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ASSESSING THE CUASE OF DEFORSTATION AND ITS SOCIO-ECONOMIC IMPACT ON FARMERS LIVELIHOOD IN SHEBEL BERENTA WOREDA, EAST GOJJAM ZONE AMHARA, ETHIOPIA.

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APPROVAL SHEET

This is to certify that this thesis entitled ‘‘assessing the cause of deforestation and its socio-economic impact on farmer in shebel berenta woreda, east gojjam zone of amhara region **”** prepared under my guidance by **Ayele Mezigebe** I recommend that it be submitted as it fulfilling the thesis requirement.

Major Advisor **Bantayehu T.** (PhD) signature _____ Date _____

As a member of the Board of Examiners of the M.Sc. Thesis Open defense Examination, I certify that I have read and evaluated the Thesis prepared by **Ayele Mezigebe** and examined the candidate. I recommended that the thesis be accepted as fulfilling the thesis requirements of the Degree of the Masters in project planning and management.

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Declaration

I declare that this is my own original thesis and never presented in Debre Markos or any other university, and all sources used in the thesis have been acknowledged.

Student's Name……. Signature ……. Date……..

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ABBRIVATION

DRC	Democratic Republic of Congo
FAO	Food and agricultural organization
GDP	Gross Domestic Product
HHs	House Holds
NGOs	Non-Governmental Organization
PKT	Packet
PCS	Pieces
UNRISD	United Nations Research Institute for Social development
US	United States

ABSTRACT

The increasing demand of farmland, fuel wood and charcoal coupled with population growth has accelerated the rate of forest reduction in recent years in Ethiopia. Deforestation in Ethiopia was increasing at alarming rate and the rate of a forestation was very negligible in light of the very high rate of clearing for fuel, expanding agricultural land, for construction, urban development purposes, and also lack of awareness creation for the communities have contribution for deforestation. This study aims to explore the cause of deforestation and its socio-economic impact in the study area. Both qualitative and quantitative research design were employed in the study. Random sampling technique was applied to select the participants for in-depth interview. A total of 372 households were used for household survey. To analysis the data we used qualitative and quantities methods. The study findings indicated that the major causes of deforestation in the study area includes: agricultural expansion (56.2%), fuel wood consumption (23.6%), population growth (15.7%) and others drivers (4.5%) like land scarcity problem and informal settlement. These resulted in formation of soil erosion, loss of productivity, loss of biodiversity and also climate changes. To alleviate such problems, governments should create job opportunities for the communities in order to reduce their dependency on forests, there should be a promotion of environmental education and awareness, and the expansion of alternative energy sources, training, and fuel saving technology diffusion should be facilitated in order to reduce their dependency on fuel wood.

Key Words: Deforestation, Agricultural Expansion, Fuel Wood Consumption, Urbanization

Table of Contents

List of tables

Figure

CHAPTER ONE : INTRODUCTION

1.1 Background Of The Study

Forests play an important role in the environment like providing the basic necessities, providing habitat for the variety of wildlife species, contribute to the control and moderate climate, prevent soil erosion and flooding;

Despite the benefits obtained from forest ecosystem goods and services, the clearing of forest and deforestation have contributed to the continued decline of forest resources in Ethiopia.

According to FAO (2000), tropical forest covers 814 million ha, of which 110 million ha is located in Africa, 168 million ha in Asia and the Pacific, and 536 million ha in Latin America. However, only 25 million ha are exploited in a sustainable way and 11 million ha of tropical forests are conserved with an effective political protection. All the tropical humid forests in Africa suffer from a massive deforestation (Soury, 2007). Loss of biodiversity of tropical forests is mainly due to degradation and destruction of habitat by anthropogenic activities. Currently, it is a global problem (Sukumaran and Jeeva, 2008) because the annual rate of global deforestation is about 13 million hectares, most of which occurs in the developing world. Forest loss in Africa is particularly troubling, however, two-thirds of the continent's population depends on forest resources for income and food and 90% of Africans use fuel wood and charcoal as sources of energy. Despite, or perhaps because of this dependence on forest resources and non-timber forest products, deforestation in Africa is estimated at about 3.4 million hectares/year (CIFOR, 2005; FAO, 2010). However, most of these species have been vulnerable to different factors that led to the devastation of natural forest resources and diminishing of the forest cover. In relation to the causes of deforestation in Ethiopia, several factors have been mentioned. According to Tadesse and Demel (2001), deforestation usually followed human resettlement patterns.

In sub-Sahara Africa, majority of the population derives its livelihood from agriculture. Smallholder agriculture accounts for 75% of agricultural production of which the majority constitutes of rain fed farming. Drought is Africa's principal form of natural disaster which often affects rain fed agriculture dramatically. The impact of population growth in rural areas is pushing communities into unsustainable farming practices such as burning and razing of tropical forests in order to plant crops, planting in steep slopes, moving into fragile marginal eco-system, over cropping and over grazing and subsequent depletion of fragile arable land and over-utilization of ground water resources. It has been estimated that a sixth of the world's land area, nearly 2 billion hectares, is now degraded as a result of overgrazing and poor farming practices. Water resources for agricultural purposes are getting scarce, and there are hardly any land reserves to be brought into production to widen the agricultural base. By 2025, close to three billion people in 48 countries will be affected by critical water shortage for all or

part of the year. Gebremarkos and Deribe (2005) pointed out that, lack of proper forest management and utilization, land tenure policy, lack of compatible forest proclamation and other legislations, and extensions of cultivation to marginal lands were indicated as major causes of deforestation. According to Demel et al. (2003), the underlying causes of deforestation are, closely linked with the vicious cycle of mutually reinforcing factors that means poverty, population growth, poor economic growth and the state of the environment. With regard to the effects of deforestation, Legesse (2003) argued that the decimation of natural forests results in the loss of a large number of forest products, drought, flooding, interrupts water flow, declines in land productivity and exacerbates misery and poverty of the rural people. Moreover, as illustrated in Ermias (2003), in Amhara regions alone, about 2 to 3.5 billion tons of fertile top soil is washed away per annum and deposited into rivers. Demel et al. (2003) argued that the reduction of vegetation cover and the associated negative impact on land, threaten ecosystems, flora and fauna by depleting genetic resources as well as loss in biodiversity. Considering the longitudinal profile of deforestation in Ethiopia, it should be clear at the outset that there have been no reliable records on the extents of the country's forest prior to recent times (Yigremew, 2001). Mooney, the modern forestry expert, as noted by Pankhurst (1992), has argued that Ethiopia was densely wooded in ancient and not so remote times. But, it appears that there is no way of establishing how much of the country was actually forested, or at precisely what period and at what rate deforestation was occurred (Pankhurst, 1992). However many authors, based on existing indigenous remnant forests available in portions of the country and ecological settings, have tried to reconstruct the forest cover in remote and recent pasts. The various estimate made by different authors show that once in the remote past, about 30-48% of the country and as much as 87% of the highlands, were covered by forests vegetation (Yigremew, 2001). According to Tewolde (1996), most of the high lands had been deforested at least by the 16th century, and probably as early as the 16th century. Towards the beginning of the 1900s, however, the forest cover of the country was estimated at 40% of the area of Ethiopia. Depletion of forests had been 6-20% in 1950-1960, and had accelerated since the late 1960 and early 1970, the rate in this period, was estimated in the range of 2-6%. The acceleration of forest degradation in this particular period, according to Edessa (1993), was due to changes in climate of the country. On the other hand, Dessalegn (1996) largely attributes it to change in government and land use policy.

In the previous years, the Gamo-Gofa people used to protect remnant forests for varieties uses such as: traditional assembly places, production of household equipment's, energy sources and others. The Gamo people are bound intimately with the land and land resources, which frequently contributes to environmental disruption and thereby maintaining an overall ecological equilibrium.

