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THESIS

SOCIAL AND ECONOMIC ASSESSMENT OF THE RESETTLEMENT PROGRAM IN AMHARA REGION, ETHIOPIA

TESHOME WALLE TEMESGEN

A Thesis Submitted in Partial Fulfillment of

the Requirements for the Degree of

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The objectives of this study were to: 1) understand and compare the economic and social changes of resettlers as a result of the new resettlement program, 2) assess the impacts of the resettlement program on the environment 3) identify the problems associated with the resettlement program and get suggestions and recommendations from the resetters and 4) provide plans and activities to strengthen the ongoing development efforts of the new resettlement program.

The study was conducted in six recent resettlement *Kebeles* (Villages) in Metema and Quara *Woredas* (Districts) of Amhara National Regional State, Ethiopia. An interview schedule was employed to collect data from 337 resettlers' households, selected by simple random sampling methods. Data were analyzed by using descriptive and inferential statistics to test hypotheses at $P<0.05$.

The findings of the present study revealed that the total annual household income of more than 50% of resettlers in both of studied *Woredas* has doubled (to reach above 7,000 Birr/household) after the resettlement program. The resettlers in Metema and Quara *Woredas* have respectively expressed moderate and low satisfaction levels in terms of their access to identified twelve common social services after resettlement program. The results of the study further indicated that the overwhelming majority of resettlers have never practiced any type of soil fertility management activities in the new resettlement areas. The level of participation of resettlers in natural forest protection was found to be low. Analysis of data using paired sample t-test revealed that average annual on-farm and total household income of resettlers as well as access to identified common social services after the resettlement program were significantly higher ($p<0.05$) than the case before the resettlement.

Absence of sufficient and clean water, all weather road and communication facilities are among problems encountered in the resettlement areas. Natural resource degradation in the resettlement areas is advancing at an alarming rate, while low levels conservation are practiced. It's recommended that local government and concerned authorities strive to raise the awareness of resettlers on natural resource conservation activities; and intervene to urgently integrate development needs and conservation measures.

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Student's signature Thesis Advisor's signature

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LIST OF ABBREVIATIONS

ACC	-	Administrative Committee on Coordination
ADB	-	Asia Development Bank
AEZ	-	Agro-ecological Zone
ANRS	-	Amhara National Regional state
BOARD	-	Bureau of Agriculture and Rural Development
BOFED	-	Bureau of Finance and Economic Development
CBO	-	Community Based Organizations
CSA	-	Central statistical Agency
DA	-	Development Agents
EFAP	-	Ethiopian Forestry Action Program
FAO	-	Food and Agriculture Organization
FELDA	-	Federal Land Development Authority
FSDPO	-	Food Security and Disaster Prevention Office
FSS	-	Forum for Social Studies
GDP	-	Gross Domestic Product
GO	-	Governmental Organizations
GOE	-	Government of Ethiopia
HH	-	Household
IFPRI	-	International Food Policy Research Institute
LDMP	-	Livestock Development Master Plan
MEDaC	-	Ministry of Economic Development and Cooperation
MOARD	-	Ministry of Agriculture and Rural Development
MOFED	-	Ministry of Finance and Economic Development
MOI	-	Ministry of Information
NCFS	-	New Coalition for Food Security
NGO	-	Non-governmental organizations
NRC	-	Natural Resource conservation
ONRS	-	Oromia National Regional State

LIST OF ABBREVIATIONS (CONTINUED)

PASDEP	-	Plan for Accelerated and Sustainable Development to End Poverty
PRSP	-	Poverty Reduction Strategy Program
RR	-	Risk and Reconstruction
SDPRP	-	Sustainable Development and Poverty Reduction Program
SIPA	-	School of International and Public Affairs
SNNPR	-	Southern Nations, Nationalities and Peoples Region
TLU	-	Tropical Livestock Unit
UN	-	United Nations
WOARD	-	*Woreda* Office of Agriculture and Rural Development

CHAPTER I

INTRODUCTION

Ethiopia is located in the eastern part of Africa between latitudes of 3^0 N and 15^0 N, and longitudes of 33^0 E and 48^0 E. The total land area of the country is about 111.5 million hectares, of which 74.3 million is suitable for agriculture, although only about 12.3 million hectares (17%) are at present used for crop production (MOARD, 2008).

Ethiopia has diverse agro-ecology and climate conditions, which is favorable for commercial production of different types and breeds of livestock species. The country has a livestock population of 43.1 million cattle, 30.6 million sheep, 26.7 million goats, 32.2 million poultry, 1.5 million horses, 4.5 million asses, and 2.4 million camels (LDMP, 2007). The contribution of the livestock sector (without taking into account its contribution in terms of farm power, fuel, transport, fertilizer, etc) to the national economy reaches up to 20% of the GDP. In addition to these economic benefits, rural communities use livestock as an important asset base and an alternative income source during drought situations when crop production fail or harvests are low. Livestock sells increase during drought situation in order to buy food grains and other basic household consumables.

Agriculture is the main sector of the Ethiopian economy. It accounts for about 50% of the gross domestic product (GDP), employs more than 85% of the total population that is directly or indirectly engaged in agriculture and generates about 90% of the foreign exchange earnings of the country (MOARD, 2008). Domestic per capita food supply in Ethiopia has decreased year after year and the remaining balance has been covered mainly by food aid. For instance, according to Food and Agricultural Organization (FAO, 2004), 13.2 million and 7.2 million people in Ethiopia required assistance to meet minimum food requirements in 2003 and 2004, respectively. Furthermore, during the year 2006, about 2.6 million people required

assistance to meet minimum food requirement in Ethiopia. It is estimated that 339,090 metric tons of food aid was required for 2006.

Over the past few decades agricultural productivity growth in Ethiopia covered around 2% per annum. The major factors behind the low performance of agriculture sector in Ethiopia, among other things, are poor and backward technology, limited use of modern inputs, lack of transportation, and storage facilities, inadequate credit facilities, drought and environmental degradation and biased agricultural policies (Assefa, 1995). Among these constraints drought and environmental degradation received the greatest attention of policy makers as a major impediment to the development of the agricultural sector in the drought prone areas of the country.

An Ethiopian scholar who lived around the beginning of the 19th century, Gabrahiwot Baykadagn, formulated the relationship between people and the land:

> … The harm to the Ethiopian people is not only this. The soil gives everything, but only on loan. If the loan given by the earth is not returned, she pesters the borrowers like the banks…
>
> If all that is borrowed from the earth is not returned, when the earth is asked for more, she withholds her fruits. When numerous things are taken from her without anything in return, she punishes those who refuse to repay her their debt with famine and disease. This statement can be testified to by any peasant (Yeraswork, 2000).

The Federal government of Ethiopia (GOE) currently follows, Plan for Accelerated and Sustainable Development to End Poverty (PASDEP) which is a broad outline for reducing poverty that is grounded in the development strategy laid out in the National Development program. The plan carries forward important strategic directions pursued under the Sustainable Development Poverty Reduction Program (SDPRP), related to infrastructure, human development, rural development, food security, and capacity building, but also embodies some bold new directions. Foremost among them is a major focus on growth in the coming five years period with a particular emphasis on greater commercialization of agriculture and enhancing

private sector development, industry, urban development and scaling up of efforts to achieve the Millennium Development Goals (MOFED, 2006).

The objective of the PASDEP is to define the nation's overall strategy for development for the coming five years; to lay out the directions Ethiopia wants to take, with the ultimate objective of eradicating poverty; and to outline the major programs and policies in each of the major sectors. Although the Poverty Reduction Strategy Program (PRSP) process started in 2000 as a process largely between Government and donors, in Ethiopia, it has now evolved beyond that, and the PASDEP is now considered a national plan for guiding all development activities during the coming five years. Equally importantly, it is a nationally agreed development plan belonging to all Ethiopians, developed through a process of consultation among all elements of society (MOFED, 2006). To achieve this strategic goal the federal government of Ethiopia and the Ministry of Agriculture and Rural Development are currently implementing a resettlement program aimed at addressing the problem of drought and famine, and assisting in the resettlement of people who experience the most chronic food insecurity.

The government is targeting achievement of food security through improved access to land and availing institutional support. The program is one of the various planned resettlement programs practiced by the previous successive regimes of the Imperial and the military government which turned out to be disastrous failures. To avoid the repetition of these problems, the present government has designed a resettlement program based on the past experiences. However, in some of the resettlement areas resettlers are returning back to their original places and self-reliance of the households is not across the resettlement areas. Hence, to identify the socio-economic changes of the households and to examine the environmental effects of the program and to give a practical recommendation for the policy makers, this study has been initiated.

Statement of the Problems

In 2001 to 2003, there were a massive 854 million undernourished (or hungry) people worldwide: 820 million in the developing countries, 25 million in the

transition countries and 9 million in the industrialized countries (FAO, 2008). From this data, it is noted that the largest concentrations, in terms of numbers, of food insecure people occur in South-East Asia (particularly India (212 million) and China (150 million) and in Sub-Saharan Africa. In terms of the proportion of the population affected, the prevalence of hunger is by far the worst in Sub-Saharan Africa than anywhere else in the world.

Nutritional trends in most parts of Africa deteriorated during the 1980s. The number of people not eating adequate calories for an active and healthy life rose from 130 million to 170 million during the decade (ACC/SCN 1992). The number of underweight children rose from 20 million in 1975 to 27 million in 1990 (Pinstrup, 1993). This upward trend in food insecurity paves the way for future famine.

Although Ethiopia is clearly not unique in its experience of famine, its continued status as one of the most famine-prone countries in the horn of Africa, coupled with its recent history of drought, war, and political turmoil, make it a good case for further study. Roughly 5 million of the 30 million African vulnerable to famine in the mid-1990s were located in Ethiopia (Barnhart, 1993).

In the Amhara region, almost 33% of the total population is under poverty line. Sixty four rural *woredas* (districts) out of 128 are under food insecure conditions, and depends on external food aids at least six months in the year (FSDPO, 2004). Recurring famine in Ethiopia has been attributed, among other factors, to soil degradation (Solomon, 1994). Environmental degradation is the major threat in the Ethiopian highlands. Processes of land degradation are aggravated in particular by deforestation, over cultivation, overgrazing, and over population, but also by socio-economic and political factors related to rural development.

For the last twenty years the government has launched massive natural resource conservation and resettlement programs to reclaim the degraded areas and to improve the incomes of the poor rural people. Although, considerable efforts have been made to resettle the chronically food-insecure people in the potentially fertile areas of the country, it was not successful due to involuntary bases of the previous government resettlement policy (NCFS, 2003). However, some indicators shown that,

if the resettlement program was performed voluntarily, it would be the most important strategy to improve food security. Based on this experience, the current government implemented a voluntary resettlement program as means of attaining the objectives of the food security strategy to minimize the population pressure in the highlands of the country on the one hand and to ensure economic growth of the resettlers in potential fertile areas on the other hand (NCFS, 2003).

In the Amhara National Regional State (ANRS), the resettlement program is also considered as one of the means to attain food security. However, state-sponsored voluntary resettlement schemes are inherently complex. The national experiences have shown that resettlement programs must be managed with meticulous diligence and funded by sufficient resources. The current program in Ethiopia has received widespread criticism, as the government was largely unsuccessful in terms of proper planning, budgeting, and implementation (FSS, 2003; SIPA, 2004; Mengistu, 2005). Besides, the relationship between the resettlers and the host community is a critical issue for the sustainability of the program. Planning for adequate social services in a wide range of areas becomes a paramount challenge not just for the sake of promoting resettlement, but in preventing serious consequences such as contributing to a downturn in a populations' livelihood. Moreover, large number of resettles (above 40% of households (HH)), abandoned the resettlement areas (FSDPO, 2007). The reason for defaulting is not thoroughly studied. In addition, the economic and social changes of resettlers and environmental impacts of the program on the new resettlement areas are not yet properly addressed.

A number of publications dealing on the impact of involuntary resettlement schemes in Ethiopia are available. Pankhurst (1984); Desalegn (1987) and Mengistu (1991) have studied the long-term impacts of resettlement. The majority of studies tend to focus on involuntary resettlements. Only very few works have examined the long-term effects of voluntary resettlement. Moreover, previous studies did not compare the socio-economic changes of resettlers before and after the resettlement program and didn't as well show the variations between resettlement areas. At the same time, factors contributing to the successes or failures of resettlement program were not fully assessed. From this prevailing knowledge gap, the following five major

research questions arise: i) what economic changes are there in the households as a result of the resettlement program in ANRS?, ii) what is the level of satisfaction of the resettlers in accessing social services?, iii) what is the involvement level of resettlers in issues of soil fertility management, land conservation, forest protection and tree planting activities?, iv) what possible factors determine the involvement of resettlers in natural resource management in the new environment? v) what intervention strategies could be recommended to support the resettlement program to attain its principal objectives. The present study attempts to fill-in these research gaps and provides sound recommendations with particular emphasis on the resettlement program in ANRS.

Objectives of the Study

The overall objective of this study is to assess the socio-economic and environmental factors of the resettlement program in Metema and Quara *Woredas* (Districts), ANRS, Ethiopia.

The specific objectives are:

1. To understand and compare the economic and social changes of resettlers as a result of the new resettlement program;

2. To assess the impacts of the resettlement program on the environments;

3. To identify the problems associated with the resettlement program and get suggestions and recommendations from resettlers; and

4. To provide plans and activities to strengthen the ongoing development efforts of the new resettlement program.

Expected Outcomes

This research was aimed at generating practical recommendations to pressing problems as well as at improving understanding of how resettlement programs lead to dynamic livelihood improvement and what policy instrument might most effectively enable vulnerable populations to get out of food insecurity.

Key outcome of this research will therefore include provision of recommendations to policy decision makers in order to minimize risks of failure of the resettlement scheme and strengthening the overall interventions of the government towards food security program. The present study is anticipated to serve as a reference for interested scholars and lay the foundation for future in-depth studies on resettlement and related issues in Ethiopia.

Scope of the Study

Resettlement is a very important factor of food security program specially in developing economies, where natural resources are highly depleted and adopting alternate and modern technologies are very limited. Failure of resettlement program will undoubtedly exacerbate the vulnerability of resource-poor farmers and, as a result, regional and national de-stability of the society will increasingly expand throughout a country. Thus, assessment of the social and economic problems of a resettlement program and coming-up with recommendations is a vital issue in implementing voluntary resettlement schemes in Ethiopia in general and in ANRS in particular.

Therefore, this study will contribute to the identification of the social and economic changes of the resettlers by comparing pre- and post-resettlement achievements so that policy makers, researchers, and extension workers could learn from and use the findings for future interventions and studies.

Limitations of the Study

The prime objective of the settlement program in both at national and regional is to improve the livelihoods of resource-poor and vulnerable farmers through improved access to fertile farm land and other social services. Besides, the settlement program aims at giving a relief rest to the land in the original place of the new resettlers so as to allow proper environmental rehabilitation. However, the level of environmental improvements in the original places was not examined in this study as it requires a full scale separate project work. However, the exclusion of the latter from this research undertaking neither deters the progress of the study nor affected the

attainment of the stated study objectives. On the other hand, it was not possible to discuss with the returnees (those who boycotted the resettlement program and returned to their native habitats) about their reasons for their decisions to do so. In this respect, the researcher attempted to get an insight based on discussions held with different social groups and key informants in the resettlement study areas.

Operational Definition

Resettlement refers to the movement of people from areas where factors do not exist that are suitable for the smooth maintenance of life to areas presumed to be endowed with potentials that could provide opportunities for the same end (Kasahun, 2000).

Resettler is a person who engages in resettlement. In here, resettlement area refers to the area to which the resettlers move, while original place refers to the area from which the resettlers depart.

Household Head refers to a person who has the final decision making power on major issues of the household and represent the household in formal and informal institutions.

Economic factor refers to households' farmland, oxen and livestock holdings, family labor, on-farm income, off-farm income, total household income, food availability per year, consumption coverage per year, daily food intake (nutritional status), number of daily meals, number of visits by development agents and number of technologies used by resettlers.

Farmland holding refers to the amount of land in hectare owned by a household.

Oxen holding refers to number of oxen used as a traction power in the family for a better preparation of farmland. The average holding of oxen in number indicates that a household has a better chance to prepare his land on time for an increased production.

Livestock holding refers to the number of livestock (sheep, oxen, goat, milking cows, heifer, calf, donkey, chicken), in tropical livestock unit (TLU) owned by a resettler. Conversion factors to estimate Tropical Livestock Units are: calf-0.25, donkey (young)-0.35, donkey (adult)-0.70, heifer-0.75, sheep and goat (young)-0.06, sheep and goat (adult)-0.13, cow and ox-1.0, chicken-0.013 (Strock *et al.*, 1991).

Family labor refers to the number of able bodied persons in the family who can contribute labor to the on-farm and off-farm activities.

On-farm income refers to resettlers income generated from crop, animal and animal products, forest and forest products and produces.

Off-farm income refers to resettlers income generated from wages and salaries, off-farm self-employment income, investment income, remittance, gifts and rewards (in the form of cash), loans, dowry, inheritance, and sale of food aid.

Total household income refers to the sum of total income that resettlers received from on- and off-farm activities and will be measured in the form of cash (Ethiopian Birr).

Food availability refers to the amount of food that is physically present in resettlers' household from current production and stocks from previous production measured in quintals per year.

Consumption coverage refers to the length of period (in months) covering annual household food requirement.

Daily food intake (Nutritional status) refers to an average consumption per person of 2,200 cal per day as a cut-off level of food security. An increasing change in the household nutritional status both in amount and in kind, i.e. improvement of household nutritional status leads to the reduction of malnutrition, which ultimately reduces risk of morbidity and mortality in the household particularly that of children.

Number of daily meals refers to the number of meals taken by a household in a day.

Number of visits by development agents refers to the frequency of contact (number of visits) between the development agents and resettlers per month.

Number of technologies used by resetters refers to the number of agricultural technologies (fertilizer, improved seed, farm implements, improved livestock and etc.) used by resettlers.

Social factor refers to access of infrastructures and institutions, namely education, health, electricity, grinding mills, clean water, all weather road, market center, credit facility, veterinary service, telephone service, postal service, permanent toilet and housing necessary to support human population living in a given area, and while these services may be provided privately or publicly, they are critical to people's decisions to move to resettle.

Accessibility refers to the availability, proximity and service giving capacity of twelve social institutions/infrastructures, namely education, health, electricity, grinding mills, clean water, all weather road, market center, credit facility, veterinary service, telephone service, postal service, permanent toilet and housing before and after the resettlement program.

Satisfaction refers to the level of satisfaction of resettlers towards the accessibility of the social services and support of woreda and kebele administrations. It is divided into five levels: very high satisfaction, high satisfaction, moderate satisfaction, low satisfaction, and very low satisfaction.

Access to education refers to the availability of improved educational services to all levels of the community in their living area.

Access to health refers to the availability of health services to the community.

Access to Electricity refers to the availability of power supply to the community.

Access to Grinding mills refers to the availability of grinding mill services.

Access to clean water refers to the availability of clean drinking water for the community.

Access to all weather roads refers to the availability of all weather roads to the community.

Access to market center refers to the availability of market to buy agricultural inputs and consumable items and to sell agricultural products.

Access to credit facility refers to the availability of legal credit institutions.

Access to veterinary service refers to the availability of health services to livestock.

Access to telephone service refers to the availability of telephone services to the community.

Access to postal service refers to the availability of postal services to the community.

Access to permanent toilets refers to the availability of permanent toilet in a household.

Housing refers to the type of house (corrugated iron sheet or grass thatched) owned by a household. Traditionally, a household endowed of a house with a corrugated iron sheet is considered to be a better off household while a family with grass thatched house is considered as a poor household.

The relationship between host community and resettlers refers to the social ties and links between the original settlers and the newly coming resettlers. It is divided into three levels: good, moderate and not easy relations.

Administration and support refers to the support of the woreda and kebele administrations (example, assigning government staffs, organizing different training, solving land related problems, quick response to resettlers' questions, mobilizing the community towards natural resource conservation, frequent visit and follow-up and securing peace and stability) to local communities.

Environmental factor refers to soil fertility management, land conservation, natural forest protection, tree planting and use of alternate energy.

Participation refers to the level of participation of resettlers in natural forest protection activities. It is divided into five levels: very high, high, moderate, low, and very low level of participation.

Soil fertility management refers to different soil fertility management practices such as composting, use of manure, crop rotation and the like under taken by resettlers in their own farmlands in the new resettlement areas.

Land conservation refers to any conservation measures such as terracing, mulching, strip cropping, pitting and the like under taken on private and communal lands.

Private land refers to farm plots and homesteads allotted for individual households.

Communal land refers to land area allocated for communal uses by the community. It includes common grazing areas, community forests and area under communal assets.

Natural forest protection refers to the conservation of natural forests (prevention of tree cutting, prevention of charcoal making, prevention of farmland expansion, control illegal forest traders and forest fire protection) found in the vicinity of the resettlement areas.

Tree planting refers to the individual efforts of households in planting trees around homesteads and in the boundary of farmlands for private use.

Use of alternate energy refers to the availability of source of energy beside fuel wood, crop residue and animal dung. It includes bio-gas, solar, electricity and the like. The number of farmers using improved stoves can be considered as one of the changes in fuel saving practices in the resettlement areas.

CHAPTER II

LITERATURE REVIEW

The aim of the literature review in this study is to locate the present research and to explain the directions it proposes to take. Accordingly, the discussion below is an attempt to bring into light the literature on the impact of resettlement on the resettlers, host community and environment. For ease of presentation, the review is categorized into seven main points:

1. The concept of resettlement
2. The socio-economic impacts of resettlement
3. Environmental impacts of resettlement
4. Factors related to resettlement
5. Resettlement in Ethiopia
6. Resettlement in Amhara region
7. International experiences of resettlement

The Concept of Resettlement

Mengistu (2005) identified four types of resettlement schemes that take place in a given country: spontaneous, emergency and forced, voluntary and involuntary. He further grouped the above into two: non-planned resettlements including spontaneous and emergency, and forced resettlements and planned resettlements comprising voluntary and involuntary resettlements.

According to the same author, spontaneous resettlement process is often associated with agricultural resettlement in which farmers relocate themselves in response to external and internal influences in their original settlements. The relocation process takes place either in already settled area or area that have never been settled before. The process of such resettlement is not homogeneous in their

patterns of development. Rather they manifest different origins and varieties of organizational forms and differing objectives and motivations. Such process may lead to the increase of agricultural production or may also be associated with the destruction of natural resources while emergency and forced resettlement result from sudden or unexpected occurrences of hazardous situations, political measures, and group and individual decisions requiring the movement of people, or even of plants, from their original settlements to new ones. These settlements are interrelated are caused by natural calamities, population and environmental factors, human induced factors and external factors.

Most countries consider resettlement schemes as a strategy for alleviating environmental degradation, diffusion of technology, and minimizing regional conflicts. Under the planned resettlement schemes there are the voluntary and involuntary types. Voluntary resettlement scheme is a process whereby people move to resettlement sites willingly. Such schemes manifest a more or less sound resettlement planning methodology through which the settlers are well informed about the new resettlement sites as well as when and how they will be resettled. The success of the voluntary resettlement schemes depends often on the availability of resources, infrastructures and suitable environmental conditions. Involuntary resettlement scheme is a process by which people are forced to move involuntarily. Military force is not necessarily used to achieve this. But the resettlers are obliged to leave their original settlements because of the following reasons: i) governments introduce new settlement plans which are not acceptable to the original settlers; ii) the traditional survival strategies of the local people are not sustainable and employment opportunities are not available; and iii) governments do not assist the local people since either they want to push the people from their original settlements or they have financial constraints; and the resettlers do not have proper knowledge about the new resettlement areas (Mengistu, 2005).

As to Woldeselassie (2004), resettlement involves the movement of communities from one environment to the other and changes or modifies the physical and social environment in which resettles find themselves and adapt. According to Pankhurst (1992), resettlement may be distinguished from spontaneous migration,

initiated and undertaken by people on their own. Resettlement may also be distinguished from exodus of refugees fleeing from one state to another. In recent times resettlement has been used to address problems created by sudden natural or man-made disasters, such as famine, floods, hurricanes, chemical or nuclear accidents and warfare (Pankhurst, 1992; Rahmato, 1989; Mathur, 1997; Woldeselassie, 2004). Pankhurst (1992) further describes that resettlement is characterized by a movement of population and an element of planning and control. The notion of movement may serve to differentiate resettlement from two other policies: villagisation, where the basic notion is regroupment, which may or may not involve moving significant distances; and sedentarisation, which aims to settle pastoralists, a process which need not involve moving away from the area in which the people were living. Rahmato (2003) identified 'resettlement', 'colonization' and 'transmigration' all refers to phenomenon of population redistribution, either planned or spontaneous. He further points out that of all these terminologies, resettlement is more appropriate for Ethiopian context as the concept suggests relocating people in areas other than their own. Wood (1977) describes resettlement as a spontaneous or planned movement of people or group from their original home areas to settle in another area. Similarly, Chambers (1969) defined resettlement as the planned and controlled transfer of people from one area to another.

People have moved into and out of resettlement sites either by their own free will or because of exogenous factors. The physical and social distances were short or long depending mainly on the availability of local resources, including fertile soils, water supply points, crop and grazing land, fire wood, marketing, fishing places, building materials and employment opportunities (Mengistu, 2005). Prior to and during the mercantilist, colonial, post-colonial, and post-industrial periods, and voluntary and involuntary global resettlements had occurred. Many countries have also developed and implemented planned resettlement schemes. However, most of these schemes have not succeeded in improving the basic necessities of life. Rather, they had led to increase human suffering and environmental degradation (Chambers, 1969; Scudder, 1981; Hansen and Oliver-Smith, 1982).

A number of governments in developing countries are still introducing resettlement schemes. One reason for this is that resettlement schemes are relatively easier to launch than, for example, agricultural reform program, introduction of new agricultural technologies, and the development of rural towns with conservation of natural resources. Various resettlement schemes have led to concentration and intensification of human activities in environmentally sensitive areas like frontier and coastal ecosystems (Moran, 1989). However, today most countries consider resettlement schemes as a strategy for alleviating poverty and environmental degradation, diffusion of technology, and minimizing regional conflicts.

According to Mengistu (2005), resettlement is the process by which individuals or a 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 and administrative system of the new environment. Time is of the essence in resettlement process. During the relocation and adaptation process, re-settlers may face both physical and mental stress. The movements can either occur in the form of migration, refugee, and mobility, or emergency and forced resettlement processes that are distinguished from resettlement schemes. Mobility can be divided into (a) spatial, which includes all sorts of movement and (b) social, which refers to a change in the socio-economic status of individuals or groups (Kosinski, 1975; Wood, 1977). A person can migrate and become a refugee due to human-made or natural phenomena, and he can resettle himself or be settled by others. This form of movement to resettlement sites is often unplanned, irregular, less permanent, cyclical in character and can either be short or long distance movement (Wood, 1977). However, in some cases the new resettlement sites can be planned after the resettlers have arrived in the new sites.

Under spontaneous resettlement the settlers may or may not break their ties with their original places. Such resettlement processes take place either by virtue of individual decisions or natural calamity, or due to the availability of economic resources. For example, the worsening of ecological conditions, land-use problems, land scarcity, ethnic conflicts, and natural hazards in the original settlement can lead to the need for resettlement. In this respect the push factor can have a negative impact

where as the pull factor attracts people to resettle (Kosinski, 1975; Prothero, 1976). New ideas and better local economic resources often attract the re-settlers.

A resettlement scheme may be defined as a planned project or program involving the transfer of people most probably through selection and control from one place to another. When resettlement schemes are considered, governments in developing countries in general, and in Africa, in particular, make decisions as to when, where and how reestablishment should take place. Private agencies or national or international organizations, such as the World Bank can sponsor such schemes. Unlike the spontaneous resettlement process, movement in the resettlement schemes is brought about by government policy either through a voluntary or involuntary process.

Previous studies have been primarily focused on forced displacement and resettlement and have been highly critical about its adverse impacts on people's livelihood and wellbeing (Colchester, 1997; Pimbert and Ghimere 1997; McLean, 2000; McLean and Stradee, 2003). These findings have led to the general conclusion that resettlement is a threat rather than an opportunity to improve wellbeing and insure optimal biodiversity conservation. But there is subtlety in the origin of resettlement. As Gebre (2002) pointed out "voluntary migrants are defined as people who, for some reason, willingly left their habitual environment or place of origin, and resettled in settings other than their own. In terms of resource and service provision, most voluntary migrants appeared materially better off than most involuntary relocates". The voluntary resettlement may be a better option as people are found to be re-established sooner than involuntary resettlement (Gebre, 2002).

Studies (Green, 1990; Nayak, 1995; Hakim, 2000) show that displacement produces low living conditions and adversely affects the peoples' livelihood, with insufficient resource to generate income in the rehabilitated area. Additionally, the growing deterioration in the economic and social life of the displaced leads to mental illness, alcoholism, prostitution and gambling (Hunter, Rey and David, 1982; Hunter and Rey, 1993; Ramaiah, 1995; Good, 1996).

Cernea (1997) developed the Risk model, which establishes that displacement causes impoverishment. The model has been developed based on certain empirical evidences. Cernea emphasized on a set of eight recurrent risks that need to be monitored and evaluated 'carefully' and 'justly'. The risks are landlessness, joblessness, homelessness, marginalization, morbidity and mortality, food insecurity, loss of access to common property assets, and social articulation. However the Risk impoverishment Analysis model provided the much-needed conceptual frame work to understand the risks of displaced populations. Conversely, beyond disguising the risks, this conceptual model also provides a compass for reconstructive strategies: for land-based resettlement, for employment-opportunity provisions, for house reconstruction programs, health care and nutrition safe-guards, and community rebuilding.

