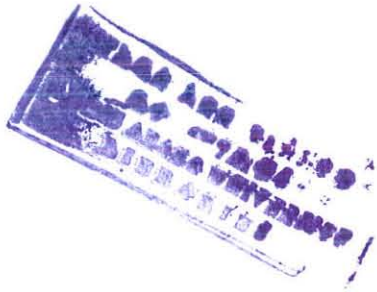

Addis Ababa University

School of Graduate Studies

Perception of People about the Effect of Population Growth on the Environment: The case of Jidda Ayyana Woreda, East Wollega (Oromia Region)

By

Lemessa Abdisa Feyissa

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Lemessa Abdisa Feyissa

A Thesis Submitted to Institute of Population Studies College of Development Studies Addis Ababa University in Partial Fulfillment of the Requirements of the Degree of Masters of Science (M. Sc.) in Population Studies

Thesis Advisor

Feyera Senbeta (Ph.D)

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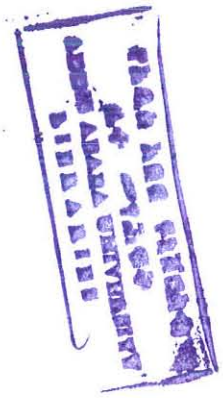
Acronyms



CSA- Central Statistical Authority

DA- Development Agents

FGD- Focus Group Discussion

SPSS- Statistical package for Social Sciences

ANRS - Amhara National Regional State

ONRS- Oromia National Regional State

IDR- Institute of Development Studies

IPS- Institute of Population Studies

WB- World Bank

UN- United Nation

Abstract

Context: Ethiopia is one of the countries with rapid population growth, dense settlement in the highland parts, and degraded environment. These situations of the country cause imbalance between population growth and the existing natural resources. To balance the population growth with the existing natural resources, the perception of people on the effect of population growth on the environment would be raised. In light to this problem, this study was conducted with an objective of analyzing the role of demographic, social, and economic factors on the perception of people's on the effect of population growth on the environment.

Methodology: The data used in this study was collected from 423 sample household heads of the two'kebeles' of Jidda Ayyana Woreda. The methods of data analysis used in the study were bi- variate and logistic regression. The bi-variate analysis used to see the relationship between demographic, social, and economic variables and perception. Logistic regression was used to assess the net effect of each independent variable on the perception of people's on the effect of population growth on the environment.

Results: Among the independent variables entered in to the logistic regression educational status, contact with development and family planning agents and access to mass media have a significant and positive influence on the level of perception.

The findings of the study also showed that, about 61.5% and 55.7% of the people in the study area perceived the effect of population growth on the agricultural land and forest resources respectively.

Conclusion: The demographic variables have no net effect on the perception of people on the effect of population growth on the environment. On the other hand, from socio-economic variables educational status, contact with family planning and development agents and access to mass media have net effect on perception of people about the effect of population growth on the environment

Recommendation: To raise the level of perception of people on the effect of population growth on the environment, environmental issues would be inculcated in the educational curriculum of the country at all educational level, family planning and development agents would work in close contact with the community, and the information sources of the society should be expanded.

CHAPTER-ONE

1. INTRODUCTION

1.1 Background

Environmental degradation is a process that occurred gradually and is manifested by serious land degradation, water resource pollution deforestation, loss of biodiversity, and expanding process of desertification (Beilli et al, 2001).

Several interrelated factors can result to environmental degradation. Among the major contributing factors, high population growth combined with unsustainable use of the natural resources is the dominate one (Peters and Larkin, 1989). As a result, there had been an increasing potential for the degradation of earth's ecosystem or environment.

The topography of a country and man's over exploitation of the limited natural resources through deforestation, overgrazing, and bad farming practices are the major causes of natural resources degradation particularly in developing countries (Bekure, 1996).

Environmental degradation and its consequences have been among the major problems facing many sub-Saharan Africa countries (Abiy, 2002). Ethiopia is one of the most severely affected countries in this region.

Population growth rate of Ethiopia was very low in 1900, which is 0.2 percent per annum. It increased to 1 % in 1925 and 2% in 1950, which was yet below replacement level. However, it increased to 3% in 1990. As a result, the population doubled itself in 60 years (CSA, 1994).This high population growth and past land tenure system in Ethiopia is the major cause of environmental degradation and the principal constraints to the sustainable and integrated socio- economic development of the country.

In response to recurrent drought and population growth Ethiopia has been experienced resettlement over the last many years. According to Dessalegn (2006) cited in Tessfaye (2007) stated that resettlement in east Wollega zone of

Oromia in the case of kenaf site characterized by poor site selection and poor consultation. These phenomena have resulted in mismanagement and degradation of natural resources in the area.

Similarly, the study conducted by Tessfaye (2007) indicated that resettlement has a negative impact on the environment. Since in most resettlement areas much emphasis is given to land redistribution with out giving emphasis to forest and other natural resources management. As a result, much of the areas covered by natural forests and grass lands is declined or converted to other types of land use namily agriculture and settlement. In addition to these, rapid population growth in the area also increased deforestation of the forest resources to use it for the construction of houses and as energy source.

1.2 The Statement of the Problem

Even though the relationship between population growth and natural resource condition is complex, population growth affect agricultural land and natural resources management decisions by the household, communities, and societies (Berdesal et al, 2003). This is due to the fact that population growth affects the decision of household about land use, labour or capital intensive, product choice, technology, off-farm employment, and migration or fertility.

The relationship between population increase and the natural resource use of an area has been associated with the concept of the carrying capacity which is determined by various factors such as patterns of production and consumption, progress and access to science and technology, and economic and social development (Bekure, 1996). Hence, population growth in any society increases the demand for food, water, and adequate facilities such as health, sanitation, housing, energy, education, transport, and recreation. Thus, the increase in demands of those services affects the natural resource base and the environment.

In Ethiopia the ratio of people per hectare of land under cultivation as of 1998 was about 0.14 hectares (Sisay, 1998). This means, a family with seven members has only a hectare of land. This shows that, the pressure on land at household level has been increasing due to the increase in the number of household members.

The land holding in the study area declined from past to present due to increase in population size that caused by in-migration and resettlement. As a result, the land holding per household declined from 2 hectares pre household before 1991 to 0.25 hectares pre household in 2006(Woreda Agricultural Office,2008).

The study area is one of the most affected areas by inter-regional migration. The migrant came to the study area illegally or through resettlement program. The study conducted by Dechasa et al (2004) conclude that there were about 80,000 'illegal' settlers who have been migrated from the Woredas in Amhara National Regional state to resettle in Jidda Ayyana[1], kiramu, Limmu, and Abe Dongoro Woredas. As a result of these large numbers of migrants to the Woreda, there is decline in agricultural land per household and depletion of natural resource bases.

Migration of people from their original place is caused by land scarcity, environmental degradation, population pressure, social differentiation, vulnerabilities, and food insecurity to Jidda kiramu Woreda of East Wollega Zone (Tessafaye, 2004). As a result, the population size of the Woreda increased and leads to declined in the land holding per household. They expanded their agricultural land to forest land and other unattached lands. This brought high rate of deforestation of forest land.

[1] The woreda is Officially called Gidda Ayyana .Several studies such as Gemech(2008),Alemayehu etal (2004),and Assefa (1995) and the key informants in the area cited that Jidda Ayyana is historically proper .hence, I adopted this for this study.

In addition to this, the migrants in the Woreda did not use any copying mechanism unlike the host population to reduce destruction of natural resources /Tessfaye, 2004/. Thus, this caused conflict between the settlers and host population.

1.3. Objectives

1.3.1. General Objectives

To investigate the factors those affect the perception of people about the effect of population growth on the environment.

1.3.2. The Specific Objectives

The specific objectives of the study are:

1. To identify the social factor that affects the perception of people about the effect of population growth on the environment.
2. To identify the economic factor that affects the perception of people about the effect of population growth on the environment.
3. To identify the demographic factor that affects the perception of people about the effect of population growth on the environment.

1.4. Research Hypotheses

1. As the educational levels of the people increase, the perception of people about the effect of population growth on the environment increases.
2. People with more exposure to information have better perception of the effect of population growth on the environment.
3. People that have contact with family planning and de velopment agents perceive the effect of population growth on the environment more than those who have no contact with family planning and development agents.
4. As the age of the people increases, the perception of people about the effect of population growth on the environment increases.

5. Landholding size has positive relationship with perception of people about the effect of population growth on the environment.

1.5. Justification of the Study.

Environmental degradation is the major problem in Ethiopia in general and in the study area in particular. Population growth is one of the major factors that cause and aggravate environmental degradation.

One of the reasons why the researcher interested in conducting the research in Jidda Ayyana Woreda is due to decline in the land holding per household and high rate of deforestation, natural resource depletion that resulted from increased population size due to in-migration in the study area from time to time and the conflict on the ownership of the resources.

To facilitate the joint consideration of population and environment, more inter-disciplinary research and educational research are important to address the gap between population growth and natural resources depletion at all levels. Hence, this research paper is used as a source of information for the researchers who conduct research in this area. Similarly, it also used as document for the government and non-governmental organization who participate in the integration of population issues in to development plans.

1.6. Definition of Terms and Concepts used in This Study

- **Perception of People about the effect of population growth on the environment**: - refers to the individual awareness to the process of environmental degradation that is caused by population growth.
- **Household size**: - is the group of people who are living together and make common provision for food or other essential for living.
- **Population Growth**: - is the number of people added to the population due to in-migration or resettlement and natural increase per hundred populations in the beginning of a year.