The distribution of the land use in shebel berenta Woreda has been changing greatly over time because of subsequent cultivation after deforestation due to high population and economic pressures, and infrastructure and irrigation development (Tuma, 2007). Currently, a small part of the border area near Lake Abaya is covered with forest, whereas the highland that was once covered by forest is now deforested. In the escarpment between lowland catchments and highland areas, the scattered trees were also disappearing from those places. However, nowadays these important traditions which are tourist attraction sites and sources of country economy have been changed in other land use system Thus, this study attempts to assess the perception of local community to the impact of deforestation. The current research was to explore local community perception towards deforestation and decreased income, thereby livelihood. Specifically, it attempted to determine the impacts of deforestation on the livelihood of the community. The identification of the perception of local community towards deforestation and the local knowledge and their roles in forest management activities were also key specific objectives of the study.

The mean monthly temperature is 23.9°C varying between 22.7 (July) to 25.7°C (March). Rainfall distribution in the study area is bimodal with a long rainy season from the beginning of March to the end of May with maximum rainfall around the month of April (228 mm), and a short rainy season from mid-August to mid-October. The minimum rainfall is recorded in January (18 mm) (FAO, 2010). The 25 years maximum average temperature trends of the study area were displayed (1987-1999 and 2000-2011), average maximum temperature difference in the years were 30.3 and 30.6°C, respectively (Table 1 and Figure 2). The minimum temperature trends showed variation before and after 1996.

The land use land cover is combined with open space and readily available pasture, means that high agricultural yields and livestock production are possible. Most of the people in the area use traditional system of crop production. This includes, ploughing with oxen and with traditional hand tools in areas of steep slopes like suha kebele. This was also one factor for the rapid destruction of forest resources which was followed by population growth of the area (Defaru, 2006). Varieties of food crops and fruits are grown: Maize is the primary food crop followed by sorghum, teff and barely, respectively. Livestock production, including the fattening of oxen, is another important income source. Much of the Woreda land was under settlement, hilly areas and gorge escarpments

Deforestation is one of the major environmental issues not only in directly affected countries, but also from global perspective, the degree of international attention to deforestation is commensurate with the role of forests in the global, national and local ecosystems.

1.2 Statement Of The Problem

The most severe environmental problems in least developed countries are found in rural areas where most of the people live (Hailstorm, K &Hailstorm, C., 2003**)**. The agricultural sector in Ethiopia accounts for over 50% of the GDP and provides livelihood for over 80% of the population. Agricultural development in Ethiopia is hampered by many factors among which deforestation is the major one. Forests and the benefits they provide in the form of food, income and watershed protection have an important and often critical role in enabling people around the area to secure a stable and adequate food supply.

The full implication of the loss or deterioration of forest for humankind as well as other life is not known. What is known, however, is the loss of forest resource can lead to diminished income, and food-generating capacity for forest dependent communities, higher rates of soil and siltation of water ways, loss of species and genetic diversity and an increase in carbon emission, which, contribute to global warming (FAO, 2003).

The consequence of the disappearances of different plants and animals and low productivity considerably affect the attempt to achieve food security. These problems have greatly necessitated putting an increased effort for conservation measures that could after the deteriorating forest condition and the environment (FAO, 2005).

Deforestation reduces biological diversity and increases soil erosion and the siltation of rivers and streams and can endanger hydroelectric dams, agricultural irrigation systems, and other technological and economic facilities. The environmental functions and services of the forest ecosystem are reduced or even lost, depending on the extent of deforestation (Sponsel*et al*., 1996).

Data from Woreda Agricultural Office show that Shebel Berenta is a highly practice deforestation, and loss of soil quality, soil erosion, over-population and the resulting over cultivation area. No study has been conducted in the study area about the cause of deforestation and socio economic impact of deforestation . Therefore, this study is designed to assess the cause of deforestation and socio economic impact of deforestation , in shebel berenta woreda.

Research Questions

- ✓ What are the main causes of deforestation?
- ✓ What are the main impacts of deforestation on socio-economy?
- ✓ What are the consequence and the current status of deforestation?

1.3 Objectives Of The Study

1.3.1 General objective of the study

The general objective of the study will be to assess the cause of deforestation and its socio-economic impact on farmer in the case of the study area.

1.3.2 Specific objectives of the study

The specific objectives of the study are:-

- ✓ To identify the main causes of deforestation in the study area
- ✓ To explain the impact of deforestation on socio-economy

1.4 Scope of the study.

The study will be conducted in shebel berenta wereda, East Gojjam Zone in Amhara region focus on assessing the cause of deforestation and its socio- economic impact on farmer in shebel berenta woreda. It is known that different causes of deforestation such as Agricultural Expansion, Fuel Wood Collection; Settlement; Population Growth and Land Scarcity which are considered major areas that best serve the interpretation, discussions and analysis of the research study.

Several limitations were faced during conducting this study. First, there is no baseline data .The second limitation of the study was different institutional arrangements were not well organized and would not functional in order to support and to give out the data. additionally, lower of data(documentation) availability from woreda up to kebele level and the cuurent conditions of woreda work environment and woreda security aspect with continuous conflict and wars were the limitation of the study.

1.5 Significant of the Study

After its accomplishment, this study/ research will have the following importance:

the study will help to other researchers as guide for further research to conduct on related areas.

it will provide full understanding about the cause of deforestation and its socio- economic impact on farmer in the case of the study area.

1.6 Limitation of the Study

This research could be applied every were which can use the following infrastructure and socioeconomic issues. For example this research could be applied within the society that could do deforestation for fuel wood utilization….In addition to financial and time limitations, the study is constrained by the following limitations: Poor communication between the student and the respondent, Lack of organized secondary data due to the absence of documentation and organized database system in the study area, Absence of officials and some experts from office during data collection

1.7 Organization Of The study

This thesis have five chapters. The first chapter highlights introduction, provides background information, mentions objectives, research problems & research questions, scope of the research. In the second chapter, related theoretical literature and empirical study are reviewed. The third chapter is about research methodology focusing on the design and the source, population, collection procedures & analysis method of data used. The fourth chapter of the study deals with the results revealed and thoroughly discusses the findings of the research while the fifth chapter is dedicated to the summary, conclusion and recommendation part of the study where the major concepts are summarized, conclusions are drawn and researcher's recommendations based on the findings are made.

2. CHAPTER TWO : LITERATURE REVIEW

2.1 Overviewing theories of deforestation

Deforestation is a multi-sectoral issue, stimulating ever-growing researches. Empirical studies have been explored and examined to explain how deforestation has occurred, what factors affecting it and what policy can be suggested to address this issue. Deforestation has also thought-provoking theoretical studies, focusing on how complexity of deforestation can be explainedand to what extent deforestation will be. Understanding theory is a fundamental and substantial in figuring out an issue. This section will discuss over some grand theories of deforestation. For each, the discussion will cover their original conception, basic notion/idea and policy derivation, including empirical studies utilizing or framed with those theories.

2..1.1 Environmental Kuznets Curve (EKC) for deforestation theory

Among various proximate and underlying factors of deforestation, as outlined in the previous section, income or economic growth has been paid substantial attention. Originally adopted from economics field proposed by Kuznets (1955) who correlates between income and equality (the Kuznets Curve), environmental economists have developed EKC to investigate income effect on environmental degradation.

Afterwards, EKC has been applied in forestry sector, known as the EKC for deforestation, hypothesizing the similar notion of EKC. Theoretically, the concept of the ECK for deforestation was discussed by López (1994). As economic or income growth rising, deforestation will be declined when the stock effects of forest resource on agricultural production are internalized.

According to this concept, deforestation is a function of income or economic growth forming an inverted U-shaped curve. In the early phase of development when level of income or GDP growth is relatively low, increasing income per capita will accelerate deforestation rate until a certain turning point. During this early stage, deforestation is probably one of negative consequences of development. Then, as income rising, the rate of deforestation will decline. Increasing income would incentivize people to improve their forest resources and environmental quality.

