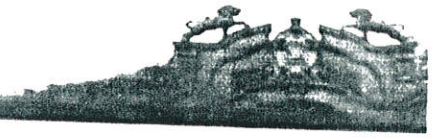

ADDIS ABABA UNIVERSITY
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IMPACT OF RESETTLEMENT ON THE LIVELIHOOD OF SETTLER POPULATION IN ABOBO WOREDA, GAMBELLA PEOPLE'S REGIONAL STATE

BY: BISRAT WORKU

A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN POPULATION STUDIES
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ADDIS ABABA UNIVERSITY
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ACRONYMS

AAU	Addis Ababa University
AWoARD	Abobo *Woreda* Office of Agriculture and Rural Development
AWoFED	Abobo *Woreda* Office of Finance and Economic Development
CSA	Central Statistical Agency
^{o}C	Degree Centigrade
DFID	Department for International Development
EPA	Environment Protection Authority
EPRDF	Ethiopian People Revolutionary Democratic Front
ETB	Ethiopian Birr
FAO	Food and Agriculture Organization
FDRE	Federal Democratic Republic of Ethiopia
FGDs	Focus Group Discussions
GBoFED	Gambella Bureau of Finance and Economic Development
Ha/ha	Hectare
HH/hh	Household
HHH	Household Head
KIIs	Key Informant Interviews
Km/s	Kilometer/s
m.a.s.l.	Meter above Sea Level
min.	Minute
mm	Millimeter
MoARD	Ministry of Agriculture and Rural Development
MoFED	Ministry of Finance and Economic Development
NGOs	Non-Governmental Organizations
NMSA	National Meteorological Service Agency
Qt/qt	Quintals
SLF	Sustainable Livelihood Framework
SNNPRS	Southern Nations and Nationalities People Regional State
SPSS	Statistical Package for Social Scientists
SSA	Sub-Saharan Africa
TLU	Tropical Livestock Unit
US$	United States Dollar

DEFINITION OF TERMS

Debo - Traditional, communally-shared working groups.

Edir – An association assists its members in times of crisis especially in finance in times of death, provide mutual assistance and maintain links between communities.

Household (HH) - A group of persons, irrespective of whether related or not, who often live in the same housing unit or in connected premises and have common arrangements for cooking and eating their food.

Head of HH – A person who economically supports or manages the HH or for reasons of age or respect, is considered as head by members of the HH or declares him/herself as head. Head of HH could be male or female.

Iqub - A traditional way of collecting money with limited member receiving the collected money by each member turn by turn with specified period of time.

Kebeles -The lowest administrative unit/hierarchy in the urban dwellers areas of Ethiopia.

Mahiber - A voluntary association traditionally established by group of people of similar religion.

Meher - Major growing season for annual crops.

Non-farm - Occupation mostly participating out of crop production activities, particularly charcoal and fuel wood collection and daily laborer.

On-farm - Occupation implies those engaged in agricultural activity, specifically crop production.

Place of Previous residence - The area where the migrants has been residing before he/she migrated to the area of enumeration (CSA, 2010).

Settlers - Individuals or group of people who are moved voluntarily or involuntarily under planned or spontaneous resettlement (Wood, 1977).

Woreda - The third level of administrative unit of rural or urban areas of Ethiopia.

Abstract

The resettlement programme is considered as one of the development strategy in the country in different regimes. Abobo Woreda, Gambella people's regional state, one of the areas in which resettlement programme was undertaken to improve the living conditions of the settlers.

This study was conducted to assess and examine the impact of resettlement on the livelihood of settler population in Abobo. In light of this, both primary and secondary data were used. Primary data was obtained through structured questionnaire, key informant interviews, focus group discussions and field observation. Secondary data was obtained from published and unpublished materials, books, journals, project reports and maps. A total of 422 sample respondents were identified using simple random sampling technique.

The analysis is made at individual level on the basis of descriptive, bi-variate and multi-variate methods. The results of descriptive statistics showed significant mean differences in the household size, farmland size and TLU. The result of bi-variate analysis showed that the demographic features and livelihood assets had relationship with respondents' livelihood outcomes. Moreover, large proportion (64%) of the respondents' livelihood was worse. This situation had been observed across all demographic features and livelihood assets of the respondents. The multi-variate analysis also showed that sex, family size, literacy status, TLU, access to credit, saving and source of income were found to be statistically significant related to the betterment of the livelihood of settler population ($P<0.01$). Based on the findings, the following issues have recommended: limiting family size, support vulnerable groups, providing environmental education and holistic natural resource management, promotion of alternative energy sources, providing access to credit and saving and diversifying livelihood strategies.

Key words: resettlement, livelihood, assets/capitals, impact, Abobo

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Most of the population of Ethiopia is settled in the highlands, the northern and central highlands being the oldest settled regions of the country. These regions are the most exploited and environmentally degraded areas in the entire nation. Due to the shortage of arable land, land is continuously utilized year after year, thus giving diminishing yields per unit area (Girma and Jacob, 1988). The country is characterized by extreme poverty, high population growth rate, severe environmental degradation and recurrent drought. These caused poor performance of agricultural production for several years. This shows that the prevalence of food insecurity, both chronic and transitory is affecting the life of considerable proportion of the population of the country (Markos, 1997).

The unprecedented surge in demographic factors created a mismatch between food production (which has been in decline since the 1960s) and food requirements. Although it is possible that rapid population growth may have contributed to food scarcity, the relationship between famine and demographic characteristics also needs to be generalized with caution. There were also civil wars and political instability in Ethiopia (Gebre, 2002).

In relation to food security, Degefa (2005) indicated that every year on average about 6 million people can be malnourished due to natural and human-made factors. When we observe the food insecurity in terms of rural and urban, 52% of rural and 36% of urban population are food insecure (Degefa, 2005). These empirical evidences show that the livelihood of the population is insecure particularly in rural areas.

These conditions forced the people from the northern and central highlands to move to the northwestern, south and southwestern parts of the country for resettlement both planned and spontaneous. Such movements resulted in population increase, consequently leading to environmental degradation, and depletion of natural resources (Paterson, 2007).

Hence, to address these environmental and livelihood problems the governments of Ethiopia have designed different policies and strategies even though the level of performance or implementation varies from regime to regime. One of the major developmental programmes is resettlement. Therefore, massive resettlements were undertaken during the Imperial, *Derg* and Ethiopian People Revolutionary Democratic Front (EPRDF) led governments.

1.2 Statement of the Problem

In most developing countries, particularly in countries like Ethiopia where the livelihood of the majority depends on agriculture. Due to the neglect of proper development and conservation policy of land based resources, large areas of the country are exposed to serious environmental degradation and insecured livelihood (Mersie, 1990; Environment Protection Authority (EPA), 1998).

Ethiopia is one of the most populated countries in Africa with the population of about 73.8 million inhabitants of which about 83.9 % of the population lives in rural areas in the 2007 population and housing census (CSA, 2010a). Population growth is one of the most critical drivers shaping the country's future, as its agricultural land and social infrastructure are unable to support its growing numbers. Thus, many Ethiopians remain trapped in a vicious cycle of poverty, disease, and hunger (Sahilu, 2004).

As resettlement schemes in Ethiopia are closely linked to the deterioration of livelihoods of the rural population and the low agricultural productivity in the traditionally settled highlands. Resettlement (both planned and spontaneous) is a common strategy for achieving different socio-economic objectives (Desalegn, 2003a). In other words, to overcome all the problems and to improve the livelihood of the poor, resettlement programme has been regarded as one of the policy options especially from vulnerable area.

Ethiopia has been practicing population resettlement either planned or spontaneous since the imperial period. The resettlements were and still are carried out mainly as a response to extreme land degradation in the highlands. Recurrent drought and famine also aggravated resettlement in the country. After suspension for some years, resettlement has resumed by EPRDF led government as planned and intra-regional resettlement programme as a means to improve the living condition of the poor. This scheme, in the past and present, are implemented

predominantly in the lowlands where population densities are assumed to be found sparse (Pankhurst, 1992; Gebre, 2004; Desalegn, 2003b). The earliest policy initiative on resettlement schemes, which was planned for the northern peasantry, grew out of two principal reasons: economic and implicitly political (Desalegn, 2003b).

The idea of resettlement is in principle sound in the long run, if properly planned and implemented, it would help tackle widespread environmental degradation and the country's structural dependence on foreign food aid. In fact, moving people away from overpopulated and famine affected areas would not only benefit those resettled, but it would also help the people who remained in the famine areas. The landscape in these areas would suffer less damage and would be better able to support the population that remains after the drought. Rehabilitation of the environment here would also be much easier if resettlement reduced the population pressure on the land, making the region less vulnerable to famine in the future (Getachew, (1989); Pankhurst, (1992); Gebre, (2004)).

As Pankhurst (1992) argued, resettlement was taken as a solution that could go beyond livelihood improvement. It was turned into a matter of national salvation. In other words, resettlement was not only seen as one-way of solving the crisis in the north but was also perceived as a way of putting to use areas that were assumed fertile and underutilized.

However, most resettlements undertaken in the country has been characterized by challenges and problems. Particularly, the large resettlement scheme carried out during the Derg regime was characterized by different problems, its large social and environmental impacts and ended up abruptly leaving the settled people facing the risks of more impoverished rather than improving their livelihood (Gebre, 2004).

Planners could not take into consideration of the other side effects of resettlement in environmental, socio-economical and cultural setting of the area (Dereje, 2007). As a result there were deforestation, overexploitation of forest resources (e.g. fuel wood, timber, and non-timber products), expansion of agricultural lands into the frontier of forest cover and grazing lands. There are also continuing conflicts between settlers and local people over the forest and grazing land utilization (Dereje, (2007); Gatzweiler *et al.*, (2007)).

Resettlement is the main contributing factor for increased frequency and magnitude of environmental degradation in Gambella region. Before 1984, Gambella region was occupied by a few indigenous people in sparsely populated settlements. However, between 1984 and 1996, a great number of people from different parts of the country settled in the region. The impact of resettlement/relocation was that more than 140,000 ha natural forest was cleared and large scale farming also increased in the region in order to meet the needs of the population (Mengistu, 1999; 2005).

On the other hand, Kassahun (2000) made a study on resettlement to assess its impact on the living conditions of the resettlers in the country. He argued that the impact of resettlement is diverse, varying from place to place and conditioned by a host of factors. So it is difficult to conclude that all resettlement programmes in the country have failed to achieve their objectives.

In all above mentioned studies, resettlement programme has not directly addressed the livelihood situation of settlers. Some focuses on the process of implementation, others on the prerequisites, the environment and host communities. Thus, it would be appropriate to assess what is already achieved or not by giving more emphasis to the settlers' situation, whatever the cause might be with regard to the direct and indirect causes and effects of the programme as compared to the ultimate objectives of the programme. However, most of these empirical studies have focused on only on specific resettlement sites in the country while the resettlement scheme like Abobo was neglected. No study has specifically examined the impact of resettlement programme on the living condition of settlers in Abobo *Woreda* where significant numbers of households are resettled. Therefore, the study was conducted to examine how resettlement affects the livelihood of the settler population in Abobo *Woreda*, Gambella People's Regional State.

1.3 Objectives of the study

1.3.1 General objective of the study

The main objective of the study was to assess the impact of resettlement on the living condition of the settler population in Abobo *Woreda*.

1.3.2 Specific objectives of the study

The Specific objectives of the study were:

1. To describe the demographic characteristics and livelihood assets of the settlers in the resettlement area;
2. To examine the impact of resettlement on the living condition of the settlers;
3. To assess the environmental changes resulting from resettlement; and
4. To identify the major challenges of the resettlement programme.

1.4 Research Questions

To achieve the stated objectives, the study used the following research questions:

1. What are the major demographic characteristics and livelihood assets of the settler population in the study area?
2. What are the impacts of resettlement on the living condition of the settler population?
3. What are the major changes of the environment attributable to settler population?
4. What are the major challenges the settlers face in Abobo?

1.5 Significance of the study

Mainly the study is focused on assessing the impact of resettlement on the livelihood of the settler population in Abobo *Woreda*. Therefore, the outputs of the study will provide inputs to the debate on the effects of resettlement, to the policy makers and planners while they design resettlement projects related to the environment and to improve the livelihood of the people at macro or micro levels. Moreover, the study is produced empirical findings for further researchers.

1.6 Scope of the Study

The scope of this study is confined in Abobo *Woreda*, Gambella Peoples regional state in order to assess the impact of resettlement on the livelihood of settler population. It focused more on their demographic features, livelihood assets, environmental impacts of the programme and the determinant factors on their livelihood outcomes.

1.7 Limitations of the Study

The study was carried out under a situation of time limitation and financial constraints. Therefore, the study could not incorporate the host communities. In addition to this, the study was conducted based on the information that settlers provide by comparing the before and after resettlement conditions. As a result, some of the respondents had difficulties of recalling events, they provided mere estimation of figures for quantitative data especially pre-resettlement situation. This possibly affected the quality of the data. Furthermore, some respondents were found very sensitive and suspicious, and also not willing to report particularly concerning certain issues like those related to family size, income, occupation, land size and number of livestock as well as challenges of the programme as accurately as possible. Another encountered drawback was unavailability and unable to use aerial photographs and satellite images for the analysis of environmental changes of the study area. Hence, analysis of environmental changes of the area under the study has been underway without encompassing of spatial data and associated satellite images and GIS.

1.8 Organization of the Thesis

The paper is organized into six chapters. The first chapter of the thesis deals with the introduction, which incorporates statement of the problem, objectives, research questions, significance of the study, scope of the study, and limitations of the study. The second chapter presents review of literature and analytical framework of the study. The research methodology is explained under the third chapter where data source of the study, sampling methods, sample size determination method of data of analysis, and variables to be analyzed are explained. Chapter four presents the general background of the study area and the sample households. Chapter five discusses the results of the study. Finally, chapter six presents summary, conclusion and recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE AND ANALYTICAL FRAMEWORK

In this part of the thesis, attempt is made to review related literature including analytical framework of the study. It provides a general overview on resettlement and livelihood.