- **Educational level of Household Head**: - is the highest grade completed by the household head.
- **Size of land holding**: - is the area of land held by the each household.
- **Access to information**: - is the exposure to information through mass media such as radio, TV, and poster.
- **Environment**: - refers to agricultural land and forest resources.
- **Environmental degradation**: - refers to the destruction of natural resources such as forest and land due to population growth

1.7. Theoretical and Conceptual Framework

There are various theories concerning the interrelationship between population and environment. But they are grouped in to two categories for this study. The first one is pessimistic view and the second is optimistic view.

The pessimistic view was supported by Malthusian and Neo-Malthusian that were known by "limit to growth ". It stated that population growth affect natural resource growth. This because; population grows by Geometric Mean and food, which is obtained from natural resource, grows by Arithmetic Mean (Beilli et al, 2001). Hence, there is a gap between population growth and natural resource use.

The optimistic view is supported Boserupian, who stated that population growth and density induced technological changes which is necessary to allow food production to keep pace with population increase (Beilli et al, 2001).

Even though optimistic (Boserup) stated that population growth and density brings technological changes that allow food production to keep pace with population increase, this is not true in sub-Saharan Africa where there is problem of economic and social development that hinder the development of agricultural technology. Thus, in sub-Saharan Africa at present time the pessimistic view is the most relevant theory on the interrelationship between population and environment.

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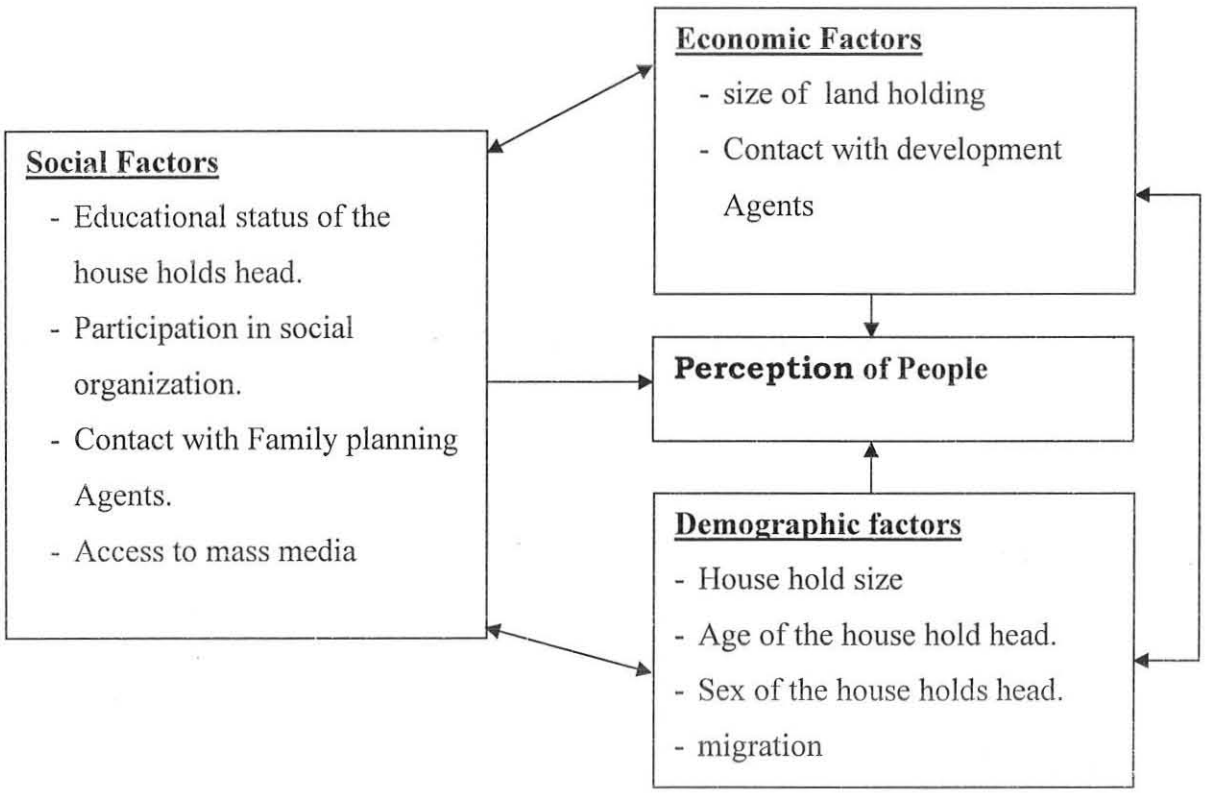
Hence, the theoretical and conceptual framework of this research is based on the pessimistic view point. The conceptual framework of this study contains the factors that affect perception of people about the effect of population growth on the environment in the study area. The dependent variable of this study is perception of people about the effect of population growth on the environment. The independent variables of this study are social, economic, and demographic factors.

The social factors that affect perception of people about the effect of population growth on the environment include educational status of the household head, participation in the social organization, contact with the family planning services, and access to mass media.

The economic factors that affect perception of people about the effect of population growth on the environment include size of land holding, and contact with development agents, and participation in conservation activities.

The demographic factors that affect perception of people about the effect of population growth on the environment include household size, age of the household head, and sex of the household head.

Fig.1 The conceptual framework on the perception of people on the effect of population growth on the environment



Source: Modified from Abiy, (2002)

1.8 Limitation of the Study

The study is actually expected to show full picture of perception of people about the effect of population growth on the environment in the country. This study by its very nature would require long period of time and a reasonable sum of budget which enables to increase sample size and many times contact with the study population. As a result of the above constraints, the study was limited to two 'kebeles' of Jidda Ayyana Woreda and 423 sample households.

1.9. Organization of the study.

This thesis has five chapters. Chapter One deals with the introduction that contains background of the problem, statement of the problem, objectives, research hypothesis, justification of the study, conceptual and theoretical frame work, limitation of the study, and organization of the study.

Chapter two contains review of the related literature that sub-divided in to three session; session one deals with the theories or views on the interrelationship between population and environment, and the second session deals with the effect of population growth on the environment and the third session explains the factors that affect the peoples' perception about the effect of population growth on the environment.

Chapter three elaborates the methodology of the study that include study area description, source of data and data collection techniques, research design and approach, ethical consideration, sample size determination, and data Analysis techniques.

Chapter four contains data presentation and analysis on the characteristics of respondents such as economic, social, and demographic characteristics of the respondents. It also explain the differentials on the perception of People about the effect of population growth on the environment by using cross-tab and chi-square, and major determinants that affect perception of People about the effect of population growth on the environment.

The last chapter deals with the conclusion and recommendation related to perception of people about the effect of population growth on the environment.

CHAPTER-TWO

Review of the Related Literature

2.1. Theories or views on the Interrelationship between Population and Environment

2.1.1. Pessimistic Theory (view)

According to pessimistic view rapid population growth is the major cause of environmental degradation and under development by increasing the pressure on land resources (Peters and Larkin, 1989). Thus, they considered rapid population growth as a problem.

The supporters of this view include the classical school of Thought and Malthusian and Neo-Malthusian view.

A. The Classical School of Thought

The classical school of thought argued that rapid population growth increases the demand for food that can be achieved through expansion of agriculture land (by bringing new land under cultivation) or through intensification of a agriculture (by using technology and capital with small cultivable land) (Dejene Aredo, 2001). Rapid population growth causes environmental degradation directly by expanding agricultural land to forest area and marginal lands and indirectly by using technology that damages the environment by realizing chemical and large wastes in to environment.

B. The Malthusian and Neo-Malthusian view.

According to Malthusian and Neo-Malthusian view, rapid population growth increases the demand for goods and services and need for employment and livelihood that in turns increased pressure on natural resources and causes environmental degradation (Dejene Aredo, 2001).

2.1.2. Optimistic Theory (view)

The optimistic argued that rapid population growth brings economic development and increases environmental conservation (Peters and Larkin, 1989). They considered population as a resource that enhances economic development and environmental conservation by increasing the labour force and inputs used for development and environmental conservation. According to this view, population growth is not the cause for poverty, under development, social problems, and environmental degradation.

Boserup is one of the supporters of optimistic view that argued rapid population growth and high population density increased agricultural production with out environmental degradation. This can be achieved by intensification of agriculture such as using pesticide, insecticide, fertilizer, and improved seeds, and by increasing yield per unit labour (Boserup, 1981).

Even though Boserup concluded that rapid population growth increases agricultural production, her theory is not applicable in developing countries like Ethiopia due to low level of development in the agricultural technology. Thus, the optimistic view on the interrelationship between population growth and environment is not applicable in our country where the economic development is low to adopt the agricultural technology.

2.1.3. Revisionist Theory (view)

This view is the view of economic-demographers that stated there is no positive or negative relationship between population growth and environmental degradation (Kelley, 2001).

The revisionists claimed that the consequences of population growth have to be assessed over long period of time and its direct and indirect feed back have to be taken in to account with in economic, political, and social system (Kelley,2001).

2.2. The Effect of population growth on the Environment.

According to UN (1993), the 1992 international conference on the environment and development held in Reo de Janeiro of Brazil identified that demographic process and population pressure as one of the factor that causes environmental degradation and natural resources depletion.

Similarly, Peters and Larkin (1989) stated that high population growth is the cause of environmental degradation. Because of the increase in human population there is high concentration of population in small area. As a result, there had been an increased population pressure on the land that leads to degradation of the environment.

In developing Countries particularly Africa, the greatest challenge facing the natural resource is how to cope with the needs of a rapidly growing population (Bielli et al, 2001). In addition to these, rapid population growth had narrowed the scope of the environment for further expansion of production and new cultivable lands in Africa. As a result, rural environment of Africa characterized by over grazing, deforestation, depletion of water resources, and loss of natural habitat (WB, 1994).