Since EKC for deforestation has been theoretically conceptualized, many empirical studies have been carried out at various levels. Before 1990s, there is one study (Allen & Barnes, 1985) relating to economic growth and deforestation. However, their approach is a linear model by utilizing FAO data 1968-1978 found that GDP per capita is insignificantly correlated with total change of forests. Some empirical studies of EKC for deforestation are well-acknowledged, such as (Antle & Heidebrink, 1995; Bhattarai & Hammig, 2001; Cropper & Griffiths, 1994; Culas, 2007; Munasinghe, 1999; Panayotou, 1993; Shafik, 1994; Stern etal., 1996).

However, the existence of EKC for deforestation is mixed, ranging from no significant correlation (Antle & Heidebrink, 1995; Shafik, 1994; Uusivuori et al., 2002) to significant existence for a specific area - Latin America and Africa (Bhattarai & Hammig, 2001; Cropper & Griffiths, 1994; Culas, 2007). Moreover, in some empirical studies, scholars recognize other forms than an inverted U-shaped curve, such as a U-shaped curve for Asia case (Bhattarai & Hammig, 2001; Culas, 2007) or N-shaped curve (Bhattarai & Hammig, 2001). Possible explanation for the U-shaped curve is the progress of reforestation/afforestation program Recently, EKC for deforestation still motivates many researches. A cross-country study by Ceddia et al. (2013) using FAO data 1970-2006 found the significance of income effect on deforestation. A time-series single country analysis by Esmaeili &

Nasrnia (2014) reveals the existence of an inverted U-shaped curve with the turning point USD 24,555/capita for the case of Iran. A criticizing article is discussed by Mills Busa (2013) arguing that the existence of EKC for deforestation should be credited to the developed countries in which their imports drive deforestation in poorer countries. However, the author posits that the curve is still useful to see the progress of the conservation program in the developed countries. Finally, another interesting result from one of empirical studies found that deforestation have taken place at an earlier stage of development than heavy industrialization (Panayotou, 1993). This conclusion is drawn from the fact that the turning point of deforestation is relatively much less than other pollutants.

EKC for deforestation is about the link between development and environment. Based on this theory, there is trade-off between economy and environment during the development stage. In this context, seeking the win-win solution (Munasinghe, 1999) is the main motivation of the EKC study. It is so crucial for developing countries to take lessons learned from developed countries experiencing some environmental damages during their early development phases. Such studies could encourage developing countries in restructuring their development programs towards a more sustainable

development path without sacrificing economic goals. In sum, the EKC "… could help the developing countries to avoid higher amount of per capita income for the turning points, and thereby reduce the environmental degradation in the development path …" (Culas, 2007).

General and basic policy implication developed in this theory is how to flatten and/or how shift the curve so that the turning point can be met at less per capita income and/or at lower level of deforestation, respectively (Motel et al., 2009). Some suggestions are proposed by some scholars, including securing/defining clear property rights (Motel et al., 2009; Panayotou, 1993), improving governance quality and political institutions (Bhattarai & Hammig, 2001; Dasgupta et al., 2006; Motel et al., 2009), and promoting/ strengthening environmental regulation and standard (Munasinghe, 1999; Panayotou, 1993). However, some important notes should be kept in mind that: i) income or economic growth is not a panacea for environmental issue; economic policy and environmental policy is not substituted one and another (Arrow et al., 1995), and ii) irreversible impacts of environmental degradation, for example loss of biodiversity because of deforestation, must be fully taken into account; consequently, it is very substantial to recognize a certain critical threshold of the development process (Bhattarai & Hammig, 2001).

2.1.2 Forest transition theory

The dynamics of forest cover is also captured in time dimension, theorized as the forest transition theory. This theory was introduced by A. S. Mather (1992). Originally, he developed this idea based on a basic sequence of natural resource destruction and conservation or the depletion-melioration model proposed by Whitaker (1940) and Friedrich (1904 *in* Whitaker, 1940). This model argues that, at an early stage, natural resource destruction is inevitable to meet the human needs. Rising demand and price of natural resources will incentivize people to conserve and to restore their natural resources.

Then, foresters apply and develop further that idea in the context of deforestation. Forest transition theory focuses more on the temporal changing of forest cover or a change in forest cover trend over time (Lambin & Meyfroidt, 2010). The notion of this theory is to investigate "… the transition point at the time of the lowest forest cover in a given region …" (Mather, 1992). Other simple understanding of this concept are: the change in forest cover from shrinking to expanding forest areas (Mather, 1992) or shifting from deforestation to reforestation (Lambin & Meyfroidt, 2010; Mather & Needle, 1998). Transition happens when declining forest cover trend reverse into increasing forest cover trend. Angelsen (2009) further describes the forest transition in the sequence as provided in Figure 4. After the stage when forest cover is still high and deforestation rate is low, as the development taking place, then forest cover and deforestation rate are low due to scarcity of forest. At

the end, an increasing forest rent could stimulate the transition by incentivizing forest plantation or reforestation/afforestation.

Forest transition is generally considered taking place in one cycle of transition, from high forest cover to the lowest point of the forest cover, then increasing of forest cover. So, this U-shaped curve model basically consists of two trends or periods: forest decline and forest recovery (Grainger, 1995), usually in the form of U-shaped or a reverse J-shaped curve (Perz, 2007). For most countries, decreasing forest cover is an inevitable effect of their development processes. At early stage of development, an increasing population and demand of food will bring a significant pressure for forest land because of agricultural land expansion. Then, as countries develop further, an increasing demand for forest products and services will incentivize the process of reforestation.

By examining the pattern of forest transition from different countries and regions, Barbier et al. (2010) reveal that there is delay time from declining to increasing trend of forest cover (see Figure 5.b). In other word, forest transition may take place in two phases Aforementioned authors argue that delaying reforestation occurs when people still keep utilizing logged-over forest marginal land for farming, especially in the case of agricultural subsistence. In the context of commercial purposes, tree planting on marginal land may be delayed because of the delay of market signal. Moreover, a recent study finds a more complex pattern in which forest transition may exhibit in multiple transition phases (Yeo & Huang, 2013). This study argues that policy plays an important role in the forest cover transition of Mississippi.

In the context of forest transition theory, to explain the transition of forest cover, scholars deepen the analysis not only on what factors involve, but also on how those factors form the pattern of transition. Followings items present various paths by which

forest transition may occur.

i) *Forest scarcity path*. Under this mechanism, forest transition theory is driven by underlying factors from outside forestry sectors. After forest resources are extracted to meet human needs, scarcer forest will induce higher price of forest products, including amenity, environmental and aesthetic values of forests. Forest sector will respond to this market incentive through reforestation or afforestation. Still categorized under this path is *the tree-based land use intensification path*, when the driving force, market incentive, motivates people to plant high-yield tree crops, such as fruit, agro forestry, garden and so forth (Rudel et al., 2005).

ii) *Economic development path*. After extracting forest resources for development, generally, economic development generates off-farm opportunity jobs that, in turns, will attract rural people off of their land-based economic activities (Rudel et al.,2005). Rural labor scarcity will induce reforestation or land conversion from agriculture into forestland uses. Furthermore, development could also develop better

agricultural technology and agricultural intensification. This circumstance will push agricultural activities limited in the most suitable area; and then reforestation may have more land to take place. Concentration agricultural activities only in marginal land can be possible as the consequences of higher agricultural input prices and/or lower agricultural output prices.

iii) *State forest policy path*. Government plays a crucial role in changing land use cover. Since the government owns most forests, government has a strong political authority and policy to promote and/or de-promote forest cover. Some policies encouraging forest cover could be related to tourism promotion and greening country image. Reforestation and afforestation programs in many countries should be accredited for the government political will as well. Yeo & Huang (2013) recognize a new path, *the forest management policy path*, when the government play an important part in stirring forest transition. However, their idea seems similar with *the state forest policy path*.

iv) *Globalization path*. Global integration of the national economy and markets (commodities, labor, capital, tourism and idea) is another mechanism how forest cover is transformed over time. Four main processes are identified in this pathway: neo-liberal economic reforms, labor out-migration, local manifestation of conservation ideologies, and growing tourism. Globalization makes possible rural areas to export their forest products for global markets. Poor people migrating from rural to urban leave more marginal land to be converted into forest (Mather, 2007). Conversely, from-city-to-rural migration by wealthier people raises demands for aesthetic and environmental services provided by forests in rural areas. Global integration enables international organizations to disseminate environmental efforts and ideas globally.