2.1 Literature Review

2.1.1 Resettlement: An overview

Because of rapid economic growth, population pressure and the degradation of natural resources, the resettlement of people to new locations has become a dominant development discourse in many parts of the world.

Different scholars use different terms for the process of population distribution/ redistribution to new location. According to Desalegn (2003b) 'resettlement', 'colonization' and 'transmigration' all refer to the phenomenon of population redistribution, either planned or spontaneous.

Chambers (1969:11) defined resettlement as "the planned and controlled transfer of people from one area to another". Resettlement is becoming attractive as a way out of pressing problems caused by food shortage, land fragmentation, population pressure, rampant unemployment, marginality of land and decline in productivity (Chambers, 1969).

Wood (1977:154) presents the expanded definition of the concept. According to him, resettlement is "a spontaneous or planned movement of people or group from their original home areas to settle in another area".

The definition of 'resettlement' is the movement of people from areas where there do not exist factors that are suitable for smooth maintenance of life to areas presumed to be endowed with potentials that could provide opportunities for the same end (Kassahun, 2000). According to the same source, the destination of resettlement is to areas with under-utilized agricultural potential,

and movement could take place either as a result of planned/organized intervention or spontaneously.

Mengistu (2005) defined resettlement as the process by which individuals or group of people leave spontaneously or unspontaneously their original settlement sites to resettle in new areas where they can begin new trends of life by adapting themselves to the biophysical, social ad administrative systems of the new environment. A planned project involving the transfer of people most probably through selection and control from one region to another is called resettlement scheme.

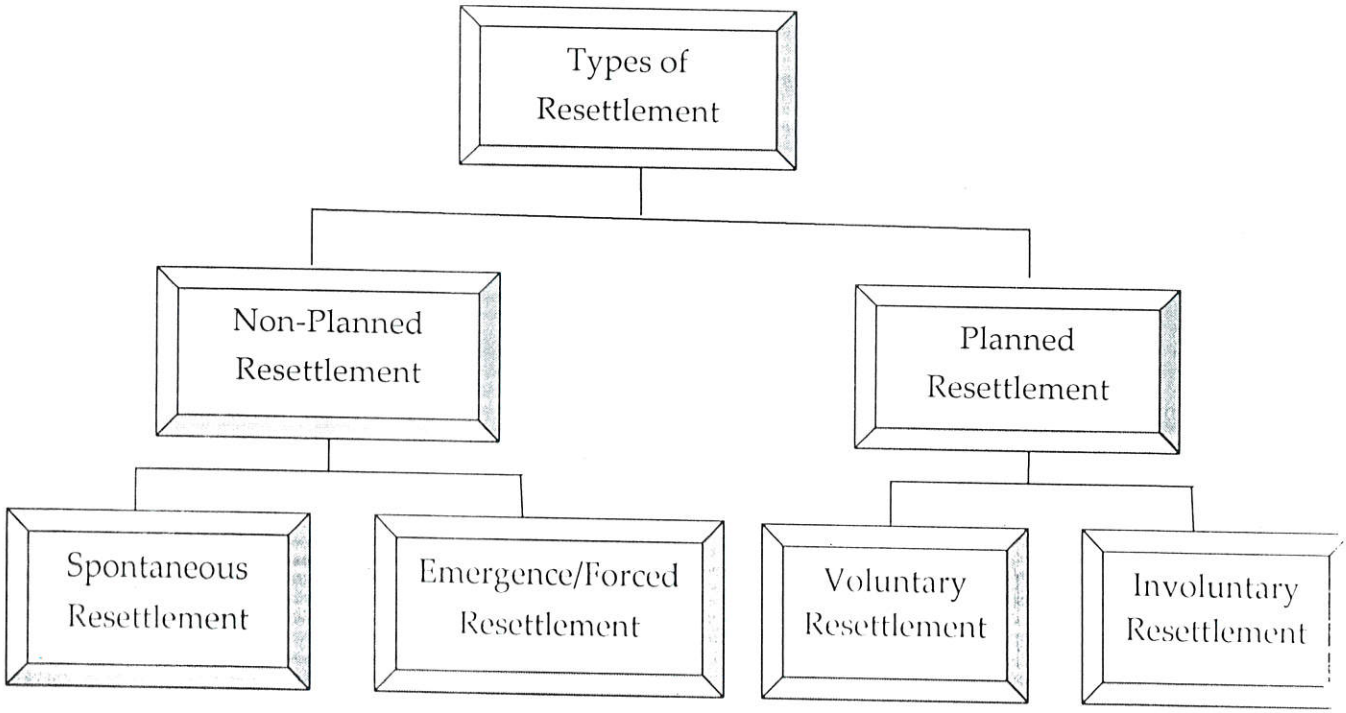
Implementation of a defined resettlement scheme may be termed as process of resettlement. It begins from recruiting of the settlers, transporting, and resettling them at already planned destination. The process of resettlement should also incorporate consultations of both the settlers and the host communities. If anyone of these procedural setting is missing, then the consequence of the scheme will be harmful in terms of ecological, socio-economic and institutional aspects. Resettlement schemes in Africa are characterized by poorly or hurriedly planned and their socio-economic, environmental and institutional costs exceed the benefits a set of objectives that should be addressed in the projects (Mengistu, 2005; Desalegn, 2003b).

Scudder and Colson (1982) formulated a theoretical model for resettlement process distinguishing four stages: recruitment, transition, development and incorporation/ handing over. It focused on settlers' stress and their specific behavioral reaction in each stage. Initially the model was formulated to apply to voluntary settlement processes. Later, it was extended to involuntary resettlement programmes.

Based on the prior modeling efforts, Cernea (2000) produced Impoverishment Risks and Reconstruction (IRR) model for resettlement caused by development programmes. The model highlights the intrinsic risks that cause improvement through displacement as well as the way to counteract. The IRR model performs four distinct but interrelated functions: a predicative (warning and planning); diagnostic (explanatory and assessment); problem solving; and research functions.

According to Mengistu (2005) resettlement could be classified into four types within two main categories. The first category is non-planned resettlement comprising spontaneous resettlement and emergency or forced resettlement. The second category is planned resettlement which comprises voluntary and involuntary resettlements (See Figure 2.1 below).

Figure 2.1 Typologies of Resettlement



Source: Mengistu (2005:25)

Planned resettlement consists of voluntary and involuntary types of resettlement. Voluntary resettlement is a process whereby settlers move to the destination willingly. If the settlers are well-informed about the new site, how they will be resettled and involve on planning and implementation of the programme, voluntary resettlement could have become successful in achieving their objectives (Cernea, 1997).

Contrary to Cernea (1997), Mengistu (2005) suggested that the success of such schemes depends often on the availability of resources, infrastructure, suitable environmental conditions and more importantly willingness of the host communities. Involuntary resettlement is the process of resettlement which takes issues of legality but never based on the best interest of the people who are resettled.

but often represent an enormous burden on the host populations, thus compounding the complexity of the displacement-triggered problems. They may lower the hosts' standards of living and tend to rapidly deplete the natural resources of the areas of refuge (Cernea, 1997).

In Africa, planned resettlement has been tried in countries as diverse as Kenya, Tanzania, Sudan, Ghana, Senegal, Burkina Faso, Egypt, and Ethiopia. While several of these schemes did in fact improve the well being of participants, in general terms these efforts have fallen short of expectations. The expectations themselves may have been unrealistically high in many cases (Scudder, 2005).

2.1.2 Resettlement in Ethiopia

In the Ethiopian context, resettlement scheme has long history as it began prior to and during imperial regime (Mengistu, 2005; Desalegn, 2003b). The very immediate cause to launch the programme was/is drought, food insecurity, and population growth and land degradation. In order to tackle these problems the three consecutive regimes of the country have developed and implemented resettlement schemes in 1960s, 1980s, and 2000s coupled with development- led decrees like land reform and villigization in different part of the country (Pankhurst, 1992; Mengistu, 2005).

The first planned resettlements schemes were undertaken in the imperial era during the regime of Haileselassie I. State-sponsored population resettlement schemes have grown in importance in the past forty years in Ethiopia. In imperial times, resettlement became part of government planning from 1960s with establishment of the Ministry of Land Reform and Administration. Following this event, thousands of settlers were moved to several dozen schemes, mainly set up on the initiative of local governors, missionaries or NGOs (Pankhurst, 1992). The major objective of the scheme was not food insecurity and famine as they were principal causes in the later government rather to relive population pressures in the highlands (Desalegn, 2003b).

The imperial regime encouraged resettlements in the south and southwest in order to appropriate the regions' rich wild coffee, timber and other non-timber forest products (e.g., honey, spice and wild animal products). The construction of all weathered road further intensified population influx in to the region (Wood, 1993).

on the implementation manual prepared for this purpose though environmental impact assessments was not carried out for the programme.

The basic assumptions behind the current resettlement programme remain similar to those made during previous periods (Imperial and Derg regime). But the later (EPRDF) programme is essentially different from the preceding ones in the following respects (Kassahun, 2003; Feleke, 2004).

- It would be based on free consent and willingness of settlers;
- It would be implemented at intra-regional level there by ruling out possibilities of massive movement from one region to another;
- Settlers retain their land use rights and other immovable properties in the original home villages for about 3 years after being relocated and
- Resettles can return to their original villages for good whenever they have change of mind.

According to MoARD (2003), the current resettlement programme is environmentally friendly because the programme is implemented inter and intra-regionally and based on voluntary basis that avoids introduction of diverse cultures to the resettlement areas so that different conflicts among the host community and the settlers will not occur. The discussion about the importance of the scheme held with the host community and the peoples to be resettled is believed to make the programme to have minimum environmental impact.

2.1.3 Sustainable Livelihood Framework (SLF)

Most Scholars (Chambers and Conway, 1992; Scoones, 1998; Ellis, 2000) contended that the construction of livelihood is an ongoing process- one in which the assets (capital), access and activities change overtime and people adapt to it to form new livelihood strategies. This ongoing process is strengthened or challenged by a number of factors.

Livelihood as a framework emerged in development studies in 1990s. The framework assists in understanding the changes in livelihood. A change in livelihood of a household largely depends

on interplay between various forms of existing context, assets, mediating processes, the activities and the resulting livelihood strategies that the household pursues (Scoones, 1998; Ellis, 2000).

The sustainable livelihood framework places people, particularly rural poor people, at the centre of a web of inter-related influences that affect how these people create a livelihood for themselves and their households. These can include natural resources, technologies, their skills, knowledge and capacity, their health, access to education, sources of credit, or their networks of social support. The extent of their access to these assets is strongly influenced by their vulnerability context, which takes account of trends (for example, economic, political, and technological), shocks (for example, epidemics, natural disasters, civil strife) and seasonality (for example, prices, production, and employment opportunities). Access is also influenced by the prevailing social, institutional and political environment, which affects the ways in which people combine and use their assets to achieve their goals. These are their livelihood strategies (DFID, 2001).

2.1.3.1 Vulnerability Context

Vulnerability as defined by DFID (2001) stems from the negative external environment in which people exist such as shocks (e.g. floods, droughts, storms), trends (e.g. population, economic, resources), and seasonal shifts (e.g. employment opportunities, prices, and production).

The livelihood of an individual or a household is influenced by trends, shocks and other stressors (Ellis, 2000). He identified drought, pests, diseases, and flood as a shocks and biophysical resources, migration, population, technical changes in production practices and economy of the people in a given area over time as trends. This research uses vulnerability as a concept because vulnerability helps to understand the extent to which shocks/trends force people to change their livelihood.

2.1.3.2 Livelihood Assess

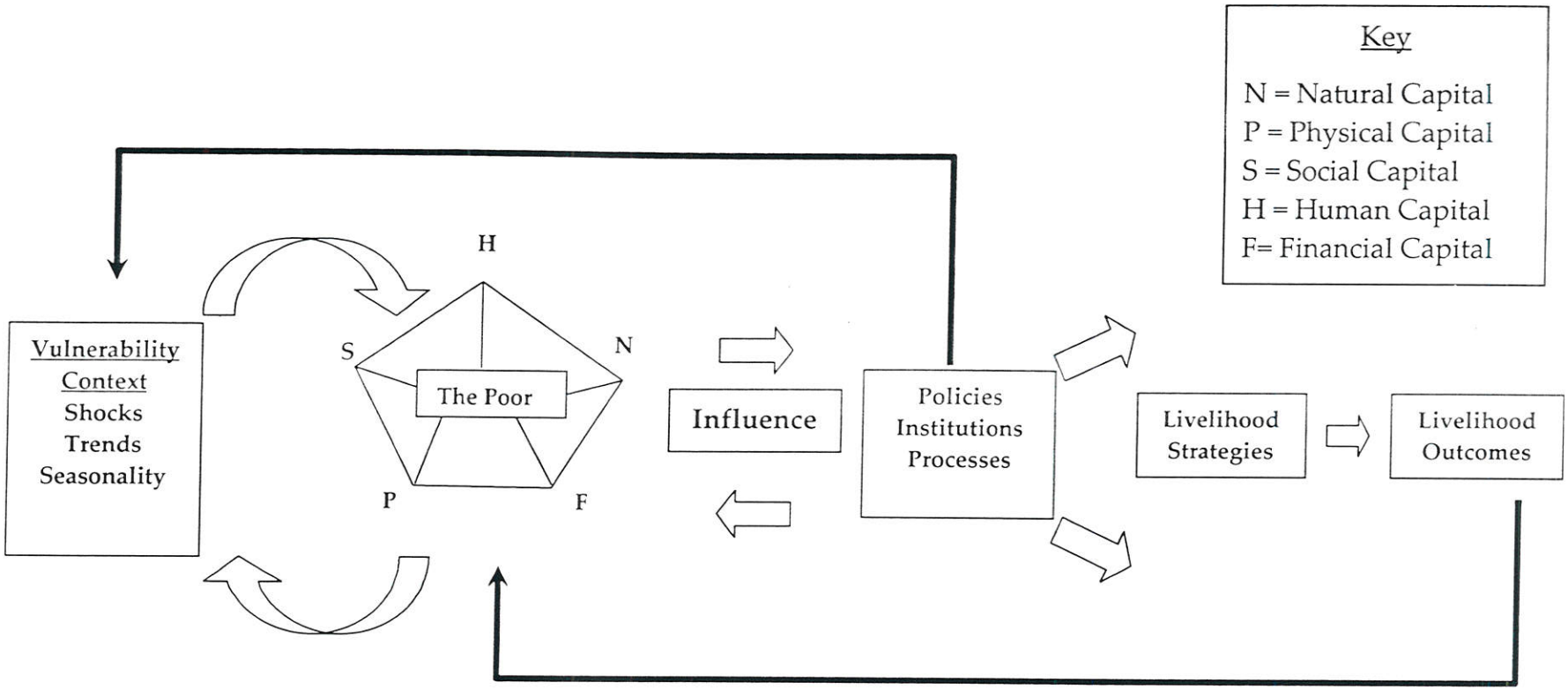
Livelihood assets are assets owned, controlled, claimed, or by some other means accessed by the households. These assets may be described as stocks of capital that can be utilized directly or indirectly, to generate the means of survival of the households (Ellis, 2000). This division of five

Social tensions due to the recent resettlement have also arisen in one of the site found in West Showa Zone of Oromiya Regional State between the host community and the settlers because of competition over resource uses (Misganaw,2005). He proposed rehabilitating the target population at their home of origin instead of relocating them, which can be accomplished by the huge amount of money invested in the programme to avoid such environmental and social impacts.