The model, besides being used as a management tool for planning in most developing countries, is used as a tool for participatory rural appraisal. The model was extensively considered by researchers, planners and bureaucrats to develop an understanding of the anticipated and predictive risks. This initiated them to develop an effective and appropriate risk and reconstruction (R & R) package for the displaced (Cernea, 1990; Thukral, 1992; Fernandes and Chatterjee, 1995; Cernea and Mcdowell, 2000). In China, for instance, the policy orientation for resettlement operations calls for "resettlement with development"; in other words, it explicitly formulates the goal of using the resettlement operation as an opportunity for improving, not only restoring, standards of living (Shi, Xun and Yu, 1996).

The Socio-economic Impacts of Resettlement

Worldwide experiences show that, however difficult resettlement problems are, these problems are not intractable if identified and responsibly addressed. Treating resettlement as a mechanism only to get people out of the way of a project, and at low cost, has proved to be the cause of untold human misery (Cernea, 1997). According to Soeftestad (1990), resettled families seldom restore lost social status and economic capacity fully. For farm families, partial but significant loss of farming land to roads or canals may make their farm economically nonviable. High productivity

farmers on fertile valley-bottom land tend to become marginalized when moved uphill to inferior, infertile soils. In the Nepal Kulekhani Hydroelectric project, an independent study found that the majority of displaced people were worse off socially and economically, due to lower productivity of their new land, and less diversified production. Marginalization also occurs through the loss of off-farm income sources. In Sri Lanka's Kotmale project a field study reported that marginalization occurred because opportunities for non-farm income generation were lost or limited through displacement, increasing the economic differentiation between evacuees and hosts.

Loss of wage employment occurs in rural resettlements. Yet creating new jobs is difficult and requires substantial investments. Unemployment or underemployment among resettlers often endures long after physical relocation has been completed; job loss due to displacement causes lasting painful economic and psychological effects. The previously employed may lose in two ways: they lose access to work on small income generating activities and the use of assets under common property regimes. A survey carried out among tribal households in five villages at Talcher, Orissa (Pandey and Associates, 1997) found an increase in unemployment from 9% to 43.6%, accompanied by a large shift from primary to tertiary occupations (when available); reported reductions in levels of earnings were between 50% and 80% among tribes and scheduled castes. Vocational retraining, offered to some resettlers, can provide skills but not necessarily jobs. Joblessness among resettlers often surfaces after a time delay, rather than immediately, because in the short run they may receive employment in project-related jobs.

At the time of resettlement, dismantled social networks that once mobilized people to act around common interests and to meet their most pressing needs are difficult to rebuild. This loss is bigger in projects that relocate families in a dispersed manner, severing their prior ties with neighbors, rather than relocating them in groups and social units. A detailed sociological study by Nayak (1986) on a dam project in India found various manifestations of social disarticulation within the kinship system, such as the loosening of intimate bonds, growing alienation and anomie, the weakening of control on interpersonal behavior, and lower cohesion in family

structures. As a result, participation in group activities decreased; leaders became conspicuously absent from settlements; post-harvest communal feasts and pilgrimages were discontinued; and common burial grounds became shapeless and disordered. A monograph on the Hirakud dam in India found that displaced households whose "economic status had been completely shattered as a result of displacement" did not become "properly integrated" in host villages for many years after relocation (Baboo, 1992). On a larger social scale, studies by historians of migration have also concluded that the costs of population relocation go, in general, much beyond "simply the financial costs": among the "heaviest costs of all are the severing of personal ties in familiar surroundings, to face new economic and social uncertainties in a strange land" (Sowell, 1996). Overall, if poverty is not only an absence of material means, such as land, shelter, work, food; but also powerlessness, dependency, and vulnerability, than the disarticulation of communities and the loss of reciprocity networks are significant factors in aggravating poverty.

Resettled people appear to have lost connections to their culture, history, and identity (Schama, 1996; Karisson, 1998; Jacoby, 2001). They often face loss of economic security and social injustice (Shyamsundar and Kramer, 1997; Brockington, 2002; Bolaane, 2004). Other dominant social groups often overpower resettled people (Bolaane, 2004; Rangarajan and Shahabuddin, 2006). As a result, in some cases people have objected to resettlement, sometimes violently, and occasionally moved back into the original places (Brockington, 2004; Brockington and Igoe, 2006).

As a matter of fact that state often serves as both implementer and referee in resettlement situations puts it in a powerful position. However reluctantly, states do respond to pressures. The question becomes one of how to integrate resettled people into their national political and economic systems so that they can put pressure on their governments and increasingly participate as equal citizens. According to Dolores (2002), key constraints on resettlement projects failing to achieve their goal include weak, authoritarian and uncommitted implementing institutions lacking clear mandate. Lack of organizational capacity and sociological skill to deal with resistance in the resettlement schemes may even jeopardize the program. To Anthony (2002),

resistance may be seen as a response to the often appallingly bad consultation, baseline research, planning, and implementation of resettlement projects and highlights serious shortcomings in the thinking behind such projects. At a deeper level, resistance signifies that development itself has become a contested domain, an argument involving many voices and perspectives notably those affected by displacement and their allies. Thus, the best way to address such constraints is via a more democratic, participatory approach to project planning and implementation. Effective participation involves the ability to influence decisions and proceedings throughout the program.

Environmental Impacts of Resettlement

Environmental impacts are changes to air, water, soil and living things. Sometimes these changes can be measured with technical instruments over a designated time period. Otherwise we must rely on indicators that give us advance clue that environmental changes are about to occur. For example, the percentage of farmers who use best practices in soil conservation would be an indicator of soil management improvement (Krueger, 2000).

Poor and marginalized groups often heavily rely upon natural resources. Therefore, ensuring environmental sustainability in resettlement areas is a factor in a successful project; it is more likely that settlers will stay permanently in an area where there is a sustainable level of natural resource availability. That said, resettlement projects must address any negative environmental impacts that may be caused by the resettlement of a large population from one area to another. These considerations should be considered in the planning phase and can be measured through an environmental impact assessment. The environmental impacts of a big project are not always readily apparent. One of the key questions for this critical factor is concerned with the impact a settler population may have on the existing stock of natural resources in the host area. Negative environmental impacts can be simply a result of increased population pressures or can result specifically from poor planning. For example, cutting of trees may result from absence of alternative source of fire wood

and expansion of farm land due to declining of production, and forest fire can occur during harvesting of wild honey or clearing farm land for growing food crops.

According to Pandey (1997), in the Rengali dam area in India, while prior to displacement all families had access to common grazing lands and burial grounds, after relocation only 23.7% and 17.5%, respectively had such access. After losing the use of natural resources under common property, displaced people tend either to encroach on reserved forests or to increase the pressure on common property resources of the host area population. This is a source of both social tension and increased environmental deterioration. Secondary adverse effects of resettlement on the environment also occur when ousters who do not receive cultivatable land move uphill into the reservoir watershed. This migration intensifies deforestation and cultivation of poor soils, accelerating erosion and reservoir siltation. Chhetri and Pandey (1992); Pandey and Yadama (1990); and Pandey (1992) indicate that local ownership of land and trees is an important factor that helps explain the local incentive to manage forest resources. Jodha (1990); Pandey and Yadama (1990) and Wade (1992) report that the more vital a resource is to household survival, the greater the chances of its continued successful management.

Although natural resources are critical to agricultural production, farm households also frequently depend on them to meet other needs, such as fuel, construction materials, and supplementary foods. Thus rural livelihoods are intricately linked to the condition of natural resources, particularly for those people living on fragile lands. According to Bayramin et al., (2003), soil erosion has accelerated on most of the world, especially in developing countries, due to different socio-economic, demographic factors and limited resources. Reusing, Schneider and Ammer (2000) mentioned that increasing population, deforestation, land cultivation, uncontrolled grazing and higher demand for fire often cause soil erosion. Yeraswork (2000) indicates that forest areas are invaded by land hungry and energy-hungry, large as well as small interests, they are being stripped of their canopy and diverse bio-mass and genetic resources. In many developing countries, environmental and natural resource degradation has assumed disaster dimensions. To Chamber (1987), the more

rural families use forest products the better they participated to protect and make better use of it. FAO (2003) report that raising awareness of forests and forestry is a social process aiming at increasing interactions between forestry and society, thus empowering people and interest groups to become partner to support sustainable forest management. To be effective, this process must meet and maintain interests of both the social and the forest actors. In her study "Living with Nature? Assessing Resettlement from a National Park in Thailand", Nabanchang (2004) recommends that community land use rights be granted, to legally acknowledge the collective rights of members of Ban Pa Kluay; these can be withdrawn if members fail to abide by the rules to protect the forest.

Over 85 percent of Ethiopia's population live in rural areas and depend on natural resources (land, water, forests and trees) for economic development, food security and other basic necessities (Alemneh, 2003). Historically, forests have been very important for the livelihood of the Ethiopian people. Forests are important sources of fuel wood and construction materials for the rural as well as the urban community. They are also sources of non-timber forest products such as natural gums, myrrh and honey. However, growing populations are increasing deforestation which is leading the country to famine. As the population continues to grow, the needs of the people increase. Individual farmers do not have many other options than converting forests into agricultural land if they are exposed to severe food insecurity. They prefer food today over tomorrow and they definitely cannot carry the costs of forest conservation for the coming generation and thus land degradation is becoming worse from time to time. Such land degradation reduces average agricultural productivity and increases farmers' vulnerability to drought by reducing soil depth and moisture-holding capacity. The combined effects of low productivity and eco-system degradation expose the poor in a vicious cycle of poverty and environmental degradation (Stein, Shiferaw and Pender, 2005).

Accelerated deforestation in Ethiopia has been taking place since the beginning of the 20th century. Forests were thought to have covered nearly 35 to 40 percent of the country's total area at the beginning of the 20th century but today's forest cover is

estimated at only 2-3 percent and the rate of deforestation is calculated to be 150,000 and 200,000 ha per annum (EFAP, 1994). The losses of Ethiopian forests are not brought only by the lack of research and proper management but are also due to the lack of land-use policy. Resettlement programs were launched without taking into consideration the types of plants, soil properties, hydrology and socio-economic conditions of the regions affected (Mengistu, 2005).

According to Grainer (1993), the causes of deforestation could be agricultural expansion, overgrazing, fuel wood gathering, commercial logging, infrastructure and industrial development of which agricultural expansion accounts for 60% of the causes. In his study in Gambela region, Mengistu (2005) reported that deforestation activities were not only confined to the resettlement areas but also spread throughout the region. Much of the vegetation cover was cleared and burned to give way to farmland, grazing and resettlement areas. As a consequence, the indigenous inhabitants have begun to witness the change since the temperature of the region has become relatively warmer than before. Moreover, drought occurrences have become more frequent than during the pre-resettlement period. In short, in view of the new grave deforestation process most of the valuable plant species of the region are on the way to being completely depleted.

Pankhurst (2004) indicated that in many of the lowland areas where the settlement was undertaken, the soils tend to be fragile and subject to erosion and the concentration of large numbers of people resulting in the clearing of land for cultivation and firewood has led to considerable deforestation with potentially irreversible negative consequences. Mesfin (1988) has also contended that the lowlands are more vulnerable to any types of land use change than the highlands although this area covers about 60% land mass of Ethiopia.

In further study, Rahmato (2003) reported that government sponsored resettlement programs that were carried out during 1984/85 involved considerable environmental damage by clearing large areas of vegetation to build homesteads, to acquire farmland and to construct access roads. He also indicated that the scheme

failed to adapt farming practices to agro-ecological conditions of the lowlands, and as a consequence the environmental damage involved was quite considerable. In his study in Chewaka district Oromia National Regional State (ONRS), Berhanu (2007) has indicated that the population pressure in the resettlement areas compounded by few conservation efforts jeopardized the sustainability of the woodland and life in the area in general.

Factors Related to Resettlement

Many scholars gave due attention to resettlement schemes and a lot of research works have been conducted to study the impacts of the resettlement programs. These scholars used different variables to determine the effects (success or failure) of the scheme. To SIPA (2004), the critical factors that influence resettlement are land tenure, agro-ecology, agricultural extension and support, social services, relationship between the re-settlers and the host community, gender, environmental sustainability, administration and coordination. Frederic (2006), on his study "Assessment of past resettlement activities and action plan" in Uganda indicates that agricultural land, land titles, access to water supply, electricity, road, health, and education and household incomes are the main issues to be considered in resettlement programs. To ADB (2000), six factors are crucial for an integrated approach to resettlement planning and implementation: appropriate policy frame work, comprehensive planning, disclosure and consultation with stakeholders, strong implementation agency, resettlement costs and funding, and supervision and monitoring. To Ramakrishna and Assefa (2002), household food security depends on the factors such as food availability, socio-economic conditions of the society, and the like. In the study conducted on food security analysis they used the variables such as cereal production, income, livestock, land size, household size, education level and fertilizer use. The households' responses regarding their survival mechanisms during food insecurity periods have also been recorded.

State sponsored, organized resettlement programs can be successful if they are executed in a very careful and gradual manner by taking into account a wide range of resettlement factors. These factors are: agro-ecological factors, agricultural extension and support, land tenure, family labor, access to drought power, diversity of sources

of income (on-farm and off-farm), social services, relationships between settlers and the host community, gender, environmental sustainability, and administration, coordination and cost. All these factors will serve interdependently to ensure a successful resettlement program. Attention to one area is linked to the others, hence due focus must be paid to each factor, in order for the program to accomplish its goals. These factors point to the importance of devising a locally-based and prioritized plan, which will provide the right incentives to the target group of settlers. The factors in any resettlement policy will depend largely on who the target group of the policy is, so it is not just a question of providing some incentives to the settler community but providing the right incentives to the targeted population according to their expressed needs.

Resettlement in Ethiopia

The reasons behind the poverty in rural Ethiopia have mainly arisen from neglect by governments with the land being mined to feed an emerging population; these pressures and interference have led to the collapse of traditional land management systems for maintaining environmental integrity in general and soil fertility in particular (Hailu and Edwards, 2006). The conversion of woodlands and shrub lands into croplands has resulted in loss of the natural vegetation cover and has caused severe soil erosion. It is estimated that every year about 1.9 - 3.5 billion tons of topsoil is being removed from the Ethiopian highlands (EFAP, 1994). In some areas, soil loss from newly cleared forestland for crop production purposes was reported to be significantly higher than cultivated or pasture lands (Solomon, 1994). Therefore, the state of the resource base of the Ethiopian rural system should be re-examined in relation to population pressure by integrating environmental protection strategies with development strategies and their implementation (Feoli, Vuerich and Zerihun, 2002).

In the Ethiopian context, to cope with the problems of land degradation, governments have carried out resettlement programs with different objectives to resettle people from the agriculturally poor highlands to more fertile lowlands. During the country's third five year plan (1968-72) of the Imperial regime, state sponsored resettlement program was initiated with the objective of balancing the carrying

capacity of the land in the northern part of the country with the population, and generally modernizing agriculture. But due to the unwillingness of influential people around the government it was not possible to conduct a planned settlement with financial assistance of development banks (Cliffe, 2004). Since sufficient budget was not allocated in the majority of resettlement programs, endemic animal and human diseases could not be controlled, proper attention was not given to selecting settlers nor to the provision of extension services. Hence, the resettlement programs were not successful (Cliffe, 2004).

In the period 1984-86, the Derge (military regime) resettled some 600,000 people mostly in the lowlands of western Ethiopia. In this same period, some 33,000 settlers lost their lives due to disease, hunger and exhaustion and thousands of the families were broken up. It is estimated that close to half a Billion birr was spent on emergency resettlement, but the cost of damage caused to the environment, of the loss of livestock and other property, or of the distress and suffering caused to numerous people and communities will never be known (Rahmato, 2004).

The large scale resettlement programs under this regime were not in general voluntary. The program was driven from the top as a political imperative with implicit compulsion. In some of the resettlement areas particularly in southwest Ethiopia, indigenous communities were instructed to abandon all their claims to use of natural forest resource as these changed hands to the resettlers. As a whole, the military regime's resettlement was a tragedy for the vulnerable poor Ethiopian farmers.

Resettlement Strategy of the Current Government (2003-2009)

In the past decades demand for access to productive land became an agenda by those vulnerable and food insecure households. Even in time of good rainy seasons and good harvest opportunities, most of these households could not feed their families for more than six months from their production. These households are barely surviving with food aid from the government and donors. On the other hand, the western and southwestern parts of the country have a considerable amount of land currently underutilized, which are suitable for farm activities. Most of these areas can accommodate both commercial and small scale farming practices. These areas are

scarcely populated and have a room to resettle more people. However, the areas are characterized by poor infrastructure and diseases such as malaria have historically been prevalent.

The resettlement will alleviate the problem of shortage of land for the remaining people and thereby improve the prospect for ensuring food security. Since, after few years, the resettlers may help their relatives in their former villages; this will additionally contribute to the possibility of achieving food security in the drought areas. Therefore, settlement program is a key solution to rapidly alleviate the problem of food insecurity. If it is done in coordination with the integrated development of settlement areas, it may help to create growth center which will have substantial impact on overall development of our country. Therefore, it is a fundamental development work that requires due attention (MOI, 2001).

Hence, considering the demand of the poor rural people and the experiences that the military government has had in the resettlement scheme, the current government has designed its own strategy. The main objective of the resettlement program is to enable up to 440,000 chronically food insecure households (it is nearly 2.2 million people) (Table 1) attain food security through improved access to land (NCFS, 2003).

Table 1 Number of households to be resettled and cost estimates (Birr) by regional states

Region	Number of Households	Benefit cost*	Infrastructure cost	Transport cost	Credit support
Tigary	40,000	66,800,000	13,850,000	4,000,000	40,000,000
Amhara	200,000	331,000,000	67,083,000	70,000,000	200,000,000
SNNPR	100,000	165,500,000	30,000,000	20,000,000	100,000,000
Oromia	100,000	165,000,000	30,000,000	35,000,000	100,000,000
Total	**440,000**	**728,800,000**	**140,933,000**	**129,000,000**	**440,000,000**

Source: MOARD (2003); 1 USD equivalent to 13.50 Birr.

*Benefit cost refers to food rations, household utensils, agricultural tools and seeds.

According to NCFS (2003), the following five main points have been taken into consideration based on Ethiopian and international experiences to support resettlement, labor mobility and land reform: i) Desperate people will move spontaneously: many people in hard-hit areas are moving spontaneously to flee from hunger. Present reality thus shows that desperate people will move and that the choices they make without structure or assistance may not improve their own lives or that of the national welfare; ii) Voluntarism is essential for success: based on past experiences, the design of the present resettlement program makes explicit difference from the resettlement campaigns of the past and voluntarism is one of the key principles; iii) Resource use right of host communities respected: during previous regimes, in some resettlement areas indigenous communities were instructed to abandon all their claims to the use of natural forest resources as this formed bad intercommunity rapport; iv) Potential conflict can be reduced by remaining within regional boundaries: past programs encouraged people to move across regional boundaries, thus introducing diversity in language, culture and ethnicity that impeded assimilation and led in some cases to conflict; and v) Risks of the environment and environmental factors affecting health must be taken into consideration: movements of people in the past have contributed to the degradation of natural resources and exposed migrants to new health risks, particularly, malaria.

In addition to the above points, the voluntary resettlement program also incorporated the following key principles and approaches. They are: voluntarism, partnership, self-help and cost-sharing, transparency of the program design, iterative "learning by doing" approach, environmental concerns, development process, self-reliance, income and employment creation, community management, intra-regional, and minimum infrastructure. At the same time, regional governments have to identify and make sure of the availability of enough land before they initiate planned resettlement program. According to the current regional survey, the total area of land available is about one million, in Amhara 500,000, Tigray 130,000, Oromia 250,000, and Southern Nation, Nationalities and Peoples Region (SNNPR) 100,000 hectares (NCFS, 2003). On the other hand, the program is not intended as a temporary measure to address the immediate food crisis. Instead, it is intended as a long-term program to

remedy the most costly consequences of limited mobility of land and labor in Ethiopia. Ethiopians who bear the highest costs are poor rural people dependent on agriculture and with insufficient land to feed themselves consistently. According to initial estimates, as many as 2.2 million people may be potential beneficiaries of the program.

A realistic time frame for implementation of the program is three years. The number of households to be resettled in first, second, and third years is estimated at 100,000, 150,000, and 190,000 respectively (NCFS, 2003). Conformed to principles of voluntarism and proper preparation, flexibility within each region regarding time frames and the number of people per year may be considered, above or below the estimated projections. No movement of people should start before confirmation of fulfillment of the pre-conditions at both ends (sending and receiving *woredas*). The program is initially designed with federal funding and regional implementation, in recognition that the problem to be addressed at present has national implication. It is expected that after approximately five years the continued implementation will be carried fully by regional funding.

Resettlement in Amhara Region

In Amhara region, chronic and frequent food shortage of varying degree is becoming prevalent at different times and provoked large-scale state-organized resettlements programs. Among the zones found in the region South Wollo, North Wollo, North Shoa, Waghamera, Oromia, South Gondar, North Gondar and part of East Gojjam are affected by food insecurity problems. Sixty four *Woredas* (19 in South Wollo, 10 in North Wollo, 9 in North Gondar, 7 in North Shoa, 6 in Waghemra, 5 in South Gondar, 5 in Oromia and 3 in East Gojjam) found in these areas were identified as severely food insecure areas and nominated for various development interventions, resettlement among others, as part of Regional Food Security Program (FSDPO, 2009).

As part of its attempt to address this chronic food insecurity which is widespread in some parts of the region, the regional government has initiated a program to resettle people from the agriculturally poor highlands to the more fertile

lowlands. Accordingly, since 2003, the Amhara National Regional State (ANRS) has resettled 166,204 people (82,196 household (HH) heads and 84,008 family members) in six districts of the region, namely Metema, Quara, Tegede, West Armachiho, Tach Armachiho and Jawi (FSDPO, 2009) (Table 2).

One of the preconditions for successful resettlement program is the availability of social services such as health, education, water, road, etc. at the resettlement sites before relocating people. Past lessons from Derg's resettlement program illustrate that such program often fail when the government relocates people before putting social services in place at the resettlement areas. As de Wet (2004) pointed out, resettlement goes wrong principally because of lack of proper inputs and hence lack of social services that give rise to the inevitable impoverishment risks, leaving settlers worse off than before. In Amhara region, due to different factors 52% of household heads and 43% of total resettlers have been returned back to their original places (FSDPO, 2009) (Table 2).

Table 2 Number of resettlers and returnees in Amhara region, 2003-2009

Year	Number of resettlers			Number of returnees			Percent of returnees	
	HH heads	Family members	Total	HH heads	Family members	Total	HH heads	Total
2003	14,717	16,798	31,515	11,552	10,130	21,682	78	69
2004	6,711	9,894	16,605	3,469	2,402	5,871	52	35
2005	31,924	30,507	62,431	19,544	12,243	31,787	61	51
2006	8,505	6,907	15,412	3,842	1,701	5,543	45	36
2007	7,203	3,604	10,807	4,165	1,414	5,579	58	52
2008	4,268	5,160	9,428	330	465	795	8	8
2009	8,868	11,138	20,006	153	438	591	2	3
Total	**82,196**	**84,008**	**166,204**	**43,055**	**28,789**	**71,844**	**52**	**43**

Source: FSDPO (2009)

The overall management and coordination of the resettlement program in Amhara national regional state is carried out by Food security and disaster prevention offices (FSDPO) at regional, zonal and *woreda* levels. Sector offices like bureau of agriculture and rural development, health, education, water resource, rural road, environmental protection and land administration and cooperative promotion are members of the rehabilitation and development sub-committee and responsible for all activities related to their organization. In turn, the sub-committee is accountable to the main steering committee which is chaired by the regional administration office.

According to FSDPO (2009), the total budget utilized for the resettlement program in the past seven years was 607,706,002 Birr (equivalent to 45,182,602.38 USD). From this figure it could be assumed that the average expenditure per initial resettled family was 7,393 Birr. However, the average expenditure doubles (15,525) if returnees are excluded from the assumption (Table 3).

Table 3 Number of resettlers' and remainders' HH heads and total budget (Birr) spent for the resettlement program in Amhara region from 2003 to 2009

Year	Initial number of HH heads	Number of remainders' HH heads	Total budget spent in Birr	Budget spent per HH head	
				Initial resettlers	Remainders
2003	14,717	3,165	52,145,938	3,543	16,475
2004	6,711	3,242	55,257,777	8,233	17,044
2005	31,924	12,380	135,461,642	4,243	10,941
2006	8,505	4,663	60,030,486	7,058	12,873
2007	7,203	3,038	90,079,565	12,505	29,650
2008	4,268	3,938	109,219,718	25,590	27,734
2009	8,868	8,715	105,510,876	11,898	12,106
Total	**82,196**	**39,141**	**607,706,002**	**-**	**-**
Average	**11,742**	**5,592**	**86,815,143**	**7,393**	**15,525**

Source: FSDPO (2009)

The regional government's current initiative to resettle people from the most chronically food insecure to a less populated, relatively fertile part of the region should be viewed as a genuine attempt to contribute to resolving farmer's continual poverty. However, the government should not be over ambitious in its plans to relocate too many people at once before putting adequate essential social services at resettlement sites. Resettlement should be a process, starting at a pilot and replicated at a wider scale if proved successful. It must be realized that effective social service delivery induces people to voluntarily move to resettlement (Abraham and Piguet, 2004).

International Experiences in Resettlement

Many tropical countries have pursued government-sponsored land settlement policies during the last half-century or more. Most of their experiences indicate that widespread 'failure' has not been confined to the kind of draconian approach typical of the Ethiopian military regime in the 1980s (Cliffe, 2004). State-sponsored settlement schemes had proved popular in many African countries in the immediate post-colonial period, and have continued in the decades since in countries including Nigeria, Tanzania, Somalia, Zimbabwe, Zambia and Sudan. Similarly, in Mozambique and Vietnam resettlements have caused huge environmental and social catastrophe. Ethiopia and other countries like Sudan tried to settle nomads with the objective of limiting mobility, illegal border trade and ensure security. However, studies show that all such programs failed (Cliffe, 2004).

In the Southeast Asian country, Malaysia, the government has given strategic importance to the planned development of new areas for settlement schemes. Malaysian's resettlement program, organized by Federal Land development authority (FELDA) was created in 1956, in coordination with major international donors, such as the World Bank. The main aims of the program are poverty alleviation, commodity expansion, and rural development. In addition, although population distribution was never an objective of the FELDA settlement scheme, the restraint of rural-urban movement was a motivating force. Settlers may move into the new community only after the planting of the main crop area, the completion of the settlers' house construction, and the provision of basic services in the village. The new settlement

area is divided into lots. Each lot covers an area of 4 hectares and is allocated to a settler on an individual basis. The settler is responsible for tree and soil maintenance, carrying crops to the processing factory, and the maintenance of access road. The profits within a block are divided up into as many equal shares as there are lot members. The Malaysia case is lauded as a success in development, it also must be known that it is the most expensive organized resettlement program in the world. For example, FELDA absorbed 645,140,000MYR in the second Malaysian plan to settle 13,700 families, a cost of more than 47,000MYR, or greater than US$20,000 per family (Jones and Richter, 1982). On the other hand, the production level of the majority of the settlements in Indonesia could not be justified as economically viable (Oberai, 1986).

A survey done for the UN, found that very few programs achieved the stated objectives (Oberai, 1986). Study by the World Bank (1978) used as a stricter measure, but still came to the pessimistic conclusion that evaluation of settlement projects three to five years after the start of implementation shows economic rates of return at least 50 percent below those in project appraisal documents. A survey based primarily on Latin American experience concluded with the observation that few spheres of economic development have a history of, or reputation for, failure to match that of government-sponsored colonization in the humid tropics.

Research Hypotheses

1. The economic and social factors of resettlers of Metema and Quara *Woredas* before and after the resettlement program will be different.

2. The economic and social factors of resettlers of Metema *Woreda* will be no different from resettlers of Quara *woreda* while still in their native habitats.

3. The economic and social factors of resettlers of Metema *Woreda* will be different from resettlers of Quara *woreda* after the resettlement program.

Conceptual Framework

A combination of population pressure, small land holdings, land degradation, and erratic rainfall has left over millions of rural Ethiopians in critical need of relief food aid. The acute crisis, combined with chronic food insecurity over the past many years has driven the Ethiopian government to think of solutions more durable than food aid. Resettlement has been resurrected as part of long-lasting solutions to the continual impoverishment and destitution of Ethiopian rural communities. The voluntary resettlement program is one of the most important food security strategies of the Federal Government of Ethiopia. With this aim, the government has designed a strategy to undertake a resettlement program through genuine participation of the settlers and the host community.

The conceptual framework developed to the analysis of resettlement in Amhara region was mainly focusing on the economic, social, and environmental factors. The relative result of these factors was also be influenced by variables over which the individual or household has little control. The product of all these variables operating in combination was a program outcome that can be characterized as improved livelihoods.

The economic factor as shown on Figure 1 consists of different variables, such as farm land holding, oxen holding, total livestock holding, family labor, on-farm income, off-farm income, total household income, food availability, consumption coverage, daily food intake, number of daily meals, number of visits by development agents (DAs) and number of agricultural technologies used by resettlers. These economic factors were compared on the basis of before and after resettlement in order to show the changes in the life of resettlers as a result of the resettlement program.

Social factors attribute to the well-being of the society in indirect form by improving access to essential services. Under social factors, as shown on Figure 1, a number of variables, namely, education, health, electricity, grinding mills, clean water, all weather road, market center, credit facility, veterinary service, telephone service, postal service, permanent toilets and housing are described. The risk of constrained access to social services can arise from many directions. For example,

risk of access failure can be driven from the supply side through a collapse in government intervention. Alternatively it can come from the resettlers side, such as under utilization of services (school, health, and so on). Therefore, risk of constrained access to social services allows for a consideration of all aspects of the program. Well established social services have a positive influence on the resettlement program.

The third factor to be considered in the conceptual frame work is the environmental factor consists of variables, such as soil fertility management, land conservation, natural forest protection, tree planting and use of alternate energy. Environmental sustainability is a critical issue under any development programs, unfortunately less attention is provided to the protection of natural resources and in many occasions it is one of a coping mechanism during any economic shock in the rural areas. In the same way, resettlers give more attention for the extraction of natural resources rather than conserving it. Active participation of the resettlers on conservation practices ensures sustainable development of the area. The causes for the resettlement program were natural resource degradation in the original place, hence assessing the present situation of the natural resource base of the resettlement sites will provide a clue for further intervention by the government and the local community.