Several recent studies apply forest transition theory to analyze land use or forest cover changes in different scales. At sub national level, Yeo & Huang (2013) explores a long-term pattern of forest transition in Mississippi and finds the presence of a repeated cycle of forest transition in this area. At national level, this approach is a focus of some studies, including Hostert et al. (2011) and Bae et al. (2012). The former study was conducted for the Soviet context, which experiences two different disturbances political change and nuclear hazard. The authors find that effects of socio-politic-economic disturbances (political change) are tremendously as significant as the disturbance of technology (nuclear hazard). By analyzing the case of the development of urban forest in South Korea, a high economic growth country, the latter study finds that government policy can play an important role to transform land cover towards a higher forest cover. At regional level, a study by Munteanu et al. (2014) show how the shifts of socio-demographic and institutional factors can drive the pattern of forest transition in Carpathian region (Eastern and Central Europe). In the global level, by exploring across country data during 1990-2010, Köthke et al. (2013) confirm that global forest transition has been taking place at global level, finding a uniform pattern of forest decline.

For the sake of academic field, forest transition approach is able to explain the extent of two important issues, forest cover and deforestation, over time. Another prominent position of this theory is that it can be associated with other explanatory variables.

Accordingly, policy makers are able to derive some policy alternatives from this theory. Generally, two principal policy directions can be derived, which are policies to halt deforestation and policies to accelerate the transition towards increasing forest cover (Lambin & Meyfroidt, 2010). In doing so, some policies can be exercised which are implicitly embedded in each pathway, as discussed above. Nevertheless, in the field, effective way of promoting forest cover will highly be depend on the competition of values among different land uses (Barbier et al., 2010).

2.1.3 Land rent theory for deforestation

The land rent approach for deforestation is deeply rooted from the land value framework developed by von Thunen in 1826. The core idea of this spatial economic theory of land use is that a piece of land should be allocated to the use that would generate the highest potential rent (Chomitz & Gray, 1996; von Amsberg, 1994). Spatially, distance or transportation cost has important position in this land use competition. In summary, by assuming profit maximization motivation, competition among land uses will be determined by which land use that yields the highest land rent/value. In Figure 5, for example, among three competing land uses, forest is most suited in Zone C, *ceteris paribus*.

Adopting this theory for the forestry sector, some scholars developed its theoretical explanation (Chomitz & Gray, 1996; Schneider, 1995; Walker, 2004). However, we should note a working paper by von Amsberg (1994) who already considers von Thunen model for his forestry research. The key to explaining changes in land uses and land cover is changes in land rent of different uses (Angelsen, 2007; Hyde et al., 1996). Particularly, forest could be conserved when land use for forest can generate the maximum value compared to other possible land uses. On the other side, reforestation could be encouraged in a given land if its land use for being reforested can compete with other land uses. In the case of competition between agriculture and forest land uses as described in Figure 6, forest land use will start to take place in the location (dotted line) where land rent of forest is higher than that of agriculture.

Generally, land rent could refer to rents, profits, or utility (Walker, 2004). This value can be seen in a dynamic perspective.Taking an example of the land competition between agricultural and forest land uses, land rents for agricultural use or forest use may change. Shifts of agricultural land rent might be attributed to changes in agricultural output prices, agricultural input price, agro-ecological condition, agricultural technology, labor wages, or transportation cost. While, forest land rent might be altered due

to changes in forest product price, forest technology, or economic incentive introduction (Angelsen, 2007). The latter variable, economic compensation mechanism in the forest sector, is the most recent discussion in climate change negotiation that is REDD+ (reducing emissions from deforestation and forest degradation). In this notion, economic compensation can work to change the land rent inducing land use change for a favorable purpose. In the context of reducing deforestation, REDD+ is a proposed economic mechanism to compensate landholder to conserve their forest or to incentivize them to reforest their land. Shortly, it is the opportunity costs of forgone economic benefits from other alternative land uses to avoid deforestation (Ahrends et al., 2010).

The land rent theory provides a basic explanation on how land uses changes spatially (Angelsen, 2007). This theory allows scholars to investigate how the landscape is determined by location. Furthermore, under this theory, to what extent the spatial pattern of forest exploitation will be (Ahrends et al., 2010) can be examined. For decision makers, the main policy implication under this approach is to change the composition of land rent in such a way that forest areas can be protected and/or reforestation can be feasibly promoted.

Currently, the land rent theory has gained interests of several studies. Distance (to Trans-Amazon Highway) plays an important role for smallholders in the Amazon Basin in land allocation decision (Caldas et al., 2007), which is proven by a negative sign of deforestation in the distance. With regard to the relationship between distance to the capital and forest loss, similar finding is found in Tanzania case (Ahrends et al., 2010) and Indonesia case (Busch et al., 2012). In Costa Rica, Robalino & Pfaff (2013) reveal that such payment for environmental service mechanism can potentially avoid deforestation approximately 1 percent per year. Similar mechanism is the interest of Barua et al. (2012) finding that, by combining it with taxation of cash-crop and forestry income, carbon payment can be an effective way to prevent forest clearing in Paraguay. Currently, REDD+ as an economic compensation has also been studied, including studies by (Busch et al., 2012; Gaveau et al., 2009). Not only for developing country context, the land rent concept is also used in the case of deforestation and urbanization in developed countries, such as South Korea (Cho et al., 2014).

2.2 Deforestation in Global Context

The causes of ongoing global deforestation and degradation are commonly attributed to a number of factors, including in particular agricultural expansion, wood extraction (including logging) and infrastructure redevelopment (FAO, 2005). At the global level, agricultural expansion including large-scale commercial activities such as palm oil production, soy production and cattle ranching, have been the major causes of deforestation. These activities have been particularly prominent in countries such as Brazil and Indonesia; they are now increasingly expanding into lower income countries. For instance, 3

million hectares in Democratic Republic of Congo (DRC) was recently given a Chinese company for oil palm plantation (Laporte, 2007).

Small holder agricultural expansion is a further cause of deforestation, although the extent of this remains controversial, especially in terms of the role of cyclical cultivation systems. In an often quoted meta-analysis of 152 sub-national case studies,(Geist and Lambin, 2002) concluded that, while shifting cultivation certainly played a role, it had been exaggerated as the sole direct driver of deforestation. Their study further questioned the role of population growth as a driver of deforestation except in terms of population dynamics, such as in-migration in connection with forest colonization (Kanninen, 2007). Instead, that pointed out the need to consider such factors as a long side several other local causes of deforestation, which are in turn, related to widely indirect economic and institutional drivers. Logging as a cause of deforestation refers to clear-cut or selective logging forest trees. This may be caused by both legal and illegal practices. World Bank data from 2006 found that illegal logging constituted as much as 80-90% of total forest production in some countries, and further indicated that illegal logging cuts across tropical countries, regardless of levels of economic development (World Bank, 2006).

2.3 Deforestation in Ethiopia

Deforestation is caused by what human beings do to the forests and can be accentuated by drought. Generally deforestation occurs when people clear forest for their personal need such as, for fuel, hunting, when they need the land to grow and harvest crops, for building houses, and at times because of religion beliefs (Sucoff, 2003).