Many environmentalists and other researchers who study ecological problems concluded that population pressure is the root cause of environmental degradation (http://www.unis.unienne.org/). This is because; rapidly growing population requires environmental resources to survive.

The change in population growth, age structure, and spatial distribution interact closely with the environment and development (http://www.iiasa.ac.at/gsp/. As a result, rapid population growth has exacerbated fresh water depletion, climatic change, biodiversity loss, and degradation of agricultural lands.

The degradation of land and forest resources in Ethiopia is intimately linked with poverty and human well-being and unsustainable land use such as over

cultivation, overgrazing, deforestation, and poor irrigational practices that lead to a process of desertification (Chalechew, 2004).

According to Renjan (1999) the relationship between men and environment is bi-directional in nature. That means, environment provides resource to man and man maintains the environment to make live possible on this planet. Hence, to keep the balance between the environment and man and man's attitude towards the impact of population growth on the environment increased now days. As a result, man uses technology to transform the organic and inorganic resources of the environment in the usable form.

There are seriously growing perception of the people about the impact of rapidly growing population on natural resources such as land, forest, water, and biodiversity (Berdsall et al, 2003).

In general, the 18th inquiry among different countries on the interrelationship between population and development depicted that population growth causes environmental degradation in both more developed and less developed countries (UN, 2001). As a result, the governments in both developed and less developed countries formulated the policies that integrated population issues into developmental plans, policies, and strategies.

2.2.1 The effects of population growth on agricultural land.

According to Malthusian theory, rapid population growth causes environmental degradation. Rapid population growth causes the scarcity of agricultural land, farm land fragmentation, over cultivation, soil erosion, deforestation, loss of biodiversity, and deterioration in the productive capacity of land resources (Weldeamlak, 2004).

A study conducted by Food and Agricultural Organization of the United Nations (FAO), concluded that poverty alleviation and food security lead to the inability to achieve environmentally sound and sustainable food production due to human action and social factors (UN, 2001). This means, environmental

degradation is caused by human action and differences in their perception on the effect of population growth on the environment.

At household level, the rural households are dependent on agricultural land and are more affected by the problems of land degradation due to the demographic and socio-economic situations of the households. As a result, these situations of the households affected their capabilities to implement environmentally feasible conservation measures such as farm practices and their attitudes towards rational use of resources (Shibru, 2002).

Similarly, agricultural land degradation in Ethiopia is due to traditional agricultural practices and imbalance between agrarian population and agricultural land (Alemu, 2003).

population growth had significant impact on the land use and land cover of the country with an estimated population growth rate of 2 to 3 percent per year, since the population that exists to day is more than twice of what it was in 1960s (Akililu, 1995).

2.2.2 The effects of population growth on the forest resources

The effect of population growth on the forest resources explained by using insecurity of land tenures, lack of access to credit services to rise the productivity of the land, shortage of off-farm employment, and low levels of education and skills how o conserve forest resources (Springer, 1996). That means, population growth leads to high population density over the agricultural land and hence expended their cultivable land to forest areas and marginal lands. In subsistence agricultural farming, the major cause of deforestation is rapid population growth that resulted from expanding agricultural land to forest areas, over grazing of grass lands and forest lands and cutting of trees for construction purposes and for firewood (http://www.unis.unienne.org/).

In Africa the most prominent steam of migration that causes destruction of the forest resources is rural-rural migration. In the united republic of Tanzania,

the spread of cash crops such as coffee and cotton was the pulling factors that lead to rural-rural migration to the Usangu plains. As a result, the migrants to the plains deplete the vegetation to get settlement area (UN, 2001). In addition to these, the migrants increased the population size of the plains and hence they increased the rate of forest resources deforestation to get fuel wood to meet their energy needs (UN, 2001).

Similarly, population growth and in migration have also lead to vegetation loss in the dry land areas of sub- Saharan Africa due to increased migration of pastoralists and their livestock in search of additional grazing land and increased competition for land with sedentary population (UN, 2001). Thus, population growth caused by migration of peasant increased the demand for agricultural lands that lead to deforestation of tropical rain forest.

In general, the forest resources of Ethiopia depleted quickly over the last three or four decides due to the expansion of the agricultural land to the forest areas as a result of rapidly growing population (Bielli et al, 2001). As a result, the forest cover of the country that was estimated to be 40 percent of the total country's land in past declined to 2 to 3 percent.

2.3. Factors Affecting Perception of People about the Effect of Population Growth on the Environment.

According to recent study conducted by Michale and Lori (2005) there are different ways in which individuals perceive environmental conditions and environmental change. Similar studies have indicated that human actions cause global environmental transformation that resulted from various social, political, economic, and demographic processes, and institutional change and lead to environmental problems (Dunlap and Riley, 1992). Now days, the research that explained environmental perception using demographic and socio-economic factors have been advanced. As a result, our understanding of how people view, think about, and aware of the natural environment increased (Dunlap and Riley, 1992).

According to Van Liere and Dunlap (1980) perception of people about the effect of population growth on the environment is affected by age, education, and political ideology. Thus, they concluded that younger, well- educated, and politically liberal people tend to be more concerned about environmental than older,less educated and, politically conservative people. Similar studies conducted by Abiy (2002) and Hiruy (2008) concluded that Farmers' perception on the effect of population growth on the environment affected by demographic and socio-economic factors.

2.3.1. Demographic Factors.

The demographic factors that affect perception of people about the effect of population growth on the environment are age, sex, and household size. According to Abiy (2002), the most important demographic factors that affect perception of farmers` about the effect of population growth on the environment were age and sex of the farmers. A study conducted by Hiruy (2008) concluded that the demographic factors that affect the awareness of farmers` on the effect of population growth on the environment were age, sex, and household size.

2.3.2. Social Factors

Social factors that affect perception of people about the effect of population growth on the environment are educational levels of the people, contact with family planning services agents, participation in the social organization, access to mass media, and contact with urban areas.

According to the research conducted by Abiy (2002) and Hiruy (2008) in Ethiopia, the major social factors that affect farmers' awareness on the effect of population growth on the environment were educational levels of the farmers, participation in the social organization, access to mass media, and contact with urban areas.

2.3.3. Economic Factors.

The economic factors that affect perception of people about the effect of population growth on the environment are economic status of the people, contact with conservation agents, size of land holding, and participation in the conservation activities.

In support to the economic factors that affect awareness of people about the effect of population growth on the environment, the study conducted by Abiy (2002) and Hiruy (2008) concluded that the economic factors that affect farmers' perception on the effect of population growth on the environment were size of land holding, contact with conservation agents, and participation in the conservation activities.

CHAPTER THREE

Methodology of the Study

3.1. Study Area Description

3.1.1. Physical setting

Jidda Ayyana is one of the Woreda in the East Wollega zone that bounded by Kiramu Woreda in the North, Horo Guduru Wollega Zone in the East, Ebantu and Limu Woredas in the west, Guto Jidda woreda in the south, and Sasiga Woreda in the south west. It is located in the north west of Addis Ababa at a distance of 442 km from Addis Ababa. Jidda Ayyana woreda has a total area of 183,060.73 hectares, of these, 95,285.9 hectares is cultivable land, 47,842.11 hectares is forest land, 31, 703.32 hectares is grazing land, and the remaining 8,232.4 hectares of is mountains and valleys (Woreda Agricultural Office, 2008). The Woreda sub-divided in to 22 'Kebeles'.

The woreda is divided in to two agro-climatic zones, of which about 49 percent of the woreda is mid highland with an altitude of 1500-2,250 m.a.s.l, and the remaining 51 percent of the woreda is lowland. The altitude of the woreda ranges between 1,400 m.a.s.l and 2,250 m.a.s.l. Similarly, the Woreda has 25°c and 1,600mm average temperature and rainfall respectively (Woreda Agricultural Office, 2008).

The vegetation types that exist in the Woreda are forests, shrubs, and woodlands. From the total vegetation areas of the Woreda about 15,286.37 hectares were forests, and the remaining 32,555.74 hectares were shrubs and woodlands (Woreda Agricultural Office, 2008).