In this study, the economic and social benefits of the resettlers was assessed and compared on the basis of before and after resettlement program. Secondly, the environmental impact of the resettlement program on resettlement areas was assessed and consequently opinions, suggestions, and recommendations of the resettlers were collected to enrich the results of the research outputs.

As a whole, Figure 1 provides a conceptual framework for examining the results of before and after resettlement program which lead to generation of constructive recommendations for policy makers and the local community.

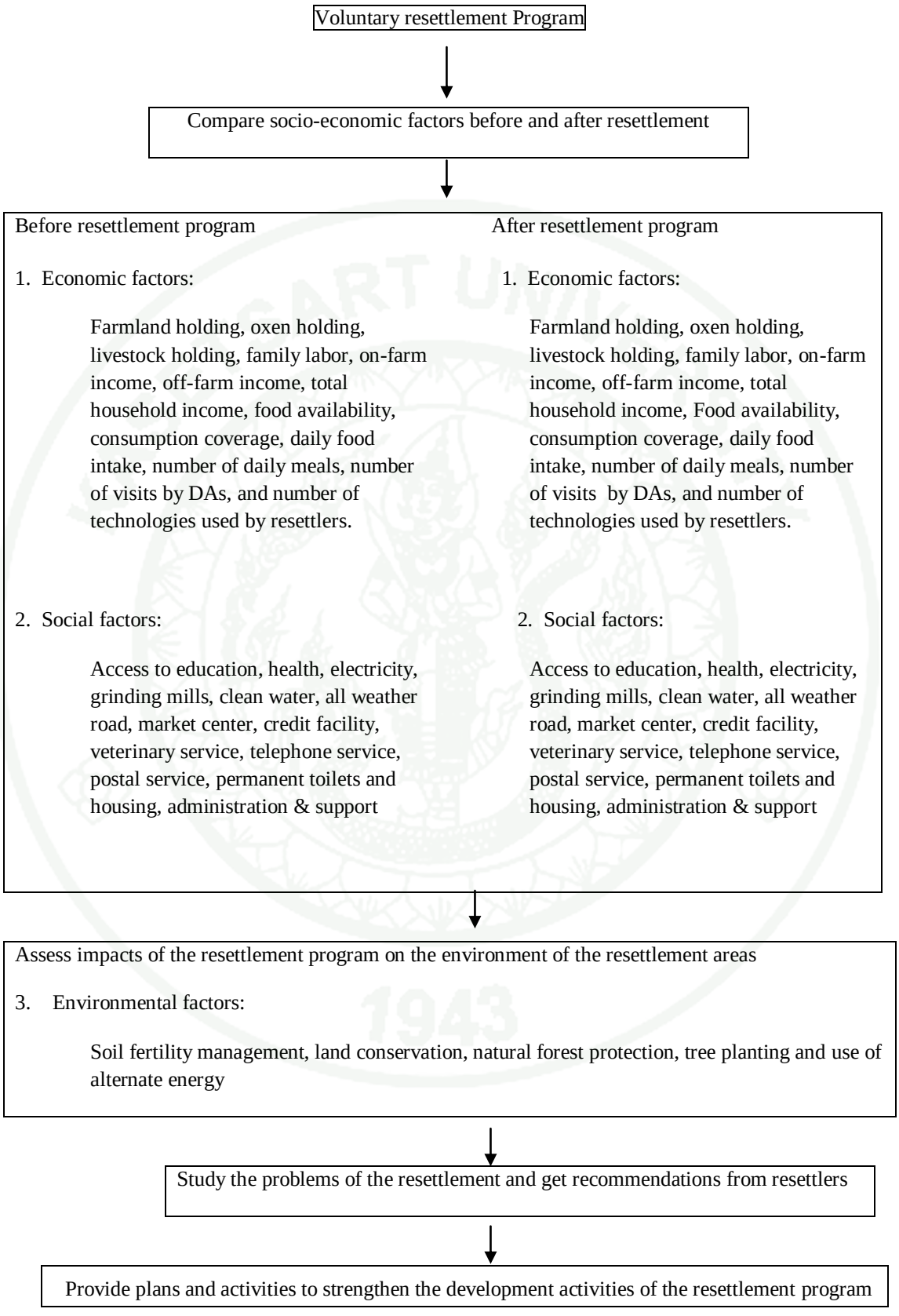

Figure 1 Conceptual Framework

CHAPTER III

RESEARCH METHODOLOGY

Locale of the Study

The criteria guided to the selection of the area for this study were: i) availability of adequate land potential for further resettlement and availability of resettlers with more than two harvests; ii) accessibility of the *woredas* (more and less) for comparison purposes; iii) availability of good baseline data to enable the study; and iv) genuine interest by policy makers to gain insight into resettlement impacts on resettlers and the environment to effect suitable policy. Based on these criteria the study was conducted in Quara and Metema *woredas*, North Gondar administrative zone of Amhara National Regional State (ANRS).

The Region

Amhara national regional state is found 565 km away from the capital city of the country, Addis Ababa, in the North West. It is located 9° and13° 45' North Latitude and 36° to 40° 30' East longitude grids with an area of 170,752 km^2 (17.0752 million ha). It is bordered with Afar in the East, Benshangul Gumuz in the South Western, Oromia in the South and South Western, Tigray in the North and with the Sudan in the west (BOFED, 2004).

The region has various topographies, comprising mountains (27.7%), plains (37.8%), valleys (11.4%), rugged terrains (21.67%), and swamps (1.5%). The altitudinal range of the region varies from 4620 meter above sea level (masl) (the highest peak in the country) at Ras Dashen to 600 masl around Metema (BOFED, 2004). The land use data of the region indicate potentially arable land 27.2%, range land 30%, forest and bush cover 14.7%, and land used for buildings 4.3%, water body 3.8%, and land not in use 19%.

The lowest average annual temperature of the region is 12.4°C while the highest is 27.8°C. The average annual rainfall varies from areas that receive below

500 mm to areas that receive between 1,200-2,000 mm. The region has four climatic zones, namely, *Wurch* (frost), *Dega* (highland), *Woina-Dega* (mid-highland), and *Kolla* (lowland), comprising 0.83%, 45.14%, 20.37%, and 33.66% of the region's total area, respectively (BOFED, 2004). The total population of the region was estimated at 18.7 million, with an average density of 115 persons per km^2 and growth rate of 2.9%. The rural dwellers constitute about 88.8% of the population (CSA, 2005/06).

The *Woredas*

Metema and Quara *woredas*, the study areas, are found in North Gondar zone with an area of 3,995 km^2 and 7,395.3 km^2, respectively (Fig.2). Geographically Metema is located at 12° 58' 0" North and 36° 12' 0" East, whereas Quara is positioned at 12° 18' 0" North and 36° 13' 0" East. The population density is 18.5 persons per km^2 in Metema and 13.4 persons per km^2 in Quara. Both districts are within the Kolla (lowland) climatic zone with a respective altitude range of 549-1,608 and 552-1,687 masl. The soil type is vertic cambisol, which is suitable for crop production (BOARD, 2009). The low population density and the availability of vast areas of land in both districts had drawn the attention of the local government and thus led to a decision to resettle farmers from the densely populated and degraded highlands to the more fertile lowlands. The production system analyzed in the study area is typically of mixed crop-livestock, where livestock mainly provide draught power for land cultivation. The main types of crops cultivated include sesame, cotton and sorghum. The area is also known for its non-timber forest products such as natural gum, incense and honey.

Ethiopia **Amhara Region**

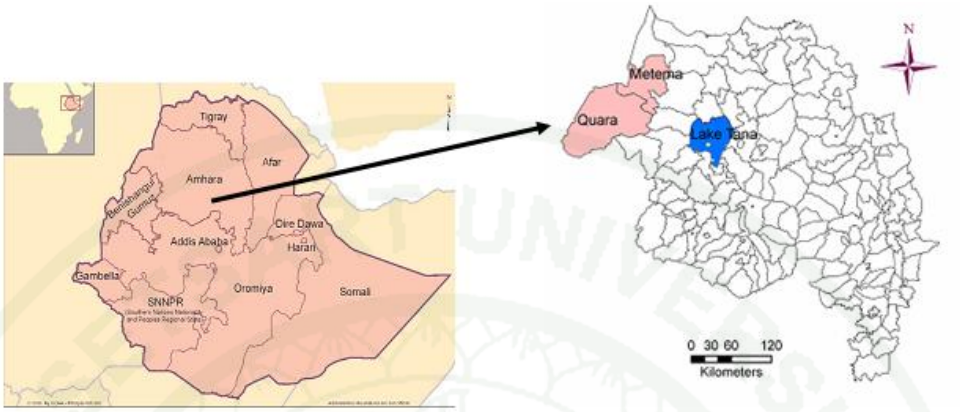

Figure 2 Map of Ethiopia showing the location of the two study *woredas* in Amhara region.

Research Design and Methods

The choice of methods of a particular study depends on the type of the purpose the research at hand. In a given research, the choice of methods influence the way in which the researcher collects and analyzes data. However, there are no strict rules as such for the choice of the method but a researcher needs to strike a balance between the cost and time available for the research, and depth and breadth of information needed to be analyzed by either qualitative or quantitative or both methods (Robsen, 1993).

This research study was employed the survey design using questionnaires as the main instrument in collecting the data and the main methodology used in this study was quantitative techniques. In addition, observations and discussions of the various phenomena and themes were employed.

Sampling

1. Sampling Techniques for Quantitative Method

Like other most similar studies, this study has used a number of sampling procedures in selecting the resettlers' households to be interviewed. In the first stage of the sampling process, two *woredas* were selected purposively on the basis of a

number of factors: i) their relative importance in receiving more resettlers and availability of land potential for future resettlement; ii) long experiences in receiving resettlers and availability of baseline data, and iii) their accessibility (good and poor) for comparison purposes. In the second stage of the procedure, six *kebeles* (villages) from the two *woredas* (three from each) were selected on the basis of purposive sampling technique like the *woredas*. In the third stage of sampling procedures, the sample from each village was selected using simple random sampling technique. Therefore, sample size was determined on the basis of total number of households in the six *kebeles* (2696 people) and by using Jaeger formula (1997), it was calculated to be 337 (168 for Metema and 169 for Quara).

$$n = \frac{(t/e)^2 p(1-p)}{1+(1/N)\left[(t/e)^2 p(1-p)-1\right]}$$

When,

N = population size = 2,696

n = Sample size

e = sample size for error (0.05)

t = Testing statistics = 1.96 (z = 1.96)

p = Proportion in the population = 0.5

Where

$$n = \frac{(1.96/0.05)^2 0.5(1-0.5)}{1+(1/2{,}696)\left[(1.96/0.05)^2 0.5(1-0.5)-1\right]}$$

$$n = 336.36 \approx 337$$

Sample size for each *kebele* is calculated using proportion of number of households in each *kebele* to the total number of households of the six *kebeles* (2,696) (Table 4).

Table 4 Distribution of sample respondents by sample *kebeles*

Sample *Woreda*/*Kebele*	Total number of households*			Number of sample respondents**		
	Male headed	**Female headed**	**Total**	**Male headed**	**Female headed**	**Total**
Metema *woreda*						
Tumet	360	15	375	41	6	47
Dasgundo	408	57	465	49	9	58
Shimelgar	487	17	504	50	13	63
Sub-total	**1,255**	**89**	**1,344**	**140**	**28**	**168**
Quara *woreda*						
Chercher	212	100	312	33	6	39
Banbaho	352	87	439	43	12	55
Bermel Terara	474	127	601	58	17	75
Sub-total	**1,038**	**314**	**1,352**	**134**	**35**	**169**
Total	**2,293**	**403**	**2,696**	**274**	**63**	**337**

Source:*WOARD (2009) ; **Own computation

2. Sampling Technique for Qualitative Method

Survey respondents from *kebele*, *woreda* and regional Agriculture and Rural Development Offices and *woreda* and *kebele* administrations were selected purposively with respect to their roles in the resettlement program and their knowledge and experiences on the subject of the study for the qualitative study. Focus group discussion with resettlers, host communities, youths and women was considered important to get information on their live experiences and views on the resettlement program. Discussion participants were randomly selected exclusive of quantitative survey respondents. For each of the villages 6-8 female and male

resettlers were invited on simple random sampling method. Further 6-8 other host community members were randomly selected from each village to make up a total of 12-16 participants for each FGD. The village Administrator, community organization leaders, and extension agents from the area were invited to help addressing concerns that relate to their responsibilities. A female discussant was assigned to lead the women's small group discussion.

Research Instrument

The questionnaire, which was originally prepared in English and then was translated in to Amharic, was used as an instrument to collect all data from 337 resettlers' household heads. It was consisted of five parts containing both open-ended as well as close-ended questions.

Part 1: Basic demographic characteristics of resettlers

The questions in this part included gender, age, level of education, marital status, number of children, family size, religion, ethnic group, farming experience, length of residence in the new area, living condition with family members and agro-ecological zone of resettlers' origin.

Part 2: Economic factors

The questions under this part were about the economic factors of the households before and after the resettlement program such as farm land holding, oxen holding, livestock holding, family labor, on-farm income, off-farm income, total household income, food availability per year, consumption coverage per year, daily food intake (nutritional status), number of daily meals, number of visits by development agents and number of technologies used by resettlers.

Part 3: Social factors

The questions in this part were focused on the level of satisfaction of resettlers towards the accessibility of identified common social services like education, health, electricity, grinding mills, clean water, all weather road, market center, credit facility,

veterinary service, telephone service, postal service, permanent toilet and housing before and after the resettlement program.

Part 4: Environmental factors

The questions were about the participation of resettlers in natural resource protection practices and at the same time focused on the impact of the resettlement program on the environment of the study area. Soil fertility management, land conservation, natural forest protection, tree planting and use of alternate energy were among the questions asked.

Part 5: Major problems and suggestions of resettlers and key informants

The questions in this part focused on the major problems and suggestions that were related to the resettlement program, namely level of community participation in the selection and relocation of resettlers, land size and quality in the new area, accessibility of social services, level of resettlers' participation in natural resource conservation (NRC) and about the overall management and coordination of the program.

Data Collection

This study applied appropriate mechanisms to collect information on the existing situation of the resettlement program in Amhara region. The research questionnaire used for data collection was originally prepared in English. Then, it was carefully translated to the local language Amharic, so that language should not be barrier to respondents to spell out what they have in mind. The translated version of the questionnaire was carefully cross-checked with the initial English version and was similar in content and structure. This was done to avoid error during data entry.

A pre-test was conducted before actual data collection using small representative sample to find out whether the questions are measuring what is intended to be measured. Clarity of wordings in view of respondents' level of understanding was checked on the pre-test to avoid research bias. It was proved that respondents have good understanding of questions presented in the questionnaire.

Pre-test survey respondents were not included in the main survey to avoid bias of respondents. The main survey was conducted from October to December 2009.

The quantitative data was collected by employing 20 enumerators, 10 for Metema and 10 for Quara. Fluency in local language Amharic, experience in data collection and knowledge about research *kebeles* was considered in recruiting enumerators. Two supervisors (one for Metema and the other for Quara) were employed to assist the researcher in facilitating the whole project work. The researcher provided two days of intensive training to enumerators assigned to each *kebeles* using well developed manual.

The researcher carried out the qualitative data collection. Interviews with *kebele*, *woreda* and regional experts and *kebele* and *woreda* administrations and focus group discussions with different social groups were arranged on respective participants' convenience and were conducted on places, dates and time of their choices. Secondary data was also derived locally from the Regional Bureau of Agriculture and Rural Development, Office of Food Security and Disaster Prevention and various line offices at district and village levels and from non-governmental organizations and civic societies working in the vicinity of the resettlement areas.

Data Analysis

In this study qualitative and quantitative data analysis method was employed.

The main findings of the discussion and interviews of this study were analyzed qualitatively and also data and information made available through various instruments was analyzed separately through qualitative analysis on the basis of descriptive approach.

The quantitative data analysis focused on the comparison of social and economic factors before and after the resettlement. This includes: i) comparison of the economic and social factors of resettlers of Metema and Quara *woredas* before and after the resettlement program; ii) comparison of the economic and social factor differences between resettlers of Metema and Quara *woredas* while still in their native habitats;

and iii) comparison of the economic and social factor differences between resettlers of Metema and Quara *woredas* after the resettlement program.

In this study, mainly descriptive statistical analysis was used to get the general understanding of the characteristic feature of target population and the level of changes in different variables. The data was analyzed with the application of statistical package. Paired and independent sample t-tests were employed at the $p<0.05$ level to examine the differences of various indicators before and after resettlement and between the two districts, respectively. Issues intended to be addressed by the research were analyzed using findings from both quantitative and qualitative surveys applying triangulation method. The findings were then used to draw inferences and recommendations on relevant issues of social, economic and environmental factors in the area studied.

Resettlers' level of satisfaction towards the accessibility of the social services and level of perception towards diversity of food taken and level of participation in natural forest protection were measured by asking different questions pertinent to the specific issues. The scores for all statements and the interpretation of mean scores were presented in Tables 5 and 6 below.

In addition, the reliability coefficient was computed for twelve social services before and after the resettlement program. Accordingly, it was found to be 0.73 for Metema and 0.87 for Quara *woredas* before the resettlement program. Similarly, after the resettlement program, it was 0.62 and 0.65 for Metema and Quara *woredas*, respectively, indicating a good degree of reliability.

Table 5 Level of participation/satisfaction and interpretation

Level of participation /satisfaction	**Scores**	$\bar{x}$ **(mean)**	**Interpretation of** $\bar{x}$
Very high	5	4.21-5.00	Very high
High	4	3.41-4.20	High
Moderate	3	2.61-3.40	Moderate
Low	2	1.81-2.60	Low
Very low	1	1.00-1.80	Very low

Table 6 Level of perception and interpretation

Level of perception	**Scores**	$\bar{x}$ **(mean)**	**Interpretation of** $\bar{x}$
Better	3	2.34-3.00	Better
Same as before	2	1.67-2.33	Same as before
Worse	1	1.00-1.66	Worse

In any resettlement program, active participation of resettlers and host communities at the very beginning of project conception is essential and will require accountability and sensitivity of the implementing agency. Unfortunately, however, not much has been done in practice to involve resettlers and host communities at the initial, implementation and final stage of program intervention. Therefore, on the basis of past experiences of resettlement schemes in Ethiopia and outputs of research works, this study attempted to design plans and activities to strengthen the development interventions of the resettlement program in the regional state.

CHAPTER IV

RESULTS AND DISCUSSIONS

The results and discussions of this study are presented in six parts as follows:

Part 1: Demographic characteristics of resettlers

Part 2: Economic factors

Part 3: Social factors

Part 4: Environmental factors

Part 5: Hypotheses testing

Part 6: Major problems and suggestions of resettlers and key informants

Part 1: Demographic Characteristics of Resettlers

The overall size of the respondents in Metema *woreda* was 168 of which 83.3% and 16.7% constituted male and female, respectively. Out of the 169 respondents in Quara *woreda*, 79.3% were male and 20.7% female household heads. The mean age of the household was about 36.6 years in Metema and 36.8 years in Quara *woredas* (Table 7). It seems that farmers in both of the *woredas* were younger. Similarly, in both of the *woredas* about 50% of the resettlers were illiterate and 22% of them were able to read and write. Only 27.4% and 24.8% of the resettlers in Metema and Quara *woredas*, respectively were under primary level (1-8), whereas 0.6% of Metema and 2.4% of Quara resettlers were secondary level (Table 7). Out of 168 households in Metema 84.5%, 6.0%, 8.3% and 1.2% were married, single, divorced and widowed, respectively, while out of 169 households in Quara it was 87.5%, 3.0%, 7.1% and 2.4%, respectively.

According to the survey result, the mean number of children per household was about 2.9 in metema and 3.2 in Quara. The maximum numbers of children in Metema and Quara *woredas* were 11 and 9, respectively. At the same time 12.5% in

Metema and 5.9% in Quara did not have children. On the other hand, the family size of the sample resettlers ranged from 1-13 with an average family size of 4.9 in Metema and from 1-11 with an average size of 5.0 in Quara *woreda*, which are relatively higher than the regional average family size of 4.8 persons per household (BOARD, 2003).

With regards to religious affiliation 72.0% and 28.0% in Metema and 92.3% and 7.7% in Quara were Christians and Muslims, respectively. All of the respondents in Metema were from Amhara ethnic group, while 97.6% and 2.4% in Quara were from Amhara and Hemra ethnic groups, respectively (Table 7).

The average year of farming experience was 16 years in Metema and 19 years in Quara. This showed that most of the resettlers had more experience in the agricultural sector. Furthermore, the survey results showed that 69.0% of the sample resettlers in Metema and 63.3% in Quara came from highland and mid-highland agro-ecological zones (AEZ), while the rest came from lowland area (Table 7). About 62.5% of respondents in Metema and 68.6% in Quara had 5-6 years of residence in the new resettlement area whereby the average length of residence were 5.9 and 5.8 years in Metema and Quara, respectively. The maximum was 8 years in Metema and 7 in Quara (Table 7). Out of the total respondents 82.1% in Metema and 88.8% in Quara live with their family members in the new resettlement area, whereas the remaining live alone because of different reasons like conflict with family, fear of the hot climate and low income to hold the whole family together in the new area.

Table 7 Number and percent of resettlers classified according to demographic characteristics

Characteristics	Metema (n=168)		Quara (n=169)	
	Persons	**%**	**Persons**	**%**
Gender				
Male	140	83.3	134	79.3
Female	28	16.7	35	20.7
Age				
Below 21	3	1.8	1	0.6

Table 7 (Continued)

Characteristics	Metema (n=168)		Quara (n=169)	
	Persons	**%**	**Persons**	**%**
21-30	63	37.5	63	37.3
31-40	50	29.8	50	29.6
41-50	38	22.6	42	24.8
51-60	10	5.9	12	7.1
Above 60	4	2.4	1	0.6
Mean	36.6		36.8	
Level of education				
Illiterate	84	50.0	85	50.3
Literate, Read and Write only	37	22.0	38	22.5
Primary level (1-8)	46	27.4	42	24.8
Secondary level (9-12)	1	0.6	4	2.4
Marital status				
Single	10	6.0	5	3.0
Married	142	84.5	148	87.5
Divorced	14	8.3	12	7.1
Widowed	2	1.2	4	2.4
Number of children (persons)				
No child	21	12.5	10	5.9
1-2	66	39.3	63	37.3
3-4	40	23.8	54	32.0
5-6	28	16.7	34	20.1
Above 6	13	7.7	8	4.7
Mean	2.9		3.2	
Maximum	11		9	
Family size (persons/family)				
1	6	3.6	3	1.8
2-3	45	26.8	41	24.3

Table 7 (Continued)

Characteristics	Metema (n=168)		Quara (n=169)	
	Persons	**%**	**Persons**	**%**
4-5	54	32.1	55	32.5
Above 5	63	37.5	70	41.4
Mean	4.9		5.0	
Maximum	13		11	
Religion				
Christian	121	72.0	156	92.3
Muslim	47	28.0	13	7.7
Ethnic group				
Amhara	168	100.0	165	97.6
Hemra	0	0.0	4	2.4
Farming experience (years)				
Below 5	12	7.1	3	1.8
5-7	13	7.8	7	4.1
8-10	37	22.0	17	10.1
Above 10	106	63.1	142	84.0
Mean	16.3		19.2	
Length of residence (years)				
Below 5	12	7.1	8	4.8
5-6	105	62.5	116	68.6
Above 6	51	30.4	45	26.6
Mean	5.9		5.8	
Maximum	8		7	
Live with family members				
Yes	138	82.1	150	88.8
No	30	17.9	19	11.2
AEZ of resettlers origin, masl				
Highland (2,301-3,300)	31	18.4	26	15.4
Mid-highland (1,501-2,300)	85	50.6	81	47.9
Lowland (500- 1,500)	52	31.0	62	36.7

Part 2: Economic Factors

Land and Livestock Holding

According to the survey result, 21.4 and 31.4% of the respondents in Metema and Quara, respectively did not have farmland before the resettlement program, while all of the resettlers had owned land after the program. Out of the total respondents 92.3% in Metema and 87.0% in Quara had a farmland ranging from 1.01-2.00 ha after the resettlement program, whereas these figures before the resettlement program were 20.2 and 26.0% in Metema and Quara, respectively (Table 8). The average land holding of the respondents were 1.05 ha and 2.07 ha in Metema and 0.96 ha and 1.87 ha in Quara before and after the resettlement program, respectively (Table 8).

Nevertheless, sampled resettlers complained that the size and fertility of their farmland was not as they expected before arrival. Depending on chances some of them had found productive land while others forced to cultivate poor and unproductive land, especially in Quara *woreda* water lodging was a serious threat for resettlers as the soil was apparently unable to absorb the heavy amount of rain it received and seeds were not growing as well as they should. This finding is in line with that of Tranquilli (2004) who reported that land shortage and quality were part of the complaints in Amhara and Wolayeta. However, this seemed to be more problematic in Amhara as families are present, sometimes composed of more than six children and this puts serious constraints on the requirements for a normal life.

Livestock in the study area are used for different purposes such as draught power, manure, source of cash income and consumption. According to the study, 38.1% of sampled resettlers in Metema and 41.4% in Quara did not own ox before the resettlement program, while only 10.1 and 24.3% in Metema and Quara, respectively did not have access to ox after the resettlement program (Table 8). The average oxen holding of sampled resettlers before the program was 0.88 in Metema and 0.75 in Quara. However, the average oxen holding after the program was 1.60 in Metema and 1.08 in Quara (Table 8). Even though, there was an increase in the oxen holding of sampled resettlers still they lacked a pair of oxen to prepare their farm plot on time. To tackle the problem of oxen shortage the resettlers used different mechanisms in the

study area. According to the respondents, 76.6% in Metema and 70.9% in Quara renting-in oxen to fill the gap, while 14.0% and 17.7% in Metema and Quara, respectively ask support from neighbors. Generally, the oxen holding of sampled resettlers were by far better than the regional average wherein 28.8 percent of households were not endowed with ox (BOARD, 2003).

Table 8 Number and percent of resettlers classified according to the land and livestock holdings before and after the resettlement program

Land and livestock holdings	Metema (n=168)		Quara (n=169)	
	Before, n (%)	After, n (%)	Before, n (%)	After, n(%)
Farmland holding (ha)				
0	36 (21.4)	0 (0.0)	53 (31.4)	0 (0.0)
0.01-1.00	83 (49.4)	5 (3.0)	61 (36.1)	22 (13.0)
1.01-2.00	34 (20.2)	155 (92.3)	44 (26.0)	147 (87.0)
2.01-3.00	10 (6.0)	0 (0.0)	11 (6.5)	0 (0.0)
Above 3.00	5 (3.0)	8 (4.7)	0 (0.0)	0 (0.0)
Mean	1.05	2.07	0.96	1.87
Oxen holding (number)				
No oxen	64 (38.1)	17 (10.1)	70 (41.4)	41 (24.3)
1	61 (36.3)	48 (28.6)	72 (42.6)	75 (44.4)
2-3	43 (25.6)	103 (61.3)	27 (16.0)	53 (31.3)
Mean	0.88	1.60	0.75	1.08
Livestock holding (TLU)				
No livestock	21 (12.5)	2 (1.2)	24 (14.2)	0 (0.0)
0.01-1.00	25 (14.9)	31 (18.5)	37 (21.9)	20 (11.8)
1.01-2.00	33 (19.6)	32 (19.0)	42 (24.8)	34 (20.2)
2.01-3.00	33 (19.6)	34 (20.2)	17 (10.1)	27 (16.0)
3.01-4.00	19 (11.3)	22 (13.1)	21 (12.4)	23 (13.6)
4.01-5.00	12 (7.2)	18 (10.7)	16 (9.5)	20 (11.8)
Above 5	25 (14.9)	29 (17.3)	12 (7.1)	45 (26.6)
Mean	2.52	2.99	2.13	3.66

Note: Numbers in parentheses refer to percentage values

The total livestock holding of sampled resettlers increased after the resettlement program. As indicated in Table 8, the average livestock holding in tropical livestock unit (TLU) before the resettlement program was 2.52 in Metema and 2.13 in Quara, while after the program this figure increased to 2.99 and 3.66 in Metema and Quara, respectively. Sampled resettlers in Quara had own more livestock resources than Metema because of the availability of large and vast common grazing areas suitable for animal rearing.

Labor Resources

In the agricultural family, labor has a decisive role in maximizing income from on-farm and off farm activities. As indicated in Table 9, 70.2% of the respondents in Metema and 74.0% in Quara had a family labor of 2-3 persons before the resettlement program, while it was 70.8% and 62.7% in Metema and Quara, respectively after the resettlement program. The average labor size was 2.52 and 2.82 in Metema and 2.69 and 3.03 in Quara before and after the resettlement, respectively. These data witnessed that there were an increase of family labor after the resettlement in both of the *woredas*. The maximum labor size was 8 and 7 in Metema and 10 and 10 in Quara before and after resettlement, respectively.

Table 9 Number and percent of resettlers classified according to the labor resources before and after resettlement program

Labor Resources	Metema (n=168)		Quara (n=169)	
	Before, n (%)	After, n (%)	Before, n (%)	After, n (%)
Number of family labor				
1	18 (10.7)	11 (6.5)	10 (5.9)	11 (6.5)
2-3	118 (70.2)	119 (70.8)	125 (74.0)	106 (62.7)
4-5	28 (16.7)	29 (17.3)	23 (13.6)	41 (24.3)
Above 5	4 (2.4)	9 (5.4)	11 (6.5)	11 (6.5)
Mean	2.52	2.82	2.69	3.03
Maximum	8	7	10	10

Note: Numbers in parentheses refer to percentage values.