Ethiopia is a country in Eastern Africa. It has the second largest population in Africa and has been familiar to drought and famine due to shortage of rain, and a depletion of natural resources (Haileselassie, 2004). The ever growing population is increasing forest degradation which is leading the country to famine. As the population continue to grow the needs of the people increase. The country has lost 98% of its forested regions in the last 50 years (Parry, 2003).

Forests in Ethiopia play a big role in protecting erosion, because if there are more trees the water wouldn't be able to wash away the soil.

2.4 Empirical literature review

According to John Wajim (2020) Deforestation enables the earth soil to run off into sources of water supply due to the absence of tree roots to absorb water thereby causing water pollution. Absence of tree roots further deprives the soil of important nutrients necessary for the growth of new vegetation. Through deforestation, more carbons are released into the atmosphere, climatic changes take place and soil is exposed to rainfalls thus promoting erosions. These are not without serious health implications.

The trade of wood products is an obvious source of substantial income for national and local governments as well as traditional rulers and individuals. This often comes in the form of export earnings, taxes, royalties and personal income for those engaged either directly or indirectly in the exploitation of these forest products. Secondary sources of data collection were used for this paper. Amongst other recommendations, it is recommended that Corrupt government officials in charge of forestry laws and policies should be prosecuted together with illegal loggers, environmental education should be accorded to the general public on the dire consequences of deforestation on people and the society at large, skills acquisition program should be organized for rural women dwellers and the uneducated youths in order to curtail the rate of deforestation.

According to Tombari Bodo**,**Batombari Gbidum Gimah**,**Kemetonye Joy Seomoni **(2021)** Deforestation leads to habitat loss while preservation and conservation of the natural forest increase biological diversity. Multiple factors have been reported to be responsible for deforestation and habitat loss, which could either be of human or natural origin. Natural causes of deforestation could be as a result of forest fires, droughts, exotic animals, floods, overpopulation of foreign animals and climate change. That notwithstanding, human activities are among the principal causes of global deforestation and habitat loss with agricultural expansion, cattle breeding, timber extraction, mining, oil extraction, dam construction and infrastructure development as some examples of these human influences. This study identifies agricultural activities and urbanization as the chief causes of human induced deforestation and habitat loss on a large scale. The simple and more practicable approach to curb the already alarming effects of deforestation and habitat loss is through *environmental education* of everyone still surviving on our planet. Environmental education is the key to reversing continuous and deliberate human actions through the protection of every natural forest and forestation where necessary.

According to Muhammad Tariq(2015) people are dependent on these forests and contribute to deforestation in one of different ways. The study shows that the extensive deforestation in Khyber Pukhtunkhwa occurred for household needs such as cooking, furniture, heating, earning etc. Another growing cause is the role of black marketing and stake holders on these forests. Meanwhile the ineffective management and ignorance of the forest department is one of the major contributing factors in deforestation. In addition to this, the nonscientific grazing is a key point

in the deforestation. Unemployment and poverty is another attractive factor in the degradation of these forests. The most adverse impacts of deforestation in Pakistan are flooding, climatic changes, land sliding, land degradation, soil erosion and desertification. The underlying causes of deforestation in

Pakistan need the attention of government authority to resolve these causes, implementing strong rules regulations in order to mitigate the adverse impacts of deforestation and save this ecosystem.

Deforestation problem cannot be exhausted by a pervious researches; thus every research is this area has their own gap. For instance, deforestation and habitat loss in this study is viewed to be the consequences of negative human actions. Some other schools of thought have asserted that deforestation is actually a profitable activity, that is, socially, economically and even environmental wise. Now Deforestation is increasing at alarming rate and the rate of afforestation was very negligible in light of the very high rate of clearing for fuel, expanding agricultural land, and also lack of awareness creation for the communities have contribution for deforestation. This study aims to explore the cause of deforestation and its socio-economic impact in the study area.

2.5 cause of Deforestation

As Myers pointed out, "we still have half of all tropical forests that ever existed" (Myers, 1992). The struggle to save the world's rainforests and other forests continues and there is a growing worldwide concern about the issue. In order to save forests, we need to know why they are being destroyed. Distinguishing between the agents of deforestation and its causes is very important in order to understand the major determinants of deforestation. The agents of deforestation are those slash and burn farmers, commercial farmers, ranchers, loggers, firewood collectors, infra-structure developers and others who are cutting down the forests. Causes of deforestation are the forces that motivate the agents to clear the forests. However, most of the existing literature typically distinguishes between two levels of specific factors: direct and indirect causes of deforestation. Direct agents and causes of deforestation, also typically referred to as sources of deforestation, first level or proximate causes (Panayotou, 1990; Barbier *et al*., 1994; Caviglia, 1999) are relatively easy to identify but the indirect causes which are usually the main divers of deforestation are the ones that cause most disagreement and the ones that are hardest to quantify (Bhatnagar, 1991; Mather, 1991; Humphreys, 2006; Sands, R. 2005). Similarly, Pearce and Brown (1994) identified two main forces affecting deforestation.

They are:

- Competition between humans and other species for the remaining ecological niches on land and in coastal regions. This factor is substantially demonstrated by the conversion of forest land to other uses such as agriculture, infrastructure, urban development, industry and others. Failure in the working of the economic systems to reflect the true value of the environment. Basically, many of the functions of tropical forests are not marketed and as such are ignored in decision making. Additionally, decisions to convert tropical forests are themselves encouraged by fiscal and other incentives. The former can be regarded as the direct and latter as indirect cause of deforestation

2.5.1 Direct causes

Expansion of farming land

About 60 per cent of the clearing of tropical moist forests is for agricultural settlement (Myers, 1994; Anon., 1991) with logging and other reasons like roads, urbanization and Fuelwood accounting for the rest (Anon., 1994b). Tropical forests are one of the last frontiers in the search for subsistence land for the most vulnerable people worldwide (Myers, 1992). Millions of people live on the tropical forest with less than a dollar a day where a third of a billion are estimated to be foreign settlers. However, as the land degrades people are forced to migrate, exploring new forest frontiers increasing deforestation (Wilkie *et al*., 2000; Amor,

2008; Amor and Pfaff, 2008). Deforestation is proxied by the expansion of agricultural land. This is because agricultural land expansion is generally viewed as the main source of deforestation contributing around 60 per cent of total tropical deforestation. Shifting agriculture also called slash and burn agriculture is the clearing of forested land for raising or growing the crops until the soil is exhausted of nutrients and/or the site is overtaken by weeds and then moving on to clear more forest. It is been often reported as the main agent of deforestation. Smallholder production in deforestation and the growing number of such producers notably shifting cultivators were the main cause of deforestation (Anon., 1990b; c; Dick, 1991; Anon., 1992a; b; Barbier *et al*., 1993; Ascher, 1993; Dove, 1993; 1996; Dauvergne, 1994; Porter, 1994; Thiele, 1994; Anon., 1994c; Angelsen, 1995; Ross, 1996). Mostly all reports indicate shifting agriculture as responsible for about one half of tropical deforestation and some put it up to two-thirds. Shifting agriculture was greatest in Asia (about 30 per cent) but only about 15 per cent over the whole tropical world. It appears that the proportion of direct conversion of forest to agriculture is increasing and the proportion of shifting agriculture is decreasing with time.