Similarly, Ahmed (2005) explains that the recent resettlement programme has resulted in large damage to the natural forest of the resettlement areas as well as the killing and fleeing of wild animals. The study also states that some of the damages caused on forest and wild animals are not easily reversible, even may lead to extinction of some species.

But, according to the Environmental Impact Assessment (EIA) Proclamation No. 299/2002 development projects or public instruments (policies, programmes, and plans) have to be subjected to EIA scrutiny. It means that EIA is a legal requirement for development projects and public instruments to be implemented. Accordingly, MoARD (2003) states that Environmental Protection Authority (EPA) is responsible to carry out Environmental Impact Assessment of the recent resettlement programme before implementation to minimize the environmental impacts encountered during the past resettlement programmes.

Figure 2.2 Sustainable Livelihood Framework (SLF)



Source: Department for International Development of the United Kingdom (DFID) (2001); Serrat (2008)

A. Household Survey

Household survey was the main tool used to gather the necessary data from the target respondents. To undertake this survey an interview was held based on the structured questionnaire designed for the study. Initially, the questionnaire was developed in English, and then it was translated into Amharic language. However, prior to the survey a pre-test survey was undertaken and accordingly possible revision on the questionnaire could be pursued in such a way that both the respondents and interviewees can understand. The survey was conducted by six selected school teachers and one supervisor of the respective *kebeles* (See Annex I and Annex IV, Plate 1).

B. Focus Group Discussions (FGDs)

Focus group discussions are important to generate detailed information on group dynamics and allow a small group of respondents to be guided by a skilled moderator and to focus on the key issues of the research topic (Mwanje, 2001). FGDs were held to generate qualitative data so as to supplement the data collected quantitatively. The discussion was held based on the voluntary of the participants and on the appropriate time the participants agreed. Furthermore, based on the prepared checklists and the group included both male and female headed household heads in the selected *kebeles*. A total of three FGDs were conducted and discussion was made with the participant selected from different age and sex compositions. The number of each FGD participants was ranging from five to seven and the general direction pursed in the discussion was left for the researcher to trigger issues for discussion and promote active group participation. (See Annex II and Annex IV, Plate 3 and 4).

C. Key Informant Interviews (KIIs)

Key informant interviews were held during primary data collection. This was because to collect information from different angles especially data like intervention process, challenges administrative issues and constraints of the programme. The selected key informants were local /kebeles/, Woreda government officials and *Woreda's* agriculture and rural development office experts (See Annex II and Annex IV, Plate 2).

D. Direct Field Observation

Observation can be used as a supplementary technique to collect data and crosscheck the collected data by other means (Robson, 1995). Similarly, it gives an opportunity to observe realities directly in the research area. Therefore, in this study direct field observation was held by the researcher to observe the socio-economic and demographic as well as livelihood conditions of the settlers in the area under study.

3.3.2 Secondary Data Sources

In this study, secondary data were obtained from published and unpublished materials that are books, journals, project reports, reports of other research works and maps on the issues of resettlement and livelihood. In addition to these, review of documents in the region, zone, and Woreda levels were so vital in accessing data that would able to show changes occurred in the study area.

3.4 Methods of Data Analysis

Quantitative data were collected from household surveys; Statistical Package for Social Science (SPSS) was used for the purpose of analysis this data. Consistency check was done to assess data quality before the actual analysis. The consistency check was conducted by using uni-variate and bi-variate analysis techniques. Cross tabulation and chi-square methods were used in order to find out the degree of association of each independent variable to the dependent variable. In addition, logistic regression model was employed since this technique is the most appropriate tool of analyzing the degree of strength of the relationship between dependent variable and independent variables when dependent is variable dichotomous taking value between 1 and 0.

The logistic regression function for predicted variables can generally be given as

$$Pi = \frac{1}{(1+e^{-zi})} = \frac{e^{-z_i}}{(1+e^{-zi})}$$

Where Pi: is the probability that the livelihood of i^{th} respondent is better.

e^{Zi} : stands for the irrational number *e* to the power of Zi

Zi : is a function of N-predictor variables which is also expressed as:

$$Zi = \beta_o + \beta_1 X_1 + \beta_2 X_{2i} \ldots + \beta_n X_{ni} + u_i$$

Where $X_1, X_2 \ldots X_n$ = Predictor variables

β_o - is the intercept

$\beta_1, \beta_2, \text{---}, \beta_n$ are the logit parameters (slopes) of the equation in the model.

The coefficients show how the log-odds in favor of better livelihood change as the value of predictor variables change. The value of *Pi* (the probability that the livelihood is better) ranges between 0 and 1 and it is also non-linearly related to the predictor variables.

The probability that the likelihood of a household is not better (1 – Pi) is given as

$$1-P = \frac{1}{1+e^{z}}$$

Therefore, the odds ratio can be written as:

$$\frac{P}{1-p_i} = \frac{1+e^{Zi}}{1+e^{Zi}} = e^{zi}$$

$\frac{Pi}{1-Pi}$ Now is the odds ratio, which is the ratio of the probability that the livelihood of respondent *i* is better to the probability that the livelihood of the respondent not better. When the odds ratio is expressed in terms of log of the odds, it is expressed as;

$$\frac{\log pro\ (better)}{\log pro\ (worse)} = \beta o + \beta 1 X_1 + \beta 2 X_{2i} \ldots + \beta n X_{ni} + u_i$$

Based on log odds, logistic regression can be interpreted as the change in log odds due to one unit change in the predictor variables. When log odds is expressed in odds (e^{Zi}), it shows the factor by which the odds change when the predictor variable changes by one unit. Thus, the values of the odds show that the odds have increased, decreased, and unchanged.

In order to examine whether the model fits the data, different methods such as the classification table, Hosmer and Lemeshow test, and goodness of fit of the model can be used. In this study, classification table and Hosmer and Lemeshow test were used to assess whether the model fits the data. Multicollinearity among predictor variables was examined using coefficient of contingency.

The qualitative data, generated through focused group discussions (FGDs), key informants interviews (KIIs), and direct field observation were described and presented through thorough discussion to supplement the household survey and to clearly understand issues like the impact of resettlement, intervention processes and challenges on the livelihood of the settlers and administrative issues and constraints of the programme.

3.5 Variable Identification

Table 3.2 Description of the dependent and independent variables used in the model

Variables used in the model	Category	Variable Type
Dependent Variable		
Livelihood Outcome	Better /Worse	Dummy
Independent Variables		
Demographic features		
Sex of Household Head (X1)	Male/Female	Dummy
Age of the Household Head (X2)	≤ 35, 36-55, 56+	Continuous
Household Size (X3)	≤ 5 and >5*	Continuous
Livelihood Assets		
Land Size (X4)	≤ 1 ha and >1 ha*	Continuous
Literacy status (X5)	Literate/Illiterate**	Dummy
Livestock Possession (TLU) (X6)	≤ 2.6 and >2.6*	Continuous
Credit Access (X7)	Yes/No	Dummy
Saving (X8)	Yes/No	Dummy
Major Source of Livelihood (X9)	Farming/Non-farming	Dummy

Source: Developed by the researcher on the basis of different literatures, 2011.

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* Limits are around mean values

**In this study literate refers to those who can read and write by any language while illiterate who cannot read and write.

3.6 Ethical Considerations

At the very beginning, letter of support was written by Center for Population Studies / CPS/, Institute of Development Studies /IDS/, Addis Ababa University. Following the letter, Gambella Peoples Regional State Council wrote a letter to Abobo Woreda administrative council and all respective sectors (bureaus and offices) to assist the researcher in providing support for the research work.

The researcher had recruited six enumerators and two supervisors, who were trained for two days on the research procedures and ethical issues. The enumerators were told to inform the respondents that their response will be kept confidential and used only for academic purposes. Finally, the respondents' right not to respond for any specific question(s), to stop the interview at any time and stage, and the right not to involve in the research at all was ensured by the researcher as important ethical considerations.

CHAPTER FOUR
BACKGROUND OF THE STUDY AREA AND THE SAMPLE HOUSEHOLDS

4.1 Physical setting of the study Area

Gambella People's Regional State is one of the nine regions, which constitute the Federal Democratic Republic of Ethiopia. The Regional state is located in the South-west part of the country, at a distance of 777 km from Addis Ababa. Astronomically, the regional state is located between $06^0$19'19" – $08^0$42'35" north latitudes and $33^0$00'20" – $35^0$22'28" east longitude and bordered with the Republic of Sudan to the northwest, west and southwest, with SNNPR to the southeast and Oromiya regional States to the east and northeast. The region is administratively structured into three zones, one special *Woreda*, 11*Woredas*, one town administration, and 225 *kebeles* administration. The region, with a geographic size of about 34,063 Sq. Km, the topography of the area is almost altitude ranging from 450 - 2500 meter above sea level, mean annual temperature ranging from 18^0C - 45^0C and annual rainfall ranging from 500 – 2100mm (Gambella Bureau of Finance and Economic Development (GBoFED), 2008; CSA, 2010b).

4.1.1. Location of the Study Area

The study area, Abobo *Woreda* is one among the five *Woredas* of Agnwa zone found in Gambella People's Regional State. It is located 822 Kms southwest of Addis Ababa and 45 Kms south of Gambella (the capital of the region). Geographically, it lies between $07^0$30'00'' – $08^0$00'00" north latitudes and $34^0$00'00" – $35^0$01'00" east longitudes. The *Woreda* bordered with Gambella zuriya *Woreda* to the north, Etang special *Woreda* to the northwest, Goge *Woreda* to the south, Jikawo and Jore *Woredas* to the west, Mengeshi *Woreda* and Oromiya Regional State to the east. It covers a total area of 2437.76 Km^2 and has 16 rural *Kebeles* administration and 1 urban administration (Abobo *Woreda* Office of Finance and Economic Development (AWoFED), 2010; CSA, 2010b).

Table 4.2 Occurrences of the top ten diseases in the study area- (2010-11)

No.	Type of Disease	%
1	Malaria	51.24
2	All respiratory diseases	13.45
3	Diarrhea	8.30
4	Gastro Intestinal diseases	6.85
5	Intestinal parasite	6.20
6	Eye Infection	5.10
7	Anemia	3.10
8	Gastritis	2.32
9	Skin infection	2.14
10	Fever of unknown origin	1.30
Total		100.00

Source: Chobo Mender 8/9 and 14 Health posts, (2011)

It has been observed that, about 51.24 % were due to malaria. Thus, malaria was the major health problem in the study area. Next to malaria, respiratory diseases, diarrhea, gastro intestinal diseases, and intestinal parasite were also prevalent.

Water is another vital and basic facility for health and well being of individuals. The majority of the population of the *Woreda* access water from multiple sources. The sources of domestic water consumption supply are hand pump wells, unprotected well/spring, rivers/ ponds, and public tap. There are 49 hand pump wells in the *Woreda* (6 in urban and 43 in rural) and 4 public tap in the urban. Potable water coverage is only 47.6%, which means majorities of the population are not getting potable water. Transport and communication is one of the social facilities which play an important role in the economic development of a town. Road transport is the only mode of transport that exist in the *Woreda* and telecommunication also provide full digital system services since 2004 and mobile service is also available in the study area. Moreover, the *Woreda* has also one postal office which gives service to its dwellers (AWoFED, 2010).

4.2.2.2 Economic Condition

Agriculture for Abobo *Woreda* is the main and important economic sector which is mixed agriculture type. Accordingly both crop production, traditional animal husbandry and fishing. Mezhenger people have been engaged in beekeeping since a remote past and are still produced honey using hive made of medium size log and kept on top of tree branch in the forest. The major crops produced in the area are sorghum, maize, rice, sesame and groundnut. In addition, seasonal fruit such as papaya, mango and vegetables such as tomato and onion are also produced on a small scale. There are a few numbers of dwellers involving in off-farm activities as a means of livelihood. The study area is potentially favorable agriculture. Therefore, today a number of both local and foreign investors are also engaged in agriculture sector for growing of crops such as rice, cotton and mango (AWoARD, 2010).

4.3 Background characteristics of sample households

Assessing the demographic and socio-economic characteristics of sample households is crucial in terms of identifying casual factors driving environmental changes as well as the livelihood situation of the study area. To this end, this section explain demographic (e.g. sex, age, marital status, household size, place of previous residence and reason for resettlement/migration), social (e.g.religion and ethnicity) characteristics of sample household heads in all sample kebeles.

4.3.1 Demographic Characteristics

Demographic characteristics of the sample household heads have given due emphasis in this section because they can give reflections about the human-environment interactions of the study area.