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3.1.1. Physical setting

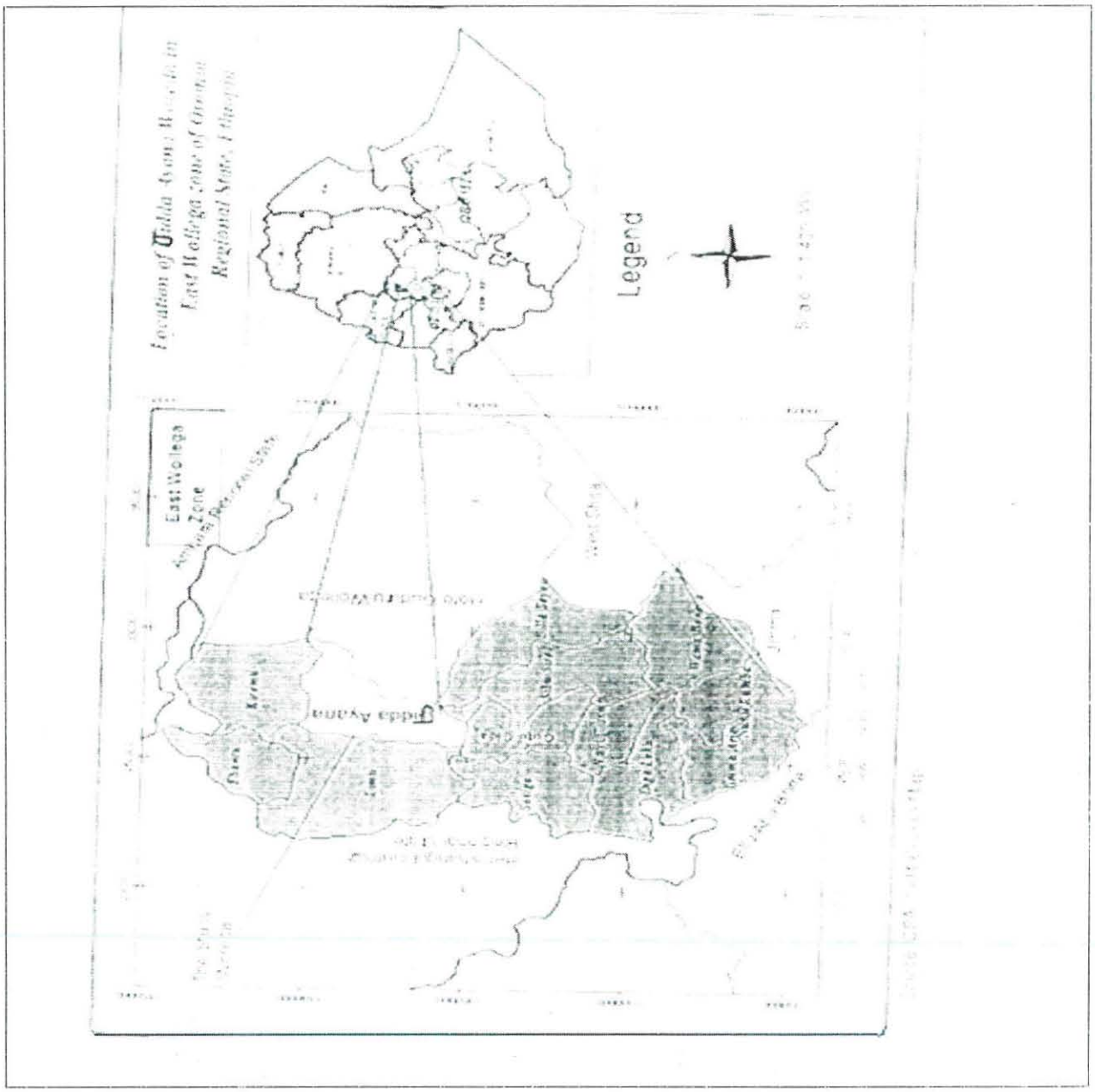
Jidda Ayyana is one of the Woreda in the East Wollega zone that bounded by Kiramu Woreda in the North, Horo Guduru Wollega Zone in the East, Ebantu and Limu Woredas in the west, Guto Jidda woreda in the south, and Sasiga Woreda in the south west. It is located in the north west of Addis Ababa at a distance of 442 km from Addis Ababa. Jidda Ayyana woreda has a total area of 183,060.73 hectares, of these, 95,285.9 hectares is cultivable land, 47,842.11 hectares is forest land, 31, 703.32 hectares is grazing land, and the remaining 8,232.4 hectares of is mountains and valleys (Woreda Agricultural Office, 2008). The Woreda sub-divided in to 22 'Kebeles'.

The woreda is divided in to two agro-climatic zones, of which about 49 percent of the woreda is mid highland with an altitude of 1500-2,250 m.a.s.l, and the remaining 51 percent of the woreda is lowland. The altitude of the woreda ranges between 1,400 m.a.s.l and 2,250 m.a.s.l. Similarly, the Woreda has 25°c and 1,600mm average temperature and rainfall respectively (Woreda Agricultural Office, 2008).

The vegetation types that exist in the Woreda are forests, shrubs, and woodlands. From the total vegetation areas of the Woreda about 15,286.37 hectares were forests, and the remaining 32,555.74 hectares were shrubs and woodlands (Woreda Agricultural Office, 2008).

nic groups.

Figure- 2 Map of Jidda Ayyana



3.1.2. Economic Activities.

The economic activity that carried out in the woreda is mixed farming, i.e. crop production and livestock rearing. The major types of crop produced in the woreda are 'Teff', Barely, Wheat, Maize, sorghum, and Millet. The major types of livestock reared in the woreda are Cattle, Sheep, Goat, Donkey, and Mule (Woreda Agricultural office, 2008).

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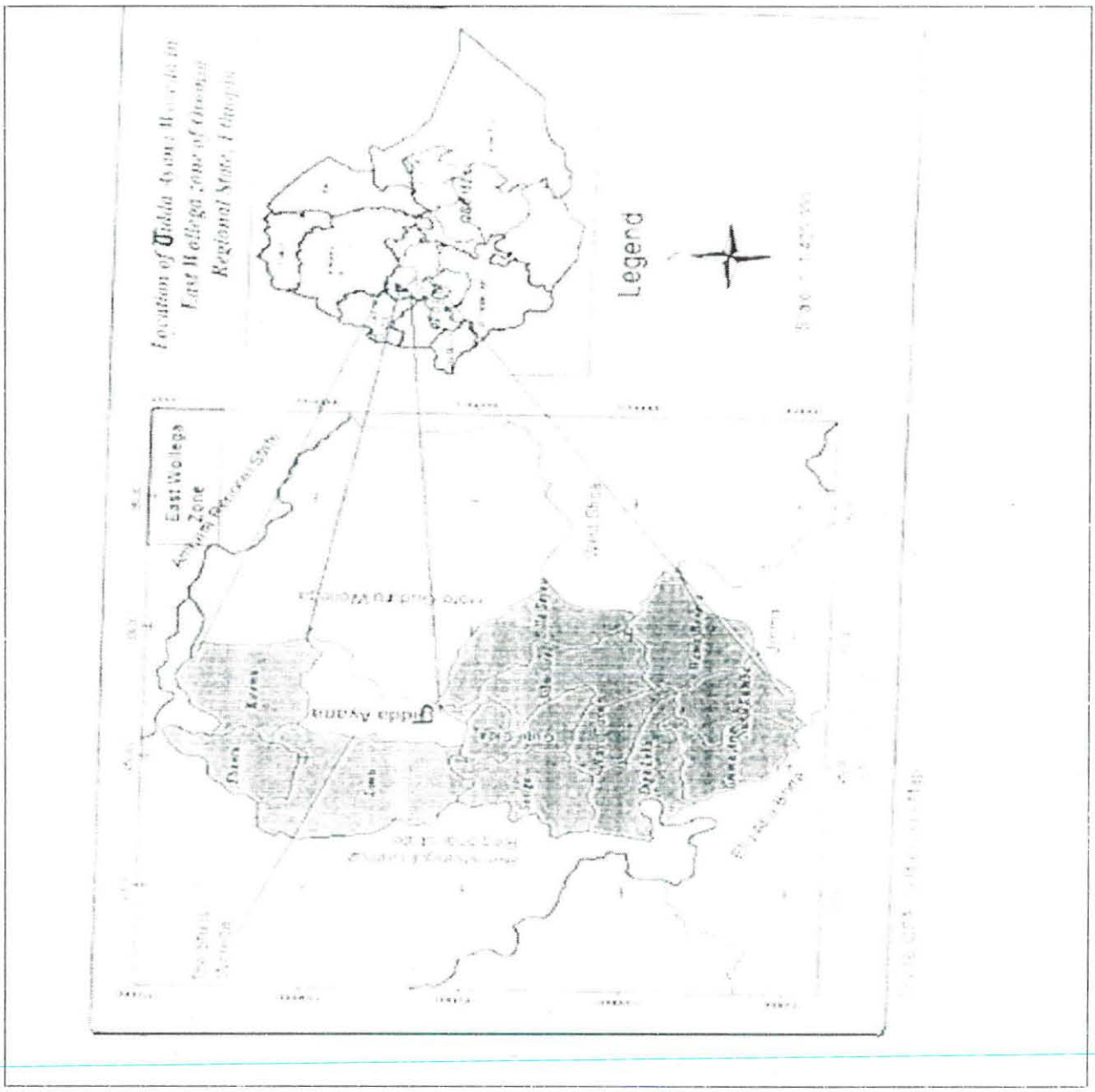

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3.1.3. Population

Jidda kiramu[2] woreda has a total population of 159,861 in 2007. Of these 131,944(82.5%) of them are living in rural areas of the woreda and the remaining 27,917 (17.5%) of them are living in the town areas (CSA, 2007). In the woreda majority of them are Oromo as compared to other ethnic groups.

3.2. Research Design and Approach

The Research design used in this study was cross- sectional study due to the fact that the study population was contacted once by the researcher.

3.3 Sampling Design and Sample size Determination

In this study two 'kebeles' of the Woreda were selected purposefully. The two 'kebeles' were Gatira and Doro Obora, where there is large number of population due to migration of people from other parts of the country and the two 'kebeles' were covered by forest in the past. The target population selected from the two 'kebeles' based on systematic sampling techniques. The target population of this study was 423 households that were living in the 'kebeles'.

The sample size was determined based of the formula used in the Dixion and Leach's (1978). Accordingly, the sample size 'n' was determined as follows:

$$\mathbf{n}=\frac{P(1-P)(z\alpha/2)^2}{E^2}+10\%$$

Where, n- is the sample size.

P- is an estimate of the population assumed to be perceived the effect of population growth on the environment, i.e. (P=0.5).

Z- is the standard normal value corresponding to the desire level of confidence (95%).

α - is the area under the normal curve to the left or right of z, α =0.05 ($z\alpha$ /2=1.96).

E- is the maximum acceptable error, i.e., E=0.05.