- **Overgrazing** is more common in drier areas of the tropics where pastures degraded by overgrazing are subject to soil erosion. Stripping trees to provide fodder for grazing animals can also be a problem in some dry areas of the tropics but is probably not a major cause of deforestation. Clear cutting and overgrazing have turned large areas of Qinghai province in China into a desert. Overgrazing are causing large areas of grasslands north of Beijing and in Inner Mongolia and Qinghai province to turn into a desert. One man who lived in a village on the eastern edge of the Qinghai-Tibet plateau that was being swallowed up by sand told the New York Times, "The pasture here used to be so green and rich. But now the grass is disappearing

and the sand is coming." Huge flocks of sheep and goats strip the land of vegetation. In Xillinggol Prefecture in Inner Mongolia, for example, the livestock population increased from 2 million in 1977 to 18 million in 2000, turning one third of the grassland area to desert. Unless something is done the entire prefecture could be uninhabitable by 2020. Overgrazing is exacerbated by sociological phenomena called "the tragedy of the common." People share land but raises animals for themselves and try to enrich them by rising as many as they can. This leads to more animals than the land can support. Grassland in Qinghai that can support 3.7 million sheep had 5.5 million sheep in 1997. Animals remove the vegetation and winds finished the job by blowing away the top soil, transforming grasslands into desert. When a herder was asked why he was grazing goats next to a sign that said "Protect vegetation, no grazing," he said, "The lands are too infertile to grow crops—herding is the only way for us to survive." (Hays, 2008 web page).

- **Fires** are a major tool used in clearing the forest for shifting and permanent agriculture and for developing pastures. Fire is a good servant but has a poor master. Fire used responsibly can be a valuable tool in agricultural and forest management but if abused it can be a significant cause of deforestation (Repetto, 1988; Rowe *et al*., 1992). Based on the data available from 118 countries representing 65 per cent of the global forest area, an average of 19.8 million hectares or one per cent of all forests were reported to be significantly affected each year by forest fires (Anon., 2010). Deforestation due to road pavements in Brazil had also lead to higher incidences of forest fires (Carvalho *et al*., 2001; Nepstad *et al*., 2001).
- **Urbanization/industrialization and infra-structure**

Expanding cities and towns require land to establish the infrastructures necessary to support growing population which is done by clearing the forests (Mather, 1991; Sands, 2005). Tropical forests are a major target of infra-structure developments for oil exploitation, logging concessions or hydropower dam construction which inevitably conveys the expansion of the road network and the construction of roads in pristine areas (Kaimowitz and Angelsen, 1998). The construction of roads, railways, bridges, and airports opens up the land to development and brings increasing numbers of people to the forest frontier. Whether supported or not by the governmental programmes, these settlers have usually colonized the forest by using logging trails or new roads to access the forest for subsistence land (Wilkie *et al*., 2000). The development of these infrastructure projects are of worldwide concern, since tropical forest clearing accounts for roughly 20 per cent of anthropogenic carbon emissions destroying globally significant carbon sinks (Anon., 2001c) and around 21 per cent of tropical forests have been lost worldwide since 1980 (Bawa *et al*., 2004). It is well established that military operations caused deforestation during the Vietnam War and elsewhere (Mather, 1991; Sands, 2005). More recently,

linkages have been documented between the civil war in Myanmar and the timber trade between Myanmar and Thailand. Myanmar regime sells timber to the Thais to finance its civil war against the Karen hill tribe. Forest destruction in El Salvador has resulted from war. Apart from military involvements in wars, the role of military in deforestation has been documented in Southeast Asia and South America (Mather, 1991; Sands, 2005). The authors also observed that role of powerful military in Brazilian politics are a major cause of Amazonian forest destruction.

2.5.2 in Direct causes

The World Rainforest Movement's 'Emergency Call to Action for the forests and their Peoples' asserts that "deforestation is the inevitable result of the current social and economic policies being carried out in the name of development" (Anon., 1990d). It is in the name of development that irrational and unscrupulous logging, cash crops, cattle ranching, large dams, colonisation schemes, the dispossession of peasants and indigenous peoples and promotion of tourism is carried out. Harrison Ngau, an indigenous tribesman from Sarawak, Malaysia and winner of the Goldman Environment Award in 1990 puts the cause of tropical deforestation like this, "the roots of the problem of deforestation and waste of resources are located in the industrialized countries where most of our resources such as tropical timber end up. The rich nations with one quarter of the world's population consume four fifth of the world's resources. It is the throw away culture of the industrialized countries now advertised in and forced on to the Third World countries that is leading to the throwing away of the world. Such so-called progress leads to destruction and despair" (Anon., 1990d)! Such a development leads to overconsumption which is the basic underlying cause of deforestation Erstwhile colonies of the colonial powers like Britain, France, Spain or Portugal are now the Third World Countries or the developing nations mostly have the tropical rainforests except Australia and Hawaii were exploited for their natural resources and their indigenous people's rights destroyed by the colonial powers. All these countries have indigenous populations who had their own system of land management and/or ownership in place for thousands of years before the intervention of colonists from rich industrialized nations. Colonialism turned previously self-sufficient economies into zones of agriculture export production. This process continues even today in different form of exploitation and the situation is worsening (Colchester and Lohmann, 1993).

- **Exploitation by industrialized countries**

Wealthy countries or the erstwhile colonial powers having deficit of their own natural resources are mainly sustaining on the resources of the financially poorer countries those are generally natural resource rich. Twenty per cent of the world's population is using 80 percent of the world's resources. Unfortunately also the governments of these poor resource rich countries had generally adopted the

same growth-syndrome as their western neighbours or their erstwhile colonial master giving emphasis on maximizing exports, revenues and exploiting their rich natural resources unsustainably for short-term gains. Moreover, corruption in government, the military and economic powers is well known. The problem is further worsened by the low price of the most Third World exports being realized in the international market (Colchester and Lohmann, 1993).

- **The debt burden**

Pursuing the guided development agenda, the financially poorer countries are on a heavy international debt and now feeling the urgency of repaying these huge debts due to escalating interest rates. Such a situation compels these debt ridden poorer countries to exploit their rich natural resources including their forests partly to earn foreign exchange for servicing their debts. For instance, construction of roads for logging operations in some South-east Asian countries was funded by Japanese aid which allowed the Japanese timber companies to exploit the forests of these countries. Understandably, these timber companies profitably exploited the forests while the South-east Asian countries were left owing Japan money for construction of their roads (Colchester and Lohmann, 1993).

- **Overpopulation and poverty**

The role of population in deforestation is a contentious issue (Mather, 1991; Colchester and Lohmann, 1993; Cropper and Griffiths, 1994; Ehrhardt-Martinez, 1998; Sands, 2005). The impact of population density on deforestation has been a subject of controversy. Poverty and overpopulation are believed to be the main causes of forest loss according to the international agencies such as FAO and intergovernmental bodies. It is generally believed by these organizations that they can solve the problem by encouraging development and trying to reduce population growth. Conversely, the World Rainforest Movement and many other NGOs hold unrestrained development and the excessive consumption habits of rich industrialized countries directly responsible for most forest loss. However there is good evidence that rapid population growth is a major indirect and over-arching cause of deforestation. More people require more food and space which requires more land for agriculture and habitation. This in turn results in more clearing of forests. Arguably increasing population is the biggest challenge of all to achieve sustainable management of human life support systems and controlling population growth is perhaps the best single thing that can be done to promote sustainability. Overpopulation is not a problem exclusive to Third World countries. An individual in an industrialized country is likely to consume in the order of sixty times as much of the world's resources as a person in a poor country. The growing population in rich industrialized nations are therefore responsible for much of the exploitation of the earth and there is a clear link between the overconsumption in rich countries and deforestation in the tropics (Colchester and Lohmann, 1993). Poverty and overpopulation are inextricably linked. Poverty, while undeniably responsible for much of the damage to rainforests,

has to a large extent been brought about by the greed of the rich industrialized nations and the Third World elites who seek to emulate them. Development is often regarded as the solution to world poverty, seldom helps those whose need is greatest. Thus, it is often the cause rather than the cure for poverty. The claim that overpopulation is the cause of deforestation is used by many governments and aid agencies

as an excuse for inaction. In tropical countries, pressure from human settlement comes about more from inequitable land distribution than from population pressure. Generally, most of the land is owned by small but powerful elite which displaces poor farmers into rainforest areas. So long as these elites maintain their grip on power, lasting land reform will be difficult to achieve (Colchester and Lohmann, 1993) and deforestation continues unabated. Therefore poverty is well considered to be an important underlying cause of forest conversion by small-scale farmers and naturally forest-dense areas are frequently associated with high levels of poverty (Chomitz *et al*., 2007). The population also often lacks the finance necessary for investments to maintain the quality of soil or increase yields on the existing cleared land (Purnamasari, 2010). Deforestation is affected mainly by the uneven distribution of wealth. Shifting cultivators at the forest frontier are among the poorest and most marginalized sections of the population. They usually own no land and have little capital. Consequently they have no option but to clear the virgin forest. Deforestation including clearing for agricultural activities is often the only option available for the livelihoods of farmers living in forested areas (Angelsen, 1999).