Age- Sex Composition

Out of the total respondents covered in the survey, the distribution of household heads is dominated by male household heads. Thus 3.85 % male were found in the age group ≤35, while 66.33 % male and all female household heads between 36 and 55 years old and the remaining 32.82 % male were the age of 56+.

Table 4.4 Distribution of Respondents by Marital status

Marital Status	Frequency	%
Never married	12	2.80
Currently married	372	88.20
Widowed	29	6.90
Divorced	9	2.10
Total	422	100.00

Source: Field Survey, 2011

Household Size

The household size of the respondents ranges from 1 to 5 and 1 to 9 persons per household before and after resettlement respectively. The average household size for rural Ethiopia, Gambella and Abobo was 4.9, 4.9 and 4.1 respectively in 2007 population and housing census (CSA, 2010a; CSA, 2010b). However, the results of the survey showed that the average household size in the study area was 5.24 after resettlement, which is higher than both *Woreda*, regional as well as country level. The paired sample t-test shows that the change in mean household size before and after resettlement is statistically significant ($P<0.01$).

Table 4.5 Distribution of Respondents by Household Size

Household Size	Before Resettlement		After Resettlement	
	Frequency	%	Frequency	%
< 2	96	22.75	12	2.84
2 – 4	247	58.53	8	1.89
4 – 6	79	18.72	239	56.64
6 – 8	0	0.00	146	34.60
8+	0	0.00	17	4.03
Total	422	100.00	422	100.00
Mean	3.17		5.24	
T	9.257*			

*Significant at 1%

Source: Field Survey, 2011

Generally one can easily understand from the mean and percentage figures of the household size, bearing many children is common trend of the households in the study area. As a result, there is increasing number of population, as well. But this growing trend of population

directly linked with the increasing demand of land and other physical assets of the area. Hence, unless some feasible family planning is exercised, environmental and social conflicts would inevitably happen.

Place of Previous Residence and Reason for resettlement/migration

As was indicated in the previous chapters, the *Derg* resettlement program is known by its inter-regional resettlement whereby people from the South (Kembata, Hadiya, Wolayita and Tembaro) and Amhara (especially from Wello) region where resettled in to the area. Table 4.6 below shows the frequency distribution of respondents by place of previous residence and reason for resettlement.

Table 4.6 Distribution of Respondents by Place of Previous Residence and Reason for Resettlement

Reason for resettlement	Place of Previous residence					
	Amhara		SNNPR		Total	
	Frequency	%	Frequency	%	Frequency	%
Following of Family member	5	4.76	27	8.52	32	7.58
Volunteer Resettlement	13	12.38	46	14.51	59	13.98
Forced by Government	87	82.86	244	76.97	331	78.44
Total	105	100.00	317	100.00	422	100.00

Source: Field Survey, 2011

Accordingly, the majority of the sample household heads (75.12%) came from SNNPR, the remaining (24.88%) from Amhara regional state. Likewise, as indicated the above table from the total sample respondents majority of them (78.44%) complained as they were enforced to resettle by government. However, (13.98%) resettle on voluntary base. As to participants of FGDs, expectation of large and fertile farmland, possibility of good environmental conditions to agriculture, less possibility to drought and expectation of improved livelihood were some of the major pull factors that initiated the settlers. Such composition implies something that the sample household heads came from different socio-cultural and environmental background. The variations can be expressed in terms of variation in the knowledge, attitudes and practices of the settlers accumulated in their life span.

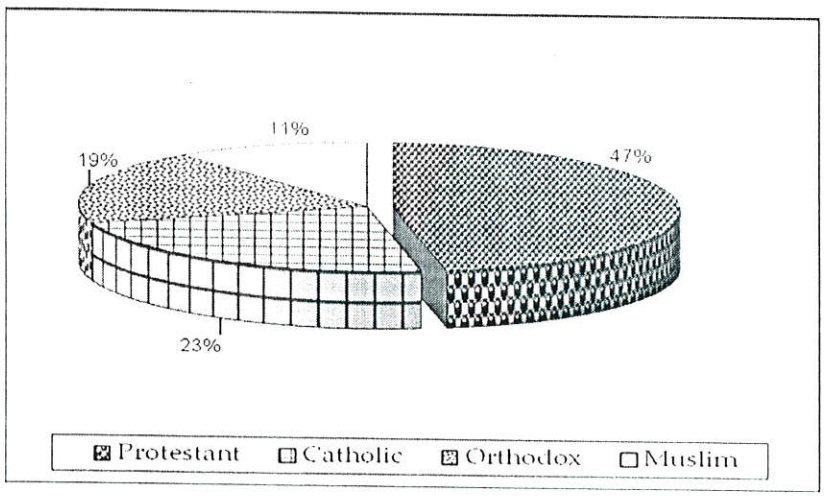
4.3.2 Social Characteristics

In this research part social characteristics of the respondents encompass religion and ethnicity. The sample households in the six *kebeles* are socio-culturally stratified in different religions and ethnic compositions. The resettlement programme is responsible for this socio-cultural stratification.

According to the result, the religion of the sample household heads included Protestant, Catholic, Orthodox and Muslim. Out of the total surveyed settlers, 47% are protestant, followed by 23% Catholic, 19% Orthodox and 11% Muslims. Thus, the majority of the respondents are followers of Christian religion, who constitute 89% of the settlers in the study area (Figure 4.2).

Another way of looking at diversity in social composition is in terms of ethnic group. Regarding ethnic composition of the sample household heads in the study area, Kembata, Amhara, Hadiya, Wolayita and Tembaro ethnic groups are found. The finding of the survey revealed that the dominant ethnic group among the interviewed settlers is the Kembata, which accounts 42.25% followed by Amhara and Hadiya, each constituting 24.88% and 17.3%, respectively. Wolayita and Tembaro ethnic groups represent 10.2% and 5.37% of the settlers, respectively. This stratification is exercised and manifested through social interaction with in the settlers, between the settlers and the host community.

Figure 4.2 Distribution of Respondents by Religion



Source: Field Survey, 2011

CHAPTER FIVE

RESULTS AND DISCUSSIONS

5.1 Settlers and the Environment

In this section, data on utilization of common property resources and environment were collected from settlers. The respondent's utilization of common property resources and knowledge of any environmental change i.e., climatic, forest coverage, land productivity and availability of the water resource were collected in order to understand the impact of resettlement on the environment.

5.1.1 Settlers and Utilization of Common property resources

Common property resources (CPRs) offer diverse opportunities: pasture, water, hunting game, gathering of fruits, firewood, source of construction material, and livelihood activities (such as cultivation). Studies (Carney, 1999; Degefa, 2005) indicated that the linkage between access to natural resources and livelihood in rural areas is direct. In the study area, common property resources are assets towards which the settlers have direct interest, i.e., the community generated economic and non-economic benefits from the CPRs.

Communal land utilization with host population was asked in the survey. The survey result has shown that 88.60% of the settlers use communal land for different purposes such as pasture land, firewood collection, construction of houses; whereas 11.40% do not utilize communal land. The main reason mentioned in the latter case is that these settlers do not have livestock and although they collect firewood for their energy source from nearby forest/woodland and also use crop residues (Table 5.1).

Table 5.1 Distribution of Respondents by communal land utilization with host population

Communal land utilization	Frequency	%
Yes	374	88.60
No	48	11.40
Total	422	100.00

Source: Field Survey, 2011

Livestock rearing in the study area was through traditional system where households direct their stocks to communally owned pasturelands. The respondents have access to communal land for pasture. In similar vein settlers depend on fire wood collection and construction materials harvested from this communal land to construct their shelter and for different household utensils and farm implements. Expansion of agricultural land is one of prominent change observed in the sample *kebeles*. This change was mainly results of resettlement programme.

Table 5.2 Distribution of Respondents by Farmland Expansion

Response	Frequency	%
Yes	247	58.53
No	175	41.47
Total	422	100.00

Source: Field Survey, 2011

As Table 5.2 revealed that, there was a trend of expansion of farmland to increase the size in sample household heads in the study area. Out of the total respondents, about 58.53% of sample household heads expanded their farmland to increase the size. Among these 54.10% of the respondents expanded their farmlands from nearby forest, only 4.43 % from pasture/grazing land. This was supported by the information obtained from the KIIs and pointed out that, the resettlement programme to be a prime cause of agricultural land expansions at the expense of loss of forest cover in the study area. Accordingly, as estimated by key informants (*Woreda* agriculture and rural development expert) at least about 353 hectares of forest land areas were converted into agricultural land in the study *kebeles*. The remaining 41.47% reported as they did not expand their farmland. The main reason for this is that, they do not have the capacity and having opportunity to work in non- farm activities.

Table 5.3 Distribution of Respondents by main sources of household energy

Main source of energy	Frequency	%
Fuel wood	397	94.10
Crop Residue	25	5.90
Total	422	100.00

Source: Field Survey, 2011

Likewise, the majority of respondents (94.10 %) used firewood for cooking in their homes. Thus, forest resources are a major source of household energy requirement for cooking. The application of such non-renewable resource for household use contributes greatly to the debilitating effects of limited forest resources in the sample kebeles as well as the Woreda as a whole. Moreover, using firewood as a source of energy has a negative impact on human health and the ecosystem of the area.

In relation to the above mentioned issues, different studies indicated that resettlement has a negative impact on the forest resource of an area. Tesfaye (2004) in his study stated that, a sizable proportion of the forest cover had been lost due to the continuous process of migration and resettlement. Ahmed (2005) also showed that about 4613.7 hectares of woodland have been destroyed in Haro Tatessa resettlement site in Oromiya regional state. Pankhurst and Piguet (2004) explained that, the settlers are criticized for their reckless and exploitative land use system. Generally, the absence of appropriate land use plan and strong institution in monitoring and administration of rural land, expansion of agricultural lands over time is an inevitable phenomenon.

5.1.2 Settlers and Knowledge of Environmental Change

People's level of awareness of what is happening in their environment in terms of change in climate, land productivity, water resource and forest coverage could be taken as one measure of their knowledge of the environment. 69.19 % of the respondents replied that there were environmental problem in the study area. They have observed change in forest cover (deforestation), decreasing of land productivity, decreasing of water sources and climate change.

Table 5.4 Distribution of Respondents by Knowledge of Major Environmental Change

Response	Frequency	%
Yes	292	69.19
No	130	30.81
Total	422	100.00

Source: Field Survey, 2011

Among the respondents (134) or 45.90% replied that there was environmental change in the study area, i.e., the change in forest cover (deforestation) (See Annex IV, Plate 8). About 75 or 25.68% respondents who said decreasing land productivity was the major environmental problem, while (46) or 15.75% reported climate change, response obtained from the respondents, decreasing of water sources is major environmental problem in the area is accounted 12.67%. Similarly they also mentioned the major causes of these problems. About 32.8% associated the problem with lack of other source of livelihood, 24% the cause with expansion of farmland. Around 27.6% of the respondents mentioned population growth. The remaining 15.6% of the respondents reported lack of environmental education and government control as the cause of environmental problems.

From above mentioned environmental problems that respondents have observed, i.e. change in forest cover (deforestation), decreasing of land productivity, decreasing of water sources and climate change. About 25.40% of respondents have knowledge of only one major environmental problem, the remaining three-quarter (74.60%) of the respondents have knowledge of at least two or more major environmental problems in the study area.

Regarding environmental concerns, about 33.2% of the respondents suggested looking for another source of income as a solution to control environmental problems/changes. Providing environmental education as a solution was also indicated by about 19% of the respondents. Attainable strong laws and continuous follow up by 22.8% of respondents. Those who said limiting family size and planting trees constitute 14.5% and 10.5 % of respondents, respectively (Figure 5.1).

Based on the survey data, 78.40% of the respondents were found to have their own farmland at the area of origins, whereas 11.80% reported that they got through share cropping, 4% got from their families and 3.3% rented from others. On the other hand, the majority of household heads (81%) had their own farmland, while the remaining (19%), have no farmland now (after resettlement).

With regard to farmland size, when the mean size of farmland that the households had before resettlement is compared with the land they had at the time of the study (after resettlement) has significant difference (Table 5.5).

Table 5.5 Distribution of Respondents by Size of Farmland Holding

Land Size(ha)	Before Resettlement		After Resettlement	
	Frequency	%	Frequency	%
0	10	2.40	80	19.00
0.01 - 0.50	146	34.60	0	0.00
0.51 - 1.00	266	63.00	76	18.0
1.01 – 1.50	0	0.00	165	39.1
1.51 – 2.00	0	0.00	61	14.5
2.01 – 2.50	0	0.00	24	5.7
2.50+	0	0.00	16	3.8
Total	422	100.00	422	100.00
Mean	0.75		1.31	
t	-14.668*			

*Significant at 1%

Source: Field Survey, 2011

The above table shows that the resettlement programme increased the size of farmland holding of the settlers. All respondents owned a farmland size of less than 1 ha before being resettled. The pattern is similar to the national level reality. According to Agricultural Sample Survey of 2009/2010 (CSA, 2010c), 80% of the Ethiopian farmers in the highlands (defined as areas located > 1500m.a.s.l) cultivate less than 1 ha of farmland. The average size of farmland that the households had at the place of origin was 0.75 ha, whereas, after resettlement it was 1.31 ha. This implied that the holding of land at the area of resettlement is

considerably higher than holding size of households before resettlement. The increase in mean farmland holding (mean difference) is statistically significant as indicated by the paired sample t-test statistics ($P<0.01$). Regarding the fertility of the land the FGDs participants further proved that the farmland at Abobo (their *kebeles*) is relatively fertile and productive than land at their area of origin. So by resettling, majority of households not only obtained more farmland but also land of relatively better quality than before.

5.2.2 Human Capital

Data on human capital were collected on literacy status of household heads and health status of household members.

Literacy status

One of the important human capitals is the level of education attained by the heads of the household. It is believed to have shaping human mind towards goodness and aware of the users about the socio-political, cultural, economic and environmental problems and prospects.

