contributed in terms of changing the life of the people. Poverty and backwardness were reduced through:1) increased number of income sources and improving household income, 2) improving health status, and 3) raising the general awareness and educational profile of rural people. The study indicates that people are transforming in to a better way of life assisted by expanding infrastructure.

Viewed socially, the expansion of physical infrastructures impacted the social life of rural people in the study area both negatively and positively. On a positive dimension, rural people could strengthen and establish social ties among themselves during and after the establishment of infrastructures. On the negative side, the expansion of unevenly distributed infrastructure causes problems on social institutions and networks. It has caused and inter-rural and intra-rural *kebele* displacement of people including divorced people. Absence and lack of maintenance of physical infrastructures is creating social disputes among individuals and groups.

5.2 Recommendations

Based up on the aforementioned concluding points, the following recommendations are forwarded with aim to make policy makers and planners consider the issues that go with present and future rural development projects.

- The expansion of physical infrastructures in to the rural *kebeles* of *machakel woreda* benefited rural people of the area in a number of ways. One way is in terms of the diversification of livelihoods. For newly diversified livelihoods to be sustainably productive and supportive to the lives of the people there is a need for better and sustained provision of facilities like road transportation, electricity and drink water. Already established rural infrastructures need necessary follow-up and maintenance activities if they are to be useful to the community.
- Infrastructural expansion in the study area is only at a beginning phase especially in terms of area coverage. Rural people in the *woreda* still need more water schemes to be built, roads to be constructed and electricity to be supplied. Especially, remote localities lack these basic physical infrastructures. There is a need to work deeper in to these remote rural *kebeles* to enable the people access the services. Even distribution of infrastructures in to all areas can reduce inter and intra-*kebele* displacement and hence, it would be possible to reduce the social ill-impacts on social institutions and networks.
- Simple establishment of physical infrastructures is not enough tasks as far as infrastructural service provision is concerned. Rural people have to be thought that the established infrastructure is their own, and must be made aware of the manner of usage of built physical infrastructures. People themselves should make the

regulations of use of commonly provided services. Who is and who is not allowed to use services from certain localities must be defined by the people themselves.

- The social impact of rural physical infrastructure must have to be given a due-emphasis. Rural people should not suffer socially while benefiting economically. Conflicts that may arise because of loss of farm lands for infrastructural expansion purpose can be solved through proper compensations. Proper compensations serve two functions in that they avoid conflict, and ensure the rights of individual farmers to be compensated for the property they lose because of infrastructural expansion.

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Appendix I

Interview Guide

Introduction: So as to run interviews and focus group discussions in line with the intended purposes of the research (research objectives), the researcher employed the following interview guides that guide both interviews and focus group discussions. Therefore, the following points were the important issues that interviews and discussions focused.

Interview Guide for In-depth interviews

Section One: Demographic and Socio - economic Information

1. Name (artificial) _____
2. Sex; _____
3. Age; _____
4. Family size; _____
5. Religion; _____
6. Marital status; _____
7. Educational background; _____
8. Dominant source of income; _____

Section Two: Major Livelihood Activities in the Area

1. Economic activity (ies) that rural people were engaged before the establishment of infrastructure (road, electricity and water) in to their locality
2. Economic activities that have been created after the establishment of physical infrastructure
3. Reasons for having diversified livelihood activities

Section Three: Impact of Rural Infrastructure on Livelihood Diversification

- The contribution of rural physical infrastructure to the diversification of livelihood
- Economic activities that farmers plan to start in the future using the advantage of newly established infrastructure

Section Four: Impact of Rural Infrastructure on Social Life

- The impact of rural infrastructure on the social relationship of community members
- New patterns of social behavior manifested after the foundation of physical infrastructure
- Negative impact on the social wellbeing of the community
- Social relationship of the community with neighboring communities including urban areas after the creation of infrastructure
- Overall advantages and disadvantages of rural infrastructure as regards the social life of the community

Interview Guide for Interviews with Key Informants

- The objectives of expanding rural infrastructure in to rural areas
- The contribution of rural infrastructural expansion to poverty reduction in rural areas
- The contribution of rural infrastructure to livelihood diversification
- The reaction of rural people to the establishment of infrastructure
- Government's effort to enhance the livelihood of rural people through infrastructural expansion
- Overall benefits and losses of rural infrastructural expansion
- The impact of infrastructures on the social relationship of people