2.6 Conceptual framework

Forest: defined as ecosystems with a minimum of 10% crown cover of trees and/or bamboo, generally associated with wild flora, fauna, and natural soil conditions and not subjected to agricultural practices whereas, deforestation as a change of land use with a depletion of tree grown cover to less than 10% crown cover(FAO,2005).

Deforestation: is the conversion of forest to an alternative permanent non-forested land use such as agriculture, grazing or urban development (van Kooten and Bulte, 2000).

Deforestation defined broadly can include not only conversion to non-forest, but also degradation that reduces forest quality, density and structure of the trees, the ecological services supplied, the biomass of plants and animals, the species diversity, and the genetic diversity (FAO, 2005). United Nations Research Institute for Social development (UNRISD) also defines deforestation as the loss or continual degradation of forest habitat primarily due to human related causes. Agricultural, Urban sprawl, unsustainable forestry practices and mining all contribute to human caused deforestation. In this case the term deforestation used to refer to activities that use the forest, such as fuel wood cutting,

commercial logging, as well as activities that cause temporary removal of forest cover such as the slash and burn technique, a component of some shifting cultivation agricultural system or clear cutting. It also used to describe forest clearing for annual crops and forest loss from over grazing.

This study capitalize on "cause of deforestation and socio economic impact on local community of shebel berenta woreda " as an interplay of factors stated above, and the status of these determinant factors is going to be assessed and evaluated combined in to five interdependent categories. This involves, Agricultural Expansion, Fuel Wood Collection; Settlement; Population Growth and Land Scarcity which are considered major areas that best serve the interpretation, discussions and analysis of the research study.

3. CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Description Of Study Area

3.1.1 Location

The study will be conducted in east gojjam Zone of shebel berenta woreda. Shebel berenta wereda is located at 283 km northwest of Addis Ababa, the capital of Ethiopia and 130km to the west of Bahir Dar, the capital of Amhara region.. The woreda is bordered by wegdi woreda to the East, enemay woreda to the West, enarg enawuga and enemay to the North dejen woreda to the South. The two agro climatic zones in the woreda are high lands or „Woyina Dega" that covers 28% of the area and the remaining 72% is consists of kola. About 95% of the woreda"s economy is dependent on Agriculture. The main products are teff, sorghum wheat and bolokie.

In 2002, shebel berenta woreda agricultural office ,Shebel Berenta was judged to be one of four chronically nourishment uncertain woredas in this portion of the Amhara Locale, due to much of their farmland being amazingly exhausted, deforested and disintegrated.

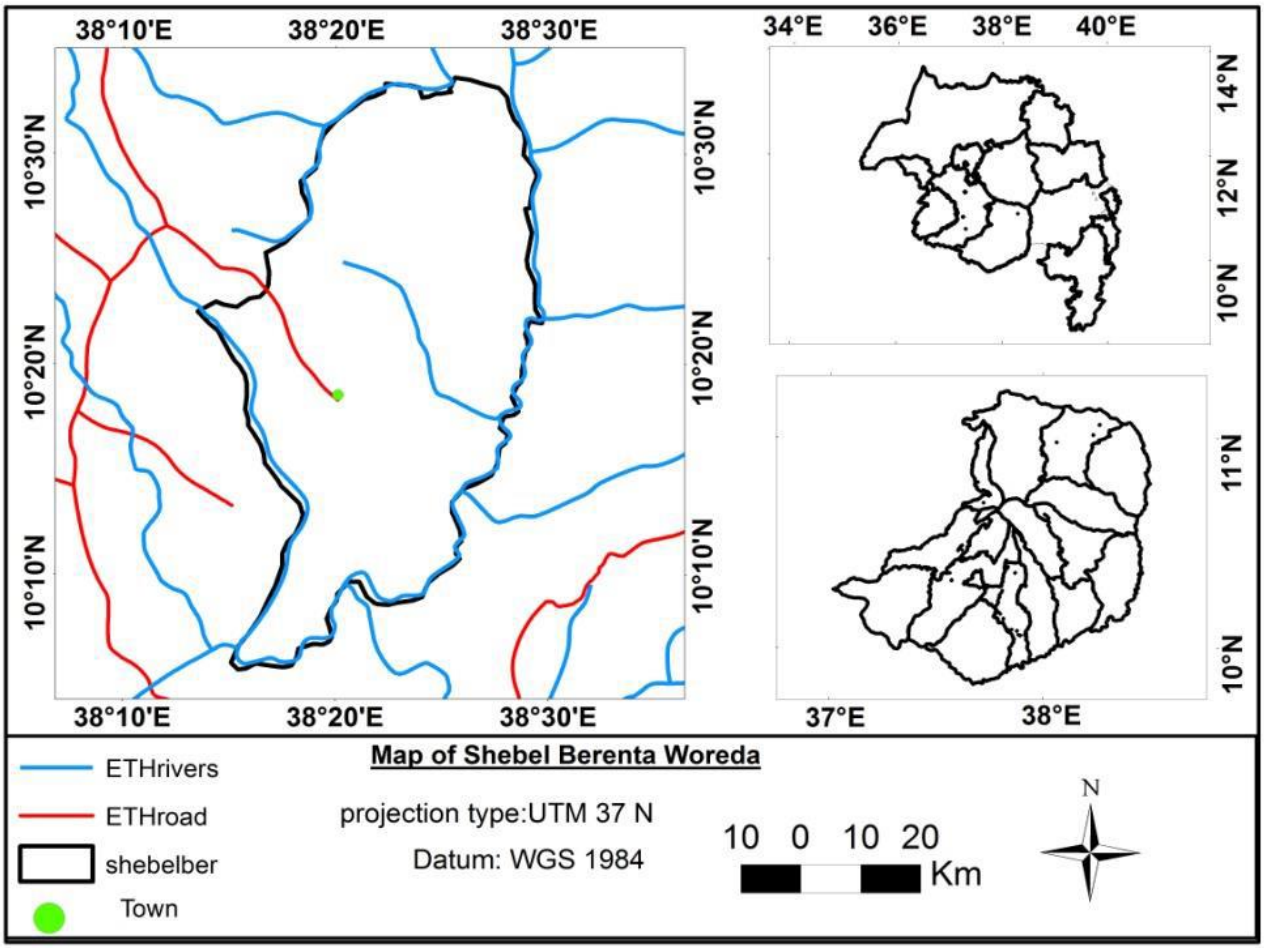


Figure 1:- Map of shebel berenta woreda

3.1.2 Population

The study area has medium population density compared to other areas. According to population and house hold censes of 2014/2015 the total population of the area 138436 out of which 65939 are males and 72497 are females.