Household income

Crops, livestock and their products and off-farm activities are the sources of income in the study areas. As indicated in Table 10, the average annual on-farm income of sampled resettlers after resettlement was 10,328.6 and 7,884.1 Birr whereas before resettlement it was found to be 3,562.9 and 3,432.3 Birr in Metema and Quara, respectively. Similarly, the average total annual household income of sampled resettlers after the program was 11,154.8 Birr in Metema and 8,326.4 Birr in Quara, while these figures before the resettlement were 4,077.5 and 4,004.8 Birr in Metema and Quara *woredas*, respectively (Table 10). It was also observed that 56% of respondents in Metema and 50.9% in Quara have obtained a highest total annual income of greater than 7,000 Birr, whereas before resettlement only 15.5% in Metema and 7.2% in Quara were generating total annual income of greater than 7,000 Birr (Table 10). Only 23.8% of sampled resettlers in Metema and 30.2% in Quara received an average off-farm income of 5,000 birr and below after the resettlement (Table 10).

Table 10 Number and percent of resettlers classified according to the annual household incomes (in Birr) before and after the resettlement program, (2000-2002 and 2006-2008)

Income category	Metema (n=168)		Quara (n=169)	
	Before, n (%)	After, n (%)	Before, n (%)	After, n (%)
On-farm income				
Below 1,000	24 (14.3)	0 (0.0)	17 (10.1)	4 (2.4)
1,000-3,000	69 (41.1)	31 (18.4)	74 (43.7)	11 (6.5)
3,001-5,000	34 (20.2)	22 (13.1)	48 (28.4)	35 (20.7)
5,001-7,000	17 (10.2)	30 (17.9)	20 (11.8)	41 (24.3)
7,001-9,000	12 (7.1)	27 (16.1)	5 (3.0)	26 (15.4)
Above 9,000	12 (7.1)	58 (34.5)	5 (3.0)	52 (30.7)
Mean	3,562.9	10,328.6	3,432.3	7,884.1
Off-farm income				
No income	88 (52.4)	128 (76.2)	81 (47.9)	118 (69.8)

Table 10 (Continued)

Income category	Metema (n=168)		Quara (n=169)	
	Before, n (%)	**After, n (%)**	**Before, n (%)**	**After, n (%)**
Below 1,000	56 (33.3)	9 (5.4)	69 (40.8)	21 (12.4)
1,000-3,000	18 (10.7)	24 (14.3)	16 (9.5)	29 (17.2)
3,001-5,000	6 (3.6)	7 (4.1)	3 (1.8)	1 (0.6)
Mean	1,727.5	1,942.4	1,303.0	1,262.5
Total HH income				
Below 1,000	18 (10.7)	0 (0.0)	10 (5.9)	1 (0.6)
1,000-3,000	58 (34.5)	26 (15.5)	67 (39.6)	6 (3.6)
3,001-5,000	49 (29.2)	19 (11.3)	56 (33.1)	28 (16.5)
5,001-7,000	17 (10.1)	29 (17.2)	24 (14.2)	48 (28.4)
7,001-9,000	10 (6.0)	26 (15.5)	5 (3.0)	32 (18.9)
Above 9,000	16 (9.5)	68 (40.5)	7 (4.2)	54 (32.0)
Mean	4,077.5	11,154.8	4,004.8	8,362.4

Note: Numbers in parentheses refer to percentage values; * 1USD equivalent to 13.50 Birr.

On the other hand, majority of the sampled resettlers (76.2% in Metema and 69.8% in Quara) did not have access to off-farm activities after the resettlement program, while these figures were 52.4% and 47.9% in Metema and Quara, respectively before the resettlement program. This finding was in line with the findings of Ahmed (2005), which indicated that about 73 percent of sampled resettlers in his study in Bedella *woreda*, Oromia region claimed that off-farm employment was better before resettlement than after. According to sampled resettlers and focus group discussion participants, limited outside jobs, inaccessibility of distant places and limited skill learning opportunities were the reasons for not having an opportunity to off-farm employment in the area. Hence, the major source of income in the study area was found to be on-farm activities and the farm production system has changed, so that production is more commercial than before. All sampled resettlers were growing sesame and cotton, crops that have a great market value at national and international

level. In general, this significant income difference is evident that resettlers in Metema and Quara were getting better and wealthier than before. This finding was supported by the report on poverty situation in Ethiopia (MEDaC, 1999) which showed that the level of annual per capita income in the country was Birr 1,087.80, whereby a typical family in Ethiopia needs an income of Birr 4,515 per annum. But in the resettlement site it was observed that the average income was above the national average, i.e., Birr 11,154.8 in Metema and 8,362.4 in Quara, while before the resettlement it was Birr 4,077.5 and 4,004.8, respectively.

Food Availability and Food Consumption Coverage

Food availability indicators are known to provide information on the likelihood of shocks or disaster events that affects household food security. The outcome of the survey analysis on the household food availability after resettlement program has shown an improvement in both of the *woredas*. As indicated in Table 11, the majority of respondents (44.6%) in Metema *woreda* had a food grain of 5-10 quintals before resettlement, while 32.1% of them had above 20 quintals after resettlement. Likewise, in Quara *woreda* 55.0% of respondents had a food availability of 5-10 quintals before resettlement, while the majority (34.9%) had from 10.01-15.00 quintals of food after resettlement. The average food availability in Metema *woreda* was 9.34 and 18.37 quintals before and after resettlement, respectively. Similarly, it was 9.33 and 17.78 in Quara, respectively.

With respect to the length of period covering annual household food requirement, the largest proportion of respondents, (80.3% in Metema and 68.6% in Quara) have managed to cover their annual food demands for 12 months after resettlement, whereas only 16.7% in Metema and 8.3% in Quara have done the same before resettlement (Table 11). On the other hand, just about 32.7% in Metema and 37.3% in Quara were covering their food needs from 6-8 months before resettlement, while only 4.2% in Metema and 4.8% in Quara were found in this category after resettlement. Furthermore, 1.2% in Metema and 4.1% in Quara had covered their annual food demands for less than three months, while after the resettlement it was zero percent in both of the *woredas*. The average annual food coverage before

resettlement was 8.32 months in Metema and 7.49 in Quara, while it was 11.44 and 11.34 months after resettlement, respectively. These showed that relatively large numbers of resettlers were confronted food shortages in the years before resettlement program.

Changes in Nutritional Status and Number of daily meals

The households' responses have shown that there has been an increasing change in the nutritional status of the households after resettlement. About 82.8% in Metema and 71.0% in Quara had a daily consumption of 1,701-2,100 and above kcal after resettlement. These figures before resettlement were 31.6% in Metema and 20.7% in Quara. About 48.8% of respondents in Metema and 62.7% in Quara had a daily consumption of only 1,000-1,500 kcal per person before resettlement program. The average daily consumption per person before resettlement was 1,525.2 kcal in Metema and 1,466.9 in Quara, while after resettlement it was 1,930.0 in Metema and 1,824.1 in Quara (Table 11). This result has also consistency with those of past studies by Mc Clelland (1998) and Ministry of Economic Development and Cooperation for Ethiopia (MEDaC, 1999). For instance, Mc Clelland indicated that in Ethiopia, in 1962, daily per capita kcal available was reported to be 1,816, while three decades later the same study showed that it was even much lower, at 1,621 kcal. Similarly, according to the study by MEDaC, 50% of the Ethiopian population are living below the food poverty line and cannot meet their minimum nutritional requirement of 2,200 kcal. The households' responses have shown that there has been an increasing change in the number of meals of the households. Except holidays, animal products and vegetables are consumed rarely in the study area. As presented on Table 11, after resettlement households who ate three and more than meals per day were 95.2% (160) in Metema and 91.7% (155) in Quara, whereas before resettlement it was 20.2% (34) and 21.4% (36), respectively. The average number of meals per day before resettlement was 2.08 in both of the *woredas* and 3.13 in Metema and 3.01 in Quara after resettlement. None of the resettlers had below two meals per day after resettlement while about 12.5% and 13.1% in Metema and Quara, respectively had only one meal per day. With regard to the diversity/type of food taken, 60.1% in Metema and 80.5% in Quara believed that it was better after resettlement, while

15.5% in Metema and 7.7% in Quara expressed that after was worse than before resettlement (Table 12).

Table 11 Number and percent of resettlers classified according to food availability, consumption coverage per year, daily food intake and number of daily meals before and after the resettlement program

Items	Metema (n=168)		Quara (n=169)	
	Before (n, %)	After (n, %)	Before (n, %)	After (n, %)
Food Availability (Quintals)				
Below 5.00	34 (20.2)	2 (1.2)	19 (11.2)	0 (0.0)
5.00-10.00	75 (44.6)	29 (17.3)	93 (55.0)	22 (13.0)
10.01-15.00	35 (20.8)	50 (29.8)	38 (22.5)	59 (34.9)
15.01-20.00	17 (10.1)	33 (19.6)	14 (8.3)	40 (23.7)
Above 20	7 (4.3)	54 (32.1)	5 (3.0)	48 (28.4)
Mean	9.34	18.37	9.33	17.78
Consumption coverage (mns)				
Below 3	2 (1.2)	0 (0.0)	7 (4.1)	0 (0.0)
3-5	25 (14.9)	2 (1.2)	32 (18.9)	1 (0.6)
6-8	55 (32.7)	7 (4.2)	63 (37.3)	8 (4.8)
9-11	58 (34.5)	24 (14.3)	53 (31.4)	44 (26.0)
12	28 (16.7)	135 (80.3)	14 (8.3)	116 (68.6)
Mean	8.32	11.44	7.49	11.34
Daily food intake, kcal/person				
Below 1,000	1 (0.6)	0 (0.0)	0 (0.0)	0 (0.0)
1,000-1,500	82 (48.8)	15 (8.9)	106 (62.7)	33 (19.5)
1,501-1,700	32 (19.0)	14 (8.3)	28 (16.6)	16 (9.5)
1,701-1,900	30 (17.9)	25 (14.9)	22 (13.0)	48 (28.4)
1,901-2,100	21 (12.5)	72 (42.9)	11 (6.5)	37 (21.9)
Above 2,100	2 (1.2)	42 (25.0)	2 (1.2)	35 (20.7)
Mean	1,525.2	1,930.0	1,466.9	1,824.1

Table 11 (Continued)

Items	Metema (n=168)		Quara (n=169)	
	Before (n, %)	After (n, %)	Before (n, %)	After (n, %)
Number of daily meals in HH				
Once	21 (12.5)	0 (0.0)	22 (13.1)	0 (0.0)
Twice	113 (67.3)	8 (4.8)	111 (65.5)	14 (8.3)
Trice	34 (20.2)	130 (77.4)	35 (20.8)	131 (77.5)
Four times and above	0 (0.0)	30 (17.8)	1 (0.6)	24 (14.2)
Mean	2.08	3.13	2.08	3.01

Note: Numbers in parentheses refer to percentage values**.**

Table 12 Number and percent of resettlers classified according to level of perception on the type of food taken after the resettlement program

Level of perception	Metema (n=168)		Quara (n=169)	
	Number	Percent	Number	Percent
Better	101	60.1	136	80.5
Same as before	41	24.4	20	11.8
Worse	26	15.5	13	7.7
Mean	2.45		2.73	
S.D	0.75		0.59	
Level	Better		Better	

Agricultural Extension Service and Support

The main reason for people to move to new areas is to produce enough food for consumption and/or sale. Therefore, provision of efficient and sufficient agricultural service is beyond doubt to enable resettlers to achieve food security in a sustainable manner. Table 13 shows that 64.9 and 66.9% of the respondents in Metema and Quara, respectively had access to extension services after the resettlement program, while before the resettlement program these figures were 68.5 and 76.9% in Metema and Quara, respectively. At the same time, the average

frequency of contact of farmers with the development agents (DAs) in Metema *woredas* was 1.76 per month before resettlement and 1.53 after resettlement. Similarly, it was 1.79 before and 2.08 after resettlement in Quara *woreda*. According to the regional Extension system, the frequency of contact per month should be four times (BOARD, 2003). However, the survey result showed that in both of the *woredas* the extension service was not adequate. On the other hand, resettlers used to practice more agricultural technologies while they were at their original places than the new environment. Table 13 shows that 68.4 and 54.4% of respondents in Metema and Quara, respectively were using two and more agricultural technologies while they were at their original places. On the contrary, only 38.1% in Metema and 4.8% in Quara implemented two and more agricultural technologies in the new resettlement area. The average number of agricultural technologies used by Metema's and Quara's resettlers at their original places was 1.74 and 1.47, respectively. But in the new resettlement areas these figures decreased to 1.16 in Metema and 0.70 in Quara. A number of reasons were mentioned by the respondents why they used to practice few technologies in the new area, among others lack of awareness about the lowland crops (38.1% in Metema and 41.4% in Quara), fear of natural hazards (22.6% in Metema and 18.9% in Quara) and unavailability of the technologies (22.0% in Metema and 26.6% in Quara) were the prime factors (Table 14).

Table 13 Number and percent of resettlers classified according to the accessibility of agricultural extension services before and after the resettlement program

Extension services	**Metema (n=168)**		**Quara (n=169)**	
	Before (n, %)	**After (n, %)**	**Before (n, %)**	**After (n, %)**
Access to extension				
Yes	115 (68.5)	109 (64.9)	130 (76.9)	113 (66.9)
No	53 (31.5)	59 (35.1)	39 (23.1)	56 (33.1)
Number of visits by DAs				
None	45 (26.8)	29 (17.3)	37 (21.9)	18 (10.7)

Table 13 (Continued)

Extension services	Metema (n=168)		Quara (n=169)	
	Before (n, %)	After (n, %)	Before (n, %)	After (n, %)
Once	27 (16.1)	74 (44.0)	29 (17.2)	40 (23.7)
Twice	40 (23.8)	28 (16.7)	59 (34.9)	43 (25.4)
Trice	35 (20.8)	21 (12.5)	20 (11.8)	46 (27.2)
Four times	21 (12.5)	16 (9.5)	24 (14.2)	22 (13.0)
Mean	1.76	1.53	1.79	2.08
Number of technologies used by resettlers				
None	22 (13.1)	47 (28.0)	25 (14.8)	58 (34.3)
One	31 (18.5)	57 (33.9)	52 (30.8)	103 (60.9)
Two	86 (51.1)	54 (32.1)	79 (46.7)	8 (4.8)
Three	26 (15.5)	10 (6.0)	13 (7.7)	0 (0.0)
Four and above	3 (1.8)	0 (0.0)	0 (0.0)	0 (0.0)
Mean	1.74	1.16	1.47	0.70

Table 14 Number and percent of resettlers classified according to reasons for not using agricultural technologies after the resettlement program

Reasons for not using agricultural technologies	Metema (n=168)		Quara (n=169)	
	Number	Percent	Number	Percent
Not available	37	22.0	45	26.6
Expensive	5	2.9	7	4.2
Fear of natural hazard	38	22.6	32	18.9
Difficulty of paying back credits	12	7.2	9	5.3
Poor technology result	12	7.2	6	3.6
Lack of awareness	64	38.1	70	41.4

Part 3: Social Factors

Social services

The social services have significant contribution in the process of improving the general well-being and food security status of the resettlers. A number of social services/infrastructures have been established in the resettlement areas to improve resettler's access to various basic requirements. In most parts of resettlement areas basic infrastructures were established before resettlement process began, but in some areas the social services were established after resettlers reached the area and/or not yet established. It was also common to see that the already established social services were ill-equipped with skilled man power and other facilities. Thus, the acute lack of these social services in the resettlement areas and the governments' failure to follow-through on its assurance of an adequate level of social services may result in dire living conditions, and even lose of human life.

The total level of satisfaction of resettlers' towards the accessibility of social services after the resettlement in Metema and Quara *woredas* were at moderate and low level, respectively. Before the resettlement program, of the twelve social services rated by level of satisfaction in Metema *woreda*, five (education, health, grinding mills, market center, and credit facility) showed a moderate, five (clean water, all weather road, veterinary service, telephone and permanent toilet) low and the rest two (electricity and postal service) low levels of satisfaction (Table 15). After resettlement, two (education and permanent toilet) showed very high, four (health, grinding mills, clean water and market center) high, three (credit facility, veterinary and telephone services) moderate, one (all weather road) low and the remaining two (electricity and postal services) very low levels of satisfaction (Table 16). Similarly, in Quara *woreda*, education, health, grinding mills and market center showed moderate level of satisfaction while clean water, all weather road, credit facility and veterinary service were found at low level and the rest four (electricity, telephone and postal services and permanent toilet) found to be at very low level of satisfaction before the resettlement program (Table 17). After resettlement, education showed high, health, grinding mills, market center, credit facility and permanent toilet

moderate, clean water, all weather road and veterinary service low and the remaining three, electricity, telephone and postal services very low level of satisfaction (Table 18).

The mean of total level of satisfaction before and after the resettlement were 2.38 (low) and 3.21 (moderate) for Metema and 2.31 (low) and 2.50 (low) for Quara, respectively. Five main factors could be cited in support of the fact that levels of satisfactions of resettlers are considerably low. These are: i) insufficient services in health posts and veterinary clinics, they face shortage of everything: drugs, staff, space and skills; ii) schools are ill-equipped with manpower (teachers), furniture and teaching materials; iii) almost all roads are dry weather road and resettlers are totally disconnected with *woreda* centers during the rainy season which in turn influence market access, peace and stability, health service and provision of food aid and agricultural inputs; iv) most of the water wells are mal-functioning and/or yielding poor quality of water which is unsafe to drink; and v) resettlers need to travel long distances to reach formal credit facilities as these institutions are stationed at *kebele* centers. Furthermore, electricity, telephone and postal services are totally absent in almost all resettlement sites.

As a result, there is still a gap in availing sufficient social services to resettlers in both of the *woredas*. Tranquilli (2004) also supported these findings. He revealed that transport and communication infrastructures required for the settlers have not been constructed. Communication between the settlers and their families or communities left behind was not possible for Amhara and very complicated for Welayeta. Abraham and Piguet (2004) also confirmed that there is significant infrastructure that needs to be in place at the resettlement sites, but understandably the government unilaterally will not be able to fulfill all the necessities.

Table 15 Number and percent of Metema resettlers classified according to level of satisfaction on the accessibility of social services before the resettlement program

(n= 168)

Social Services	Level of Satisfaction					$\bar{X}$	S.D.	Level
	Very high	High	Moderate	Low	Very low			
Education	12 (7.1)	30 (17.9)	111 (66.0)	9 (5.4)	6 (3.6)	3.20	0.79	Moderate
Health	1 (0.6)	8 (4.8)	108 (64.2)	50 (29.8)	1 (0.6)	2.75	0.58	Moderate
Electricity	0 (0.0)	5 (3.0)	1 (0.6)	65 (38.7)	97 (57.7)	1.49	0.67	Very low
Grinding Mills	3 (1.8)	11 (6.5)	114 (67.8)	30 (17.9)	10 (6.0)	2.80	0.72	Moderate
Clean water	2 (1.2)	34 (20.2)	27 (16.1)	83 (49.4)	22 (13.1)	2.47	0.99	Low
All weather road	4 (2.4)	25 (14.9)	29 (17.3)	77 (45.8)	33 (19.6)	2.35	1.03	Low
Market center	15 (8.9)	38 (22.6)	64 (38.1)	40 (23.8)	11 (6.6)	3.04	1.04	Moderate
Credit facility	2 (1.2)	7 (4.2)	32 (19.0)	78 (46.4)	49 (29.2)	2.68	0.99	Moderate
Veterinary service	4 (2.4)	42 (25.0)	62 (36.9)	47 (28.0)	13 (7.7)	2.02	0.87	Low
Telephone service	2 (1.2)	20 (11.9)	25 (14.9)	83 (49.4)	38 (22.6)	2.19	0.96	Low
Postal service	1 (0.6)	8 (4.8)	3 (1.8)	89 (52.9)	67 (39.9)	1.73	0.77	Very low
Permanent toilet	0 (0.0)	2 (1.2)	13 (7.7)	111(66.1)	42 (25.0)	1.85	0.60	Low
Total satisfaction						**2.38**	**0.43**	**Low**

Note: Numbers in parenthesis refer to percentages.

Table 16 Number and percent of Metema resettlers classified according to level of satisfaction on the accessibility of social services after the resettlement program

(n=168)

Social Services	Level of Satisfaction					$\bar{X}$	S.D.	
	V. high	High	Moderate	Low	V. low			Level
Education	93 (55.3)	66 (39.3)	9 (5.4)	0 (0.0)	0 (0.0)	4.50	0.60	Very high
Health	38 (22.6)	74 (44.0)	49 (29.2)	6 (3.6)	1 (0.6)	3.84	0.83	High
Electricity	1 (0.6)	4 (2.4)	5 (3.0)	70 (41.7)	88 (52.3)	1.57	0.72	Very low
Grinding Mills	51 (30.4)	70 (41.6)	46 (27.4)	1 (0.6)	0 (0.0)	4.01	0.78	High
Clean water	61 (36.3)	68 (40.5)	34 (20.2)	4 (2.4)	1 (0.6)	4.09	0.84	High
All weather road	1 (0.6)	13 (7.7)	9 (5.4)	119 (70.8)	26 (15.5)	2.07	0.75	Low
Market center	18 (10.7)	75 (44.6)	47 (28.0)	20 (11.9)	8 (4.8)	3.45	0.99	High
Credit facility	14 (8.3)	71 (42.3)	41 (24.4)	30 (17.9)	12 (7.1)	3.27	1.07	Moderate
Veterinary service	3 (1.8)	44 (26.2)	34 (20.2)	68 (40.5)	19 (11.3)	2.67	1.04	Moderate
Telephone service	23 (13.7)	38 (22.6)	54 (32.1)	37 (22.0)	16 (9.6)	3.09	1.17	Moderate
Postal service	0 (0.0)	0 (0.0)	8 (4.8)	91 (54.1)	69 (41.1)	1.64	0.57	Very low
Permanent toilet	80 (47.6)	70 (41.7)	16 (9.5)	1 (0.6)	1 (0.6)	4.35	0.73	Very high
Total satisfaction						**3.21**	**0.38**	**Moderate**

Note: Numbers in parenthesis refer to percentages.

Table 17 Number and percent of Quara resettlers classified according to level of satisfaction on the accessibility of social services before the resettlement program

(n= 169)

Social Services	Level of Satisfaction					$\bar{X}$	S.D.	Level
	V. high	High	Moderate	Low	V. low			
Education	4 (2.4)	37 (21.9)	109 (64.5)	12 (7.1)	7 (4.1)	3.11	0.74	Moderate
Health	3 (1.8)	32 (18.9)	90 (53.2)	27 (16.0)	17 (10.1)	2.87	0.90	Moderate
Electricity	1 (0.6)	10 (5.9)	12 (7.1)	25 (14.8)	121 (71.6)	1.49	0.91	Very low
Grinding Mills	1 (0.6)	29 (17.2)	101 (59.7)	20 (11.8)	18 (10.7)	2.85	0.85	Moderate
Clean water	3 (1.8)	21 (12.4)	52 (30.8)	31 (18.3)	62 (36.7)	2.24	1.13	Low
All weather road	1 (0.6)	18 (10.7)	61 (36.1)	32 (18.9)	57 (33.7)	2.25	1.06	Low
Market center	1 (0.6)	30 (17.8)	98 (57.9)	27 (16.0)	13 (7.7)	2.88	0.81	Moderate
Credit facility	1 (0.6)	16 (9.5)	64 (37.8)	50 (29.6)	38 (22.5)	2.36	0.95	Low
Veterinary service	0 (0.0)	22 (13.0)	68 (40.2)	38 (22.5)	41 (24.3)	2.42	0.99	Low
Telephone service	1 (0.6)	16 (9.5)	18 (10.7)	47 (27.8)	87 (51.4)	1.79	1.01	Very low
Postal service	0 (0.0)	6 (3.6)	18 (10.7)	55 (32.5)	90 (53.2)	1.65	0.81	Very low
Permanent toilet	1 (0.6)	15 (8.9)	24 (14.2)	29 (17.2)	100 (59.1)	1.75	1.04	Very low
Total satisfaction						**2.31**	**0.61**	**Low**

Note: Numbers in parenthesis refer to percentages.

Table 18 Number and percent of Quara resettlers classified according to level of satisfaction on the accessibility of social services after the resettlement program

(n= 169)

Social Services	Level of Satisfaction					$\bar{X}$	S.D.	Level
	Very high	High	Moderate	Low	Very low			
Education	9 (5.3)	70 (41.4)	78 (46.2)	7 (4.1)	5 (3.0)	3.42	0.78	High
Health	1 (0.6)	37 (21.9)	79 (46.7)	42 (24.9)	10 (5.9)	2.87	0.84	Moderate
Electricity	0 (0.0)	0 (0.0)	9 (5.3)	28 (16.6)	132 (78.1)	1.27	0.55	Very low
Grinding Mills	6 (3.6)	44 (26.0)	112 (66.2)	4 (2.4)	3 (1.8)	3.27	0.65	Moderate
Clean water	4 (2.4)	24 (14.2)	64 (37.8)	36 (21.3)	41 (24.3)	2.49	1.08	Low
All weather road	6 (3.6)	13 (7.7)	55 (32.5)	43 (25.4)	52 (30.8)	2.28	1.09	Low
Market center	2 (1.2)	36 (21.3)	108 (63.9)	19 (11.2)	4 (2.4)	3.08	0.68	Moderate
Credit facility	0 (0.0)	13 (7.7)	100 (59.1)	40 (23.7)	16 (9.5)	2.65	0.76	Moderate
Veterinary service	1 (0.6)	14 (8.3)	71 (42.0)	52 (30.8)	31 (18.3)	2.42	0.90	Low
Telephone service	0 (0.0)	5 (3.0)	21 (12.4)	61 (36.1)	82 (48.5)	1.69	0.80	Very low
Postal service	0 (0.0)	0 (0.0)	19 (11.3)	57 (33.7)	93 (55.0)	1.56	0.69	Very low
Permanent toilet	8 (4.7)	72 (42.6)	38 (22.6)	8 (4.7)	43 (25.4)	2.96	1.30	Moderate
Total satisfaction						**2.50**	**0.39**	**Low**

Note: Numbers in parenthesis refer to percentages.

Housing

Housing is a basic need for any community. In the study area, people mostly have houses made of thatch, mud and wood. Table 19 shows that 17.9 and 82.1% of respondents had corrugated iron sheet and grass thatched houses, respectively in Metema *woreda* before resettlement, whereas after resettlement corrugated iron sheet houses were only 4.2% and grass thatched houses 95.8%. In the same way, in Quara *woreda* 12.4% of respondents had corrugated iron sheet and 87.0% grass thatched houses at their original places while in the new resettlement area only 3.6% own corrugated iron sheet and the remaining 96.4% grass thatched houses. The average number of rooms owned by the resettlers of Metema *woreda* while still in their native habitats were 1.16 and in the new resettlement sites it was found to be 1.07. In Quara *woreda*, it was 1.09 before resettlement and 1.03 after resettlement. On the other hand, resettlers complained about the proximity of their house to the farm plots allotted to them. In some areas the farmland is very far from their residence (more than 6 hours of walk) whereby they lost a lot of time to travel and in some sites the heads of the households decided to miss their family for more than three months because of temporary settlement around the farm area.

Table 19 Number and percent of resettlers classified according to type of houses and number of rooms before and after the resettlement program

Type of house and number of rooms	Metema (n=168)		Quara (n=169)	
	Before (n, %)	**After (n, %)**	**Before (n, %)**	**After (n, %)**
Type of house				
Iron sheet	30 (17.9)	7 (4.2)	21 (12.4)	6 (3.6)
Grass thatched	138 (82.1)	161 (95.8)	147 (87.0)	163 (96.4)
Both	0 (0.0)	0 (0.0)	1 (0.6)	0 (0.0)

Table 19 (Continued)

Type of house and number of rooms	Metema (n=168)		Quara (n=169)	
	Before (n, %)	**After (n, %)**	**Before (n, %)**	**After (n, %)**
Number of rooms				
One	145 (86.3)	158 (94.0)	156 (92.3)	164 (97.0)
Two	20 (11.9)	8 (4.8)	11 (6.5)	5 (3.0)
Three	2 (1.2)	2 (1.2)	2 (1.2)	0 (0.0)
Above three	1 (0.6)	0 (0.0)	0 (0.0)	0 (0.0)
Mean	1.16	1.07	1.09	1.03

Note: Numbers in parentheses refer to percentage values.

According to the focus group discussion and key informants, the size and quality of housing in the original places was by far outweighs the one in the new settlement sites. Similarly, Tranquilli (2004) confirmed that the houses are all the same size (independently of the size of the household) and each is constructed within a 20/25 meters plot. The houses settlers found were poorly constructed as many reported that they collapsed after the first storm.

Relationship with the host community

Key issues to consider in the planning and implementation phases of a resettlement program are the differences in culture among the two populations, the level of sensitization and training programs necessary to reduce the likelihood of conflict. In the study area, both the host community and the resettlers are ethnically homogeneous and is Amhara's and engaged in mixed agriculture (crop production and livestock rearing). However, most of the host people complain on the use of forest by the resettlers. On the other way, the host community has also benefited from the resettlement: the construction of road that connects resettlement site to the *woreda* capital, the education and health services opened at resettlement site, water points etc. are critically vital for the host community.

As clearly indicated in Table 20, 87.5% of respondents in Metema and 63.9% in Quara believed that the relationship with the host community is good while 2.4 and 8.9% in Metema and Quara, respectively expressed that the relationship is not easy. At the same time, 94.0% of respondents in Metema and 83.3% in Quara never experienced any conflict with the host community. On the contrast, 6.0 and 16.7% of respondents in Metema and Quara, respectively had a conflict with host community. The causes for conflict were: competition over farm and grazing lands, partiality and use of other communal assets.