10%- is contingency value

$$n=\frac{P(1-P)(z\alpha/2)^2}{E^2}+10\%$$

$$0.5\frac{(1-0.5)(1.96)^2}{(0.05)^2}+10\%$$

$$0.5\frac{(1-0.5)(1.96)^2}{(0.05)^2}+10\%$$

$$0.25\frac{(1536.64)}{(0.05)^2}+10\%$$

$$= 384.16+38.416$$

$$=422.576\approx$$

$$=\underline{\underline{423}}$$

3.4 Source of Data

In this study both primary and secondary data were used as sources of data. The primary data were gathered through questionnaire, in-depth interview, Focus Group Discussion (FGD), and observation. The secondary data used in this study were collected from different offices such as Woreda Agricultural Office, Woreda Administrative Office, Zonal Finance and Economic Development Office, Central statistical Authority, and 'kebeles' Agricultural and Administrative Offices.

3.5 Ethical Consideration

First, letter of support was written by the Institute of Population Studies of Addis Ababa University to the concerned bodies. Secondly, the Woreda administration wrote a letter of support for the researcher and data collectors to collect the necessary information from the target population. Thirdly, the sample households were informed before responding to the questions their response would be kept secret and used only for the objectives of the study.

They were also informed that they have full right not to participate in the study at all or not respond to any questions. Thus, 423 voluntary household heads have been participated in the study and the questionnaire was administered to them based on their verbal consent.

3.6. Data collection procedures

The methods or tools used to collect data in this study were questionnaire, in-depth interview, Focus Group Discussion (FGD), and observation.

a. Questionnaire

Structured questionnaire was used to collect information at household level concerning demographic and socio-economic characteristics of the households, access to land and other natural resources, and perception of peoples' (see Annex-2).

The survey questionnaire has four parts and the questions were close- ended. The questionnaire was prepared in English and translated in to Afan Oromo before the filed survey. Five enumerators were recruited based on their proficiency in communicating using local language, educational background and prior exposure to similar works.

b. Interviews

Interviews used to generate in- depth information of the key informants on the issues based on interview guide line (see Annex-3).The interviews were held with two elderly from both 'kebeles' , developmental agents in both kebeles, and 'kebeles' administration. Interviews were also conducted with Woreda agronomy experts and Woreda administrator.

c. Focus Group Discussion (FGDs)

Six focus group discussions were conducted in the two 'kebeles' with 6-9 members in each focus group. The FGDs was conducted according to their sex, educational level, and land holding size.

d. Observation

An observation method was used to see land management practices, the forest coverage of the area, and water resources and range lands of the area.

3.7 Methods of Data Analysis

The method of data analysis used in this study was different types of descriptive statistics such as bi-variate and chi-square. Bi- variate was used to show percentage of the variation among perception of people on the effect of population growth on the environment. Chi-square was used to see the relative influence of each in dependent variable on the dependent variable. It shows association of each in dependent variable on the dependent variable with out controlling the effect of other variables.

Finally, logistic regression was used to explain the results and the relative influence of each independent variable on the dependent variable by controlling the effect of other variables.

CHAPTER-FOUR

Data Presentation and Analysis

4.1 Characteristics of the Respondents

The characteristics of the respondents had relationship with their awareness to wards the effect of population growth on the environment. Thus, this section discussed the characteristics of the respondents that include demographic, social, and economic characteristics.

4.1.1 Demographic Characteristics

The demographic characteristics of the respondents include age, sex, household size, and marital status of the respondents.

Table 4.1.1Percentage Distribution of Respondents by Demographic Characteristics

Demographic characteristics	Number of Respondents	Percent
Age		
<15 years	0	0
15-64 years	343	81.1
64+	80	18.9
Sex		
Male	302	71.4
Female	121	28.6
Household size		
1-3	127	30
4-6	140	33.1
7 and above	156	36.9
Marital status		
Never married	10	2.4
Currently married	395	93.4
Divorced	2	0.5
Widowed	16	3.8
Total	423	100

The age compositions of the respondents were divided in to three sub-groups. These are population aged less than 15 years, population aged 15-64 years, and population aged 64 years and above. According to table 4.1.1, about 81.1 percent of the respondents were in the age group 15 to 64 years and the remaining 18.9 percent of the respondents were aged 64 years and above. Thus, majority of the respondents were in the economically active age group.

With regard to the, sex structure of the respondents, about 71.4 percent of the respondents were male, while the remaining 28.6 percent of the respondents were female. This shows that majority of the respondents were male headed households (see Table 4.1.1).

Household size is one of the most important demographic indicators that show person-resource ratio at household level. In large households, per-capita land holding diminished due to the fact that large family size reduced land holding per households. During the field survey, the household heads were asked to report their household members. Accordingly, households with one to three household members were 30 percent of the total respondents, households with four-six household members were 33.1 percent of the total respondents, and the remaining households, i.e. 36.9 percent of them have seven and above members (see Table 4.1.1). Thus, majority of the households have seven and above members.

The other important demographic variable that affect economic and social situation of the population is marital status. As far as the marital status of the respondents concerned, about 2.4 percent of them were never married, 93.4 percent of them were currently married, and the remaining 3.8 percent of them widowed (see Table 4.1.1). Thus, majority (93.4%) of the respondents were currently married.

In addition to the above demographic variables discussed, the respondents were asked to report the cause of population growth in the study area. Accordingly, 6.6 percent of the respondents responded that natural increase

(the difference between birth and death) was the cause of population growth 33.3 percent of the respondents responded that migration or resettlement was the cause of population growth, and the remaining 60.1 percent of them responded that both natural increase and migration or resettlement were the cause of population growth. Thus, the major cause of population growth in the study area was both natural increase and migration or resettlement.

4.1.2 Social Characteristics

The social characteristics of the respondents included in this study were educational levels, religion, contact with Family Planning agents, participation in the social organization, and access to masse media (radio).

Table 4.1.2 Percentage Distribution of Respondents by the Social Characteristics

Social Characteristics	Number of Respondents	Percent
Educational Levels		
Illiterate	199	47
Primary Levels	114	27
Secondary Levels	72	17
Tertiary Levels	38	9
Religion		
Orthodox	271	64.1
Protestant	152	35.9
Contact with Family Planning Agents		
Yes	240	56.7
No	183	43.3
Participation in Social Organization		
Yes	405	95.7
No	18	4.3
Access to Mass media		
Yes	186	44
No	237	56
Total	423	100

It is well known that education is the basic factor for all activities of the development of the country, region, and the study area. With regard to the

educational levels of the respondents, about 47percent of the respondents were illiterate, 27percent them had completed primary education (1-8),17 percent of them had completed secondary education, and the remaining 9 percent of them had completed tertiary education (see Table 4.1.2). Thus, majority of the respondents were literate.

As far as the religion of the respondents was concerned, about 64.1percent of them were the followers of orthodox Christian, while the remaining 35.9 percent of them were the followers of protestant (see Table 4.1.2).

During the field survey the respondents asked whether they have contact with the family planning agents or not? Thus, about 56.7 percent of them were responded as they have contact with family planning agents and the remaining 43.3 percent of them were responded that they have no contact with family planning agents (see Table 4.1.2).

There is high participation of people in social organization such as "Edir", "Iqubi", and religious meting in the study area. With regard to the participation of people in the social organization, about 96 percent of them were participated in social organization and only 4.3 percent of them did not participate in the social organization. Thus, majority of the respondents in the study area were participated in the social organization (see Table 4.1.2).

Exposure to mass media is very important to increase the perception of people on the effect of population growth on the environment.

As far as the exposure of the respondents to the mass media concerned, about 44 percent of them have exposure to mass media and the reaming 56 percent of them have no exposure to mass media (see Table 4.1.2).

4.1.3 Economic Characteristics

The economic Characteristics of the respondents included in this study are occupation, size of land holding and contact with development agents.

Table 4.1.3 Percentage Distribution of Respondents by the Economic Characteristics

Economic characteristics	Number of respondents	Percent
Occupation		
Farmers	358	84.6
Traders	18	4.3
Government Employees	36	8.5
Students	11	2.6
Size of Land holding		
Land less	81	19.1
Less or equal to one hectare	109	25.8
Greater than one hectare	233	55.1
Contact with Development Agents		
Yes	240	56.7
No	183	43.3
Total	423	100

The population in the study area has different types of occupation to generate their income. According to field survey, about 84.6 percent of the respondents were engaged in farming activities, 4.3 percent of them were engaged in trading, 8.5 percent of them were government employee, and the remaining 2.6 percent of them were students (see Table 4.1.3).

Land is very important asset and means to sustain livelihood. Land holding size is considered as a critical factor that determines the amount of crop produced especially in developing countries in general and in study area in particular.

With regard to land holding size of the respondents, about 19 percent of them have no land, 25.8 percent of them have less or equal to one hectare, and the remaining 55 percent of them have greater than one hectare (see Table 4.1.3).

Even though the majority of the respondents hold grater than one hectare, about 62% of the respondents responded that land holding decreased from past to present. As a result, the present land holding size is not enough to support their family. Thus, the people in the study area deforest the forest land to get cultivable land.

Contact with development agents increase the perception of people about the effect of population growth on the environment and the participation of peoples in conservation activities.

As far as the contact of the people with development agents concerned, about 56.7 percent of the respondents have contact with development agents, while 43.3percent of them have no contact with development agents (see Table 4.1.3).

The other methods that used by the researcher to see the effect of population growth on the environment is the source of fire woods to the people. To know the source of fire woods to the people, the people asked about their source of fire woods. As a result, about 93 percent of them responded that forest land, about 5 percent of them responded that market, about 1 percent of them responded that community wood land, and the remaining 1 percent of them responded that private trees as a source of fire wood (see Table 4.1.4) .Thus, majority of the people in the study area collect their fire wood from the forest. This shows that population growth has effect on the forest resources in the study area.