Table 5.6 Distribution of Respondents by Literacy status

Literacy status	Frequency	%
Literate	109	25.83
Illiterate	313	74.17
Total	422	100.00

Source: Field Survey, 2011

From all sample household heads 74.17% were found to be illiterate and the rest 25.83% were who can at least read and write (Table 5.6). So these groups, they know about environmental hazards, resources depletion and way of livelihood promotion better than those who have less or no education, even if they know environmental problems they do not care about it.

Health status

Similarly, data on health status was collected to evaluate the health situation of the family members in the household. The household survey has indicated that, 81.51% of households had illness their household members within the past years. Based on the responses from the household interviews, malaria is the major human disease, accounting for 90% of chronic

illness cases in all of the study areas. Following malaria, diarrhea is the second most prevalent type of human illness. This is due to lack of access to clean and contaminated sources of water. The majority of people collect water from hand pump wells that are often shared with livestock. Children being the most affected in the communities.

5.2.3 Physical Capital

To the success of any developmental projects, availability and accessibility of social service (physical capital) is the fundamental one. According to DFID (2001) physical capital includes the basic infrastructures* that are required to support the livelihood of the community. Therefore, in this survey household heads were requested to compare the availability and accessibility of the social services and infrastructure before and after resettlement in terms of quality and distance.

i. Health services

Health is both an outcome and precondition for livelihood of a household. Despite the fact that national plans of action in the past five year period place health policy and resource allocation high on the government agenda, Abobo has not been able to provide affordable and adequate access to comprehensive health care for its people. In all sampled *kebeles* of the *Woreda* there were only 3 health posts established by the government to provide primary health care to the settlers, there are no clinics and health centers in these *kebeles* which can give better health services.

With regards to the accessibility and utilization of health facilities by the communities living in the survey area regardless of where they live, the data shows that they are deprived of basic health services. On average settlers having access to a health post within an hour and fifty minutes walk**, within two hour walk they had got access to health centers and seven hour walk access to clinics at their area of origin (before resettlement). On the other hand, on the average communities having access to a health post within thirty minutes walk, within an hour and fifty minutes walk they have got access to health centers and eight hour walk to got access to clinics now at their respective *kebeles* (after resettlement).

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* Infrastructure is commonly a public good that is used without direct payment (DFID, 2001).

** Reasonable distance or access to basic social services is defined by the Ethiopian government standard, for rural setting, is 5 km or an hour walking distance (Ministry of Health, 2004).

Table 5.7 Average Distance that Respondents traveled to access Health Facilities

Health Facilities	Average distance (in min.) (Before resettlement)	Average distance (in min.) (After resettlement)
Health posts	75	30
Health Centers	120	75
Clinics	420	480

Source: Field Survey, 2011

The above table shows that the physical accessibility of the health posts and health centers from their residence are distanced relatively near now at resettlement area as compared to their area of origin and clinics are far relatively now than before. However, the physical proximity to the service center alone does not necessarily imply access to the social service expected from the institution because in some cases health institutions are established physically without any sufficient man power and necessary materials required to provide well organized health service.

During the field survey, the researcher observed that in one of the *kebeles* i.e. *Chobo Mender* 11/12 there was only one health post which was expected to provide health care also to the adjacent *kebele* i.e. *Chobo Mender* 13 around a total population of 3078 of settlers by one nurse. During the survey, unfortunately she was not found around. However, 3 pregnant women and two patients who were seeking health service from this health post but there was no service and even the health post was locked. In addition to this the FGDs participants conformed that the health service (post) is not operational for different reason including lack of health professional, lack of medical supply and equipment and in some case lack of repair and maintenance of the facility. Therefore, according to them, they are obliged to travel to Gambella town and spent extra money for transportation and health facility.

ii. Education service

The success of resettlement programme depends on different socio-economic factors. However, educational level of the settlers is one of the dominant explanatory variables of the resettlement programme in enhancing the livelihood of the settlers. In this regard, the data collected from the sample survey depicted that the average distance of primary school (Grade

1-8) at the study area (after resettlement) regardless of one's home is near (ten minutes walk) than at the area of origin which was an hour walk. Similarly, the mean distance of the high school (Grade 9-10) was located at relatively near distance about an hour and thirty minutes walk at the study area (after resettlement) as compared to the area of origin (before resettlement) which was two hours and thirty minutes walk. Moreover, The FGDs participants also agree that they have free access of primary education services to their families and the provision have shown that an improvement after resettlement.

iii. Road, Market and Water Services

As it is explained in the literature part, the impact of resettlement on agricultural production and employment generation intern in livelihood improvement is determined by different factors and varying from place to place. Among these conditions to the successfulness of the program availability of communication network and adequate market outlets are the major one (Kassahun, 2000).

Respondents replied that with regard to the mean distance to the main roads at their area of origin (regardless of one's home) were around an hour and five minutes walk while after resettlement around only twenty-eight minutes walk on average. Similarly, respondents were asked their opinion about the quality of the transportation service at the area of resettlement and the area of origin; although the mean distance they traveled shorter than before, the majority of the respondents (76%) agreed that the transportation service at the resettlement area in their respective *kebeles* was poor as compare to their area of origin. In contrast, the majority of them were satisfied in the provision of transpiration service before resettlement. The participants of FGDs at resettlement areas as well agreed that transportation service is one of the most serious problems of the area especially during summer season.

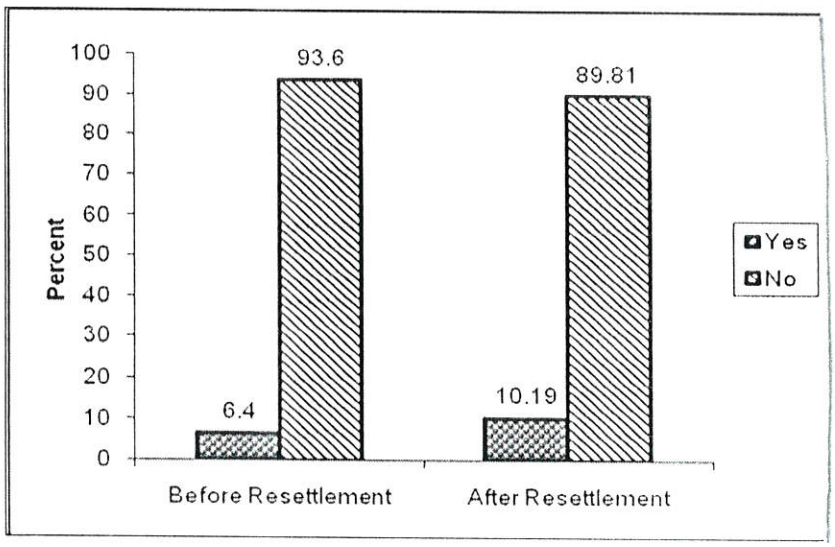
In similar vein respondents also reported that they have good access to market relatively near to their sites on average twenty- five minutes walk after resettlement. Whereas, before resettlement settlers were traveled on average an hour and seventeen minutes to access market. On top of this, FGDs were undertaken with the settlers about the availability of the market in the area of resettlement. Almost all of them stated that there is availability of market, however, they faced serious problem for livestock market (oxen and cows) because they traveled long distance to Gambella town at about 40 – 45kms.

Furthermore, availability of potable water is the most important aspect to the health of the labor force. In this regard sample households were asked the accessibility of potable water and its distance from one's home through questionnaire, FDGs and KIIs. The data showed that all the respondents (100%) were reported that source of water at resettlement area obtained from hand pump wells. During the field survey, the researcher also observed that in all *kebeles* there are hand pump wells (See Annex IV, Plate 7). Majority of the respondents were happy about the provision as compare to their area of origin. Besides, the mean distance of the source of water station was about eight minutes walk at the resettlement area which is very near and forty minutes away on average at their area of origin according to the survey data. But they complained about the quality, the main reason was that often they shared with their livestock. So it has an impact on their health, they are exposed to water born diseases.

5.2.4 Financial Capital

Financial capital is one of the basic factors that can help the settlers to achieve their livelihood intentions. Financial capital as explained in the sustainable livelihood framework, it encompasses savings (Cash as liquid assets), credit (formal and informal) as well as inflows (state transfers and remittances) which can be used for consumption or production (DFID, 2001; Serrat, 2008). Normally in rural part of the country mostly credit and saving service has been undertaken through informal institutions even though formal micro finance institutions have started to provide credit and saving service to the community nowadays.

Figure 5.2 Distribution of Respondents by Accesses to Credit Service



Source: Field Survey, 2011

In this regard, the sample households were requested to give their view about the service of credit and saving after resettlement. As it can be seen in the figure majority of the respondents did not received credit before and after resettlement. With respect to those who have received credit, the change between before and after resettlement is also insignificant. From the total respondents, only 10.19% of households have got access to credit from the *Woreda* Agriculture and Rural Development Office after resettlement.

The FGDs also proved this fact. In FGDs, the participants raised that due to lack of availability of the credit system, access to credit is very limited. In addition there are no cooperative banks and rural savings and credit associations in their *kebeles* even in the *Woreda* so it is the main entry barrier for promoting their livelihood. Moreover, the *Woreda* Agriculture and Rural Development Office is the only institution providing credit for selected farmers on a group collateral system and on an annual repayment basis. Discussants also reported that they rely on credit from relatives, friends and neighbors in the village with no interest rate on the basis of strong social ties. It highlights that social networks play an important role in ensuring credit for settlers.

Table 5.8 Distribution of Respondents by Savings

Responses	Before Resettlement		After Resettlement	
	Frequency	%	Frequency	%
Yes	165	39.10	218	51.66
No	257	60.90	204	48.34
Total	422	100.00	422	100.00

Source: Field Survey, 2011

Similarly, the respondents were asked about their saving habit. As shown in table 5.8, from the total respondents 39.10% and 51.66% of them had saved at some extent before and after resettlement respectively, while the rest did not have saving habit. Among those with savings, the most dominant form of storing cash is to keep it at home (55%), the remaining 45% of the households save their cash in kind (assets and livestock).

5.2.5 Social Capital

Social capital refers to the social resource upon which people draw in the achievement of their livelihood objectives. This consists of networks, social relations and cooperation when perusing different livelihood strategies that require coordinated actions (DFID, 2001). In line with this, in the study area *Iqub*, *Edir*, *Debo* and *Mahiber* were the most common local community based organizations. The sample respondents were asked as they are a member of these organizations or not. In this regards majority of respondents (92.89%) were members in at least one local community based organizations the remaining 7.11% of the respondents were not the members.

5.3 Livelihood Strategies of the Settlers

Analyzing livelihood strategies involves understanding how people use and combine their resources to meet short-term and long-term needs (Ellis, 2000). This results in different livelihood strategies, the activities a household adapts as a means to ensure livelihood security. The activities are divided into natural resource and non-natural resource based activities. All these determine the level of livelihood security, which is defined as containing some combination of attributes related to income level, income stability, reduction in adverse seasonal effects and reduction in the risk profile of the income portfolio, and the environmental sustainability (Ellis, 2000). Leones and Feldman (1998) divided income generating activities into three categories: (1) On-farm which means that income is generated from own-account farming; (2) Off-farm including wage or labor exchange among farms within agriculture; (3) Non-farm referring to non-agricultural income sources. By modifying the above stated categories (Ellis, 2000; Leones and Feldman, 1998), in this part of study, the overall livelihood activities implemented by the settlers before and after resettlement were classified into two broad categories as farming, non-farming livelihood strategies for the purpose of analysis.

Table 5.9 Distribution of Respondents by Main Livelihood Strategies

Livelihood Strategy		Before Resettlement		After resettlement	
		Frequency	%	Frequency	%
Farming	Crop production	280	66.35	65	15.40
	Mixed farming	132	31.28	277	65.64
Non-Farming	Handicraft	10	2.37	17	4.03
	Petty Trade	0	0.00	14	3.32
	Selling firewood/ Charcoal	0	0.00	30	7.11
	Daily Laborer	0	0.00	19	4.50
	Total	422	100.00	422	100.00

Source: Field Survey, 2011

The distribution shows that before resettlement, from the total respondents majority (97.63%) involved in farming strategy, more than half (66.35%) involved crop production, while only (2.37%) it was non-farming strategy. In the same fashion after resettlement, 81.04% of them their livelihood strategy was depend on farming and the remaining 18.96% on non-farming. Although, before and after resettlement the majority of settlers their livelihood strategy depends on farming, it was changed significantly from crop production to mixed farming after resettlement. Moreover, there is also a percentage change on non-farming strategies. Different reasons were raised by the participants of the FGDs. According to their view, relative fertility of land and suitability of the agro-ecological environment of the *Woreda* push them in collective/mixed farming activities. In addition to this, they also point that the proximity of the resettlement site and large private farms like *'Bazen'* and *'Agrimex'* would allow them to participate in non-farming strategy like daily laborer. Similar finding in Zimbabwe shows that among the 135 randomly selected sample households 72% settlers were engaged in farming, which constitutes crop production and livestock rearing (Chimhowu and Hulme, 2006).

Crop Production

According to the data obtained from field survey, the major agricultural crops produced by sample households were from cereals- maize and sorghum, pulse- haricot beans, oil seeds-

sesame and ground nuts at the resettlement area. These outputs produced normally once in a year (*Meher*) under normal condition. The settlers grow maize, sorghum and haricot beans for own consumption, and sesame is a cash crop, grown for sale. A few households also grow some vegetables (Pumpkin), fruits (mango and papaya) and roots (Sweet potato).

Table 5.10 Distribution of Production of major crops and Average yield per hectare

Types of crops		Before Resettlement Qtls/ha	After Resettlement Qtls/ha
Cereals	Sorghum	3	9
	Maize	4	14
Pulse	Haricots bean	2	3
Oil seeds	Sesame	-	4
	Ground nut	-	1.5

Source: Field Survey, 2011

Table 5.10 shows that from the crop products cereals took considerable proportion before and after resettlement. After resettlement maize was the leading crop in the area. Respondents reported that they produced maize on average 14 quintals per hectare. Next to maize, sorghum took considerable proportion after resettlement. The data revealed that the average amount of sorghum production after resettlement was 9 quintals while the output before resettlement was only 3 quintals per hectare per year. In addition to this, the settlers started to produce sesame and ground nut at the resettlement area unlike their area of origin. Therefore, from these data we can argue that the production of crops at the resettlement area higher than the area of origin even though the climatic conditions in the resettlement area make it impossible to grow the familiar kinds of crop like wheat, barley, '*teff*' and beans than before.