Table 20 Number and percent of resettlers classified according to relationship with the host community, experience of conflict and causes for conflict

Description	Metema (n=168)		Quara (n=169)	
	Number	Percent	Number	Percent
Relationship with host community				
Good	147	87.5	108	63.9
Moderate	17	10.1	46	27.2
Not easy	4	2.4	15	8.9
Experience of conflict				
Yes	10	6.0	28	16.7
No	158	94.0	141	83.3
Causes for conflict				
Competition over farmland	149	88.9	94	55.6
Competition over grazing	0	0.0	19	11.1
Partiality	19	11.1	50	29.6
Use of other communal assets	0	0.0	6	3.7

Tranquilli (2004) also supported this finding. He revealed that the local community has no problem with the arrival of resettlers in their area and they (host community) encouraging resettlers to remain even though life might be tough at the moment. They reassure them saying that conditions will improve in forthcoming years. In his study in Jiru Gamachu resettlement village, Central Ethiopia, Messay (2009) also reported that both the resettlers and the host community are equally

benefiting from the schools, water wells, animal and human health service centers, market places, communal forest/woodland and natural springs. A notable example here is the fact that both the resettlers and hosts collect firewood from communal woodland in the nearby valley of Gibe headstream just north of the area. As a result almost all the samples from both sides responded that they live together peacefully and utmost friendly manner.

Administration and Support in Resettlement Areas

In the resettlement sites the political administration was in the hands of native people. However, resettlers who lived far from native people and in some *kebeles*, resettlers were participated in local government administration. In both of the study *woredas*, most resettlement areas were located too far from *woreda* and *kebele* centers. This results problems of getting justice, expertise and administrative supports on time. Due to this and other factors, level of satisfaction of resettlers on the *woreda* and *kebele* administration found to be at low level in both of the *woredas* after resettlement while it was at moderate level before resettlement. According to the respondents of Metema *woreda*, organization of training, solving land related problems, quick response to the resettlers' questions, community mobilization towards natural resource conservation and frequent visit and follow-up were found at low level, while assignment of development agents, teachers and health personals and securing peace and stability were found to be at moderate level after the resettlement program. The case in Quara *woreda* was also the same as that of Metema except organization of training which is found to be at moderate level. The mean of total level of satisfaction of Metema's resettler while still in their native habitats was 3.26 (moderate) (Table 21) and 2.49 (low) (Table 22) in the new resettlement area. Similarly, in Quara *woreda* it was 2.99 (moderate) (Table 23) in their original places and 2.58 (low) (Table 24) in the new resettlement area.

Generally, resettlers have not got technical and managerial support from both *woreda* and *kebele* administrations on time. In rare cases, resettlers were not treated equally with the host community, as they complained on the focus group discussion. However, most believed that the discrimination came from personal behavior of the

administrators and some *kebele* administration members. This result has consistency with the study of FSDPO (2008). According to that study, of the total sampled resettlers about 71% believed that administrators in the *woreda* and *kebele* offices were treating them equally with the host community, while 29% said there were partialities.

Table 21 Number and percent of Metema resettlers classified according to level of satisfaction on the support of *woreda* and *kebele* administration while still in their native habitats

(n=168)

Activities and type of support	Level of Satisfaction					$\bar{x}$	S.D.	Level
	V. high	High	Moderate	Low	V. low			
Assigning DAs, teachers, health workers, etc	12 (7.1)	55 (32.7)	82 (48.8)	18 (10.7)	1 (0.6)	3.35	0.79	Moderate
Organizing different training	9 (5.4)	35 (20.8)	95 (56.5)	27 (16.1)	2 (1.2)	3.13	0.79	Moderate
Solving land related problems	8 (4.8)	51 (30.4)	92 (54.8)	15 (8.9)	2 (1.2)	3.29	0.74	Moderate
Quick response to resettler's questions	5 (3.0)	51 (30.4)	83 (49.4)	27 (16.1)	2 (1.2)	3.18	0.78	Moderate
Community mobilization for natural resource conservation practices	11 (6.5)	51 (30.4)	83 (49.4)	23 (13.7)	0 (0.0)	3.30	0.79	Moderate
Frequent visit and follow-up	6 (3.6)	44 (26.2)	83 (49.4)	34 (20.2)	1 (0.6)	3.12	0.79	Moderate
Securing peace and stability	18 (10.7)	48 (28.6)	98 (58.3)	3 (1.8)	1 (0.6)	3.47	0.73	High
Total satisfaction						**3.26**	**0.61**	**Moderate**

Note: Numbers in parenthesis refer to percentages.

Table 22 Number and percent of Metema resettlers classified according to level of satisfaction on the support of *woreda* and *kebele* administration in the new resettlement area

(n=168)

Activities and type of support	Level of Satisfaction					$\bar{x}$	S.D.	Level
	V. high	High	Moderate	Low	V. low			
Assigning DAs, teachers, health workers, etc	1 (0.6)	19 (11.3)	77 (45.8)	62 (36.9)	9 (5.4)	2.65	0.77	Moderate
Organizing different training	0 (0.0)	11 (6.5)	83 (49.4)	70 (41.7)	4 (2.4)	2.60	0.65	Low
Solving land related problems	0 (0.0)	11 (6.5)	66 (39.3)	68 (40.5)	23 (13.7)	2.39	0.80	Low
Quick response to resettler's questions	0 (0.0)	7 (4.2)	53 (31.5)	86 (51.2)	22 (13.1)	2.27	0.74	Low
Community mobilization for natural resource conservation practices	0 (0.0)	5 (3.0)	68 (40.5)	77 (45.8)	18 (10.7)	2.36	0.71	Low
Frequent visit and follow-up	0 (0.0)	5 (3.0)	70 (41.7)	74 (44.0)	19 (11.3)	2.36	0.72	Low
Securing peace and stability	1 (0.6)	21 (12.5)	94 (55.9)	46 (27.4)	6 (3.6)	2.79	0.73	Moderate
Total satisfaction						**2.49**	**0.47**	**Low**

Note: Numbers in parenthesis refer to percentages.

Table 23 Number and percent of Quara resettlers classified according to level of satisfaction on the support of *woreda* and *kebele* administration while still in their native habitats

(n=169)

Activities and type of support	Level of Satisfaction					$\bar{X}$	S.D.	Level
	V. high	High	Moderate	Low	V. low			
Assigning DAs, teachers, health workers, etc	2 (1.2)	30 (17.8)	96 (56.7)	37 (21.9)	4 (2.4)	2.93	0.73	Moderate
Organizing different training	2 (1.2)	25 (14.8)	99 (58.5)	37 (21.9)	6 (3.6)	2.88	0.74	Moderate
Solving land related problems	2 (1.2)	37 (21.9)	93 (55.0)	33 (19.5)	4 (2.4)	3.00	0.75	Moderate
Quick response to resettler's questions	2 (1.2)	35 (20.7)	95 (56.2)	32 (18.9)	5 (3.0)	2.98	0.75	Moderate
Community mobilization for natural resource conservation practices	3 (1.8)	39 (23.1)	89 (52.7)	37 (21.9)	1 (0.6)	3.04	0.74	Moderate
Frequent visit and follow-up	1 (0.6)	31 (18.3)	96 (56.8)	38 (22.5)	3 (1.8)	2.93	0.71	Moderate
Securing peace and stability	2 (1.2)	53 (31.4)	97 (57.3)	16 (9.5)	1 (0.6)	3.23	0.65	Moderate
Total satisfaction						**2.99**	**0.57**	**Moderate**

Note: Numbers in parenthesis refer to percentages.

Table 24 Number and percent of Quara resettlers classified according to level of satisfaction on the support of *woreda* and *kebele* administration in the new resettlement area

(n=169)

Activities and type of support	Level of Satisfaction					$\bar{x}$	S.D.	Level
	V. high	High	Moderate	Low	V. low			
Assigning DAs, teachers, health workers, etc	1 (0.6)	8 (4.7)	119 (70.4)	29 (17.2)	12 (7.1)	2.75	0.68	Moderate
Organizing different training	0 (0.0)	7 (4.1)	114 (67.5)	36 (21.3)	12 (7.1)	2.69	0.67	Moderate
Solving land related problems	0 (0.0)	8 (4.7)	66 (39.1)	77 (45.6)	18 (10.7)	2.38	0.74	Low
Quick response to resettler's questions	0 (0.0)	7 (4.1)	69 (40.8)	75 (44.4)	18 (10.7)	2.39	0.73	Low
Community mobilization for natural resource conservation practices	1 (0.6)	7 (4.1)	74 (43.8)	69 (40.8)	18 (10.7)	2.43	0.76	Low
Frequent visit and follow-up	1 (0.6)	2 (1.2)	91 (53.8)	62 (36.7)	13 (7.7)	2.50	0.68	Low
Securing peace and stability	0 (0.0)	27 (16.0)	111 (65.7)	23 (13.6)	8 (4.7)	2.93	0.69	Moderate
Total satisfaction						**2.58**	**0.52**	**Low**

Note: Numbers in parenthesis refer to percentages.

Part 4: Environmental Factors

Land Use Changes

For the purpose of the government-led resettlement, the scarce forest lands were used. As a result, large area of woodland is converted into cultivation bringing a major shift in the land use change in the affected areas.

Prior to the 2003 resettlement program, the total cultivated land area in Metema and Quara *woredas* was estimated to be 60,650 and 236,497 hectares, respectively. Besides, woodland in the respective *woredas* covered 232,001 ha and 535,537 ha, respectively. However, after the completion of the resettlement program, the total area of cultivated land for the Metema and Quara *woredas* increased to 95,105 (10.8% increment) and 264,104 hectares (3.2% increment), respectively. On the other hand, the woodland area decreased to 201,906 ha in Metema (9.5 % decrease) and 493,969 ha in Quara (4.9% decrease) (Table 25). The annual decrease of the woodlands in Metema and Quara was 4,299 and 5,938 hectares, respectively. These dramatic land use changes occurred over a period of less than a decade. The findings of this study, thus, indicate that resettlement is one of the major causes for the depletion of natural forests in the area assessed. Ahmed (2005) similarly argued that the recent resettlement program has resulted in a large damage to the natural forest as well as the killings and fleeing of wild animals. In their study in the refugees settlements of the Senegal River Valley, Richard and Mohamed (1996) have described the decrease in woodland from 28 percent to just 9 percent over a 11-year period, whilst the area classified as forest virtually disappeared. Similarly, Messay (2009) reported that because of alarming increase in population size following the 2003 and 2004 resettlement program in Jiru Gamachu in Central Ethiopia, the dense grasslands and woodland vegetation has been entirely converted to villages, grazing and farming lands.

Table 25. Land use changes before and after program in Metema and Quara *Woredas*

Land use types	Before		After		Changes in:	
	Area, ha	%	Area, ha	%	Hectare	Percent
Metema *Woreda*						
Woodland	232,001	72.8	201,906	63.3	-30,095	-9.5
Scattered tree and grassland	25,599	8.0	20,002	6.3	-5597	-1.7
Cultivated land	60,650	19.0	95,105	29.8	+34,455	+10.8
Other land*	664	0.2	1,901	0.6	+1237	+0.4
Total	**318,914**	**100.0**	**318,914**	**100.0**	-	-
Quara *Woreda*						
Woodland	535,537	62.4	493,969	57.5	-41,568	-4.9
Scattered tree & grassland	85,289	9.9	97,870	11.4	+12,581	+1.5
Cultivated land	236,497	27.6	264,104	30.8	+27,607	+3.2
Other land	1,263	0.1	2,643	0.3	+1380	+0.2
Total	**858,586**	**100.0**	**858,586**	**100.0**	-	-

Note:* "Other land" refers to land occupied by bodies of water, huts, construction, etc.
Source: WOARD (2009: 17-23)

Soil Fertility Status

Before resettlement the area was covered with woodlands, scattered trees and grasslands, and was sparsely populated by the indigenous people. During this time farmers were practicing shifting cultivation to maintain the fertility of their farm plots. However, after the resettlement program the population density didn't allow for limitless expansion of farmland through shifting cultivation as it was practiced before. Consequently, repetitive cultivation of land without any maintenance depleted the organic and major nutrients of the area and as a result decline crop production is being observed from year to year in the resettlement areas. In the study area, there are no studies conducted to have an in-depth analysis of the soil fertility change before and after resettlement. Unfortunately, soil fertility status data was not collected before resettlement and there were no alternative options to analyze the changes except

comparing the fertility status of the present farmland being under cultivation by resettlers and the adjacent forestland which was preserved for environmental protection purposes at the beginning of the resettlement program.

According to the results of the field test carried out by Gondar Regional soil Laboratory (2009), the fertility of the farmlands was declining at an alarming rate as a result of poor soil fertility management practices (Table 26).

Table 26 Soil fertility gap between forestlands and resettlement farmlands in Metema and Quara *Woredas* during the years 2003 and 2009

Land use types	Fertility indicator				
	pH	**Organic matter, %**	**Total Nitrogen, %**	**Available Phosphorus (P_2O_5), kg/ha**	**Available Potassium (K_2O), kg/ha**
Forestland					
Metema	7.49	3.44	0.13	156.88	1,603.00
Quara	7.64	3.16	0.14	42.38	1,883.75
Farmland					
Metema	7.88	1.72	0.02	10.30	748.80
Quara	7.61	1.79	0.06	6.30	748.80
Differences, %					
Metema	+0.05	-50.0	-84.6	-93.4	-53.3
Quara	-0.004	-43.4	-57.1	-85.1	-60.2

Source: Gondar Regional Soil Laboratory (2009:1-5)

The soils in the farmlands have lost about 50% of their organic matter, 84.6% of total nitrogen, 93.4% of plant available P_2O_5 and 53.3% of plant available K_2O/ha in Metema *woreda* while in Quara *woreda* these decreases were 43.4, 57.1, 85.1 and 60.2%, respectively (Table 26). Appreciable changes, however, is not found for pH. Despite the short period (2003-2009) of plowing and flat topography, soil nutrients were lost. The following factors seem responsible for the losses: absence of soil fertility management practices such as composting, crop rotation, use of manure and land conservation practices; over grazing, deforestation and etc. This finding has also consistency with that of past study by Mengistu (2005) who reported that

unplanned resettlement; large population concentration in limited areas; tractor-based farming system; burning plant residues during the dry season to avoid obnoxious plants and insects and free grazing activities during the wet season resulted in considerable negative impact of the soil resources of Gambella region in western Ethiopia.

Deforestation

The construction of new dwellings, development of new areas of agriculture, the encrusted use of energy for the purpose of household cooking, opening of new roads and etc., all entail deforestation. The major factor for accelerated deforestation in the examined areas, however, was the illegal expansion of farmland by the resettlers. Officially, each household was allocated an average farm size of 0.91 ha in Metema and 1.02 ha in Quara (FSDPO, 2009). However, according to the survey results, the average land holding in Metema and Quara *woredas* was 2.07 and 1.87 ha, respectively. In the assessed area, almost all resettlers, with the exception of the elders and female headed households, held larger farm plots than officially allotted, the addition attained by encroachment on the woodlands. In the past five years (2004-2008), about 6,150 ha of woodlands in Metema and 13,863 ha in Quara were illegally converted into farmland by the resettlers (Table 27).

Table 27 Area of woodland illegally converted to farmland by the resettlers in Metema and Quara *Woredas* between 2004 to 2008.

	Area of woodland illegally converted to farmland, ha		
Year	**Metema**	**Quara**	**Total**
2004	504	2,142	2,646
2005	796	834	1,630
2006	1,089	5,589	6,678
2007	1,710	3,989	5,699
2008	2,051	1,309	3,360
Total	**6,150**	**13,863**	**20,013**

Source: WOARD (2009: 25-27)

According to key informants and focus group discussion participants, insufficient farmland to support the basic needs of the resettlers' families, poor soil fertility of the allotted farm plots, the desire to augment income from crop production, and the need for shifting cultivation were the prime factors for the illegal expansion of farmlands by resettlers. This expansion of farmland in the resettlement areas has not only affected the acacia woodland, but also the most economically important tree species such as incense and gum. The study is supported by the findings of Abraham and Piguet (2004). They indicated that environmental concerns need to be dealt with very carefully as settlers are presently deforesting areas to clear and plough the land.

Human-induced Forest Fire

The use of fire as a land management tool is deeply embedded in the culture and traditions of many societies. According to Mengistu (2005), the indigenous people in the resettlement areas use controlled fire to improve hunting, enable footpaths and directions to be easily identified, reduce population of weeds, grow crops, enhance vigorous grass growth in the rainy season, drive away animals that are dangerous to crop plants, protect settlements from high fire, remove dead plants, crop residues and pests, evict bees before raiding their hives for honey, and make charcoal. However, in the study area, burning has been performed irregularly and intensively as resettlers did not have experience in managing controlled fire. As indicated in Table 28, the average number of forest fire incidence per year was 1.88 and 2.17 in metema and Quara *woredas*, respectively. The major causes for forest fire in metema *woreda* was road opening while in Quara it was found to be land clearing for cultivation.

Table 28 Number and percent of resettlers classified according to the responses on forest fire frequency and causes of forest fire

Description	Metema (n=168)		Quara (n=169)	
	Number	**Percent**	**Number**	**Percent**
Frequency of forest fire/year				
Once	82	48.8	66	39.1
Twice	27	16.1	12	7.1
Trice or more	56	33.3	88	52.0
None	3	1.8	3	1.8
Mean	1.88		2.17	
Causes of forest fire				
Land clearing	28	16.7	65	38.4
Charcoal making	1	0.6	12	7.1
Wild honey harvesting	29	17.3	41	24.3
Road opening	85	50.6	38	22.5
Purposive firing	25	14.9	13	7.7

In the study area, because of human-induced forest fire hundreds of hectares of forests were burned every year. Table 29 indicates that 4,253 hectares of forestlands were burned during the year 2004 to 2008. The average area of forestlands burned every year was 850.6 ha. In some places resettlers were seen burning incense and gum trees which are a great source of foreign currency for the region in particular and the country in general. The findings of this study is in line with the findings of FSDPO (2009) which reported that the major reasons identified in the resettlement areas to set fire on the dried vegetation are to clear farm and made ready for plowing, to collect wild honey and to make moving in the farm or woodlands easier.

Table 29 Area of forest burned in Metema and Quara resettlement areas, 2004- 2008

Year	Area of forests burned, ha/year		
	Metema	**Quara**	**total**
2004	150	429	579
2005	200	187	387
2006	441	1,118	1,559
2007	299	279	578
2008	350	800	1,150
Total	**1,440**	**2,813**	**4,253**
Average	**288.0**	**562.6**	**850.6**

Source: WOARD (2009: 29-33)

Soil Fertility Management Practices

The soils in the lowlands tend to be fragile and easily lose their fertility because of erosion, unless they are sustainably maintained by means of either traditional or improved soil fertility management practices. However, the resettlers in the lowland areas studied practice a traditional form of agriculture known as shifting cultivation whereby they rotate fields rather than crops. Because of this practice, the resettlers intensively exercise deforestation which leaves farmlands and grazing lands exposed to continuous erosion which results in massive land degradation. The resettlers use crop residues as animal feed. This traditional practice, although not void of its own merits, also preclude the use of biomass as organic fertilizers. These traditional practices, in turn, lead to breaches in the cycling of soil nutrients, in particular nitrogen and phosphorous, resultant in the decline of soil fertility and thus a decrease in crop yields (Amhara Forestry Action Program, 2000).

The survey result revealed that only 16.7, 23.2 and 21.4% of respondents in Metema and 14.8, 34.3 and 16.0% in Quara practice composting, manure application and crop rotation, respectively in the new resettlement areas (Table 30). The remainder of the resettlers never practices any type of soil fertility management technologies since their arrival to the new area. Both a lack of awareness and a sense of ownership to invest in the land, insufficient extension service on appropriate

technologies and environmental conditions unfavorable to rotate crops used by the resettlers were incriminated to be the reasons for the non-implementation of soil fertility management practices by the resettlers. Due to these factors, which are further exacerbated by other dynamics, the soil fertility in the resettlement areas has been in a constantly decline. The overwhelming majority of sampled respondents believe their farm plots to be less fertile at present than the first three consecutive years of agricultural activity.

Table 30 Number and percent of resettlers classified according to traditional soil fertility management technologies

Traditional soil fertility management technologies	Number and percentages of households per *woreda*			
	Metema (n=168)		Quara (n=169)	
	Practicing households n (%)	Not practicing households n (%)	Practicing households n (%)	Not practicing households n (%)
Compost	28 (16.7)	140 (83.3)	25 (14.8)	144 (85.2)
Manure	39 (23.2)	129 (76.8)	58 (34.3)	111 (65.7)
Crop rotation	36 (21.4)	132 (78.6)	27 (16.0)	142 (84.0)

Note: Numbers in parentheses refer to percentage values.

Private and Communal Land Conservation Activities

Land is one of the major economic factors for rural farmers. In the resettlement areas, all the households surveyed possess land for farming and residence. Therefore, the inhabitants are responsible for conservation measures on private and communal lands to secure a sustainable income and enhance environmentally-friendly agriculture practices in the lowland areas. According to the regional soil and water conservation guideline, every farmer should spend at least sixty days per year on private and communal land conservation activities (Bureau of Agriculture, 1995). Private land conservation mainly focuses on conservation measures such as terracing, strip cropping, mulching, pitting and the like under taken on private farmlands, while communal land conservation refers to conservation

measures like hillside terracing, gully treatment, controlled grazing, communal plantation etc. under taken on communal lands.

As shown in Table 31, 95.8% of respondents in Metema and 92.3% in Quara never engaged on private land conservation practices after the resettlement program. Similarly, 53.5 and 52.1% in Metema and Quara, respectively never participated on communal land conservation practices in their new resettlement areas. Before the resettlement program, 13.7 and 30.2% in Metema and Quara, respectively did not engaged on private land conservation practices, while only 5.4% in Metema and 4.7% in Quara never participated on communal land conservation practices. The average number of working days spent per year on private land conservation before the resettlement was 17.4 in Metema and 15.1 in Quara, whereas on communal land conservation, the average number of working days spent per year was found to be 19.8 and 19.2 in Metema and Quara, respectively. However, after the resettlement program, these averages decreased to 0.27 in Metema and 0.73 in Quara on private land conservation, while on communal land conservation it decreased to 2.7 and 3.4 in Metema and Quara, respectively. This shows that resettlers used to spend more time for land conservation practices at their original places in the highland as opposed in their new resettlement areas in the lowlands. Three main factors could be cited in support of the fact that land conservation practices are considerably better in resettlers' original habitats. These are: i) the resettlers are prevented from expansion of their farmland and hence obliged to maintain what is at their disposal; ii) local government officials and extension workers are mainly evaluated on the basis of their performance on land conservation activities; and iii) provision of incentives like training, hand tools and grain in some labor-intensive activities.

Table 31 Number and percent of resettlers classified according to working days per year before and after the resettlement program

Number of working days spent per year	Number and percentages of households per *woreda*							
	Metema (n=168)				Quara (n=169)			
	Before		After		Before		After	
	Number	%	Number	%	Number	%	Number	%
On private land								
0	23	13.7	161	95.8	51	30.2	156	92.3
1-10	8	4.7	7	4.2	12	7.1	10	5.9
11-20	124	73.8	0	0.0	87	51.5	2	1.2
Above 20	13	7.8	0	0.0	19	11.2	1	0.6
Mean	17.4		0.27		15.1		0.73	
On communal land								
0	9	5.4	90	53.5	8	4.7	88	52.1
1-10	51	30.3	68	40.5	29	17.2	69	40.8
11-20	56	33.4	10	6.0	85	50.3	11	6.5
Above 20	52	30.9	0	0.0	47	27.8	1	0.6
Mean	19.8		2.7		19.2		3.4	

According to focus group discussion participants and key informants, the absence of well planned annual programs for the promotion of conservation activities, the lack of compatible conservation technologies for the lowland areas, the deficiency of known incentives to the resettlers while in their original habitats, the inadequacy of agricultural extension services at village level, the lack of a sense of ownership to stimulate investments on land, and a low level of community awareness were the major factors responsible for the low performance of conservation activities on private and communal lands after the completion of the resettlement program. These findings are in agreement with the observations of Berhanu (2007) who indicated that resettlers were not involved in soil conservation activities in their new environments. He stipulated that out of the total sampled resettlers, 99.29% were not involved in any soil conservation practices. He also pointed out that the reason for weak involvement may be caused by the absence of cognition of soil fertility exhaustion by the resettlers; conversely, the flat terrain, which does not necessitate the construction of terraces and the education thereof, prevents the creation of awareness among the resettlers of the importance of conservation measures.

Level of Participation of Resettlers in Natural Forest Protection

Regardless of the future of the resettlements, improvements of livelihoods of the resettlers in the Ethiopian lowlands remain elusive in the absence of a proper management of the natural forests. Aside economic considerations, forests are important due to their buffering function between arid areas and the highland plateau. Moreover, the vegetation of these settlement areas is known to act as a "Green guard" due to its function as a protective of not only the area studied, but also for Ethiopia at large against desertification which threatens from the direction of the neighboring Sudan and the Sahel region (Parks Development and Protection Authority, 2001). Accordingly, proactive participation of the resettlers in natural forest protection is indispensable beyond doubt.

The survey results show that the total level of the resettlers' participation in natural forest protection is low in both districts examined. The low level of participation is manifest in all natural forest protection related activities such as the

prevention of deforestation, production of charcoal, farmland expansion and the control of illegal forest and forest produce traders, and forest fire protection (Table 32).

Table 32 Average scores of resettlers' participation in natural forest protection

Activities	Metema (n=168)		Quara (n=169)	
	Mean ± SD	**Level**	**Mean ± SD**	**Level**
Prevention of tree cutting	2.33 ± 0.85	Low	2.39 ± 0.64	Low
Prevention of charcoal making	2.42 ± 0.79	Low	2.41 ± 0.65	Low
Prevention of farmland expansion	2.32 ± 0.71	Low	2.32 ± 0.65	Low
Control illegal forest traders	2.39 ± 0.74	Low	2.34 ± 0.66	Low
Forest fire protection	2.36 ± 0.82	Low	2.39 ± 0.69	Low
Total	**2.36 ± 0.64**	**Low**	**2.37 ± 0.57**	**Low**

From the focus group discussion and key informants, it is understood that four major reasons are cause for the resettlers' low level of participation in natural forest protection: i) the lack of a sense of ownership along a desire to maximize exploitation of the available land in absence of any consideration of the consequences associated with such a practice of agriculture; ii) the quantitative inadequacy of the officially allocated farm land (1.02 ha in Quara and 0.91 ha in Metema (FSDPO, 2009)) to families of an average size of 4.8 people; iii) limited existence of off-farm activities which could generate additional income in the resettlement areas, and iv) low level of support from the local administration and extension agents at great distances from the resettlement areas. To this regard, Abraham and Piguet (2004) recommended the urgent initiation of environmental protection and rehabilitation programs in the resettlement areas, as it is not apparent that such considerations have been made in the original resettlement feasibility study.

Household Level Tree Planting Before and After Resettlement

Deforestation, at present, is beyond both local and national concern, as its implications for the human livelihood systems are immense. Accordingly, tree planting at household level, especially in the resettlement areas has considerable advantages to the combat of desertification and related environmental consequences. As indicated earlier, the study areas were naturally covered by woody vegetation for extended periods of time until the launch of the government-led resettlement schemes. Here, the deforestation rate by far outweighs the limited afforestation interventions in an environment where a remarkable area of woodlands was converted into cultivated lands.

The majority of respondents (50.6% in Metema and 56.8% in Quara) had privately planted up to 50 trees in their indigenous areas. Some even planted more (in excess of 200) trees (11.9% of respondents in Metema and 4.7% in Quara). Conversely, after resettlement, many resettlers (73.2% in Metema and 53.8% in Quara) did not involve in any afforestation program in their new habitats. The average number of trees planted per household in the original places was 192.9 for Metema and 108.6 for Quara resettlers, whereas in the new resettlement sites it decreased to 11.5 and 9.7 for Metema and Quara resettlers, respectively (Table 33).

Table 33 Number and percent of resettlers classified according to number of trees planted before and after the resettlement program

Number of trees planted	Household respondents per *woreda*			
	Metema (n=168)		Quara (n=169)	
	Before, n (%)	After, n (%)	Before, n (%)	After, n (%)
0	21 (12.5)	123 (73.2)	40 (23.7)	91 (53.8)
1-50	85 (50.6)	41 (24.4)	96 (56.8)	77 (45.6)
51-100	26 (15.5)	3 (1.8)	22 (13.0)	0 (0.0)
101-150	9 (5.3)	1 (0.6)	2 (1.2)	1 (0.6)
151-200	7 (4.2)	0 (0.0)	1 (0.6)	0 (0.0)
Above 200	20 (11.9)	0 (0.0)	8 (4.7)	0 (0.0)
Mean	192.9	11.5	108.6	9.7

Note: Numbers in parentheses refer to percentage values.

The number of trees planted by the resettlers was higher in their original places in the highlands, as opposed to the one after their arrival in the new resettlement areas in the lowlands. This is attributable to the availability of natural vegetation cover, which is readily used as a fuel source, lack of sense of ownership to invest in the new area (settlers often consider themselves as strangers in the new area) and the harsh environmental conditions unsuitable for the growing of trees. Similarly, the average tree holding per household was higher in the resettlers' original places, due to the absence of natural vegetation as a fuel source, favorable environmental conditions to grow trees, availability of compatible tree seeds and seedlings in the area and the proximity of the villages to towns, a potential market for both fuel wood and construction materials.

Use of Alternate Energy in Resettlement Sites

The household energy sub-sector in Ethiopia is characterized by heavy reliance on biomass fuels and inefficient utilization of energy from biomass. Laboratory tests clearly indicate that thermal efficiency of traditional three stone fire is in the range of 8 to 10%. The rest 90% is wasted in the combustion process. This wastage is caused by energy inefficient three stone fire, which used by almost all households in urban and rural areas of the country (OXFAM GB, 1999). Therefore, it is a big regional concern that calls for energy efficiency improvement in the resettlement areas. According to sample respondents, 99.4 and 94.6% of resettlers in Metema and Quara, respectively were using fire wood as sources of household fuel energy. The rest managed to use crop residue (3.6%), animal dung (1.8%) and biogas (0.6%) (Table 34). The use of solar energy and electricity were unthinkable right at this moment as resettlement areas are located at a great distance from main roads and urban centers. On the other hand, 92.3% of respondents in Metema and 97.6% in Quara expressed that natural forest was the source of fire wood while 7.7% in Metema and 2.4% in Quara used to collect their fire wood from community forests (Table 34). In the study area, it was observed that there is not a problem of fire wood, despite native people witnessed the distance to collect fire wood is now getting far and far.