Appendix II

Interview Guide for Focus Group Discussions

- The role of infrastructure in supporting and making livelihood choices diversified
- The social life of the community after the establishment of infrastructure
- The contribution of rural infrastructures to the improvement of the living standard of the people and poverty reduction
- Economic activities that rural people created using rural infrastructure
- Livelihood activities that are created by the help of newly expanded physical infrastructures

Appendix III

Observation Checklist

- Physical infrastructures (roads, electric installations and water schemes)
- The way people interact among themselves
- Small shops, animal fattening sites, grain mill houses, horse driven carts, *tella* and *arequi bets*, etc
- Home and living conditions of rural people
- *Gulit* market places

Appendix IV

Questionnaire

Introduction

This questionnaire has been prepared to conduct a study on the impact of expanding rural physical infrastructure on the livelihood situation of rural people in an effort to develop rural areas through rural infrastructural expansion. The study is conducted as part of the requirements of degree of Master of Arts in Sociology by Aschale Kassie at Addis Ababa University. Therefore, the researcher requests your kind and genuine cooperation in responding to these questions that will be administered by the interviewer. Finally, the researcher wants to stress that your personal information and identity will surely be kept confidential.

Thank you!

Section One: Identification

Interviewer's Name;----------

Questionnaire Number;----------

Instruction: Put the number of the respondent's choice inside the box provided except question numbers 7, 9, 12, 13, 15, 17, 18, 19, 21, 23, 25, and 26.

Section Two: Demographic and Socio - economic Information

1. Sex; 1=Male, 2=Female----------☐

2. Age----------☐☐

3. Religion; 1=Orthodox, 2=Muslim,3=Protestant,4=Catholic, 5=Others----------☐

4. Marital status; 1=Never married, 2=Married, 3=Divorced, 4=Widower/widow-☐

5. Number of household members----------☐☐

6. Educational status; 1=Illiterate, 2=Read only, 3=Read and write, 4=Elementary (1-8), 5=High school (9-12), 6=Certificate, 7=Diploma, first degree and above---------☐

7. What is your household occupation?

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8. How many livelihood activities are you engaged in? ----------☐☐

9. What are the livelihood activities that you are engaged in?

Section Three: General Livelihood Situation

3.1 Availability and Access to Livelihood Assets

10. Have you faced changes in access to livelihood assets because of the expansion of rural infrastructure? 1=Yes, 2=No----------☐

11. If your answer to question number 9 is 'yes', has your access 1= improved 2=decreased, 3=remained the same----------☐

12. If your answer for question number 10 is 'improved', which of your assets have improved?----------

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13. If your answer for question number 10 is 'decreased', which of your assets have decreased? And what is the impact of this on your household livelihood situation?

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14. Have you created new livelihood assets using the newly established rural infrastructure? 1=Yes, 2=No----------☐

15. If your answer for question number 13 is 'yes', what are the new livelihood assets?

---

16. Have you an agricultural land alongside (near) the roads? 1=Yes, 2=No---------☐

17. If you answer for question number 15 is 'yes' for what purpose you use your land?

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18. What assets have you acquired in the last five years?

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19. If you acquired assets in the last five years, do you think these newly acquired assets are the results of rural infrastructural expansion?

---

20. Have changed your occupation in the last few years? 1=yes, 2=no----------☐

21. If your answer to question number 19 is 'yes', give reasons.

3.2. The Role of Rural Physical Infrastructure in Poverty Reduction

22. What happened to the number of your income sources after the establishment of rural infrastructure? 1=Increased, 2=Decreased, 3=Remained the same----------☐

23. If your answer to question number 17 is 'increased', do you think that this increment in your household income sources improved your living condition?

If your answer to question number 22 is 'yes", How?

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24. Have you access to pure water? 1=Yes, 2=No----------☐

25. If your answer to question number 23 is "yes", what is the importance of access to pure drink water to your general living condition?

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26. If your answer to question number 23 is "no", what are the disadvantages of having no access to pure drink water

---

Declaration

I, the undersigned, declare that this thesis is my own original work that it has not been presented in any form in any other universities and all the sources and materials used in this thesis have been properly acknowledged.

Declared by:

Aschale Kassie		02/12/2013
The candidate	Signature	Date

Confirmed by:

Abeje Birhanu	_____	_____
The advisor	Signature	Date