Table 4.1.4 Percentage Distribution of Respondents by sources of Fire woods

Sources of Fire woods	Number of Respondents	Percent
Forest land	392	93
Community wood land	4	1
Market	23	5
Private trees	4	1
Total	423	100

4.2 Differentials on Perception of people about the effect of Population Growth on the Environment

This section attempted to assess the relationship between the dependent and each independent variable by using cross-tabulation and chi-square values. The bi-variate analysis used to see the significant relationship between the dependent variable (perception of people) and independent variables such as household size, age, sex, educational status, , contact with the family planning and development agents, access to mass media, and participation in social organization.

From the eight independent variables cross-tabulated to assess their effects on the levels of perception of people about the effect of population growth on the environment, only one variable that is participation in the social organization has no significant association with the perception of people about the effect of

population growth on the environment. According to field survey result, from the total 423 respondents about 61.5 percent of them were perceived the effect of population growth on the agricultural land. This shows that the people of the study area have higher level of perception about the effect of population growth on the agricultural land. On the other hand, out of the total respondents about 57.7 percent of them were perceived the effect of population growth on the forest resources. People in the study area more perceived the effect of population growth on the agricultural land than on the forest resources.

In general, the existing variation in the perception of people about the effect of population growth on the environment in the study area is the function of demographic, social, and economic characteristics.

Table 4.2 Chi-square values on the perception of people about the effect of population growth on the environment

Independent Variables	Perception					
	Population growth on Agricultural Land			Population growth on Forest Resources		
Demographic Variables	**No (%)**	**X^2**	**P-value**	**No (%)**	**X^2**	**P value**
Age						
15-64	237(91.2)	44.583	0.000**	223(91.4)	39.935	0.000**
64and above	23(8.8)			21(8.6)		
Sex						
Male	202(77.7)	13.102	0.000**	190(77.9)	11.834	0.001**
Female	58(22.3)			54(22.1)		
Household Size						
1-3	86(33)	20.926	0.000**	85(34.5)	20.212	0.000**
4-6	100(38.5)			91(37.3)		
7 and above	74(28.5			68(27.9)		
Social Variables						
Participation in Social Organization						
Yes	252(96.9)	2.3	0.129	237(97.1)	2.721	0.099
No	8(3.1)			7(2.9)		
Literacy Status						
Literate	205(78.8)	181.554	0.000**	199(81.6)	189.347	0.000**
Illiterate	55(21.2)			45(18.4)		
Access to mass media						
Yes	174(66.9)	144.267	0.000**	164(67.2)	126.422	0.000**
No	86(33.1)			80(32.8)		
Economic Variables						
Size of land holding						
≤ 1hectare	56(27.3)	4.888	0.027*	50(26.3)	6.077	0.014*
>1 hectare	149(72.7)			140(73.7)		
Contact with development and family planning agents						
Yes	288(87.7)	263.389	0.000**	215(88.1)	231.272	0.000**
No	32(12.3)			29(11.90		

* Significant of P<0.05, ** Significant of P<0.01

N.B. Figures in parenthesis are percentage

4.2.1 Demographic Characteristics

The demographic characteristics that have significant relationship with perception of people about the effect of population growth on the environment are age, sex, and household size.

As far as the relationship between age and perception concerned, there is significant relationship between age and perception ($p<0.01$). The level of perception of people about the effect of population growth on the environment varies from one age group to another. Accordingly, about 91 percent of the people aged 15-64 years perceived the effect of population growth on the environment, while only 9 percent of the people aged 64 years and above perceived the effect of population growth on the environment (see Table 4.2). Population in the economically active age has better perception than population in the economically inactive age. This is because; people in the economically active age have close contact with the environment. That means, they are productive and participating in farming activities that increases their level of perception about the relationship between population and environment.

Similar studies conducted by Van Liere and Dunlap (1980) stated that age has significant effect on the perception or perception of people about the effect of population growth on the environment. Population in the economically active age has better perception than population in the economically inactive age.

With regard to the relationship between sex and perception, about 77% of male and 22% of female headed households perceived the effect of population growth on environment. This shows that, male headed households have better perception about the effect of population growth on the environment than female headed households. This is due to the fact that males have better access to the resources and control over the resources than females. In support to this study finding, studies conducted by Abiy (2002) and Hiruy (2008) explained that males have better awareness than females.

According to the chi-square test result, there is significant relationship between age and perception ($p<0.01$).Since household size determines the competition for existing resources such as land, forest, water, and wild life.

The level of perception of people about the effect of population growth on the environment is higher among the households with four to six house hold members as compared to those house hold with one to three and seven and above house hold members similar to the findings of Abiy (2002) and Hiruy (2008).

Table 4.2 shows that, about 38.5% of the households with four to six household members, and 33.1% of the households with one to three household, and 28.5% of the perceived the effect of population growth on the agricultural lands. Similarly, about 37.3% of the households with four to six household members, 34.8% of the households with one to three household members, and 27.9% of the households with seven and above household members, perceived the effect of population growth on forest resources.

4.2.2 Social Characteristics.

Perception of people about the effect of population growth on environment has relationship with the social characteristics such as participation in social organization, educational status, and access to mass media.

With regard to the relationship between participation in social organization and perception, about 97% of the people who participated in social organization perceived the effect of population growth on the environment. On the other hand, among the people who did not participate in the social organization only 3% of them perceived the effect of population growth on the environment (see table 5.1).The chi-square test result did not show significant association between participation in social organization and perception. Even thought there is no significant relationship between participation in social organization and perception, the people who participated in social organization perceived the

effect of population growth on the environment better than those people who did not participate in the social organization. This is because; almost all people in the study area participate in the social organization.

Education is an important social factor which affects perception of people about the effect of population growth on the environment. As a result, literate people perceive the effect of population growth on the environment better than the illiterate people.

Out of the total literate people, about 78.8% of them perceived the effect of population growth on agricultural land. Similarly, 81.6% of the literate people were perceived the effect of population growth on the forest resources. On the other hand, from the total illiterate people 21.2% and 18.4% of them perceived the effect of population growth on agricultural land and forest resources respectively (see Table 4.2).This is due to the fact that education increases the awareness of the people on the effect of population growth on the environment.

Similar to this study finding, studies conducted by Van Liere and Dunlap (1980) explained that educated people perceived the effect of population growth on the environment more than non- educated people.

Access to mass media is one of the social factors that affect the perception of peoples' about the effect of population growth on the environment.

The study finding reveled that the people who have access to information through mass media were found to be more aware about the effect of population growth on the environment environment similar to the findings of (Teshome, 1994, and Abiy, 2002).

With regard to the relationship between access to mass media and perception, about 67% of people who have access to mass media perceived the effect of population growth on the environment. On the other hand, about 33% of the people who did not have access to mess media perceived the effect of population growth on the environment (see table 5.1). This is because; exposure to mass media (radio) provides information on the relationship

between population growth and environment and on the effect of population growth on the environment.

4.2.3 Economic Characteristics

The economic characteristics that have association with the people perception about the effect of population growth on the environment are size of land holding of the households and contact with family planning and development agents.

As far as the relationship between size of land holding and perception concerned, about 73% of the people who hold greater than one hectare perceived the effect of population growth on the environment. Where as, from the people who hold less or equal to one hectare, only 26% of them perceived the effect of population growth on the environment(see table 5.1). Thus, people who hold greater than one hectare have better perception than those people who have less or equal to one hectare. People who hold greater than one hectare get their land through destruction of the forest resources and hence perceived the effect of population growth on the environment better than those who hold less or equal to one hectare.

Regarding the relationship between contact with development and family planning agents and perception, about 88% of the respondents who have contact with development and family planning agents perceived the effect of population growth on the environment. On the other hand, only 12% of the respondents who had no contact with development and family planning agents perceived the effect of population growth on the environment (see table 5.1). Thus, people who have contact with development and family planning agents have better perception of the effect of population growth on the environment than those who do not have contact with conservation and family planning agents. This is because; people who have contact with development and family planning agents get information on the effect of population growth on the

environment from the development and family planning agents and hence their perception on the effect of population growth on the environment increased.

Similar studies conducted by Abiy (2002) and Hiruy(2008) obtained that people who have contact with development and family planning agents have better perception about the effect of population growth on the environment than those people who have no contact with development and family planning agents.

4.3 Determinants of Perception of People about the Effect of Population Growth on the Environment

In this section the net effect of perception of people about the effect of population growth on the environment is explained by using logistic regression. As a result, to see the net effect of the demographic, social, and economic variables on the perception of people about the effect of population growth on the environment seven (7) variables entered in to the logistic regression. These are house hold size, age, sex, size of land holding, contact with family planning and development agents, access to mass media, and educational status.

The logistic regression in this study contains coefficients, standard error significant level, and odd ratio that show whether a particular independent variable has net effect on the dependent variable. The odd ratio tells us the probability level to perceive the effect of population growth on the environment. Thus, values of odd ratio equal to one (1) means, the independent variable has no net effect on the dependent variable, values of odd ratio greater than one (1) means, people in that group has more likely perceived the effect of population growth on the environment than the reference category, and values of odd ratio less than one (1) means, people in that group has less likely perceived the effect of population growth on the environment than the reference category.

4.3.1 The determinants of Perception of People about the Effect of Population Growth on Agricultural Land

To see the factors that affect perception of people about the effect of population growth on the agricultural land seven independent variables entered in to the model. Of these, three of them have net effect on the perception of peoples'

about the effect of population growth on the agricultural land. These are educational status of the household head, contact with family planning and conservation agents, and access to mass media.