As indicated in Table 34, 72.6% of respondents in Metema and 78.1% in Quara were using three stones (open fire) stoves while only 12.5 and 4.7% in Metema and Quara, respectively owned improved stoves. About 14.9% in Metema and 17.2% in Quara adopted traditional enclosed stoves. According to focus group discussion and key informants, availability of natural forest for fire wood, inaccessibility of improved stoves and inadequate extension service about the technology were the major factors for low penetration rate of improved stoves in the resettlement areas.

Table 34 Number and percent of resettlers classified according to sources of fuel energy, sources of fire wood and types of stoves on use after the resettlement program

Description	Metema (n=168)		Quara (n=169)	
	Number	**Percent**	**Number**	**Percent**
Sources of fuel energy				
Fire wood	167	99.4	160	94.6
Crop residue	0	0.0	6	3.6
Animal dung	0	0.0	3	1.8
Biogas	1	0.6	0	0.0
Solar energy	0	0.0	0	0.0
Electricity	0	0.0	0	0.0
Sources of fire wood				
Natural forest	155	92.3	165	97.6
Community forest	13	7.7	4	2.4
Own plantation	0	0.0	0	0.0
Types of stoves on use				
Improved enclosed	21	12.5	8	4.7
Traditional enclosed	25	14.9	29	17.2
Three stone (open fire)	122	72.6	132	78.1

Part 5: Hypotheses Testing

Three hypotheses were formulated to test the differences in the economic and social factors of resettlers between before and after the resettlement program and between the resettlers of the two *woredas* while still in their native habitats and after the resettlement.

Hypothesis 1: The economic and social factors of resettlers of Metema and Quara *Woredas* before and after the settlement program will be different.

Table 35 Comparative average scores of resettlers' farmland, livestock holdings and family labor before and after the resettlement program

Type of resource	Metema (n=168)			Quara (n=169)		
	Mean	S.D	t	Mean	S.D	t
Farmland, ha			-12.25***			-12.77***
Before	1.05	0.97		0.96	0.92	
After	2.07	0.47		1.87	0.34	
Oxen, no			-8.41***			-4.60***
Before	0.88	0.79		0.75	0.72	
After	1.60	0.78		1.08	0.76	
Livestock holding			-2.44*			-7.66***
Before	2.52	2.11		2.13	1.94	
After	2.99	2.27		3.66	2.45	
Family labor			-3.21**			-3.60***
Before	2.52	1.23		2.69	1.47	
After	2.82	1.31		3.03	1.53	

Note: *significant at p<.05; ** significant at p<.01; ***significant at p<.001.

The average land holding of the respondents were 1.05 ha and 2.07 ha in Metema and 0.96 ha and 1.87 ha in Quara before and after the resettlement program, respectively (Table 35). Accordingly, the size of farmland owned by the resettlers after the resettlement program is significantly higher than before the program at p<.001 (Table 35). This finding was supported by the findings of FSDPO (2008)

which indicated that 96.4% of the resettlers had greater than one hectare of farmland after the resettlement program. This data also indicated that sampled resettlers have a greater size of farmland when compared to the rest of farmers in the region who owned an average size of only 1.1 ha (BOARD, 2003).

The average oxen holding of sampled resettlers before the program was 0.88 in Metema and 0.75 in Quara. However, the average oxen holding after the program was 1.60 in Metema and 1.08 in Quara (Table 35). In general the difference was significant at p<.001 (Table 35). Even though, there was an increase in the oxen holding of sampled resettlers still they lacked a pair of oxen to prepare their farm plot on time. This finding was in line with the findings of Tranquilli (2004) who indicated that a resettler has access to oxen only once every four days to plough his land. As indicated in Table 35, the average livestock holding in tropical livestock unit (TLU) before the resettlement program was 2.52 in Metema and 2.13 in Quara, while after the program this figure increased to 2.99 and 3.66 in Metema and Quara, respectively. Table 35 showed that the differences in both of the *woredas* were significant at p<.05 for Metema and at p<.001 for Quara. Similarly, number of family labor after the resettlement was significantly higher than before in both of the *woredas* (p=0.002 for Metema and p=0.000 for Quara). Consequently, the hypothesis with regard to farmland, oxen and livestock holding and family labor is accepted.

Table 36 Comparative average scores of resettlers' household incomes before and after the resettlement program, Birr

Income category	Metema (n=168)			Quara (n=169)		
	Mean	**S.D**	**t**	**Mean**	**S.D**	**t**
On-farm			-15.08***			-11.67***
Before	3,562.9	3,118.1		3,432.3	2,456.5	
After	10,328.6	6,733.4		7,884.1	4,858.1	
Off-farm			-1.80 (ns)			-.39 (ns)
Before	1,777.1	1,213.4		1,334.8	1,025.0	
After	2,320.6	1,140.9		1,417.4	1,032.1	

Table 36 (Continued)

Income category	Metema (n=168)			Quara (n=169)		
	Mean	**S.D**	**t**	**Mean**	**S.D**	**t**
Total HH income			-15.68***			-10.35***
Before	4,077.5	3,481.9		4,004.8	3,605.4	
After	11,154.8	6,890.9		8,362.4	4,730.2	

Note: ns=not significant ; ***significant at p<.001.

The analysis using mean comparisons between pair of income categories (on-farm, off-farm and total household income) with reference to time period before and after the resettlement program showed that there had been a significant change (except off-farm income) in the income of sampled households (Table 36).

As indicated in Table 36, on-farm income after the resettlement were significantly different from before resettlement in both of the *woredas* at p<.001. On the contrary, off-farm income after the resettlement did have no difference from before resettlement in Metema and Quara *woredas* at p<.05, but total income of the resettlers' after the resettlement were significantly different from before resettlement at p<.001 in both of the *woredas*. Hence, the major source of income in the study area was found to be on-farm activities and the farm production system has changed, so that production is more commercial than before. Almost all sampled resettlers were growing sesame and cotton, crops that have a great market value at national and international level. In general, this significant income difference is evident that resettlers in Metema and Quara were getting better and wealthier than before. This finding was supported by Abraham and Piguet (2004) which showed that organized resettlement can indeed be a lasting solution to Ethiopia's rural problem. In further study conducted by FSDPO (2008) also reported that about 126 of sampled households earned an annual crop income of above 5,000 Birr after resettlement whereas on the other extreme, before resettlement, only 24 households earned an annual crop income of above 5,000 Birr. Generally, the hypothesis on on-farm and total household income is accepted while on off-farm income is rejected.

Table 37 Comparative average scores of resettlers' food availability, consumption coverage, daily food intake, number of meals, number of visits by DAs and number of technologies used by resettlers

Description	Metema (n=168)			Quara (n=169)		
	Mean	**S.D**	**t**	**Mean**	**S.D**	**t**
Food availability, Quintals/year			-14.56***			-14.76***
Before	9.34	5.41		9.33	4.49	
After	18.37	9.76		17.78	8.19	
Consumption coverage, months			-14.04***			-19.25***
Before	8.32	2.71		7.49	2.73	
After	11.44	1.41		11.34	1.27	
Daily food intake, cal/person			-16.78***			-15.09***
Before	1,525.2	293.1		1,466.9	275.6	
After	1,930.0	239.4		1,824.1	272.7	
Number of daily meals			-18.98***			-22.27***
Before	2.08	0.59		2.08	0.61	
After	3.13	0.46		3.01	0.47	
Number of visits by DAs/month			1.75 (ns)			-2.48*
Before	1.76	1.38		1.79	1.30	
After	1.53	1.19		2.08	1.21	
Number of technologies used by resettlers			6.43***			10.45***
Before	1.74	0.94		1.47	0.84	
After	1.16	0.90		0.70	0.55	

Note: ns=not significant ; *significant at p<.05 ***significant at p<.001.

As indicated in Table 37, food availability in the households, food consumption coverage per year, daily intake of calories per person and number of daily meals in a household showed a significant difference after resettlement at p<.001. On the contrary, number of visits by development agents had not shown any difference in Metema *woreda* while it had a significant difference in Quara *woreda* at p<.05. Surprisingly, number of agricultural technologies used by resettlers were significantly higher at their native habitats than the new area at p<.001. This indicates that the agricultural extension support provided to resettlers were not even to the standard of other parts of the region. The finding has also consistency with that of recent study by FSDPO (2008). The study indicated that the number of development agents supporting different agricultural activities per *kebele* were few as compared to other rural areas of the regional state. As a result, only half of resettlers have got agricultural extension support from development agents. In both of the *woredas*, the hypothesis on the economic factors (food availability, food consumption coverage, daily calorie intake, number of meals in a household and number of visit by DAs (in Quara *woreda*)) is accepted except the agricultural technologies used by resettlers and number of visits by DAs (only in Metema *woreda*).

Table 38 Comparative average scores of resettlers' satisfaction towards accessibility of social services before and after the resettlement program

Type of social services	Metema (n=168)			Quara (n=169)		
	Mean	S.D	t	Mean	S.D	t
Education			-18.48***			-4.02***
Before	3.20	0.79		3.11	0.74	
After	4.50	0.60		3.42	0.78	
Health			-15.05***			.000 (ns)
Before	2.75	0.58		2.87	0.90	
After	3.84	0.83		2.87	0.84	
Electricity			-1.55 (ns)			3.67***
Before	1.49	0.67		1.49	0.91	
After	1.57	0.72		1.27	0.55	

Table 38 (Continued)

Type of social services	Metema (n=168)			Quara (n=169)		
	Mean	**S.D**	**t**	**Mean**	**S.D**	**t**
Grinding mills			-14.37***			-5.47***
Before	2.80	0.72		2.85	0.85	
After	4.01	0.78		3.27	0.65	
Clean water			-15.94***			-2.07*
Before	2.47	0.99		2.24	1.13	
After	4.09	0.84		2.49	1.08	
All weather road			2.84**			-.23 (ns)
Before	2.35	1.03		2.25	1.06	
After	2.07	0.75		2.28	1.09	
Market center			-4.32***			-2.72**
Before	3.04	1.04		2.88	0.81	
After	3.45	0.99		3.08	0.68	
Credit facility			-6.52***			-3.43**
Before	2.68	0.99		2.36	0.95	
After	3.27	1.07		2.65	0.76	
Veterinary service			-6.01***			.000 (ns)
Before	2.02	0.87		2.42	0.99	
After	2.67	1.04		2.42	0.90	
Telephone service			-7.83***			1.14 (ns)
Before	2.19	0.96		1.79	1.01	
After	3.09	1.17		1.69	0.80	
Postal service			1.67 (ns)			1.28 (ns)
Before	1.73	0.77		1.65	0.81	
After	1.64	0.57		1.56	0.69	
Permanent toilet			-34.42***			-10.84***
Before	1.85	0.60		1.75	1.04	
After	4.35	0.73		2.96	1.30	
Total satisfaction			-22.08***			-3.87***
Before	2.38	0.43		2.31	0.61	
After	3.21	0.38		2.50	0.39	

Note: ns=not significant; *, **, *** significant at p<.05, .01 and .001, respectively.

The mean of total satisfaction before and after the resettlement were 2.38 and 3.21 for Metema and 2.31 and 2.50 for Quara, respectively. Both showed significant difference at p<.001 (Table 38). In Metema *woreda* all social services except electricity and postal services showed a significant different after resettlement at p<.001, in the contrary all weather road showed a significant different before the resettlement at p<.01. In Quara *woreda* education, electricity, grinding mills and permanent toilet showed a significant difference at p<.001, while market center and credit facility at p<.01 and clean water at p<.05. The rest like health, all weather road, veterinary, telephone and postal services did show no difference at p<.05 (Table 38). Despite the shortfalls in availing the social services, there was a significant change in the level of satisfaction of the sampled resettlers' after the resettlement. Narayan *et al*. (2006) also supported this finding. He revealed that increased social services in the new location were appreciated by the resettlers because they contributed to improving livelihoods in the new settlements. In general, the hypothesis on the level of total satisfaction of resettlers in both of the *woredas* is accepted, while the hypothesis on the accessibility of health, all weather road, veterinary, telephone and postal services in Quara *woreda* and electricity and postal service in Metema *woreda* is rejected as p>0.05.

Table 39 Comparison of resettlers' types of houses before and after resettlement

Type of house by *woreda*	Before		After		$\chi 2$
	N	%	N	%	
Metema *woreda* (n=168)					7.685**
Corrugated iron sheet	30	17.9	7	4.2	
Grass thatched	138	82.1	161	95.8	
Both	0	0.0	0	0.0	
Total	168	100.0	168	100.0	
Quara *woreda* (n=169)					36.293***
Corrugated iron sheet	21	12.4	6	3.6	
Grass thatched	147	87.0	163	96.4	
Both	1	0.6	0	0.0	
Total	**169**	**100.0**	**169**	**100.0**	

Note: **significant at p<.01; ***significant at p<.001.

The chi-square test showed that in both of the *woredas* there was a significant difference ($p<.01$ for Metema and $p<.001$ for Quara) in the type of housing before and after resettlement (Table 39). Hence, the hypothesis is accepted for both of the *woredas* examined (Table 39).

Table 40 Comparative average scores of resettlers' satisfaction on the support of *woreda* and *kebele* administrations before and after the resettlement program

Type of support	Metema (n=168)			Quara (n=169)		
	Mean	**S.D**	**t**	**Mean**	**S.D**	**t**
Assigning DAs, teachers, health workers,..			8.942***			2.161*
Before	3.35	0.79		2.93	0.73	
After	2.65	0.77		2.75	0.68	
Organizing training for resettlers			7.201***			2.383*
Before	3.13	0.79		2.88	0.74	
After	2.60	0.65		2.69	0.67	
Solving land related problems			11.182***			7.600***
Before	3.29	0.74		3.00	0.75	
After	2.39	0.80		2.38	0.74	
Quick responses to resettlers' questions			11.510***			7.801***
Before	3.18	0.78		2.98	0.75	
After	2.27	0.74		2.39	0.73	

Table 40 (Continued)

Type of support	Metema (n=168)			Quara (n=169)		
	Mean	**S.D**	**t**	**Mean**	**S.D**	**t**
Community mobilization towards natural resource conservation			11.269***			7.256***
Before	3.30	0.79		3.04	0.74	
After	2.36	0.71		2.43	0.76	
Frequent visit and follow-up			9.572***			5.658***
Before	3.12	0.79		2.93	0.71	
After	2.36	0.72		2.50	0.68	
Securing peace and stability			9.572***			4.335***
Before	3.47	0.73		3.23	0.65	
After	2.79	0.73		2.93	0.69	
Total satisfaction			13.667***			6.568***
Before	3.26	0.61		2.99	0.57	
After	2.49	0.47		2.58	0.52	

Note: *significant at p<.05; ***significant at p<.001.

Table 40 illustrates that level of satisfaction of resettlers on the support of *woreda* and *kebele* adminstration (assigning development agents, teachers, health workers and etc and organizing training, solving land related problems, quick response to resettlers' questions, community mobilization towards natural resource conservation, frequent visit and follow-up and securing peace and stability) were found to be significantly different before resettlement than after at p<.001 in Metema *woreda*. Similarly, total level of satisfaction was also significantly different at p<.001. In the same way, in Quara *woreda*, level of satisfaction of resettlers was significantly different at p<.05 for assigning DAs, teachers, health workers and organizing training while all the rest were significant at p<.001. As a result total level of satisfaction was also significantly different at p<.001. Accordingly, the hypothesis is accepted.

According to the focus group discussion and key informants, *woreda* and *kebele* administration couldn't address the problems of the resettlers on time because of a number of factors, such as lack of skilled man power in the resettlement areas, lack of communication facilities, inaccessibility of some of the resettlement areas and in some cases lack of attention from the local leaders. In the contrast, *woreda* and *kebele* administration in the original places are better staffed (they are well established through time) to support the farmers. As a result, the mean score of total level of satisfaction towards *woreda* and *kebele* administration support was higher in the original places than in the new resettlement areas.

Hypothesis 2: The economic and social factors of resettlers of Metema *Woreda* will be no different from resettlers of Quara *woreda* while still in their native habitats.

The t-test on Table 41 showed that there was no significant difference in the resource holding of the households (p=.398 for farmland, p=.116 for oxen, p=.061 for total livestock and p=.255 for family labor) between the two *woredas* at p<.05 while still in their native habitats. Consequently, the hypothesis is accepted. On the other hand, the mean of on-farm income was 3,562.9 and 3,432.3 birr for Metema and Quara resettlers, respectively, whereby the difference was not significant at p<.05. Off-farm income of resettlers in their native habitats also didn't show a significant difference at p<.05 (t=-1.689). Similarly, total annual income of households before

resettlement did show no difference at p<.05 (t=-.188). Accordingly, the hypothesis for different income categories of resettlers' is accepted.

Table 41 Comparative average scores of resettlers' economic factors while still in their native habitats

Description	$\bar{X}$	S.D.	t
Farmland holding of households, ha			-.847 (ns)
Metema (n=168)	1.05	0.97	
Quara (n=169)	0.96	0.92	
Oxen holding of households, number			-1.576 (ns)
Metema (n=168)	0.88	0.79	
Quara (n=169)	0.75	0.72	
Livestock holding of households, TLU			-1.880 (ns)
Metema (n=168)	2.52	2.11	
Quara (n=169)	2.13	1.94	
Family labor of households			1.140 (ns)
Metema (n=168)	2.52	1.23	
Quara (n=169)	2.69	1.47	
On-farm income, Birr			-.427 (ns)
Metema (n=168)	3,562.9	3,118.1	
Quara (n=169)	3,432.3	2,456.5	
Off-farm income, Birr			-1.689 (ns)
Metema (n=168)	1,727.5	1,166.2	
Quara (n=169)	1,303.0	1,007.0	
Total household income, Birr			-.188 (ns)
Metema (n=168)	4,077.5	3,481.9	
Quara (n=169)	4,004.8	3,605.4	
Food availability, quintals per year			-.016 (ns)
Metema (n=168)	9.34	5.41	
Quara (n=169)	9.33	4.49	

Table 41 (Continued)

Description	$\bar{X}$	S.D.	t
Consumption coverage, months/year			-2.801**
Metema (n=168)	8.32	2.71	
Quara (n=169)	7.49	2.73	
Daily food intake, cal/person/day			-1.880 (ns)
Metema (n=168)	1,525.2	293.1	
Quara (n=169)	1,466.9	275.61	
Number of daily meals in the household			.182 (ns)
Metema (n=168)	2.07	0.59	
Quara (n=169)	2.08	0.61	
Number of visits by DAs/month			.212 (ns)
Metema (n=168)	1.76	1.38	
Quara (n=169)	1.79	1.30	
Number of technologies used by resettlers			-2.798**
Metema (n=168)	1.74	0.94	
Quara (n=169)	1.47	0.84	

Note: ns= not significant; **significant at p<.01.

Table 41 illustrates that food availability in a year within the households was 9.34 and 9.33 quintals in Metema and Quara *woredas*, respectively whereby a significant difference was not observed at p<.05. On the other hand, food consumption coverage per year was significantly different at p<.01 (mean of Metema *woreda* was 8.32 months while for Quara it was found to be 7.49). The rest, daily calorie intake per person, number of daily meals and number of visits by development agents didn't show a significant difference at p<.05, whereas number of agricultural technologies used by resettlers while still in their native habitat showed a significant difference at p<.01 (t=-2.798). Accordingly, the hypothesis is partially accepted under these variables.

Table 42 depicts the level of satisfaction of resettlers of Metema and Quara *woredas* towards the accessibility of the social services while still in their native habitat. Accordingly, education, health, electricity, grinding mills, clean water, all weather road, market center, postal service and permanent toilets did not show a significance difference between the resettlers of the two *woredas* before resettlement. On the contrast, veterinary and telephone services showed a significant difference at $p<.001$ while credit facility was significant at $p<.01$. As a result, total level of satisfaction of resettlers of the two *woredas* before the resettlement did not show a significant difference at $p<.05$ (the mean of total level of satisfaction of Metema and Quara *woredas* were 2.38 and 2.31, respectively and $t=-1.314$). The hypothesis is, therefore, partially accepted. Similarly the chi-square test on the differences of housing of resettlers of Metema and Quara *woredas* before the resettlement program (while resettlers were in their native areas) did not show a significant difference at $p<.05$ (Table 43). Consequently, the hypothesis is accepted.

According to the hypothesis testing result, total level of satisfaction of resettlers of Metema and Quara *woredas* towards *woreda* and *kebele* administrations support while still in their native area showed a significant difference at $p<.001$ (Table 44). In the same way, level of satisfaction towards assignment of development agents, teachers and health workers and solving land related problems showed a significant difference at $p<.001$ while the difference in organizing training, community mobilization towards natural resource conservation activities and securing peace and stability was significant at $p<.01$ and the rest two activities, quick response to resettlers questions and frequent visit and follow-up have shown a significant difference at $p<.05$ (Table 44). As a result, the hypothesis is rejected.

In the original places, it was expected that the *woreda* and *kebele* administrations' support to the resettlers of Metema and Quara were on the same level. However, the original place of Metemas' resettlers was by far better (in terms of man power, accessibility, proximity and so on) than the original place of Quaras' resettlers. As a result, Metemas' resettlers were benefited more from *woreda* and *kebele* administration than Quaras. Accordingly, the mean score of total level of

satisfaction towards *woreda* and *kebele* administrations' support was higher for Metema's resettlers than Quara's.

Table 42 Comparative average scores of resettlers' satisfaction towards the accessibility of the social services while still in their native habitats

Type of social services	$\bar{X}$	S.D.	t
Education			-1.010 (ns)
Metema (n=168)	3.20	0.79	
Quara (n=169)	3.11	0.74	
Health			1.383 (ns)
Metema (n=168)	2.75	0.58	
Quara (n=169)	2.87	0.90	
Electricity			.035 (ns)
Metema (n=168)	1.49	0.67	
Quara (n=169)	1.49	0.91	
Grinding mills			.565 (ns)
Metema (n=168)	2.80	0.72	
Quara (n=169)	2.86	0.85	
Clean water			-1.959 (ns)
Metema (n=168)	2.47	0.99	
Quara (n=169)	2.24	1.13	
All weather road			-.797 (ns)
Metema (n=168)	2.35	1.03	
Quara (n=169)	2.25	1.06	
Market center			-1.572 (ns)
Metema (n=168)	3.04	1.04	
Quara (n=169)	2.88	0.81	
Credit facility			-2.985**
Metema (n=168)	2.68	0.99	
Quara (n=169)	2.36	0.95	

Table 42 (Continued)

Type of social services	$\bar{X}$	S.D.	t
Veterinary service			3.941***
Metema (n=168)	2.02	0.87	
Quara (n=169)	2.42	0.99	
Telephone service			-3.701***
Metema (n=168)	2.19	0.96	
Quara (n=169)	1.80	1.01	
Postal service			-1.011 (ns)
Metema (n=168)	1.73	0.77	
Quara (n=169)	1.65	0.81	
Permanent toilets			-1.142 (ns)
Metema (n=168)	1.85	0.59	
Quara (n=169)	1.75	1.04	
Total level of satisfaction			-1.314 (ns)
Metema (n=168)	2.38	0.43	
Quara (n=169)	2.31	0.57	

Note: ns= not significant; **significant at p<.01; *** significant at p<.001.

Table 43 Comparison of types of housing between the resettlers of Metema and Quara *Woredas* while still in their native habitat.

Type of house	Metema (n=168)		Quara (n=169)		$\chi 2$	p
	N	%	N	%		
Corrugated iron sheet	30	17.9	21	12.4	2.870 (ns)	0.238
Grass thatched	138	82.1	147	87.0		
Both	0	0.0	1	0.6		
Total	**168**	**100.0**	**169**	**100.0**		

Note: ns= not significant

Table 44 Comparative average scores of resettlers' satisfaction towards the support of *woreda* and *kebele* administrations while still in their native habitats

Type of support/activities	$\bar{X}$	**S.D.**	**t**
Assigning DAs, teachers and health workers			-5.014***
Metema (n=168)	3.35	0.79	
Quara (n=169)	2.93	0.73	
Organizing training			-3.001**
Metema (n=168)	3.13	0.79	
Quara (n=169)	2.88	0.74	
Solving land related problems			-3.517**
Metema (n=168)	3.29	0.74	
Quara (n=169)	3.00	0.75	
Quick response to resettlers' questions			-2.358*
Metema (n=168)	3.18	0.78	
Quara (n=169)	2.98	0.75	
Community mobilization towards natural resource conservation activities			-3.154**
Metema (n=168)	3.30	0.79	
Quara (n=169)	3.04	0.74	
Frequent visit and follow-up			-2.257*
Metema (n=168)	3.12	0.79	
Quara (n=169)	2.93	0.71	
Securing peace and stability			-3.162**
Metema (n=168)	3.47	0.73	
Quara (n=169)	3.23	0.65	
Total level of satisfaction			-4.074***
Metema (n=168)	3.26	0.61	
Quara (n=169)	2.99	0.57	

Note: *significant at p<.05; **significant at p<.01 and ***significant at p<.001.

Hypothesis 3: The economic and social factors of resettlers of Metema *Woreda* will be different from resettlers of Quara *woreda* after the resettlement program.

Table 45 illustrates the economic differences of resettlers of Metema and Quara *woredas* after the resettlement program in the new environment. Accordingly, farmland holding, oxen holding, on-farm income, total household income, daily calorie intake per person per day, number of visits by development agents and number of agricultural technologies used by resettlers had shown a significant difference at $p<.001$. Similarly, off-farm income and total livestock holding showed a significant difference at $p<.01$ and $p<.05$, respectively. On the hand, family labor, food availability per year, consumption coverage per year and number of daily meals did not show any difference at $p<.05$ after the resettlement program. Consequently, the hypothesis is partially accepted.

Table 45 Comparative average scores of resettlers' economic factors after the resettlement program

Description	$\bar{X}$	S.D.	t
Farmland holding of households, ha			-4.415***
Metema (n=168)	2.07	0.47	
Quara (n=169)	1.87	0.34	
Oxen holding of households, number			-6.181***
Metema (n=168)	1.60	0.78	
Quara (n=169)	1.08	0.76	
Livestock holding of households, TLU			2.580*
Metema (n=168)	2.99	2.27	
Quara (n=169)	3.66	2.45	
Family labor of households			1.381 (ns)
Metema (n=168)	2.82	1.31	
Quara (n=169)	3.03	1.53	

Table 45 (Continued)

Description	$\bar{X}$	S.D.	t
On-farm income, Birr			-3.823***
Metema (n=168)	10,328.6	6,733.4	
Quara (n=169)	7,884.2	4,858.1	
Off-farm income, Birr			-3.089**
Metema (n=168)	1,942.4	1,158.3	
Quara (n=169)	1,262.5	941.6	
Total household income, Birr			-4.339***
Metema (n=168)	11,154.8	6,890.9	
Quara (n=169)	8,362.4	4,730.2	
Food availability, quintals per year			-.605 (ns)
Metema (n=168)	18.37	9.76	
Quara (n=169)	17.78	8.19	
Consumption coverage, months/year			-.666 (ns)
Metema (n=168)	11.44	1.41	
Quara (n=169)	11.34	1.27	
Daily food intake, cal/person/day			-3.789***
Metema (n=168)	1,930.0	239.4	
Quara (n=169)	1,824.1	272.7	
Number of daily meals in the household			-1.456 (ns)
Metema (n=168)	3.13	0.46	
Quara (n=169)	3.06	0.47	
Number of visits by DAs/month			4.229***
Metema (n=168)	1.53	1.19	
Quara (n=169)	2.08	1.21	
Number of technologies used by resettlers			-5.596***
Metema (n=168)	1.16	0.90	
Quara (n=169)	0.70	0.55	

Note: ns= not significant; *, **, *** significant at p<.05; .01; .001, respectively.

Table 46 indicates that the mean of total level of resettlers' satisfaction towards the accessibility of social services after the resettlement program is 3.21 for Metema and 2.50 for Quara. Consequently, there was a significant difference between the two *woredas* at p<.001. The rest of social services like education, health, electricity, grinding mills, clean water, market center, credit facility, telephone service and permanent toilets had also showed a significant difference at p<.001 while all weather road and veterinary service had difference at p<.05. On the contrast, postal service did show no difference between the two *woredas* after the resettlement program. Accordingly, the hypothesis is accepted except the postal service. Similarly the chi-square test on the differences of housing of resettlers of Metema and Quara *woredas* after the resettlement program did not show a significant difference at p<.05 (Table 47). Consequently, the hypothesis is rejected.

Table 46 Comparative average scores of resettlers' satisfaction towards the accessibility of the social services after the resettlement program

Type of social services	$\bar{X}$	S.D.	t
Education			-14.202***
Metema (n=168)	4.50	0.60	
Quara (n=169)	3.42	0.78	
Health			-10.735***
Metema (n=168)	3.84	0.83	
Quara (n=169)	2.87	0.84	
Electricity			-4.270***
Metema (n=168)	1.57	0.72	
Quara (n=169)	1.27	0.55	
Grinding mills			-9.540***
Metema (n=168)	4.02	0.78	
Quara (n=169)	3.27	0.65	

Table 46 (Continued)

Type of social services	$\bar{X}$	S.D.	t
Clean water			-15.191***
Metema (n=168)	4.09	0.84	
Quara (n=169)	2.49	1.08	
All weather road			2.021*
Metema (n=168)	2.07	0.75	
Quara (n=169)	2.28	1.09	
Market center			-3.978***
Metema (n=168)	3.45	0.99	
Quara (n=169)	3.08	0.68	
Credit facility			-6.093***
Metema (n=168)	3.27	1.07	
Quara (n=169)	2.65	0.76	
Veterinary service			-2.321*
Metema (n=168)	2.67	1.04	
Quara (n=169)	2.42	0.90	
Telephone service			-12.725***
Metema (n=168)	3.09	1.17	
Quara (n=169)	1.70	0.80	
Postal service			-1.083 (ns)
Metema (n=168)	1.64	0.57	
Quara (n=169)	1.56	0.67	
Permanent toilets			-12.077***
Metema (n=168)	4.35	0.73	
Quara (n=169)	2.96	1.30	
Total level of satisfaction			-16.984***
Metema (n=168)	3.21	0.38	
Quara (n=169)	2.50	0.39	

Note: ns= not significant; *significant at p<.05; ***significant at p<.001.