However, it seems to be inconsistence with the information obtained from *Woreda* Agriculture and Rural Development Office. Maize for instance, the *Hararghe 1685* variety in experimental stations can reach 70qt/ha, but in the sample households it was reached a more conservative figure of 14qt/ha. Farmers obtain lower yields than in experimental stations.

Livestock rearing

Settlers were rear different types of livestock such as; cattle, goats, sheep, donkey, horses, mules and poultry like other parts of the country before and after resettlement. It contributes to households' livelihood in different ways. That is, as a source of draught power, source of cash income in supplementing financial requirements, source of nutrition and means of transport. Besides, livestock are considered as a means of saving and means of coping mechanism during crop failure and other calamites (Muluneh, 2003). In this view, in the study the major livestock resources of the sample household settlers were observed since it was one of the factors to the livelihood (See Annex IV, Plate 6). Table 5.11 shows the average number of livestock per household, and their distribution. In order to make comparison the herd size was converted in to a Tropical Livestock Unit (TLU*) based on Storck *et, al.,* (1991) (See the standard conversion table in Annex IIIA).

Table 5.11 Livestock Possession (TLU) of Respondents

Type	Before Resettlement			After Resettlement		
	Number of Livestock	TLU	TLU/hh	Number of Livestock	TLU	TLU/hh
Oxen	127	127	0.30	787	787	1.86
Cows	111	111	0.26	134	134	0.32
Heifers	78	58.5	0.14	141	105.75	0.25
Goats	98	12.74	0.03	526	68.38	0.16
Sheep	448	58.24	0.14	-	-	-
Chicken	677	8.80	0.02	1565	20.35	0.05
Horse	9	9.9	0.02	-	-	-
Donkey	45	31.5	0.07	-	-	-
Total		417.68	0.98		1115.48	2.64
t	-10.719**					

**Significant at 0.01

Sources: Field Survey, 2011

* An animal having a live weight of 250kg is reckoned as one Tropical Livestock Unit.

Dula (2007) in his study indicated that land productivity was used as a proxy variable for environmental sustainability in which its productivity should be at least equal to that of its productivity before. Similarly in this study, land productivity was taken as one of livelihood outcome. Therefore, the livelihood of households that fulfilled these two criteria was considered to be better. 152 households fulfilled the criteria. That is the livelihood of only 36% of the households is found to be better. 64% of the sample households live below poverty line of US$ 1.03. The chi-square test of association between land productivity and average annual income was found to be significant ($P<0.01$).

5.4.1 Bi-variant Analysis

Hence, household's livelihood outcome in one or other way round depends on the demographic features and livelihood assets owned by them. In this section, the association between the dependent and the sets of explanatory variables is examined. The outcome variable is livelihood outcome which was assumed to be influenced by the aforesaid factors. To examine whether significant association exists between the dependent and a set of predictor variables chi-square test was used.

5.4.1.1 Demographic Variables and Livelihood Outcome

Age and sex of the household heads are among the other demographic features which were expected to have significant effect on households' livelihood outcomes. The corresponding percentages of household heads in the age group ≤35, 36-55 and 56+ that achieved better livelihood outcome were 33.33, 38.71 and 26.56. The finding shows that at the younger and middle age group household heads had better livelihood outcome than those older aged. The Pearson chi-square test shows statistically significant association between the age group of household heads and the betterment of livelihood outcome ($P<0.01$).

Concerning the sex of the household heads, male headed were found better than female counterparts. Thus, association between sex of household heads and the betterment of livelihood outcome is statistically significant ($P<0.01$).

Out of 168 respondents who were living with the household that possessed less than or equal to five members, 58.33% were found to have better livelihood outcome but the percentage is

relatively lower for those who had more than five household members (21.26%). Moreover, the statistical test also proved that there is significant association between betterment of the livelihood of settlers and family size ($P< 0.01$).

Marital status and place of previous residence of the household heads are among the demographic variables, which were found statistically insignificant to the betterment of livelihood ($P> 0.05$) (Table 5.12).

Table 5.12 Association between Demographic Variables and Livelihood Outcomes

Variables		Livelihood Outcomes				
		Better	**Worse**	**X^2**	**df**	**P- value**
Sex	Male	150 (38.46)	240 (61.54)	13.315	1	0.000
	Female	2(6.25) *	30 (93.75)			
Age Group	≤ 35	5 (33.33)	10 (66.67)	11.957	2	0.000
	36-55	108 (38.71)	171 (61.29)			
	56+	34(26.56)	94 (73.44)			
Marital Status	Never Married	6 (50.00)	6 (50.00)	1.048	1	**0.306**
	Ever Married	146 (35.61)	264 (64.39)			
HH Size	≤ 5	98 (58.33)	70 (41.67)	10.214	1	0.000
	> 5	54 (21.26)	200 (78.74)			
Place of Previous Residence	Amhara	32 (30.48)	73 (69.52)	1.863	1	**0.172**
	SNNPR	120 (37.85)	197 (62.15)			

*Figures in parenthesis are percentages

Source: Computed from Field Survey, 2011

5.4.1.2 Livelihood Assets and Strategies Vs Livelihood Outcome

In addition to the demographic variables, the livelihood assets possessed by households are essential for the livelihood sustainability of a household (Dula, 2007). In this part the livelihood assets that had relation to the settlers' livelihood outcome were analyzed. More specifically, land size, literacy status, TLU, distance from market, access to credit and saving were presented.

Land is the natural asset of the sample respondents since agriculture is one of the dominant sources of livelihood to the settlers. Out of 152 household heads with better livelihood outcome, 43.98% had a land size of greater than 1 ha., 22.44% had less than 1 ha, had also that the betterment of livelihood outcome is statistically significant ($P<0.05$).

Literacy status was assumed to increase the probability of the betterment of their livelihood of the settlers. Since the households with some basic education might better get and process information about diversifying their livelihood strategies. The results of the survey data revealed that 53.21% of the settlers had got access to some education, including formal and informal education were better in their livelihood outcome. Statistically, the Pearson chi-Square test showed that there is highly significance association in literacy status and betterment of livelihood of the settlers ($P< 0.01$). Health status of the household heads are among the human capitals related to household heads betterment of livelihood. As shown in Table 5.13, health problem was insignificantly related to household heads betterment of livelihood ($P>0.05$). This might be due to the prevalence of malaria in the study area because it is located in the lowland parts of the country.

Livestock serve as a means of production and source of income directly and indirectly. In this study, the livestock population number was converted into Tropical Livestock Unit (TLU) so as to facilitate comparison among the sample respondents. Of the total respondents who achieved better livelihood, 130 (56.52%) had > 2.6 TLU. The association between ownership of livestock and betterment of livelihood was found to be statistically significant ($P<0.01$). However, distance from the market among the physical capitals associated with the betterment of livelihood of the households was found to be insignificant ($P>0.05$).

With regard to financial capital and betterment of livelihood, access to credit and saving in the study area had influenced the betterment of livelihood of the sample respondents. As it can be seen in Table 5.13, Out of the total respondents who had credit access, 93.02% of them had better livelihood. Moreover, saving also play dominant role in the betterment of livelihood of the settlers. The Pearson chi-square test indicated that there is statistically significant association for both access to credit and saving in relation to betterment of livelihood ($P<0.01$).

the respondent is taken as an important predictor to the occurrence of the dependent variable (livelihood outcomes). This variable has two categories namely, farming and non-farming. The farming category is taken as a reference category and hence measurement is made from this reference category which means that to what extent the individual's major source of income towards betterment livelihood outcomes measure changes as one move from farming to non-farming strategies.

Table 5.14 Predictors Used in Multivariate Binary Logistic Regression Analysis and Categorical Variable Coding for Demographic features, Livelihood Assets and Strategies.

Variable entered		Frequency	Parameter coding	
			(1)	(2)
Age of the head of the HH	≤ 35	15	1.000	0.000
	36 – 55	279	0.000	1.000
	56+	128	0.000	0.000
Sex of the head of the HH	Male	390	1.000	
	Female	32	0.000	
Household size	≤ 5	259	1.000	
	> 5	163	0.000	
Literacy status the head of the HH	Literate	110	1.000	
	Illiterate	312	0.000	
Land Size	≤ 1.00ha	156	1.000	
	> 1.00ha	266	0.000	
Livestock Possession (TLU)	≤ 2.6	192	1.000	
	> 2.6	230	0.000	
Credit access	No	379	1.000	
	Yes	43	0.000	
Saving	No	204	1.000	
	Yes	218	0.000	
Major Source of income	Non-farming	80	1.000	
	Farming	342	0.000	

Source: Computed from Field Survey, 2011

Examining the goodness of fit of the model

There are various ways to assess whether the model fits the data or not. In this study, classification table and Hosmer and Lemeshow test were used. The classification table shows the percentage of observed cases that are correctly or incorrectly classified. As can be seen from Table 5.15 respondents who had better livelihood outcome were correctly predicted by the model as had worse livelihood outcome. Overall, 76.3 % of the household heads were correctly classified by the model.

Table 5.15 Classification Table that shows Model Fitness

Observed		Predicted		
		Livelihood Outcomes		Percentage Correct
		Worse	Better	
Livelihood Outcomes	Worse	253	17	93.7
	Better	83	69	45.4
Overall Percentage				76.3

Source: Computed from Field Survey, 2011

Hosmer and Lemeshow test (Table 5.16) show significance level of 0.475 which is above 0.05 indicated that the alternative hypothesis which states that the model is adequate to describe the data was accepted and that it is a good model to predict the dependent variable livelihood outcome.

Table 5.16 Hosmer and Lemeshow Test of Goodness of Fit

Chi-square	df	Sig.
7.590	8	0.475

Source: Computed from Field Survey, 2011

Multicollinearity Test

Similarly, the Contingency Coefficient is employed as one of the means to check for association between the set of predictor variables. It is a measure of association from cross-classification data. The coefficient is given as (Kothari, 1990)

$$C = \sqrt{\frac{x2}{n + x2}}$$

Where C is the coefficient of contingency, χ^2 is chi square test, and n is total sample size. The value of C ranges from 0 to 1. Smaller values of C indicate weak association between the variables and vice-versa. The multicollinearity diagnosis for the variables of the study shows weak relationship between the predictor variables. This was shown in the annex part (See Annex IIIB).

Results of the Regression Analysis

Table 5.17 contains the estimated coefficients and related statistics from the multivariate binary logistic regression model that predict the likelihood of a household heads livelihood outcome from the constant, and the independent variables are presented. The coefficients, probability level, and odds ratio indicate whether a particular variable is associated with livelihood outcome measure at statistically significant level. The odds ratios given in the last column of the table show change in the odds of better outcome versus worse due to membership in a particular sub group of a variable. If the value of the odds ratio is 1, it indicates that the variable has no effect. If the value is greater than 1, the probability of better outcome is higher for members of that group in relation to the reference category. An odds ratio of less than 1 indicates the probability of worse outcome for members of that particular sub group.

According to the result of the model, respondents found in the age group 36-55 had higher likelihood of achieving better livelihood when compared with respondents found in the age group ≤ 35. However, this is not statistically significant at 0.05 levels. Similarly, respondents found in the older age (above 56+) had higher likelihood of achieving better livelihood than the reference age group and statistically significant ($P<0.05$)

With regarding sex of the respondent it was found be significant related to betterment of livelihood. Female headed households had lower probability of achieving better livelihood when compared to their male counter parts ($P<0.01$). The likelihood that their betterment of livelihood was 0.067 times lower than male headed households.

Family size is found to be highly significant to determine households' betterment of livelihood in the study area. The odds ratio significantly decreased compared to households with family size less than or equal to five ($P<0.01$). This demographic factor reveals a negative relationship with betterment of livelihood.

The other important variable incorporated in the model is literacy status of the respondent. The likelihood of illiterate achieving better livelihood was 0.421 times lower compared with literate respondents. This was statistically significant at 5%.

As far as land size of the respondents is concerned, compared to respondents for which their land size of greater than or equal to 1 ha, the likelihood of better livelihood was 2.71 times higher compared to those respondents who had land size of less than or equal to 1 ha. Thus, the model states that having land size of greater than or equal to 1 ha increase the likelihood of better livelihood is statistically accepted.

Similar to size of land holding, TLU was statistically significant in influencing the livelihood of the respondent. The likelihood of respondent who had more than 2.6 TLU was 5.8 times higher than the respondent who had less than or equal to 2.6 TLU.

Access to credit was found significantly related to betterment of livelihood. Household heads that had access to credit were 11.968 times higher likelihood of better livelihood compared to the reference category (did not borrow).

Another variable used to fit the model for livelihood outcome is saving. By apply the same approach to the respondents the likelihood of household heads that saved more likely happen than did not save. Respondents who save were 8.45 times better. Thus the expected relationship, the likelihood of the respondents who saved had eight times better livelihood than did not save is statistically accepted.

Regarding major source of income is compared with non-farming the likelihood of achieving better livelihood was 3.11 times higher for household heads engaged in farming. And the finding states that the probability of achieving better livelihood increases as one changed from non-farming to farming activities which is statistically significant.