Table 4.3.1 shows the parameters of logistic regression model estimated by regressing the independent variables such as social, economic, and demographic variables with the dependent variable (perception of people about the effect of population growth on the agricultural land)

Table 4.3.1 Results of Logistic regression for Demographic, Economic, and Social Variables that determine Perception of People about the effect of growth on the Agricultural Land

Independent variables	B	S.E	Sign.	Exp(B)
Household size				
7+(R.C)				
4-6	0.573	0.754	0.447	1.774
1-3	2.044	0.710	0.004**	7.722
Age of the Household				
15-64(RC)				
64+	-1.222	0.743	0.100	0.295
Sex of the Household				
Male (RC)				
Female	-0.092	0.562	0.056	0.981
Size of land holding				
≤1 hectare (RC)				
>1 hectare	-0.204	0.567	0.719	0.816
Contact with family planning and development agents				
No (RC)				
Yes	4.490	0.602	0.000**	9.166
Access to mass media				
No (RC)				
Yes	1.307	0.620	0.035*	3.694
Literacy status				
Literate (RC)	-	-	-	-
Illiterate	-3.232	0.590	0.000**	0.039

Source: - computed from field survey data, 2009.

RC= Reference category **= Significant at P<0.01, *= significant at P<0.05

Model fitness=81%

Household Size

As far as household size of the household is concerned, households with 4-6 household members perceived the effect population growth on the agricultural land two times the reference categories (7+). However, it is not statistically significant. Similarly, households with 1-3 household members more likely perceived the effect of population growth on the agricultural land and it is significant at ($P<0.01$).This is because; household size does not related to the owning of land in the study area, i.e. land does not shared based on the number of household members.

Age of Household head

Even though age of the household shows relationship with the perception of people about the effect of population growth on the agricultural land, it does not has net effect on the perception of people about the effect of population growth on the agricultural land similar to the findings of Van Liere and Dunlap (1908) ,(H_4-rejected). This is because; age affects perception of the people about the effect of population growth on the environment through other factors such as educational level, contact with family planning and development agents, access to mass media, and participation in social organization. That means, age affects perception of people through the combined effect the above variables.

Regarding the level of perception with the age of households, households aged 64 and above years less likely perceived the effect of population growth on agricultural land as compared to reference category (15-64 years). This is due to the fact that people aged 15-64 years are economically active population who participated in cultivation of land as means of survival. As a result, they perceived the effect of population growth on agricultural land better than those aged 64 years and above.

Sex of the Household head

Like age, sex also has no direct effect on the Perception of people about the effect of population growth on the agricultural land, unless it is substantiated by other social and economic factors such as educational levels, access to mass media, size of land holding, and contacts with family planning an development agents.

The result of the model shows that female headed households less likely perceived the effect of population growth on agricultural land as compared to male headed households. This is because; female headed households have no equal access to land with male headed households.

Similarly, the FGD organized based on sexes of the people showed that the focus group with male member male headed households explained the effect of population growth on the environment more than female headed households.

In contrast to this research finding, the finding of the study conducted by Hiruy (2008) stated that sex has net effect on the perception of the peoples' about the effect of population growth on the agricultural land. This difference exists due to difference in the study areas and difference access to land in the study areas.

Size of Land Holding

With regard to the size of land holding, people who hold less or equal to one hectare more likely perceived the effect of population growth on the agricultural land as compared to people who hold greater than one hectare (H5-rejected).

According to the FGD organized based on the land holding size of the people in the study area the focus group with members who hold less or equal to one hectare perceived the effect of population growth on the about the effect of population growth on the agricultural land better than the focus group with members who hold greater than one hectare.

Literacy Status

Education is one of the human capitals that significantly influenced perception of people about the effect of population growth on the agricultural land.

According to the result of the model, illiterate people less likely perceived the effect of population growth on the agricultural land as compared to literate peoples (H_1-accepted). This because; people awareness about the effect of population growth on the agricultural land increase with their educational level.

In addition to this model result ,the FGD organized based on the educational status of the people reveled that the focus group with educated members discussed in detail the effect of population growth on agricultural land than the focus group with non- educated members.

Similar studies conducted by Van Liere and Dunlap (1980) concluded that educational status of the people determine their level of perception about the effect of population growth on the agricultural land.

Contact with Family Planning and Development Agents

Contact with family planning and development agents affects perception of people about the effect of population growth on the agricultural land. Thus, people who have contact with family planning and development agents perceived the effect of population growth on the agricultural land 9 times those people who had no contact with family planning and development agents (H_3-accpted).

Similar studies conducted by Abiy (2002) and Hiruy(2008) concluded that Contact with family planning and development agents has positive effect on the perception of people about the effect of population growth on the agricultural land.

Access to Mass Media

Access to mass media is one to the factors that affect the level of perception of people about the effect of population growth on agricultural land. Hence, people who have exposure to mass media perceived the effect of population growth on the agricultural land 4 times those people who have no exposure to mass media (H_2-accpted). This is due to the fact that exposure to mass media increases the awareness of people about the effect of population growth on

agricultural land by providing information on the interrelationship between population and environment.

4.3.2. The determinants of Perception of People about the Effect of Population Growth on the Forest Resources

Similar to the determinates of perception of people about the effect of population growth on the agricultural land, seven independent variables entered in to the model to see the net effect of demographic, social, and economic variables on the perception of peoples' about the effect of population growth on the forest resources. Of these, only three variables are statistically significant. These are educational status, contact with family planning and development agents and access to mass media.

Table 4.3.2 Results of Logistic regression for Demographic, Economic, and Social Variables that determine Perception of People about the effect of Population Growth on the Forest Resources

Independent variables	B	S.E	Sign.	Exp(B)
Household size				
7+(R.C)				
4-6	0.035	0.600	0.954	1.035
1-3	0.741	0.531	0.163	2.099
Age of the Household				
15-64(RC)				
64+	-0.746	0.583	0.201	0.474
Sex of the Household				
Male (RC)				
Female	0.697	0.447	0.116	2.008
Size of land holding				
≤1 hectare (RC)				
>1 hectare	-0.247	0.470	0.599	0.781
Contact with family planning and conservation agents				
No (RC)				
Yes	3.278	0.427	0.000**	6.529
Access to mass media				
No (RC)				
Yes	1.324	0.650	0.040*	2.468
Literacy status				
Literate (RC)				
Illiterate	-2.718	0.453	0.000**	0.066

Source: - computed from field survey data, 2009.

RC= Reference category, Model fitness=81% **= Significant at P<0.01 *= significant at P<0.05

Table4.3.2 presents the result of logistic regression on the perception of people about the effect of population growth on the forest resources.

Household size

Household size of the responds has no net effect on the perception of people about the effect of population growth on the forest resources. Thus, household size is not statically significant. However, households with 1-3 and 4-6 household members perceived the effect of population growth on the forest resources one and two time the reference category (7+) respectively.

Age of the Household head

Though age of the household heads has association with the perception of people about the effect of population growth on the forest resources, it does not have net effect on the perception of people (H_4-rejected).

However, people who aged 64 years and above less likely perceived the effect of population growth on the forest resources as compared to the people who aged 15-64 years.

Sex of the Household head

As far as the sex of the household heads is concerned, female headed households more likely perceived the effect of population growth on the forest resources as compared to male headed households. But, it does not have net effect on perception of people about the effect of population growth on the forest resources.

Similarly, the FGD organized based on sexes of the people showed that male headed households explained the effect of population growth on the environment more than female headed households.

Size of Land holding

The size of land holding is not statistically significant with perception of people about the effect of population growth on the forest resources (H_5-rejected). However, people who hold greater than one hectare less likely perceived the effect of population growth on the forest resources as compared to people who

hold less or equal to one hectare. This is because; they get the land by deforesting the forest resources.

According to the FGD organized based on the land holding size of the people in the study area the focus group with members who hold less or equal to one hectare perceived about the effect of population growth on the forest resources better than the focus group with members who hold greater than one hectare.

Contact with Family Planning and development Agents

Contact with family planning and development agents has positive effect on the perception of people about the effect of population growth on the forest resources. Thus, contact with development and family planning agents is statistically significant with the perception of peoples' about the effect of population growth on the forest resources (H_3-accpted) similar to the findings of Abiy (2002) and Hiruy(2008).

Hence, people who have contact with family planning and development agents perceived the effect of population growth on the forest resources 7 times people who had no contact with family planning and development agents.

Access to Mass Media

Access to mass media is one of the factors that affect the level of perception of peoples' about the effect of population growth on forest resources. Hence, people who have exposure to mass media perceived the effect of population growth on the forest resources two times those people who have no exposure to mass media (H_2-accpted). This is due to the fact that exposure to mass media increases the awareness of people about the effect of population growth on the forest resources by providing information on the interrelationship between population and environment.

Literacy Status

Education is one of the important factors that have net effect on perception of peoples' about the effect of population growth on the forest resources. As a result, educational status is statistically significant with the perception of people about the effect of population growth on the forest resources (H_2-accpted). Thus, illiterate people less likely perceived the effect of population

growth on the forest resources as compared to literate people similar to the findings of Abiy (2002) and Hiruy (2008).

In addition to this model result ,the FGD organized based on the educational status of the people reveled that the focus group with educated members discussed in detail the effect of population growth on forest resources than the focus group with non- educated members.

The FGDs and the key informants also discussed on the question that says in which climatic zone there is high rate of natural resource degradation? They responded that high rate of natural resource degradation occurred in the arid climatic zone due to the fact that there is large number of migrants who settled in this climatic zone. This is because; the migrants deforested the forest resource to get fertile land that does not need fertilizer to give high production.