Table 47 Comparison of types of housing between the resettlers of Metema and Quara *Woredas* after the resettlement program

Type of house	Metema (n=168)		Quara (n=169)		χ2	p
	N	%	N	%		
Corrugated iron sheet	7	4.2	6	3.6	0.086 (ns)	0.769
Grass thatched	161	95.8	163	96.4		
Both	0	0.0	0	0.0		
Total	**168**	**100.0**	**169**	**100.0**		

Note: ns= not significant

As indicated in Table 48, total level of satisfaction of resettlers of Metema and Quara *woredas* towards the support of *woreda* and *kebele* administrations after the resettlement program had showed no difference at p<.05 (t=1.702). Similarly, all the rest of activities/supports like assigning development agents, teachers and health workers in the resettlement areas, organizing training, solving land related problems, quick response to resettlers questions, community mobilization towards natural resource conservation activities, frequent visit and follow-up and securing peace and stability did not show any significant difference between the two *woredas* after the resettlement program. Accordingly, the hypothesis is rejected.

Table 48 Comparative average scores of resettlers' satisfaction towards the support of *woreda* and *kebele* administrations after the resettlement program

Type of support/activities	$\bar{X}$	S.D.	t
Assigning DAs, teachers and health workers			1.217 (ns)
Metema ((n=168)	2.65	0.77	
Quara (n=169)	2.75	0.68	
Organizing training			1.190 (ns)
Metema (n=168)	2.60	0.65	
Quara (n=169)	2.69	0.67	

Table 48 (Continued)

Type of support/activities	$\bar{X}$	S.D.	t
Solving land related problems			0.098 (ns)
Metema (n=168)	2.39	0.80	
Quara (n=169)	2.38	0.74	
Quick response to resettlers' questions			1.458 (ns)
Metema (n=168)	2.27	0.74	
Quara (n=169)	2.39	0.73	
Community mobilization towards natural resource conservation activities			.931 (ns)
Metema (n=168)	2.36	0.71	
Quara (n=169)	2.43	0.76	
Frequent visit and follow-up			1.829 (ns)
Metema (n=168)	2.36	0.72	
Quara (n=169)	2.50	0.68	
Securing peace and stability			1.775 (ns)
Metema (n=168)	2.79	0.73	
Quara (n=169)	2.93	0.69	
Total level of satisfaction			1.702 (ns)
Metema (n=168)	2.49	0.47	
Quara (n=169)	2.58	0.52	

Note: ns= not significant

Part 6: Major problems and Suggestions of Resettlers and Key Informants

Resettlers, host communities, social groups such as youth, women, elders and civil societies and non-governmental organizations, *kebele* and *woreda* administrations and government employees at *woreda* and regional level were interviewed and discussion was held to get their insight on the major issues of the resettlement program. The main issues raised were: resettlers selection, relocation and community consultation about the program, resettlement site selection, accessibility of social services, provision of extension services, women access to land, agricultural

inputs, credits, extension service, education, and participation in local leadership, community participation in natural resource conservation and overall management and coordination of the program. The results of the interviews and discussions were summarized below in Table 49.

Table 49 Major problems and suggestions discussed by resettlers and key informants

No	Issues	Major problems	Recommendations
1	Resettlers selection, relocation, and community consultation about the program	Resettlers selection was not according to the guideline and old aged people were selected in some of the sending *woredas*. At the same time, there were exaggerated promises by the local administration to initiate resettlement.	Over ambitious promises and negligence during selection should be avoided right at the beginning and proper consultation with the resettlers and host communities should be done prior resettlement.
2	Resettlement site selection	Unplanned selection which focused on previous state farms, farm of investors, swampy areas etc have created a problem on the resettlers of some areas. The available land suitable for resettlement was not studied properly.	The available land suitable for resettlement should be studied and identified properly and the resettlers should be given a land suitable for agriculture. At the same time, consultation with the host community should be given priority to avoid conflict.
3	Accessibility of social services:		
	3.1 Health service	Shortage of health technicians, medical equipments and medicine are the bottlenecks of the health sector in the new area and even in some areas the health posts were not in place during the arrival of resettlers.	Make adequately available the necessary medical equipments, medicine and health technicians. The contractors should also be forced to finish the construction on time so that resettlers will not face a health problem at arrival.
	3.2. Education	Shortage of teaching aid materials and equipments, dalliance of construction of schools by contractors and in some cases shortage of man power were the problems associated with the education service in few areas.	Make adequately available the necessary teaching aid materials and equipments and force private contractors to finish building of schools before the arrival of resettlers.

Table 49 (Continued)

No	Issues	Major problems	Recommendations
	3.3. Clean drinking water	Drinking water is a serious problem in some areas, especially in Quara *woreda*. The quality of water is not to the standard and most hand dug wells are abandoned due to the dry season. There was no proper use of the water pumps by the community and maintenance and handling of the structures are serious problems observed in the area.	Additional water points with sufficient and clean water should be available to all resettlement sites before the arrival of resettlers. The water committee members should be well trained to handle the maintenance and provision of spare parts is also vital to secure life in the area.
	3.4. Grinding mills	Shortage of grinding mills in some areas forced the settlers to go too far from their site. Negligence of the employees, fuel shortage and maintenance problem were issues associated with grinding mill services.	Motivate individuals to plant and make access grinding mills and at the same time availing spare parts on time may solve the problem. Organization of training for the operators on grinding mill might also support for efficient and proper use of the machines.
	3.5. All weather road	Most of the roads of resettlement sites being dry weather roads, there is a great problem of transportation to access market and health centers. In some sites there was problem of pre-positioning of food aid because of inaccessibility. In some areas, the dry weather roads available are nominal and poorly constructed.	Properly constructed all weather roads are essential to tackle the inaccessibility of the social services and at the same time reduces cost of production by minimizing transportation cost.

Table 49 (Continued)

No	Issues	Major problems	Recommendations
	3.6. Market center	Even though there are market centers around the resettlement areas, most of them are far from the sites.	Market centers should be established nearest and center to a number of resettlement sites.
	3.7. Formal credit service	Although there are formal credit services provided by cooperatives, it is not adequate.	Cooperatives should be strengthened where available and establish where not established.
	3.8. Veterinary service	Shortage of veterinary technicians and medicines are a serious problems in the resettlement sites, even some resettlers have lost their ox distributed by the government due to trypanosommaisis	Improve the availability of the technicians and the required medicine for the area.
	3.9. Telephone service	Most of the sites have no telephone access and resettlers were forced to travel more than six hours to get the service.	Wireless telephones may solve the problem for the time being if installed in the vicinity of the resettlers.
	3.10. Postal service	Most of the sites have no postal services.	The service can be available if the concerned government bodies encourage the private sector to serve as a postal agent in the resettlement areas.
	3.11. Electricity	Most of the sites have no access to electricity	Motivating the private sector to plant Generators or solar panels to provide power to resettlers. In the long run government attention should be given to these areas.

Table 49 (Continued)

No	Issues	Major problems	Recommendations
	3.12. Housing (site, quality, size, proximity to farm land & social services etc…)	The quality and size of the housing is poor although there is an improvement this day. In some sites the residence and their farm land are far apart and the same is true with the social services.	Villages should be established near the farm lands and the infrastructures should be constructed centering the villages.
4	Extension service (training, technology dissemination, input supply, frequent visit by DAs, etc…)	Although there were development agents assigned in the area, frequency of visit, training, technology dissemination, input supply are not implemented satisfactorily.	Frequent visit, training, technology dissemination, input supply to the resettlers should be given great emphasis and this requires a great attention from the bureau of agriculture and rural development.
5	Land allocation & land quality	There are some resettlers who have received a non fertile, swampy and a land far from their living site.	The available land suitable for resettlement should be studied and identified properly prior to resettlement.
6	Women access to agricultural inputs, credit, extension service, education, and participation in local leadership and conditions of work load	Women are equally benefiting from distribution of farmland, and other services. No problem so far observed.	Strengthening the existing efforts.
7	Relationship with host community & local administration	In almost all areas there is no problem between the resettlers and host communities. Only minor competitions were observed on the use of grazing land and forest resources.	Strengthening the existing good relationship and create a platform whereby both can discuss about their problem and development of the area.

Table 49 (Continued)

No	Issues	Major problems	Recommendations
8	Environmental aspect		
	8.1 Community participation in land conservation practices	Resettlers were very reluctant in land conservation practices rather they exploit the land to the maximum without any return to it.	Awareness creation, capacity building, increasing sense of ownership and strengthening the extension service might help in reversing the situation in the resettlement areas.
	8.2. Community participation in tree planting	Not adequately exercised because of lack of sense of ownership, poor coordination and unavailability of appropriate technologies to the area.	The extension service, awareness creation activities and building sense of ownership should be strengthened
	8.3. Natural forest protection	Farmland expansion, forest fire, charcoal making are the major problems in the area.	Awareness creation, diversifying resettlers' income from off-farm activities and applying law enforcement will strengthen the natural forest protection process.
	8.4. Farm land fertility management	Composting, use of manure and crop rotation were not practiced as a traditional soil fertility management practices because of lack of awareness and sense of ownership, poor extension service and lack of skill.	Strengthen the extension service, creating awareness and sense of ownership and provision of different soil fertility technologies should be in place.

Table 49 (Continued)

No	Issues	Major problems	Recommendations
	8.6. Use of alternate energy (solar, biogas, improved stoves and etc)	Not adequately exercised in most of the sites. Resettlers use open fire stoves and fire wood for cooking because of the inaccessibility of the technology. Solar energy and biogas are totally unknown in the area.	Strengthen the extension service and awareness creation activities in the resettlement areas. On the other hand, the technology should be made accessible with affordable prices through cooperatives and private sectors.
9	Overall management, administration, and follow-up of the program	Although the Food Security and Disaster Prevention Office (FSDPO) has a central role in coordinating and managing the program, contributions are required from a variety of other government agencies. In particular, input from the Bureaus of Agriculture and Rural Development, Health, Education, Water Resource, Rural Road, Rural Energy, Cooperatives are necessary for service provision to resettlers in their respective sectors. However, FSDPO lacks efficient coordination of the sector bureaus.	Sector bureaus should take the responsibility to accomplish the tasks given for them in order to meet the objectives of the resettlement program. At the same time, establish a system which enables to critically evaluate the performance of each bureau and take measure on those who are lacking motivation and commitment to work for the better achievement of the program goals.

Source: summarized by the author.

Plans and Activities to Strengthen the Resettlement Program

In drought-prone countries like Ethiopia, resettlement presents a workable solution for achieving food security if carried out in an environmentally-friendly manner at all levels. Experiences in Ethiopia and elsewhere in the world show the fact that things often go wrong in resettlement operations unless managed with meticulous care. Hasty execution of resettlement might have humanitarian and ecological consequences and hence, the program needs thorough preparation to achieve food security as intended.

In 2003, the Ethiopian government launched a large scale resettlement program with the aim of resettling 2.2 million chronically food insecure people (NCFS, 2003). To handle this huge program, the country has set out a guideline and criteria based on its own and international experiences to support resettlement, labor mobility and land reform. However, the problems appear when it comes to implementation at in both of sending and receiving *woredas* and *kebeles*. Planning has traditionally centered on moving people from the original places to the new resettlement sites and only addressed resettlers' reestablishment as a second priority. Planning for adequate social services in a wide range of areas becomes paramount not just for the sake of promoting resettlement, but in preventing serious consequences such as contributing to a downturn in a populations' livelihood. As a result of failed promises of social services, infrastructures and other key inputs the life of innocent peoples might perish.

Therefore, prior to a decision to resettle people from one area to another, all viable project options should be investigated. For this purpose, problem identification with genuine participation of the target community will play a significant and decisive role in proposing different project options for the benefit of poor and marginalized farmers in the drought-prone areas. Once population resettlement is an unavoidable means of securing food self sufficiency, proper consultation of the community and awareness creation about the program both in sending and receiving *woredas* is indispensable beyond doubt.

According to the resettlement guideline in Amhara region, only able-bodied and not aged people are allowed to resettle. However, the local administrations run to fill

their planned resettlement quotas by neglecting the criteria set on the guideline. Therefore, proper selection of resettlers with active participation of the community and final approval by the resettlement organizing committee will block out such irresponsible actions of local administrations. Next to resettlers selection, relocations follows. However, the Ethiopian government has been criticized as being too hasty in carrying out the program due to time pressure and poor planning. Hence, relocation of resettlers should be timed to coincide with the harvest of one crop and the planting of another, so as to ensure an adequate food supply in the new area during the transition period.

In the mean time, preparation of sufficient and suitable farmland and establishment of social services/infrastructures in the new area should be carried out diligently as promised to them while still in their native habitats. At arrival, resettlers should be provided with sufficient inputs such as seed, oxen, farm implements, credits and the like, so as to enable them produce their own crop in the coming season. In the same way, if resettlers are to work in an area with different ecological properties, and additionally may also be working with new crops (sesame, cotton, etc), agricultural extension service become paramount to a successful long-term transition to the new area.

Resettlers with low income and subsistence life often heavily rely upon natural resources. Therefore, ensuring environmental sustainability in the resettlement areas is a factor in a successful project; it is more likely that resettlers will stay permanently in an area where there is sustainable level of natural resource availability. In this case, it is vital to promote natural resource conservation (NRC) activities and initiate the community for mass mobilization in protecting the natural forest of the area for the benefit of their own. At the same time, it needs to strengthen the law enforcement against illegal forest and forest produce traders and land invaders.

For the successful implementation of the program, all stakeholders should take part from the initial stage of implementation to the final stage of evaluation. The coordination among government (GOs) and non-governmental organizations (NGOs) is paramount to the implementation of the resettlement program and can greatly

enhance the execution of the program. However, in the Ethiopian context, the participation of partners (NGOs) from the planning stage down to implementation and monitoring and evaluation process is very limited and in some cases absent. Therefore, it needs to encourage these institutions to play their own role in the program and minimize the load of the government per se. On the other hand, the outcome of the program should be evaluated jointly by sending and receiving *woredas* in order to avoid bias and share views and opinions on why some resettlers return back to their original places. In addition to this, the rehabilitation activities so far done on the evacuated land in the original places of resettlers should be thoroughly evaluated on the basis of the resettlement guideline.

Based on this study, the researcher summarized important activities to be considered at the planning, implementation and final stages of a resettlement program in the regional state (Table 50) (Fig. 3). However, these activities are by no means exhaustive but rather will redirect the reader into different insights.

Table 50 Plans and activities to strengthen the implementation of a resettlement program

Intervention stages	Activities to be performed	
	At original places (sending *woredas*)	**At destination (receiving *woredas*)**
Planning/initial stage	Set a clear guideline about resettlers selection and create awareness of local administration so that they can properly implementing its goals. Avoid false promises and consult with the community genuinely. At the same time, organize an awareness creation platform on environmental protection activities prior to departure of the selected resettlers.	Organize an awareness creation program for the host communities before implementation of the scheme. Infrastructures, social services, land use plan and soil fertility test, assignment of government employees and possible nearby administration units should be completed and in place before arrival of resettlers. Restructure *kebeles* to sub-*kebeles* in areas where the office of local administrations are too far from resettlement sites.
Implementation stage	Approve/check the selection of resettlers whether it has been done according to the guideline or not and transport resettlers to their new areas at early stage before the beginning of the cropping time so that they can have enough time to prepare their farm plots. The natural resource conservation activities on the evacuated land should be done in accordance with the objective of the resettlement program in order to rehabilitate the degraded lands of drought-prone areas.	Provide shelters, farm tools, inputs, credits, oxen, farm land and land certificate right at/after arrival. Intensive training on the cropping techniques of lowland crops, soil fertility management and natural resource protection should be organized to build the capacity and create awareness of resettlers. Frequent visit by *kebele* and *woreda* administration and government staffs is critically needed to guarantee their confidence on the program. In some areas, it is necessary to assign development agents who speak the native language of the resettlers like "*Afan Oromo* and *Himtegna*".

Table 50 (Continued)

Intervention stages	Activities to be performed	
	At original places (sending *woredas*)	**At destination (receiving *woredas*)**
Final/follow-up stage	Organize a visit of local administration and influential elders of the original places to new resettlement areas so that they can give their witness about the success or failure of the program. At the same time, identify the reason for returning back to original places and also evaluate the level of rehabilitation of the evacuated land in the original places.	Evaluate the social and economic changes of the resettlers and environmental effects of the program on the new area with the resettlers and host communities together and come up with recommendations for further improvement. Assess and compile best practices from all resettlement sites and make available for scaling up within the program areas. Discuss with the community transparently even if there are failures during the implementation process. It would be a good lesson for further improvements.

Source: Summarized by the author.

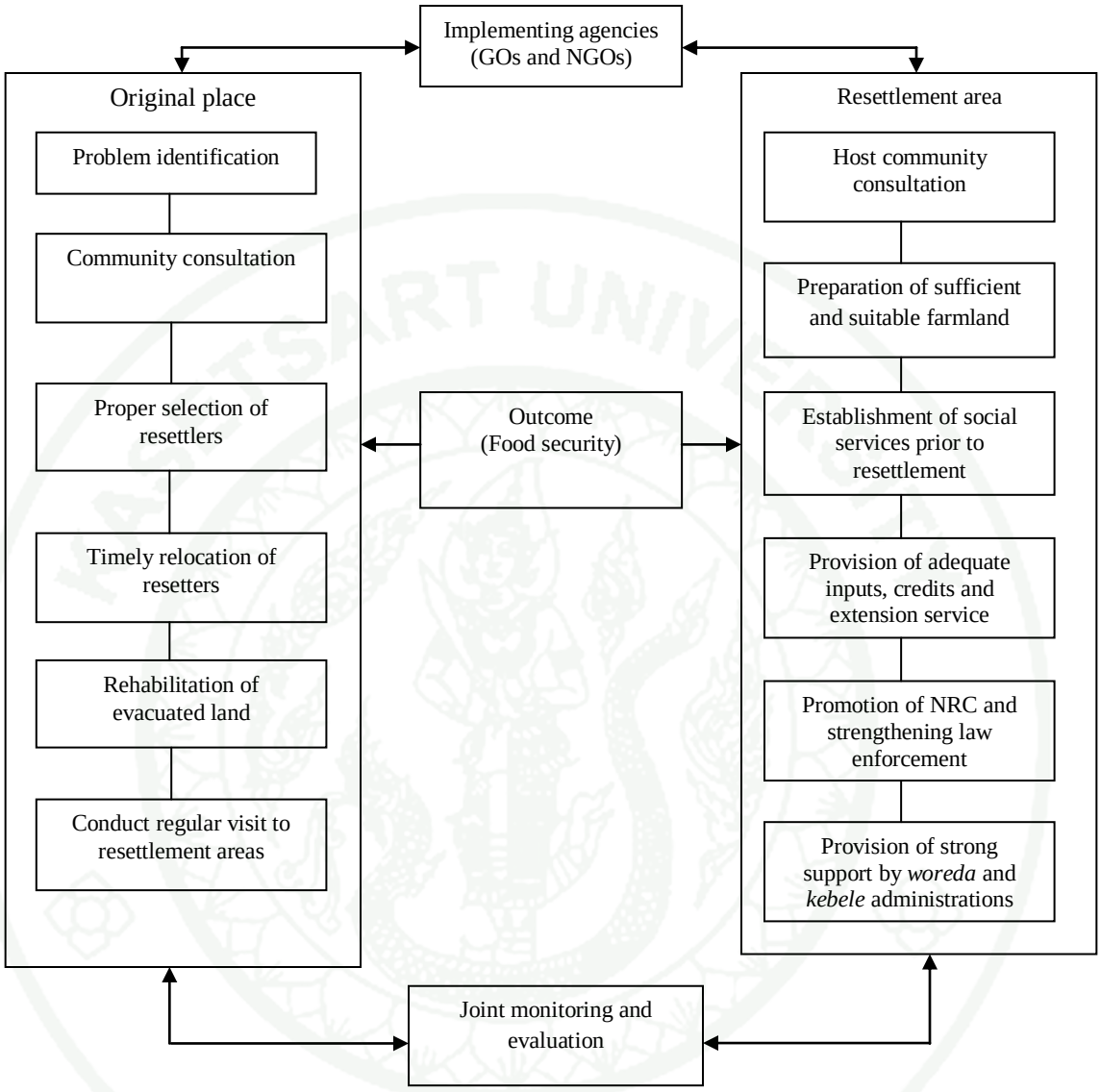

Figure 3 Resettlement program implementation process

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Ethiopia is experiencing an unprecedented increase in population size as a consequence of which it is becoming increasingly vulnerable to all the problems associated with an imbalance between population growth and resource necessary to sustain it. By and large, the rapid population growth particularly in rural areas has decreased the size of land holding leading to landlessness and deterioration of the environment which were considered as causes of migration and resettlement.

The history of the country is mostly related to migration and resettlement process. Settlement, whether it is self- or government-sponsored has started longtime ago. The first government-led resettlement took place during the imperial period. At that time, state-sponsored resettlement was largely undertaken to promote two objectives. The first of these was to rationalize land use on government 'owned' land and thus raise state revenue. The second was to provide additional resources for the hard pressed northern peasantry by relocating them to the southern regions which were mainly inhabited by what were regarded as 'subordinate populations'. Yet it was hard to claim it was successful, since it often failed to meet the intended objectives. The second massive resettlement has taken place during the Military (Derge) regime which ruled Ethiopia between 1974-1991. The regime believed that resettlement would provide a lasting solution for the hard-pressed peasantry, and particularly for the population living in drought prone areas. It was conceived as a primary measure to rehabilitate victims of famine. However, due to the inefficient implementation of program thousands of resettlers lost their lives due to disease, hunger and exhaustion, and thousands of the families broken up.

The third state sponsored program was started by the current government (Ethiopian People Revolutionary Democratic Front (EPRDF)) in 2003. It was planned to resettle 2.2 million people from drought-prone areas of the country to fertile areas with abundant rainfall. Accordingly, since 2003, ANRS has resettled 166,204 people (82,196 household heads and 84,008 family members) in six districts of the region, namely in Metema, Quara, Tegede, West Armachiho, Tach Armachiho and Jawi.

This study was conducted in six resettlement *kebeles* of Metema and Quara *woredas*. A total of 337 resettlers (12.5%) were sampled from a population of 2,696 people in the six *kebeles*. The findings revealed that 36 (21.4%) and 53 (31.4%) of the respondents in Metema and Quara, respectively, did not have farmland before the resettlement program, while all of the resettlers had owned land after the program. Out of the total respondents, 155 (92.3%) in Metema and 147 (87%) in Quara had a farmland ranging from 1.01-2.00 ha after the resettlement program, whereas before the resettlement program only 34 (20.2%) in Metema and 44 (26.0%) in Quara had owned the above mentioned size of farmland.

The average land holding of the respondents were 1.05 ha and 2.07 ha in Metema and 0.96 ha and 1.87 ha in Quara before and after the resettlement program, respectively. Similarly, 64 (38.1%) of sampled resettlers in Metema and 70 (41.4%) in Quara did not own ox before the resettlement program, while only 17 (10.1%) and 41 (24.3%) in Metema and Quara, respectively, did not have access to ox after the resettlement program. The average oxen holding status of sampled resettlers before the program was 0.88 in Metema and 0.75 in Quara. However, the average oxen holding after the program was 1.60 in Metema and 1.08 in Quara. Similarly, the total annual household income of the resettlers in both of the *woredas* was doubled (from an estimated 4,077.5 Birr to 11,154.8 in Metema and from 4,004.8 to 8,362.4 Birr in Quara) after the resettlement. More than 50% of resettled households in both of the *woredas* had earned an annual total income of above 7,000 Birr after resettlement, whereas before resettlement only 16% in Metema and 8% in Quara had an annual total

income of Birr 7,000 and above. The study also indicated that the sampled resettlers from Metema and Quara *woredas* expressed moderate to low levels of satisfaction, respectively, on their access to the twelve identified social services after resettlement program.

Hypotheses testing using paired sample t-test revealed that on-farm and total household income of sampled resettlers after the resettlement were significantly higher ($p<0.01$) than before the resettlement, while off-farm household income did not show any difference ($p>0.05$). On the other hand, total level of satisfaction of sampled resettlers on accessibility of social services after the resettlement was significantly higher ($p<0.01$) than the case before the resettlement. Despite several positive outcomes, however, there were also problems that need to be addressed. The list includes, absence of sufficient and clean water, all weather road, veterinary services, electricity and communication facilities are among others.

The result of this study also showed that 87.5% of resettlers in Metema and 63.9% in Quara believed that the relationship with the host community is good while 2.4 and 8.9% in Metema and Quara, respectively, expressed presence of uneasy relationship. At the same time, 94.0% of respondents in Metema and 83.3% in Quara never experienced any conflict with the resident community. Conversely, 6.0 and 16.7% of respondents in Metema and Quara, respectively, have had at least one conflict with host community. In both study *woredas*, most resettlement areas were located far away from *woreda* and *kebele* centers. This has resulted in considerable delays in accessing some vital services such as judicial, technical and administrative expertise supports. Due to this and other factors, level of satisfaction of resettlers on the *woreda* and *kebele* administration was found to be at low in both study *woredas* after resettlement. With respect of the same services, the level of satisfaction was moderate before the current resettlement program.

This study also revealed that, in the past seven years of resettlement, the area of woodland in Metema and Quara, respectively, decreased by nearly 9.5% and 4.9%.

Conversely, cultivated land increased by 34,455 ha (10.8%) in Metema and by 27,607 ha (3.2%) in Quara district. According to the findings of this study, the overwhelming majority of resettlers in the two sampled districts have never engaged in any type of soil fertility management practices after their arrival to the new resettlement areas. On the other hand, it is known that the resettlers used to spend more time for land conservation practices at their original places in the highland. The total level of participation in natural forest protection was found to be low in both study districts. This is ascribed for the lack of awareness and sense of ownership, insufficiency of farmland per household, limited off-farm activities in the new resettlement sites, and compatible land conservation technologies in the area. In addition, the low level of support received from the local authorities and the absence of incentive mechanisms to encourage natural forest protection activities are major contributory factors for the low participation of the settlers in natural resource conservation activities after the resettlement program.

Recommendations

Although annual income of resettlers had been improved, income from off-farm activities is found at a very low level as most family members did not have access to it. Accordingly, there is a need to provide tailored skill enhancement trainings to resettlers in petty trading, pottery, handcrafts, weaving, etc. so that they can be engaged in different off-farm income generating activities. The average annual income gained from on-farm activities is still found at lower level when compared to the host community. Therefore, it is necessary to increase the production and productivity of crop and livestock through the provision of modern technologies. On the other hand, the number of oxen owned by resettlers was below one pair. This had seriously impacted the timely preparation of farmland to be carried out before/at the beginning of the rainy season. Hence, it is advisable to arrange oxen and/or tractor rental system through farmers' cooperatives or provide a credit system to enable resettlers buy oxen according to their needs and preferences.

Access to clean and potable water, all weather road, veterinary services, electricity and telecommunication facilities at the resettlement areas is very difficult. The regional government should give due attention and priority to strengthen these infrastructures. In addition, the family size of resettlers was slightly above the regional average. As a result, the creation of big families in the new settlements will have a further negative effect in view of natural resource degradation and hence may result to drought and famine. It is therefore necessary to strengthen the health extension services at the settlement areas with special emphasis in raising the awareness of farmers in family planning. The vast majority of respondents (above 63%) have a traditional farming experience of more than ten years. Besides, in both study *woredas*, about 50% of the farmers are illiterate hence dissemination of agricultural technologies is difficult. It is therefore imperative to introduce a special (with flexible time arrangements) formal and informal adult educational programs to upgrade literacy levels of resettlers.

Successful natural resource conservation initiatives require greater participation and involvement of the local communities. Therefore, concerned public authorities need to create a suitable social mobilization platform in order to enhance community's awareness on the fact that natural resource conservation is to their own benefits. In addition, it requires the provision of appropriate and compatible technologies with the agro-climatic zone of the area. Similarly, it is vital to design and implement participatory forest management practices with active involvement of the resettlers to increase their sense of ownership and in forest resource conservation while at the same time, to strengthen the law enforcement capacity against illegal land invaders in the resettlement areas. Although it has to be viewed in the broader context of reviewing the land policy of the country, as a short-term solution, the local government must devise a legal system to combat illegal expansion of farmland. In line with this, the local government should reconsider the guideline for farmland allocation in the resettlement areas, as insufficient agricultural land is one of the reasons for forest land encroachment. The regional government should also strive to strengthen the agricultural

extension services and build the capacity of local/village level institutions to efficiently support the resettlers to diversify their off-farm income.

Finally, although the resettlement program has brought some economic benefits to the concerned households, its adverse environmental effect is often overlooked. Moreover, the issue of natural resource management is not taken into consideration in devising and implementing the settlement programs. A holistic approach incorporating solutions and mechanisms to effectively address potential risks of resettlement on the environment is needed prior the commencement and implementation of such a program. When population resettlement is an unavoidable means of securing food self sufficiency, it should be done as a last resort after exhausting all other options.