Table 5. 17 Result of Logistic Regression Analysis

Variables	Categories	β	S.E.	Sig.	Exp(β)
Sex	Male	**Reference**			
	Female	-2.710	0.605	0.000	0.067
Age	≤35	**Reference Category**			
	36-55	1.110	0.357	0.414	3.033
	56+	1.634	0.430	0.047	5.123
HH Size	≤ 5	**Reference Category**			
	>5	-1.123	0.308	0.000	0.325
Literacy Status	Literate	**Reference Category**			
	Illiterate	-0.866	0.382	0.023	0.421
Land Size	≤ 1 ha	**Reference Category**			
	>1 ha	0.997	0.310	0.001	2.710
TLU	≤ 2.6	**Reference Category**			
	> 2.6	1.759	0.332	0.000	5.809
Credit	No	**Reference Category**			
	Yes	2.482	0.729	0.001	11.968
Saving	No	**Reference Category**			
	Yes	2.134	0.351	0.000	8.449
Source of Income	Non-farm	**Reference Category**			
	On-farm	1.136	0.333	0.001	3.115

Source: Computed from Field Survey, 2011

5.6 The Role of Institutions and Organizations on Settlers' Livelihoods

Although the extent may vary; directly or indirectly the lives of settlers depend on institutions and organizations. Hence concerning the role of institutions and organizations on the livelihoods of settlers, respondents stated that *Woreda* Agriculture and Rural Development office and Catholic Church has been trying to support settlers on various livelihood issues.

Table 5.18 Distribution of Respondents by Obtaining Support

Kind of Support	Frequency	%
Agricultural Tools	83	25.00
Health Care Service	185	55.72
Different household properties	21	6.33
Loan	43	12.95
Total	332	100.00

Source: Field Survey, 2011

As shown in Table 5.18, about 55.72% of the respondents obtained health care services. Agricultural tools were also indicated by about 25% of the respondents. Those who said loan and different household properties constitute 12.5% and 6.33 % of respondents, respectively. According to them, health care services and different household properties obtained from Catholic Church, loan and agricultural tools from *Woreda* Agriculture and Rural Development office. In KIIs, discussants also pointed out that Catholic Church and WoARD has been committed to support settlers in giving health care, credit/loan and community service programmes.

5.8 Challenges of Resettlement Programme

The history of resettlement programme in Ethiopia has been characterized by a lot of problems and challenges, especially the resettlement during the *Derg* regime (Pankhurst, 1992; Desalegn, 2003b).

Just like other resettlement programmes of the country, Abobo *Woreda* resettlement scheme is not free of challenges and problems. Therefore, attempts were made to identify these problems and challenges. Respondents were asked about problems facing during resettlement.

Table 5.20 Distribution of Respondents by Problems Facing During Resettlement (Multiple Responses)

Problems	Frequency	%
Losing of assets	153	36.25
Broken down of family	262	62.08
Unfavorable climatic condition	327	77.48
Affected by disease	334	79.15
Inhospitality from host community	59	13.98

Source: Field Survey, 2011

The above Table (5.20) revealed that majority of settlers faced unfavorable climatic condition and health problem (79.15%) and (77.48%), respectively when they were resettle. Moreover, 62.08% of the respondents replied that they were separated from their families. Only 13.98% of the respondents were reported that there was unwelcome approach from host community.

Similarly, the sample respondents were requested if they had any conflict with the host community especially regarding resource utilization. From the total 422 sample households 355 (84.12%) of the respondents replied that they did not have any conflict with the host community. According to them, there was no serious conflict between host community and the settlers. The reason is that majority of resettlement kebeles in the Woreda are located relatively far (except *Chobo Mender* 13 and *Perbongo Mender* 17) from the host community villages and also good hospitality culture of the local community reduces the conflicts.

However, only 15.88% complained as they had some conflict with the host community. The major reason for the conflict is that negative perception is developed by host community, especially by the youngsters.

According to the *Woreda* level key informants, the current spontaneous settlers coming from the northern and southern part of the region to the *Woreda* is becoming one of the challenges at Abobo. These informants further explained that the population of the settlers in the *Woreda* was increasing from time to time due to unplanned migration of settlers. The researcher further asked these informants as how these in-migrants were becoming the challenge of the Programmes. They replied that these new comers demanded extra land for their livelihood, needed additional social services and infrastructures which were beyond the capacity of the *Woreda* administration to hospitalize since it was not planned. If this in-migration to the *Woreda* continues, the consequence will result in deforestation, unnecessary resource competition with the host communities and leads to inter community conflict in the *Woreda*.

The other challenge of the Programme raised by FGDs, KIIs and the household survey respondents were issues related to the provision of social services and infrastructures. Particularly transportation service, health service, access to credit and adequate market were the major challenges that all the respondents agreed.

In relation to these, different studies have indicated that settlers were faced different problems. Gebre (2004) dislodging of the same in to harsh climate are some of the major problems and challenges observed in the Metekel resettlement site.

Desalegn (2003b) reported that settlers experienced hardships due to changes in environment and subjected to lowland diseases. Woldeselassie (2004) in Metekel settlers were faced family disintegration. Besides, Pankhurst (1992) tried to identify the major problems that confront the resettlement to be successful in changing the livelihood of the community in sustainable manner. According to his finding social tension between the settlers and host population, abandonment of settlement scheme and ecological problems are the dominant problem of the programme.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1. Summary

This study was conducted in Gambella People's Regional State particularly Abobo *Woreda*. It is one of the areas where the resettlement programme was undertaken.

The basic data used in this study were collected from household survey, focus group discussions, key informant, field observation and secondary data. Different methods were employed to analyze the impact of resettlement on the livelihood condition of the settler population. These methods vary from simple descriptive statistics to logistic regression model.

The majority of the respondents were found in the age group 36-55. Male constitutes nearly 92.42% of the sample respondents. With regard to marital status, 88.20% were married at the time of survey. Greater proportion (81.28%) of the respondents had less than four household members before resettlement, however, after resettlement 95.54% of respondents had greater than or equal to four household members and the mean family size were 5.24. Majority of settlers (78.44%) were forced by government at the time of resettlement. 88.6% of respondents were utilized communal lands for different purposes and majority of them (94.10%) were used fuel wood as main source of energy for cooking.

Moreover, livelihood resources condition of the sample respondents were assessed in the study since it is the major determinants of living condition. In line with this, from natural assets land is identified as the basic factor of production at the resettlement area since the livelihood of the settlers depends on agriculture. Considerable proportion of the respondents had possessed the basic resource of livelihood, which is land privately before and after resettlement. However, they did not have relatively better size at their previous area of living compared to Abobo. The mean land holding of the households was 0.75 hectare in the previous area, whereas, after resettlement it was 1.31 hectare.

In relation to human capital, literate respondents make up only 25.83% of the sample population. And only 18.49% of the respondent reported that their family members were well in their health status in the past 12 months.

With regard to social services and infrastructure, it was identified that in Abobo there were poor transportation service and health care service. For instance, the average distance to the health post was within thirty minutes walk with regardless of from one's settler home was at the current place Abobo, however, at their area of origin it was an hour and fifty minutes walk. However, health institutions are established physically without any sufficient man power and necessary materials. The provision of the education service and water supply were improved as compare to their previous area.

Similarly, concerning to financial capital, it was found that only 10.19% of the respondents had access to credit service after resettlement while the majorities were not getting the credit service. With respect to the social service, *Edir, Iqub, Mahiber* and *Debo* are the dominant community based organizations which are playing important role in social and economic aspects of the settlers. 92.89% of respondents were members in at least one local community based organizations.

Regarding livelihood strategy, it was observed that farming (crop production and mixed farming) was the dominant means of livelihood in the resettlement area. From farming, mixed farming took the dominant shares followed by crop production. However, non-farming strategy had taken better share after resettlement as compare to before resettlement.

Similarly, agricultural production at Abobo was by large higher than the area of origin especially in the production of major crops like maize and sorghum. For instance, the data showed that the mean quintal of maize produced was 14 quintals whereas at the area of origin it was 4 quintals on average per household per year. Moreover, there is a significant increment of livestock production after resettlement as compare to before resettlement, the mean TLU was 0.98 and 2.64 before and after resettlement respectively.

Among demographic features sex, age and household size were significantly associated with livelihood outcome while marital status and place of residence were insignificant. Land size, literacy status, TLU, access to credit, saving and source of income were also significant

association among livelihood assets and strategies. Health status, distance from the market and participation of CBOs were insignificant.

The likelihood of better livelihood was found to be high for male headed households and households that have small family size from demographic features. Among livelihood assets TLU, access to credit and saving and source of income were found to be significant for the betterment of the livelihood of settlers.

Lastly, regarding to the challenges of the resettlement at Abobo, the data from KIIs, FGDs and sample survey indicated that majority of settlers faced unfavorable climatic condition, health problem and broken down from their families. In addition to these, spontaneous migration, poor transportation and health services, inadequate market, and deforestation were some of the major identified challenges of the resettlement programme in the study area. Moreover, from the total 422 sample households 84.12% of the respondents replied that they did not have any conflict with the host community. However, only 15.88% complained as they have some conflict with the host community.

6.2. Conclusion

The objective of this study was assessing the impact of resettlement on the livelihood condition of settler population in Abobo. In light of this, the findings of the study indicated that resettlement had impact on both demographic features and livelihood assets which intern had significant impact livelihood outcome of settler population. The demographic features, i.e., sex, age and household size were significantly affect livelihood outcome of the settlers. Among livelihood assets, literacy status, land size, TLU, access to credit and saving were associated significantly with livelihood outcome.

To the settlers their livelihood relatively has shown an improvement after resettlement as compared to before resettlement. This can be manifested in different manner in the study. For instance, in holding of basic livelihood assets especially land, the average holding of land at the area of resettlement was much higher than before resettlement. Therefore, this entails that the majority of the settlers at Abobo have acquired more farmland as compared to their area of origin which enables them to produce more than before. It can be seen that the major source of income for the majority is farming. This is true not only for crop production but also

livestock raring. Nevertheless their livelihood relies highly on the natural as well as physical capital.

Different demographic factors and livelihood assets were affecting the livelihood of settlers in the study area. Among these sex, household size, TLU, access to credit, saving and source of income were the dominant ones.

The betterment of the livelihood of the settlers have attained at the expense of the livelihood assets, particularly the natural forest. However, with a high reliance on the natural forest, low level of proper use of this resource will have a negative and devastating effect on the eco-system. In the long run without proper institutional support, the observed level of betterment of livelihood may deteriorate and fail to secure the livelihood of settlers in the future.

Even though the programme has an improvement to the settler's livelihood in terms of asset creation and income generation, it has several problems and challenges that may place their livelihood sustainability under question mark.

To sum up, the resettlement programme in Abobo *Woreda* is characterized by the betterment of the livelihood of the settlers even if the level differs across households as compared to the living condition of settlers at their area of origin despite its challenges and problems.

6.3 Recommendations

Based on the finding of the study, the following points are recommended to tackle the impact of resettlement and to promote the living conditions of settlers.

- The average family size among the sample households is 5.24 persons per household and is regarded as a demographic factor contributing to the prevalence of poverty at large. Therefore limiting the family size gives prior attention to achieve better livelihood.

- Excessive use of forest resources as source of income as well as source of energy has environmental consequences and health risks. Thus, promotion of other livelihood strategy as petty trade or micro-enterprises and the use of alternative energy sources and use of fuel efficient stoves should gain priority attention as part of environmental

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ANNEX -I

Survey on the Impact of Resettlement on The Livelihood of Settler Population in Abobo Woreda				
Household Questionnaire				
Kebele/PA		Household ID No		

Quality Assurance – Field work			
	Name	Date	Signature
Data Collector			
Supervisor			

Informed Consent

Good morning/afternoon. My name is _____. I am a post graduate student at Addis Ababa University, Institute of Development Studies, Center for Population Studies. Currently, I am undertaking study on the Impact of Resettlement on The Livelihood of Settler Population in this Woreda. Thus your cooperation is very valuable to achieve the objective of the study.

You have been selected for interview by means of a random or chance selection process, much like picking an orange out of a basket without looking. If you agree to participate in the study, I will ask few questions if I may, but you can refuse to answer and question I ask. You may end the interview at any time. You can also refuse to participate in the study entirely. The interview will take about thirty to forty minutes. The interviews/discussions are strictly confidential so your responses will not be shared with anyone. Your name will not appear on any of my notes or any of the reports.

Are you willing to participate in the study? Yes ☐ No ☐

If you have any doubts or questions in the future, you may contact the main researcher.

Thank you

I, the undersigned interviewer, have explained to the volunteer in a language he/she understands, and he/she understands the procedures to be followed in the study and the risks and benefits involved.