In general, the key informants in the study area argued that land degradation and forest resource depletion occurred due to migrants from other parts of the country at different times. As a result, the cultivated land and grazing land per households declined and the people forced to cultivate hill side which is not favorable for cultivation and further exacerbated resource degradation.

Similarly, the study conducted by Gemechu Adimasu (2008) and Dechasa, L and Piguet, F. (2004) concluded that environmental degradation in the study area is caused by the people who came to the area through migration and resettlement.

CHAPTER FIVE

Summary, Conclusions, and Recommendations

7.1. Summary

In Ethiopia population started to grow at alarming rate since 1960 due to high birth rate and declining mortality rate (Bielli, 2001). As a result of this rapid population growth, the natural resources of the countries particularly land and forest resources have been degraded. In addition to this, historical human settlement and land tenure system in the high land parts of the country are also the major causes for the environmental degradation in the country. As a result, the forest coverage of the country has been declined to 2 to 3% of the total land area of the country (Bielli, 2001).

The finding of this study shows that the study area is characterized by high population growth that caused by natural increase and in- migration of people from other parts of the country.

According the key informants and the FGDs conducted in the study area environmental degradation in the study area aggravated by the people who settle in the area either through resettlement or migration.

To implement, manage and coordinate developmental activities, harmonizing population growth with the existing natural resource is very crucial. Thus, to harmonize population growth with the existing natural resources perception of people about the effect of population growth on environment should be raised.

The study is based on household level field survey with 423 sample size. It has employed uni-variate, bi-variate, and logistic regression models for data analysis. The data were gathered through questionnaire completed by the sample households, Focus Group Discussions (FGDs), in-depth interview, and observation.

This study designed to find out the demographic, social, and economic characteristics of people that determined the perception of people about the effect of population growth on the environment.

The demographic variables included in this study have no positive effect with the perception of people about the effect of population growth on the environment. On the other hand, from social and economic variables included in this study educational status, contact with development and family planning agents, and access to mass media have positive effect with the perception of people about the effect of population growth on the environment.

7.2. Conclusion

In bi-variate analysis all demographic and economic variables have positive relationship with the perception of people about the effect of population growth on the environment. Similarly, all social variables except participation in social organization have relationship with perception of people about population growth on the environment.

From the seven independent variables entered in to the logistic regression model three of them have net effect on the perception of people about the effect of population growth on the environment. These are educational status, contact with family planning and development agents, and access to mass media.

The finding of the study shows that, about 61.5% and 57.7% of the people in the study area perceived the effect of population growth on the agricultural land and forest resources respectively.

On the basis of the findings of the study the following conclusions could be drawn.

1. The demographic variables have no net effect on the perception of people about the effect of population growth on the environment. That means, the demographic variables do not determine the perception of peoples' about the effect of population growth on the environment in the study area.
2. From the social variables included in this study, educational status and access to mass media determined the perception of people about the effect of population growth on the environment. Hence:

- ❖ Educational status of the people has direct and positive influence on enhancing the level of perception of people about the effect of population growth on the environment.
- ❖ People who have exposure to mass media have better perception about the effect of population growth on the environment.

3. From the economic variables included in this study, contact with development and family planning agents has positive effect on the perception of people about the effect of population growth on the environment. Thus, the level of perception is higher among people who have contact with development and family planning agents.

7.3. Recommendation

On the basis of the findings of this study, the following important points are forwarded for policy consideration.

1. Since environmental degradation in the country in general and study area in particular caused by past resettlement and land tenure system, the regional and the federal government should give due consideration on the resettlement process and land tenure system.
2. In order to increase participation of people in the conservation of natural resources and use them properly, organizations such as the Ministry of Agriculture and Environmental protection Authority should participate the community in planning, implementing, and monitoring environmental issues and conservation activities.
3. Educational status of people has significant effect on the perception of people about the effect of population growth on the environment. Hence, to increase the awareness of the people on the effect of population growth on the environment at lest basic education should be provided to every citizens of the country.

4. To increase awareness of people on the effect of population growth on the environment, environmental education should be one of the content of educational curriculum in the country at all educational levels.
5. Contact with development and family planning agents played a great role to increase perception of people about the effect of population growth on the environment. Thus, development and family planning agents should be assigned in every 'kebeles' and work in close contact with the communities.
6. As indicated in the discussion part of the study, females have low level of perception about the effect of population growth on the environment. This is because of the low educational level of women, lack of access to resources, low level of participation of women in the management and decision –making .Thus, to increase the perception of females the decisive role of women in managing population growth and conserving environment, and their rights to equal opportunities and responsibilities with men should be balanced by participating women in planning, implementation, and management activities.
7. The National population policies should harmonize the rate of population growth with the capacity of the country for development by reducing fertility rate and inter-regional migration and proper utilization of natural resources.

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Annex-1

Questionnaire

I. Identification Data

Woreda: _____

Kebele: _____

Household ID: _____

This questionnaire is prepared to collect data on peoples' perception about the effect of population growth on the environment. This questionnaire will help the researcher to collect people's situation and perception about the effect of population growth on the environment. Hence, you are chosen randomly to give your free opinion and your opinion and response only used for the research work.

Thank you for your cooperation in Advance!

I. Background Information on Household Composition, Activities, and Demographic Characteristics

No	Relationship to HH Head	Sex	Age	Place of Residence	Occupation	Educational status for those aged 5 years and above		Marital status	Economic status
	0. Head 1. Husband 2. Wife 3. Daughter 4. Son 5. Brother 6. Sister 7. Adopted Child 8. Parent 9. Other Relatives	1. Male 2. Female	How old are you ____ ? (in complete years)	1. Urban 2. Rural	1. Farmer 2. Trader 3. Government employee 4. Others	Can you read and write? 1. Yes 2. No	What is the highest grade you completed ?	1. Never married 2. Current Married 3. Divorced 4. Widowed 5. Separated	1. High 2. Medium 3. Low
001									
002									
003									
004									
005									
006									
007									
008									
009									
010									
011									
012									

II. Access to Land and Other Natural Resources

No	Questions	Response Categories	Skip
1	Do you have land?	1. Yes 2. No →	Skip to Q.8
2	How do you own land?	1. Privately 2. Collectively 3. Rented 4. Privately and Rented 5. Collectively and Rented 6. Others	
3	What is the total land size that you hold?	1. ≤ 1 hectare 2. > 1 hectare	
4	How do you see the total land size that you hold from past to present?	1. increasing 2. Decreasing 3. the same	
5	Compared to land needs to your household now, how do you see your present land holding?	1. More than enough 2. Just enough 3. Small 4. Too small	
6	Do you feel that you farm plots are sufficient to satisfy home consumption?	1. Yes 2. No	
7	Do you feel that your farm plots are sufficient to satisfy market supply?	1. Yes 2. No	
8	Do you have access to grazing land?	1. Yes 2. No →	Skip to Q.10
9	Is the grazing land enough to your livestock?	1. Yes 2. No	
10	What is the main source of firewood for your household?	1. Private Trees 2. Forest Land 3. Community woodland 4. Market 5. Others	
11	How do you see the distance to collect firewood from past to present?	1. increasing 2. Decreasing 3. the same	

III. Peoples' perception about the effect of population Growth on the Environment

No	Questions	Response Categories	Skip
1	Do you think that population in your localities increasing	1. Yes 2. No →	Skip to Q.3
2	What is the cause of population growth in your localities?	1. Natural increase 2. Migration and Resettlement 3. '1' and '2'	
3	Do you believe that population growth affect agricultural land?	1. Yes 2. No 3. not know	
4	Do you believe that population growth affect forest resources?	1. Yes 2. No 3. not know	
5	Do you want to limit the number of your children	1. Yes 2. No 3. not decided	

IV. Participation and Information

No	Questions	Response Categories	Skip
1	How many number of market days in your localities?	1. One 2. Two 3. more than two	
2	Do you have contact with family planning and conservation agents	1. Yes 2. No	
3	Do you participate in conservation activities?	1. Yes 2. No	
4	Do you participate in any social organization in your localities?	1. Yes 2. No →	Skip to Q.6
5	What is the type of social organization that you participate in it?	1. 'Idir' 2. 'Iqub' 3. Saving and Credit Association 4. Religious Organization	
6	Have you heard any idea about population growth?	1. Yes 2. No	
7	Do you have Radio?	1. Yes 2. No	
8	Do you have discussed about population and environmental issues in your meeting?	1. Yes 2. No	

Annex-3

Interview Guide Line

This interview guide line is prepared to understand peoples' perception about the effect of population growth on the environment. Hence, you are chosen randomly to give your free opinion on the questions and your opinion only used for the research purpose.

Thank you for your cooperation in Advance!

1. How do you see the effect of population growth on the environment particularly on land and forest resources?
2. What do you understand about environmental degradation and how it happens?
3. What are the manifestations of agricultural land degradation?
4. Is the forest land decreasing or increasing in your localities? Why?
5. In which agro-climatic zone environmental degradation is high? Why?

Annex-4

Focus Group Discussion (FGD) questions

1. Discuss the interrelationship between population and environment?
2. Discuss the major causes environmental degradation?
   a. Agricultural land degradation?
   b. Deforestation
3. Discuss the major causes of population growth in your localities?
4. In which agro-climatic zone environmental degradation is high? Why?

Declaration

The thesis is my original work, has not been presented for a degree in any other university and that all sources of material used for the thesis have been duly acknowledged.

Lemessa Abdisa		30/06/2009
Student	Signature	Date

I confirm that this thesis has been submitted with my approval as the supervisor of the same.

Feyera Senbeta		30/06/09
Advisor	Signature	Date