Recommendations for Further Studies

In the course of undertaking the present research, potential fertile areas for future studies are identified. This list includes the following:

1. Development of alternative policy strategies for the efficient use of land and other natural resources under adverse ecological conditions and high population pressure;

2. Identification of appropriate technologies to maintain the fertility of the farmland and minimize rotation of fields in the lowland resettlement areas;

3. Identification of suitable tree species and their adoption to the harsh climate of lowland resettlement areas;

4. Participatory development of appropriate agricultural and livestock extension systems suitable to the resettlement areas;

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APPENDICES

Appendix A

Household Questionnaire

Part 1: Basic Demographics of the Households

1. Gender ( ) 1. Male ( ) 2. Female

2. Age…… years

3. Level of Education:

( ) 1.Illiterate ( ) 2. Literate, Read and Write (R & W)

( ) 3. Primary level ( ) 4. Secondary level or above

4. Marital status:

( ) 1. Single ( ) 2. Married ( ) 3. Divorced or widowed

5. Number of Children …… person(s)

( ) 1. Before……... persons ( ) 2. After…….. persons

6. Religion:

( ) 1.Christian ( ) 2.Muslim ( ) 3. Other, please specify……

7. Ethnic group:

( ) 1. Amhara ( ) 2. Agew hamera ( ) 3. Agew awi ( ) 4. Oromo

8. The household original location: Zone…… *Woreda*…… *Kebele*……

9. Agro-ecological zone (AEZ) of the household's origin

( ) 1. Highland ( ) 2. Mid-highland ( ) 3. Lowland

10. How many years of farming experiences did you have?..... years

11. What is your length of residence here? ……years

12. Are you now living here with your Family members? ( ) 1. Yes ( ) 2. No

If No, where are they? Specify……

……

……

13. What was/ is your total family size (head, spouse, children, relatives and hired labor living within the family) before and after the resettlement program?

( ) 1. Before…… persons ( ) 2. After …… persons

Part 2: Economic Factors

14. What was/is your land and labor resources before and after the resettlement?

No	Land and labor resources	Resettlement program	
		Before	After
1	Number of family labor (16-64 years)		
2	Area of HH farm land in hectares		
3	Area of land rented-in, if any, ha		
4	Area of land rented-out, if any, ha		
5	Area of irrigated land, if any, ha		

Key: Family labor refers to able-bodied person live and work within the family (household head, spouse, children, relative, or hired labor).

15. Do you have permanent water for farming purposes in the vicinity?

( ) 1. Yes ( ) 2. No

If yes, do you use it for irrigation? ( ) 1. Yes ( ) 2. No

If no, why don't you use it?.....

16. Do you have land title and certificate in the new resettlement area?

( ) 1. Yes ( ) 2. No

If no, specify the reason……..

17. How do you evaluate the size of your farm land after the resettlement program?

( ) 1. Large enough ( ) 2. Average ( ) 3. Small ( ) 4. Very small

If your opinion is small and very small, what should be the average size of farm land for the resettlers and why?.. ……...

18. Do you have land allocated for common uses (grazing land, green area, community forest…)? ( ) 1. Yes ( ) 2. No

If no, how do you manage your animal feed?.....

19. What was/is your livestock holding before and after the resettlement program?

No.	Type of animal	Number owned		Value in Birr		Total livestock, TLU	
		Before	After	Before	After	Before	After
1	Oxen						
2	Cow						
3	Heifer						
4	Calves						
5	Donkey						
6	Horse						
7	Mule						
8	Goat						
9	Sheep						
10	Chickens						
11	Bee-hives						
Total							

Key: Conversion factors used to estimate Tropical Livestock Unit (TLU): calf-0.25; donkey (young)-0.35; heifer-0.75; sheep and goat (adult)-0.13; sheep and goat (young)-0.06; cow and ox-1.0; donkey (adult)-0.70; horse-1.10; chicken-0.013.

20. How many plough ox(en) did/do you have before and after the resettlement program?

( ) 1. Before …… Oxen ( ) 2. After …….. oxen

21. If you do not have oxen after the resettlement how did/do you prepare your land for planting crops?

( ) 1. Renting in oxen ( ) 2. Ask support from neighbors

( ) 3. Renting tractors from private farm ( ) 4. Other, please specify……

22. How many times you plough/cultivate your land for cropping? …… times.

23. What was/is the total annual household income before and after the resettlement program?

No.	Sources of income	Before	After
23.1	On-farm income:		
	Crops		
	Sale of animals and animal products		
	Sale of forest and forest produces		
23.2	Off-farm income		
23.3	Total household income		

Key: Off-farm income includes wages and salaries, pension, off-farm self-employment income, investment income, remittance, gifts and rewards, loans, dowry, inheritance, and sale of food aid.

24. How did you evaluate your satisfaction with the employment opportunities before the resettlement program?

No	Items	Level of satisfaction				
		5.V/high	4.High	3.Moderate	2.Low	1.V/low
1	Availability of all round job					
2	Reasonable payment					
3	Condition of workload					
4	Access to other benefits					

25. How do you evaluate your satisfaction with the employment opportunities after the resettlement program?

No	Items	Level of satisfaction				
		5.V/high	4.High	3.Moderate	2.Low	1.V/low
1	Availability of all round job					
2	Reasonable payment					
3	Condition of workload					
4	Access to other benefits					

26. How many people from your family had/ have a full time off-farm employment?

( ) 1. Before…… persons ( ) 2. After …… persons

27. What was/is the production and productivity of major crops before and after the resettlement program?

No.	Types of crops	Area cultivated, ha		Production, Qts		Productivity, Qt/ha		Market value, Birr	
		Before	After	Before	After	Before	After	Before	After
1	Sorghum								
2	Maize								
3	Sesame								
4	Pulse crops								
5	Teff								
6	Wheat								
7	Barley								
8	others								

28. What was/is your annual consumption of major crops before and after the resettlement program?

No.	Types of crops	Annual consumption in quintals	
		Before	After
1	Teff		
2	Sorghum		
3	Maize		
4	Wheat		
5	Barley		
6	Field pea		
7	Faba bean		
8	Chick pea		

29. What was/is the food availability in the households before and after the resettlement program?

No.	Sources of food	Before	After
1	Current production or purchase, in quintals		
2	Stocks from previous production, in quintals		
3	Total food availability, in quintals		

30. How do you compare food self- sufficiency in the household before and after the resettlement program?

No.	Food self-sufficiency	Before	After
1	Twelve months		
2	Nine months		
3	Six months		
4	Three months and below		

31. How many meals a day did/do adults and children have before and after the resettlement program?

No.	Number of meals in a day	Adults		Children	
		Before	After	Before	After
1	Zero				
2	one				
3	Two				
4	Three				

Key: Zero means sometimes passed a whole day without eating anything.

32. How do you perceive the changes in amount and diversification of your meals before and after the resettlement program?

( ) 3. Better ( ) 2. Same ( ) 1. Worse

33. Agricultural extension services:

33.1. In your opinion, did/do you have enough knowledge and skill to manage lowland crops (sesame, cotton, …) in this resettlement area? ( ) 1.Yes ( ) 2. No

If no, what are the gaps and how do you fill it?.....

……

33.2. Did/do you have access to extension services?

Before ( ) 1. Yes ( ) 2. No After ( ) 1. Yes ( ) 2. No

33.3. When did you start getting extension service? ……

33.4. Does the Development Agent speak your local language? ( ) 1. Yes ( ) 2. No

If no, how do you communicate?.....

33.5. How often was/ is the frequency of contact in a month with the Development Agents before and after the resettlement program?

No.	Monthly frequency of contact with DAs	Before	After
1	One		
2	Two		
3	Three		
4	Four		
5	None		

33.6. How many improved agricultural technologies/practices (fertilizer, improved seed, improved cows, modern bee-hives, compost, row planting, improved grain storage, etc) did/do you use before and after the resettlement program?

( ) 1. Before …… technologies ( ) 2. After …… technologies

If you don't use technologies, what are the reasons?

( ) 1. Not available ( ) 2. Expensive ( ) 3. Afraid natural hazards

( ) 4. Difficulty of paying back credit ( ) 5. Poor technology result

( ) 6. Lack of awareness

33.7. How do you perceive the over-all extension services (availability of technology package, inputs, support of the DA's, adequate training …) before and after the resettlement program?

( ) 3. Better ( ) 2. Same ( ) 1. Worse

If worse, state some of the issues……

Part 3: Social Factors

3.1 Social Services

34. Did you have enough information (are you aware of) about the resettlement program and the area where you are going to resettle before coming here? ( ) 1. Yes ( ) 2. No

35. Who nominated you to resettle?

( ) 1. *Kebele* administration ( ) 2. The community ( ) 3. Yourself

( ) 4. Other (please specify), ……..

36. Did/Do you have the following institutions/infrastructures in your village before and after the resettlement program?

No.	Type of institution/infrastructure	Before	After
		Yes(1) ; No(2)	Yes(1) ; No(2)
1	Formal school		
2	Health post		
3	Water point (tapped)		
4	Grinding mills		
5	All weather road		
6	Market		
7	Formal credit institution (Bank, ACSI)		
8	Animal health post		
9	Tele center, post office		
10	Electricity		
11	Permanent toilet		

37. How did you evaluate your satisfaction on the accessibility of the following social services before the resettlement program?

No	Social services	Level of Satisfaction				
		5.V/high	4.High	3.Moderate	2.Low	1.V/low
1	Education					
2	Health service					
3	Electricity					
4	Grinding mills					
5	Clean water					
6	All weather road					
7	Market center					
8	Credit facility					
9	Veterinary service					
10	Telephone service					
11	Postal service					
12	Permanent toilets					

38. How do you evaluate your satisfaction on the accessibility of the following social services after the resettlement program?

No	Social services	Level of Satisfaction				
		5.V/high	4.High	3.Moderate	2.Low	1.V/low
1	Education					
2	Health service					
3	Electricity					
4	Grinding mills					
5	Clean water					
6	All weather road					
7	Market center					

8	Credit facility					
9	Veterinary service					
10	Telephone service					
11	Postal service					
12	Permanent toilets					

39. How was/is the proximity of the social services before and after the resettlement program?

No.	Type of institution/ infrastructure	Before	After
1	Formal school		
2	Health post		
3	Water point (tapped)		
4	Grinding mills		
5	All weather road		
6	Market		
7	Formal credit institution (Bank, ACSI)		
8	Animal health post		
9	Tele center		

Key: Please fill minutes needed to walk to the nearest social service.

40. How do you compare children at school (enrollment) before and after the resettlement program?

( ) 1. Before…….children ( ) 2. After…….children

41. What were/ are the major diseases in your area before and after the resettlement program?

Before……..

After ……...

42. What was/is the impact of these diseases on your livelihood endeavor?.....

……

43. How many working days a year did/do you lose because of malaria infestation before and after the resettlement program?

Before…….. days After…… days

44. What was/ is your source of drinking water before and after the resettlement program?

No	Sources of water	Before	After
1	Tapped water		
2	Spring		
3	Borehole		
4	Shallow well		
5	River		
6	Pond		

45. Did/do you benefit from the formal credit service before and after the resettlement program?

Before ( ) 1. Yes ( ) 2. No

After ( ) 1. Yes ( ) 2. No

If yes, how much money had/have you borrowed for one cropping calendar

Before…… Birr After…… Birr

46. What type of house did/do you own before and after the resettlement program?

Before ( ) 1. Corrugated iron sheet ( ) 2. Grass thatched ( ) 3. Both

After ( ) 1. Corrugated iron sheet ( ) 2. Grass thatched ( ) 3. Both

47. How much time did/do you take to reach to your farm land before and after the resettlement?

( ) 1. Before……. Minutes ( ) 2. After …… minutes

48. Did/do you have religious places (church, mosque…) in your area?

Before ( ) 1. Yes ( ) 2. No

After ( ) 1. Yes ( ) 2. No

3.1 Relationship with the Host Community

49. How do you evaluate the relationship between the resettlers and the host community?

( ) 3. Good ( ) 2. Moderate ( ) 1. Not easy

If good or not easy, specify how and why?.....

50. Do you know your host neighbors by name? ( ) 1. Yes ( ) 2. No

If not, please specify?.....

51. Do you enjoy national and religious holidays together with the host community?

( ) 1. Yes ( ) 2. No

52. Do you participate on funeral ceremony with the host community?

( ) 1. Yes ( ) 2. No

If not, please specify?.....

53. Did you experience any conflict with the host community?

( ) 1. Yes ( ) 2. No

If yes, in what cases?.....

54. Do you satisfied by the support and responsiveness of the *kebele* and *woreda* administration?

No	Activities	Level of satisfaction				
		5.V/high	4.High	3.Moderate	2.Low	1.V/low
1	Assigning DAs, teachers, health workers, etc					
2	Organizing training					
3	Solving land related problems					
4	Quick response to the resettler's questions					
5	Community mobilization for natural resource conservation works					
6	Frequent visit and follow-up					
7	Securing peace and stability					

If low, what are the reasons?.....

55. If there are returnees from your village, what might be the reason?

( ) 1. Low income/Income not as expected ( ) 2. Harsh climate

( ) 3. Poor social services ( ) 4. Fear of security

( ) 5. Cultural shock and home-sick ( ) 6. Others, please specify……

……...

Part 4: Environmental Factors

56. In your opinion, how do you rate the quality of your farm land after the resettlement program?

( ) 1. Fertile ( ) 2. Average fertile ( ) 3. Less fertile ( ) 4. Unfertile

57. What did/do you practice to maintain your farm land soil fertility?

( ) 1. Using artificial fertilizer ( ) 2. Using compost ( ) 3. Practicing crop rotation

( ) 4. Fallowing ( ) 5. Planting leguminous crops

( ) 6. Nothing at all

58. How was the stability of the yield of major crops (sesame, cotton, sorghum, maize, beans…) on your farm land for the last three years?

( ) 3. Increased ( ) 2. Same ( ) 1. Decreased

If increased or decreased, what are the reasons?.....

59. What was the rainfall pattern in the area for the last five years?

( ) 1. Adequate ( ) 2. Satisfactory ( ) 3. Inadequate

60. Did you carried out any type of soil and water conservation activities on your farm land for the last three years? ( ) 1. Yes ( ) 2. No

61. What did/do you practice to control soil erosion?

( ) 1. Terracing ( ) 2. Planting trees ( ) 3. Rotational grazing

( ) 4. Using strip cultivation ( ) 5. Nothing at all

62. What is the size of land conserved? ……. hectares

If no, please specify? ……..

63. How many days a year did/do you participate on soil and water conservation activities on your farm land before and after the resettlement program?

Before…….. days After……. days

64. How many days a year did/do you participate on community works (road construction and maintenance, pond construction, tree planting, spring development, big gullies rehabilitation, etc) before and after the resettlement program?

Before…… days After…….. days

65. How did you evaluate your participation on land conservation activities on your farm lands and community works before the resettlement program?

No	Activities	Level of participation				
		5.V/high	4.High	3.Moderate	2.Low	1.V/low
1	Identify problems					
2	Planning					
3	Application of appropriate land conservation (terraces, strip cropping, …) on private land					
4	Participation on community works					
5	Monitoring and evaluation					

If low, specify the reasons……...

66. How do you evaluate your participation on land conservation conservation activities on your farm lands and community works after the resettlement program?

No	Activities	Level of participation				
		5.V/high	4.High	3.Moderate	2.Low	1.V/low
1	Identify problems					
2	Planning					
3	Application of appropriate land conservation (terraces, strip cropping, …) on private land					
4	Participation on community works					
5	Monitoring & evaluation					

If low, specify the reasons……...

67. Do you prepare and use compost on your farm land? ( ) 1. Yes ( ) 2. No

If no, specify the reason…….....

If yes, how much m^3 did you prepare?.....

68. How many quintals of manure did/do you use on your farm land before and after the resettlement program?

Before……. Quintals After…… quintals

69. If you don't use, which of the following factors are the causes?

( ) 1. My farm is far from my house ( ) 2. I don't have enough animals

( ) 3. The soil is fertile ( ) 4. Afraid sickness to carry and spread manure

( ) 5. Other, please specify…….

70. Do you practice crop rotation on your farm land? ( ) 1. Yes ( ) 2. No

If no, please specify? .....

71. How did you evaluate your satisfaction on the availability and accessibility of forest products and fodder before the resettlement program?

No	Forest products	Level of satisfaction				
		5.V/high	4.High	3.Moderate	2.Low	1.V/low
1	Fuel wood					
2	Fodder					
3	Farm materials					
4	Construction material					

72. How do you evaluate your satisfaction on the availability and accessibility of forest products and fodder after the resettlement program?

No	Forest products	Level of satisfaction				
		5.V/high	4.High	3.Moderate	2.Low	1.V/low
1	Fuel wood					
2	Fodder					
3	Farm materials					
4	Construction material					

73. Which of the following forest and forest produce are your sources of additional income?

( ) 1. Fire wood and charcoal ( ) 2. Incense ( ) 3.Forest honey

( ) 4.Construction material ( ) 5. Other, please specify…….

…….

74. Did you carried out any tree seedling plantation on your farm boundaries or backyard for the last three years? ( ) 1. Yes ( ) 2. No

If no, specify the reasons?.....

If yes, what is the size of land planted and survived?..... hectares

75. How many homestead trees (forest, fruit, forage) did/do you own before and after the resettlement program?

Before……. trees After……trees

76. In your opinion, what was the level of your participation in tree planting/forestation before the resettlement program?

No	Activities	Level of participation				
		5.V/high	4.High	3.Moderate	2.Low	1.V/low
1	Problem identification					
2	Site selection					
3	Seedling preparation					
4	Plantation					
5	Taking care of seedlings and follow-up					

If low, what are the reasons for that?.....

77. In your opinion, what is the level of your participation in tree planting/afforestation after the resettlement?

No	Activities	Level of participation				
		5.V/high	4.High	3.Moderate	2.Low	1.V/low
1	Problem identification					
2	Site selection					
3	Seedling preparation					
4	Plantation					
5	Taking care of seedlings and follow-up					

If low, what are the reasons for that?.....

78. In your opinion, what was the level of community participation in natural forest protection before the resettlement program?

No	Activities	Level of participation				
		5.V/high	4.High	3.Moderate	2.Low	1.V/low
1	Prevention of tree cutting					
2	Prevention of charcoal making					
3	Prevention of farmland expansion					
4	Control illegal forest traders					
5	Forest fire protection					

79. In your opinion, what is the level of community participation in natural forest protection after the resettlement program?

No	Activities	Level of participation				
		5.V/high	4.High	3.Moderate	2.Low	1.V/low
1	Prevention of tree cutting					
2	Prevention of charcoal making					
3	Prevention of farmland expansion					
4	Control illegal forest traders					
5	Forest fire protection					

80. In your opinion, does deforestation increased, decreased or stayed the same for the last three years?

( ) 3. Increased ( ) 2. Same ( ) 1. Decreased

81. What do you think the reason for encroaching forest land/deforestation?

( ) 1. Shortage of farm land ( ) 2. Poor fertility of land

( ) 3. Need for additional income from forest products (charcoal, fuel wood…)

( ) 4. Desire for farm land fallowing

( ) 5. Need for higher income from crop production

82. How the resettlement program affects the forest corridor?

( ) 1. Increased human pressure ( ) 2. Increased livestock pressure

( ) 3. Increased transportation ( ) 4. Other, please specify……

…….

83. What changes do you observe on the population of wild life in the resettlement areas?

( ) 1. Completely disappeared ( ) 2. Drastically decrease in number

( ) 3. No change at all ( ) 4. Others, please specify……

……..

84. What changes do you observe on indigenous plant species in the resettlement areas?

( ) 1. Completely damaged ( ) 2. Only few species remain

( ) 3. No change at all ( ) 4. Others, please specify……

……..

85. Do you remember any wild life migrated to other places because of the deforestation? Specify some of the wild life? ……

86. Do you remember any local plant species devastated because of the resettlement program? Specify a few of these plants?.....

87. How often does a forest fire incidence occur in the area every year?

( ) 1. Once ( ) 2. Twice ( ) 3. Three and more ( ) 4. None

88. In your opinion, How many hectares of forest land damaged every year?..... ha

89. In your opinion, what are the causes for forest fire?

( ) 1. Land clearing ( ) 2. Charcoal making ( ) 3. Wild honey harvesting

( ) 4. Road opening and to get rid of dangerous insects and snakes

( ) 5. Purposive firing

90. At present, who is responsible for the conservation of the natural forests in your vicinity?

( ) 1. Kebele administration ( ) 2. The community

( ) 3. Community based organizations (CBO's) ( ) 4. No one

( ) 5. Others, please specify, ……..

91. What is your source of fuel energy? (Can choose more than one)

( ) 1. Fire wood ( ) 2. Crop residue ( ) 3. Animal dung ( ) 4. Biogas

( ) 5. Solar energy ( ) 6. Electricity

92. Where did/do you collect fire wood?

( ) 1. Natural forest ( ) 2. Community forest ( ) 3. Own plantation

93. How much time do you need to travel for fetching fire wood before and after the resettlement program?

Before……. Minutes After……minutes

94. How often do you collect fuel wood per week before and after the resettlement program?

Before……..times After……times

95. Which of the following stoves do you own and use?

( ) 1. Improved enclosed ( ) 2. Traditional enclosed

( ) 3. Three stone (open fire)

96. In general, what environmental changes do you observe during your stay here?

( ) 1. Decrease and irregularity of rainfall

( ) 2. Increase in temperature

( ) 3. Decrease in river flows and springs

( ) 4. Increase in animal and plant disease incidence

( ) 5. No change at all

( ) 6. Other, please specify, ……...

……

97. Does the agro-ecological (AEZ) difference of your original place and this resettlement area have any impact on your agricultural performance and income?

( ) 1. Yes ( ) 2. No

If yes, how and what?.....

98. In general, what is your future plan?

( ) 1. Adapt yourself and live here permanently

( ) 2. Make more money and return to your original place

( ) 3. Establish small business in the nearby towns

( ) 4. Others, please specify ……...

Part 5: Recommendations and Suggestions

99. In your opinion, what are the major problems of the resettlement program and what do you recommend for future plans and activities to strengthen the development activities of the resettlement program?.....

……

……

……

……

……

Appendix B

Guide Questions for Focus Group Discussion

Part 1: Participation of the Community

1. Did the local administration hold consultation and discussion with you about the necessity of the program?
2. What was your participation in selecting and proposing resettlement areas for the resettlers?
3. Who nominated you for resettlement?
4. Did you have enough information about the resettlement area before departure from your original place?
5. Was the minimum infrastructure in place before your arrival in the resettlement areas?
6. How efficient and timely was the delivery of food items, agricultural inputs and implements such as oxen, seed, credit, plough, axe, and the like to start your farm activities as early as possible?

Part 2: Economic Issues

1. What is your opinion about the overall distribution of land among resettlers in the new area (biased, fair…)?
2. How do you rate quality of land in the new area compared to your original place?
3. What effects the land allocation created to the host community?
4. Does the resettlement program have any impact on labor availability or scarcity in the area?
5. How do you share grazing lands among the resettlers?
6. What are the benefits of the resettlement program that you have observed during the resettlement?
7. What were the challenges during the resettlement program that the people faced?
8. In your opinion, is there any improvement in the provision of agricultural technology and extension services after the resettlement program? Could you mention some of them, if any?

9. How do you explain the economic benefit of resettlement to the resettlers?
10. Do you think that male and female households benefited equally? If not, why?
11. Does the resettlement program bring significant change/differences in your life (economically) when compared to your previous situation? Explain why & how?

Part 3: Social Issues

1. In your opinion, do the social services are equally accessible to both resettlers and the host community or are there any disparities?
2. How do you compare the availability of social services before and after the resettlement program?
3. What are the major diseases that are prevalent in your area? How does it affect the resettlers?
4. Do the social services functioning properly after construction? Do they have regular maintenance program?

Part 4: Relationship with the Host Community

1. How do you evaluate the relationship between resettlers and host community?
2. What do you see similarities/differences between resettlers and host community?
3. Do you enjoy traditional and religious holidays together? Do you share the same religious places like church, mosque and the like?
4. Do you have marriage with the resettlers?
5. Do you have common discussion forums about your *kebele* development?
6. What conflicting factors do you observe?
7. How do you solve problems created among resettlers and host community?
8. What is your opinion on the returnees and what do you think the reason might be?

Part 5: Environmental Issues

1. Do you plan and implement natural resource protection activities together in your area?
2. What is the level of participation (Very high, High, Moderate, Low, Very low) of the community in soil and water conservation and afforestation programs?
3. In your opinion, what major effect does resettlement have on the environment?
4. Do people participate in charcoal making, land encroaching, and tree cutting for commercial purposes?
5. Do you observe unusual forest fire incidence in the area because of the resettlers?
6. Do you know wild life abandoned from the area because of the resettlement program?
7. Do you remember any local plant species devastated because of the resettlement program? Do you easily get wood lots for construction and plough material?
8. Do you face any land scarcity because of the program?
9. How do you evaluate the rate of deforestation after the resettlement program? Who is responsible for the protection of forest resources in the area?
10. Do you observe any environmental changes (decrease and irregularity of rainfall, increase of temperature, depletion of soil fertility, increase of soil erosion, etc) in the area after the resettlement program?
11. In your opinion, what are the major problems of the resettlement program and what do you recommend for future plans and programs to strengthen the development activities of the resettlement program?

Appendix C

Guide Questions for Key Informants

Part 1: *Kebele* Level

1. Are you well aware of the resettlement program prior to the arrival of the resettlers?
2. Did you discuss with the host community about the usefulness of the program?
3. What was the participation of the host community in site selection and overall planning and implementation of the program?
4. What problems do you observe between the host community and the resettlers? How do you solve them?
5. Does the resettlement program bring significant change/differences in the life of resettlers (economically) when compared to their previous situation? Explain what and how?
6. What are the reasons for returning back of some of the resettlers?
7. How do you evaluate women access to land, credit and agricultural inputs and services?
8. What is women participation in *kebele* administration and *kebele* council?
9. What are the major environmental problems created because of the resettlement program?
10. Does the community participate in soil and water conservation and afforestation activities? Give tangible achievements?
11. How the *kebele* Administration manage natural resource conservation, especially deforestation in the resettlement area?
12. Do you observe any forest fire incidence?
13. In your opinion, is there any damage to local plant species and wild life because of the resettlement program?
14. What are the major problems of the resettlement and what do you recommend for future planning and implementation of similar programs?

Part 2: *Woreda* Level

1. How do you evaluate planning and implementation of the resettlement program?
2. Do resettlers have got enough and fertile land to lead their livelihoods properly? Do they have land title and certificate on hand? If not, what are the reasons?
3. Do resettlers get appropriate extension service and training about commercial crops grown in this area?
4. Do you observe any language barrier for communication with the resettlers?
5. What type of agricultural technologies are provided to the resettlers and how many of them are using these technologies?
6. Does the resettlement program bring significant change/differences in the life of resettlers (economically) when compared to their previous situation? Explain what and how?
7. Do the resettlers participate in soil and water conservation and afforestation activities? If so, how much of the farm land is treated with appropriate technologies and how many hectares of land is planted with tree seedlings? If not, what are the major reasons for not participating in such development activities?
8. How do you compare the rate of deforestation before and after the resettlement program and what is the role of your organization in protecting these natural resources?
9. Do you observe unusual forest fire incidence in the area? What is the frequency of occurrence per year and what is the magnitude of forest damage?
10. Do the resettlers encroaching land by themselves? How much forest land is converted to farm land through illegal encroachment?
11. In your observation, is there any damage to local plant species and wild life because of the resettlement program? Can you give examples?
12. In your opinion, does the land use of the area is highly affected by the resettlement program? Specify the reasons?
13. What environmental changes do you observe after the resettlement program?

14. How do you evaluate the relationship between the resettlers and the host community? What conflicting factors are there and how do they solve them?
15. What are the reasons for the return of some of the resettlers?
16. What are the critical problems of the resettlement program and what do you recommend for future improvements?

Part 3: Regional Level

1. How do you evaluate the achievements of the resettlement program with respect to the regional plan to resettle vulnerable farmers from drought prone areas? Did you achieve the target? If not, what are the major problems?
2. In your opinion, does the resettlement strategy implemented perfectly at all levels and what are the bottle necks to its proper implementation?
3. How do you evaluate the cost of the resettlement program to the number of farmers resettled in the new area?
4. What are the major social and economic benefits of the resettlers from the resettlement program?
5. Does the resettlement program bring significant change/differences in the life of resettlers (economically) when compared to their previous situation? Explain what and how?
6. How do you see the environmental changes created because of the resettlement program? What measures are taken so far?
7. Do resettlers participate in natural resource conservation (SWC and afforestation) activities? How the regional government encourages their participation in natural resource conservation?
8. The objective of the resettlement program is not only to secure food for vulnerable farmers by resettling them to new areas but to enable the original place to rehabilitate. So, how do you evaluate the environmental improvements in the original place of the resettlers for the past program years? Specify concrete changes registered?

9. How do you evaluate the relationship between the host community and the resettlers? What conflicting factors do you observe and how it was solved?
10. What do you think the reason for the returnees? How many resettlers have been returned back to their original place and what measures are taken to improve this problem?
11. What specific measures are being taken to transform resettlement areas to center of development?
12. How do you evaluate the overall coordination, administration, and follow up of the program?
13.. In your opinion, what are the major problems of the resettlement program and what do you recommend for future plans and programs to strengthen the development activities of the resettlement program?

Part 4: Civil Societies and Non-governmental Organizations

1. What is your opinion on the resettlement strategy of the government? How do you evaluate the practical implementation of the resettlement guideline?
2. In your opinion, what are the major problems related to resettler selection and relocation, site selection, provision of social services, administration and management of the overall program?
3. In your observation, does the state-sponsored resettlement program bring significant change/differences in the resettler's life (economically) when compared to their previous situation? Explain what and how?
4. In your opinion, does the resettlement program encourage women empowerment and participation in all economic and social aspects?
5. How do you evaluate the role and capacity of local governments to handle the program?
6. What conflicting factors did/do you observe among resettlers the indigenous people/ host community?
7. In your opinion, what are the negative effects of the resettlement program on the environment?

8. What was/is the role and participation of the civil societies and NGOs in the program?
9. How do you evaluate the environmental rehabilitation activities in the original location of the resettlers?
10. What do you recommend for future plans and programs to strengthen the development activities of the resettlement program?

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