_____ _____

Signature of interviewer Date

PART I: Demographic Characteristics of The Household Head				
Q.No	Questions and Filters	Codes and Answers		Go to Q.
101	Sex	01	Male	
		02	Female	
102	How old are you?	☐☐	In full years	
103	What is your marital status?	01	Never Married	
		02	Currently Married/ in union	
		03	Widowed	
		04	Divorced	
		05	Separated	
104	What is your religion?	01	Orthodox	
		02	Protestant	
		03	Catholic	
		04	Muslim	
		05	Traditional belief	
		98	Other, Specify_____	
105	What is your ethnicity?	01	Amhara	
		02	Oromo	
		03	Tigre	
		04	Kembata	
		05	Wolayita	
		06	Hadiya	
		07	Tembaro	
		98	Other, Specify_____	
106	Household Size	Before Resettlement	After Resettlement	
		_____	_____	
107	Level of Education	01	Illiterate	
		02	Read and write	
		03	Primary education	
		04	Secondary education	
		05	College/University	
108	Where was your previous living place?	01	Tigray	
		02	Amhara	
		03	South N/N/P	
		04	Gambella	
109	How did you come here in Abobo?	01	Loss of farm land	
		02	Search for employment	
		03	By Marriage	
		04	To attained Education	
		05	Following family member	
		06	Due to Death of family member	
		07	Self organized migration	
		08	Forced by government	
		98	Other, Specify_____	

PART II: Livelihood and Institutions Related Information

Q.No	Questions and Filters	Codes and Answers				Go to Q.
201	Do/Did you have/had land?	Before resettlement		After resettlement		
		01 Yes	02 No ☞	01 Yes	02 No☞	206
202	What type of land holding system did/do you have?	Before resettlement		After resettlement		
		01	Owned	01	Owned	
		02	Rented	02	Rented	
		03	Sharecropped	03	Sharecropped	
		98	Other, specify _____	98	Other, specify _____	
203	How much of land did/do you have?	Before resettlement		After resettlement		
		_____ ha		_____ ha		
204	Have you expanded your farmland into another area to increase your farm size?	01	Yes			209
		02	No ----------☞			
205	What is the area of expanded land?	01	Forest land			
		02	Pasture/grazing land			
		98	Other, specify _____			
206	Is there land that you use communally with host population now?	01	Yes			209
		02	No ----------☞			
207	What are the benefits that your households obtain from command land?	01	Pasture/grazing land			
		02	Hunting wildlife			
		03	Firewood collection			
		04	Water source			
		98	Other, specify _____			
208	Would you tell me the main problems you encountered in using these resources?	1. _____ 2. _____ 3 _____				Write the reason
209	What is/are the series environmental problem/s now in your area?	01	Deforestation			
		02	Soil erosion			
		03	Decreasing of water sources			
		04	Decreasing of land productivity			
		05	Climatic change			
		98	Other, specify _____			
210	What are the major causes for existing problems?	01	Over population			
		02	Increasing expansion of settlement			
		03	Increasing expansion of farm land			
		04	Increasing business of logging /charcoal production			
		05	Lack of environmental education			
		06	Lack of other source of livelihood			
		07	Lack of government control			
		98	Others, specify _____			

211	What are the possible solutions?	01	Limiting family size			
		02	Searching for another source of income			
		03	protects trees from cutting			
		04	Planting Trees			
		05	Education			
		06	I don't Know			
		98	Others, specify _____			
212	What is the main source of fuel used for food preparation?	01	Fuel wood			
		02	Charcoal			
		03	Cow Dung			
		04	Kerosene			
		05	Electric			
		98	Other, Specify _____			
213	Had any member of the household been seriously ill for the past 12 months?	01	Yes			215
		02	No -------- ☞			
214	What is the type of illness?	01	Malaria			
		02	Diarrhea			
		03	Intestinal worms and parasites			
		04	Acute respiratory infections			
		05	Eye infection			
		98	Other, specify _____			
215	Did/Does the household own livestock?	Before resettlement		After resettlement		216
		01= Yes 02= No ☞		01= Yes 02 No ☞		
	Type of livestock owned	Before resettlement		After resettlement		
		Size in number		Size in number		
	1. Oxen					
	2. Cows					
	3. Heifer					
	4. Sheep					
	5. Goats Hens					
	6. Donkeys					
	7. Mules					
	8. Horses					
	9. Chicken					
216	Where does the household get water for consumption?	Before Resettlement		After Resettlement		
		01	Hand Pump well	01	Hand Pump well	
		02	Protected well/spring	02	Protected well/spring	
		03	Own/Public tab	03	Own/Public tab	
		04	Unprotected well /spring	04	Unprotected well /spring	
		05	River /Lake	05	River /Lake	
		06	Pond	06	Pond	
		98	Others, specify _____	98	Others, specify _____	

217	How far is/was the source of water from the household?	Before resettlement				After resettlement				
		_____ hr				_____ hr				
218	How far is/was the main road from the household?	Before resettlement				After resettlement				
		_____ hr				_____ hr				
219	How far is/was the nearest health facilities from the household?	Before resettlement				After resettlement				
		_____ hr				_____ hr				
220	How far is/was the nearest school from the household?	Before resettlement				After resettlement				
		_____ hr				_____ hr				
221	How far is/was the nearest market center from the household?	Before resettlement				After resettlement				
		_____ hr				_____ hr				
222	How do you assess social services provision?	Before resettlement				After resettlement				
		Sati.	**Not sati.**	**Poor**	**The same**	**Sati**	**Not sati**	**Poor**	**The same**	
	1. Transportation services	01	02	03	04	01	02	03	04	
	2. Health services	01	02	03	04	01	02	03	04	
	3. Education services	01	02	03	04	01	02	03	04	
	4. Potable water	01	02	03	04	01	02	03	04	
	5. Sanitary services	01	02	03	04	01	02	03	04	
223	What is/was your major source of livelihood?	Before Resettlement				After Resettlement				
		01	Crop production			01	Crop production			
		02	Animal husbandry			02	Animal husbandry			
		03	Both/Mixed farming			03	Both/Mixed farming			
		04	Off-farm/Non-farm activities			04	Off-farm/Non-farm activities			
		98	Other, specify _____			98	Other, specify _____			
224	If your response is off-farm /Non-farm activities, (Q. 217) what are these activities?	Before Resettlement				After Resettlement				
		01	Petty trading			01	Petty trading			
		02	Handicraft			02	Handicraft			
		03	Selling fuel wood/charcoal			03	Selling fuel wood/charcoal			
		04	Hired as a laborer			04	Hired as a laborer			
		98	Other, specify _____			98	Other, specify _____			
225	What type of crop do you cultivate?	Before Resettlement				After Resettlement				
		01	Teff			01	Teff			
		02	Wheat			02	Wheat			
		03	Sorghum			03	Sorghum			
		04	Maize			04	Maize			
		05	Barley			05	Barley			
		06	Sesame			06	Sesame			
		07	Beans			07	Beans			
		98	Other, specify _____			98	Other, specify _____			

226	How much is/was your annual income on average?	Before Resettlement _____Birr		After Resettlement _____Birr		
227	How do you compare the amount of human income that you getting now and before resettlement?	01	It is much better			
		02	No difference			
		03	It is lower than before			
228	Which problems (risks) did/do you face?	Before Resettlement		After Resettlement		
		01	No problem	01	No problem	
		02	Drought	02	Drought	
		03	Poor yield	03	Poor yield	
		04	Pest	04	Pest	
		05	Weed	05	Weed	
		06	Low market price	06	Low market price	
229	When crop failure happened or your agricultural output is not sufficient to fulfill your need, or you faced different stresses which of the following coping mechanisms have you used to overcome the problem?	Before Resettlement		After Resettlement		
		01	Selling Oxen	01	Selling Oxen	
		02	Selling other livestock	02	Selling other livestock	
		03	Selling household Properties	03	Selling household Properties	
		04	Borrowing money or grain	04	Borrowing money or grain	
		05	Selling fire wood or charcoal	05	Selling fire wood or charcoal	
		06	Reduce frequency of meals	06	Reduce frequency of meals	
		07	Reduce amount of meals	07	Reduce amount of meals	
		08	Daily labor	08	Daily labor	
		98	Others, specify _____	98	Others, specify _____	
230	In which of the following community based organizations do you participate now?	01	*Equb*			
		02	*Idir*			
		03	*Debo*			
		04	*Mahiber*			
		05	*Senbete*			
		98	Other, specify ____			

231	Have you or any member of your household getting financial loan from lending institutions?	01	Yes	232
		02	No..... ☞	
232	Where did you or member of your housed hold get the loan?	01	Micro Finance Institutions	
		02	Saving and credit Associations	
		03	Bank	
		04	Money lender	
		05	Family member	
		98	Others specify _____	
233	Does any member of your household have cash savings?	01	Yes	235
		02	No..... ☞	
234	What is the current amount of saving?		_____ Birr	
235	Where are the savings kept?	01	Micro Finance Institutions	
		02	Saving and credit associations	
		03	Bank	
		04	Money lender	
		05	Family member	
		98	Others specify _____	
236	Is there any support from the government body or NGOs?	01	Yes	301
		02	No..... ☞	
237	What kind of support do you get?	1. _____ 2. _____ 3. _____ 4. _____		

PART III: Challenges of the Programme

Q.No	Questions and Filters	Codes and Answers		Go to Q.
301	What kind of problems did you face during resettlement?	01	Losing of assets	
		02	Broken down from the family	
		03	Poor hospitality by the government	
		04	Poor hospitality by the host community	
		05	Unfavorable climatic condition	
		06	Diseases	
		07	No problem	
		98	Other specify _____	
302	Have you ever faced any conflict with the host community?	01	Yes	
		02	No	
303	If your response is Yes, What are the major factors for conflicts?	1. _____ 2. _____ 3. _____		
304	If your response is No, What are the major reasons?	1. _____ 2. _____ 3. _____		
305	What are the major challenges of your livelihood?	1. _____ 2. _____ 3. _____		

Thank you for your time

ANNEX -II

A. Guidelines/Checklists for Focus Group Discussions

1. How and why did you come to this area?
2. How do you see the current population growth in your area?
3. How do you compare your previous land with the current one?
   ** in terms of ownership, size, productivity
4. Do you think that the provision of social services and infrastructure of Abobo Woreda is better than the previous one?
   ** in terms of education, health, water, road, market, credit and saving service, etc
5. How is the asset creation of the settlers?
6. How do you observe the hospitality of the host community and your cooperation with them?
7. What are the major shocks that are prevalent in the area
8. How do you see the institutional set up of the Woreda and your respective Kebele?
9. How do you see the resource competition with the host communities?
10. What do you think about the resettlement programme in general?

B. Checklists for Key Informant Interviews

1. What is your Duty?
2. How do you see the current population growth in your area?
3. Is there any improvement in the livelihood condition of the settlers than before?
4. How do you see the social service provision and infrastructure in Abobo?
5. Do you think that there is institutional problem that has an adverse impact on the settlers?
6. Do you think that resettlement programme has a negative impact on the environment of the area?
7. What is the contribution of your Institution for the livelihoods of the settlers (access to resources, conflict resolution, coping and livelihood strategies)?
8. What are the major challenges of resettlement programme and possible solutions in Abobo Woreda?

ANNEX -III

A. Conversion Scales to compute Tropical Livestock Unit

Animal Type	Unit
Oxen	1.00
Cow	1.00
Heifer	0.75
Calves	0.25
Sheep & Goat	0.13
Horse and Mule	1.10
Donkey	0.70
Chicken	0.013

Source: Strock *et al.*, (1991)

B. Coefficient of Contingency Table

	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9
X_1	1.000								
X_2	-0.282	1.000							
X_3	-0.162	0.849	1.000						
X_4	-0.129	-0.042	-0.124	1.000					
X_5	-0.084	-0.127	-0.158	0.134	1.000				
X_6	-0.155	-0.151	-0.163	-0.762	-0.236	1.000			
X_7	-0.189	-0.088	-0.115	0.002	0.212	0.007	1.000		
X_8	0.177	-0.290	-0.131	-0.010	-0.306	-0.009	-0.608	1.000	
X_9	-0.087	0.076	0.002	-0.123	-0.261	-0.025	-0.372	-0.063	1.000

Xi' s refers to variables defined in the analysis

Source: Computed from Field Survey, 2011

ANNEX IV: PHOTOS TAKEN FROM THE STUDY AREA DURING FIELD SURVEY

Plate 1. Enumerators conducting Household survey at Chobo Mender 11/12 and 14

Plate 2. One of the Key Informants at Chobo Mender 7

Plate 3. FGD Participants at Chobo Mender 7

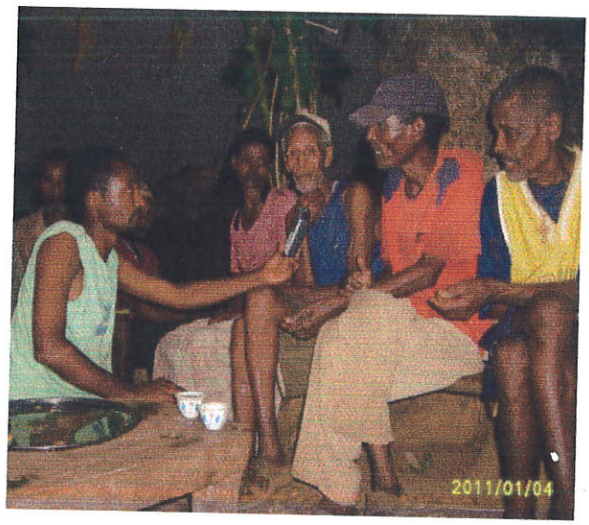

Plate 4. FGD Participants at Chobo Mender 13

(Photo: By the Researcher)

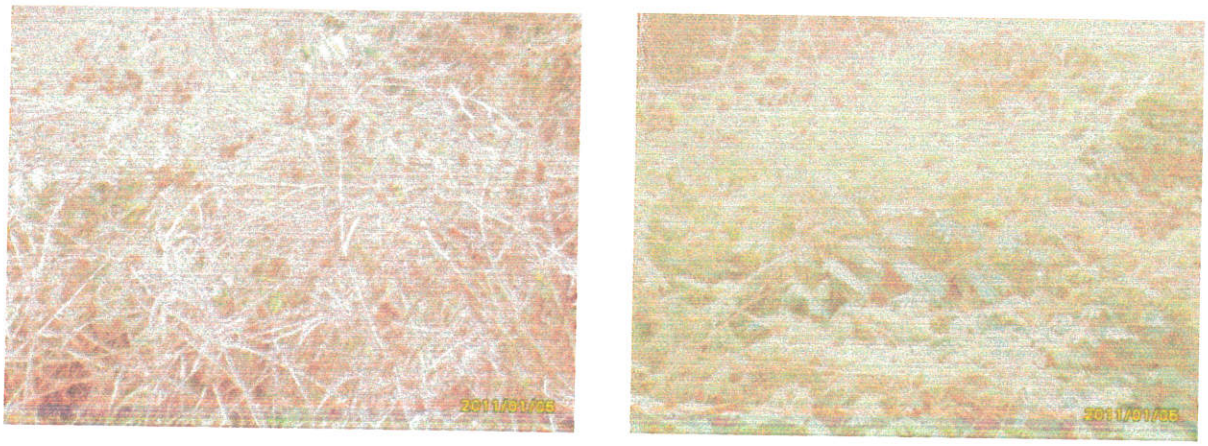

Plate 5. One of the shocks of the settlers "*Atinikugn*" weed

Plate 6. Livestock Assets of settlers

Plate 7. Main source of water for settlers

Plate 8. Indication of destruction of forest resources

(Photo: By the Researcher)

Declaration

I, the undersigned, declared that this thesis is my original work and it has not been submitted for any degree in any other university, and that all sources of material used for the thesis have been duly acknowledged.

Name: Bisrat Worku

Signature: _____

Date: May 17, 2011

This thesis has been submitted for examination with my approval as a university advisor.

Terefe Degefa (PhD)

Signature _____

Date: 18/05/2011