Table 1 shebel berenta woreda number of human population

Age group	urban			Rural			Urban + rural		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-4	836	271	1107	7273	7052	14324	8109	7323	15431
5-9	622	622	1244	8871	10271	19142	9493	10893	20386
10-14	1057	1483	2540	8637	8668	17305	9694	10151	19845
15-19	647	1451	2098	8050	7636	15687	8697	9087	17784
20-24	515	1294	1809	4791	5207	9998	5306	6501	11808
25-29	1262	697	1958	3910	4967	8876	5171	5663	10835
30-34	246	993	1239	3309	3903	7212	3555	4896	8451
35-39	296	729	1025	2677	3433	6110	2973	4162	7135
40-44	729	321	1050	2804	2893	5696	3533	3213	6746
45-49	214	107	321	2052	1897	3949	2266	2004	4270
50-54				1769	2325	4093	1769	2325	4093
55-59		164	164	1520	1324	2844	1520	1488	3008
60-64		214	214	933	1739	2672	933	1953	2885
65-69	82	107	189	1137	888	2025	1219	995	2214
70-74	107	82	189	482	1085	1568	589	1167	1757
75-79				580	353	933	580	353	933
80	82		82	449	324	773	531	324	855
Total	6696	8534	15229	59244	63963	123207	65939	72497	138436

(Shebel berenta woreda administration office report 2014/2015 e.c)

3.1.3 Climate

The climatic condition of the study area is characterized by bimodal rain fall pattern. The area receives an average annual rain fall ranging from 400 to 1000 mm and average daily temperature from 20.7 – 24.60 C. The mean rain seasons are from March to May and June to September. The agro Ecological Zone of the study area is characterized by Woyna dega and kola (Shebel berenta woreda agricultural office 2010).

3.1.4 Soil

Concerning soil type of the district there are three The most dominant soil is a Rendozic leptosol that covers 69% of the area, and the remaining soils lithic leptosol 15.2% and vertisols covers 15.8%.
(Owen survey .2018).

3.1.5 Land use

Oxen plough and hoe cultivation are dominant agricultural activities practices by farmers. The woreda has area coverage of 79064 hectares (ha).from the total coverage area 37,085ha are cultivated land ,4,463 ha,grassland,7785ha bush and shirebs,1,714ha forest land, and the remaining are degraded land. Totally farming is dominant type of land use. In general the majority of the people are depend on agricultural production with main creel crop are wheat and maize which are the most dominant in the area .The detailed information regarding area under different land use system is as below:

Table 2 land use system of Shebel berenta woreda.

Land use	Area ha	%
Agriculture	37085	47%
Degraded land	28017	35%
grazing land	4463	6%
Forest land	1714	2%
Bush and Shrub land	7785	10%
Total	79064	100%

(shebel berenta woreda agricultural office report,2016 e.c)

3.1.6 Topography

The topography of the shebel berenta woreda situated at an altitude ranging from 1100 to 2400 m. (office manual 2008)

3.2 Method of data collection

Both primary and secondary data collection will be used. Primary data will be collected by using: (I) Questionnaire; this will be used for collecting data from household in relation to the study conducted. This questionnaire will be prepared for 372 respondents. (II) Observation; in this case structured and unstructured observation will be used as different techniques of observation. (III) Interview; will employ to identify people's experience, perception, value and opinion about the cause of deforestation, contribution and significance of forest for their living and its management practice by interviewing, development agents and other organization after we are going to the field.

Secondary data will be used. Among these literatures review and unpublished documents reports from shebel berenta Woreda Agriculture office are the main source of information. This information will give further insight to field research and as additional background study.

3.3 Research Design

This research is designed to assess cause of deforestation and its socio-economic impacts in east gojjam zone, shebel berenta Woreda. Both quantitative and qualitative descriptive survey will be used. Interview schedule will be prepared to collect data from model farmers, development agents, and agricultural institutions. All respondents will answer the same questions. Questions will be framed in a way that is easy to understand for the respondents using simple words or expressions.

3.4 Sampling size and sampling Procedure

Target population

The study was conducted in shebel berenta woreda rural kebele. The total populations of shebel berenta rural kebeles are 138,436. during the study use 4 sample rural kebeles .Therefore; this study targeted 5502 respondents from sample kebeles.

To select test Kebeles

According to shebele berenta woreda administration Annual Report (2022), Shebel berenta woreda has 22 rural kebeles. Hence, taking 22 rural kebeles of the woreda as a sampling frame, a multistage sampling procedure will employed. First, on the basis of their climatic condition, all kebeles of the woreda will group (stratified) as Woyena Dega and Kolla kebeles to ensure homogeneity. This is because, except agro ecology, all rural kebeles in the woreda are similar in cultural setting, socio economy and are inhabited by the same ethnic group. So, 10 rural kebeles will recognize as Kolla areas which are mostly located in the Abay Gorge, while 12 kebeles will grouped in the Woyena Dega part.

Then, from this dega kebele will selected

Randomly sampling and most of the Kolla kebeles are remote and inaccessible the researcher will select use purposively sampling. Out of 22 Kebeles of the Woreda 20% or 4 Kebeles will select as a sample. According to the above clusters from woyina dega cluster out of 12 Kebeles select 2 Kebeles, from kola cluster out of 10 Kebeles will selected 2 kola kebele by randomly.

To select the sample size of the Household:- The total numbers of households have been selected as a sample size of the total Households by using probably stratified sampling method. This total sample stands proportionately to the 4 sample kebele according to their number of households by using the formula. (Yamane, 1996) =372

Where N=total population

e = levels of fraction /error

n = sample size

$$n = \frac{N}{(1 + N(e)^2)} = \frac{5502}{(1 + 5502(0.05)^2)} = 372$$

figure 2 sampling size of the respondents

3.5 Method of data analysis

The research were employed both qualitative and quantitative method of data analysis. The qualitative techniques were employed for the data obtained from development agents and the information obtained from the sample respondents. The quantitative technique of analysis were employed on both qualitative as well as quantitative information obtained from both sources and also employs descriptive method of presentation through the use of descriptive statistics by percentages in tables.

3.6 Ethical Considerations

When conducting the study, the researcher will confidentially keep the culture of the respondents. The researcher would also be honest and gathered the correct data from the respondents and collect the data peacefully with the respondents of the kebele.

3.7 Definitions of significant terms used in the study

- **forest** can be defined as a land with canopy cover more than 10%, straddling an area greater than 0.5 hac, including the trees with height larger than 5m (Ahmad and Abbasi, 2011).
- **Deforestation** is the conversion of forest to an alternative permanent non-forested land use such as agriculture, grazing or urban development (Van Kooten and Bulte, 2000).
- **Afforestation** is the conversion from other land uses into forest, or the increase of the canopy cover to above the 10% threshold. A forestation is the reverse of deforestation and includes areas that are actively converted from other land uses into forest.

CHAPTER FOUR

4. RESULTS AND DISCUSSION

4.1 Demographic and Socio-economic Characteristics of the Sample

Knowing socioeconomic profile of the respondents was important to understand their characteristics and roles in socioeconomic development.

Sex Composition Accordingly, in this study total of 372 respondents were surveyed in four Kebeles: The sample was composed of both male and female headed households. Of the total sample households, the majority 279(75%) respondents were male headed and 93(25%) respondent female households.:

Table 3; sex status of the sample

Items	No. of respondent	Percentage (%)
Sex		
A. Male	279	75%
B. Female	93	25%
Total	372	100%

Source ; own field survey November 2024

age of the householders With regard to age structures out of the total sample respondents from 15-30 years 93 (25%), 31-45 years 164 (44%), 46-60 years 70 (19%) and above 60 year 45 (12%). The majority of the sample respondent is 31-45 years 164 (44%).

Table 4; age status of the sample

Age range in years	No.of respondent	Percentage (%) of Farmers
A.15-30	93	25%
B.31-45	164	44%
C.46-60	70	19%
Above 60 year	45	12%
Total	372	100%

Source ; own field survey November 2024

Educational status

out of the total households 217(58%) were found to be grade status 1-4 , and 47(13%) of the respondents were having grade status 5-8, grade 9-12 35(9%), Illiterates 73 (20%).Therefore it can be noted that majority of the household respondents had grade status of 1-4.

Table 5; educational status of the sample

Academic	No.of respondent	Percentage (%) of Farmers
A. grade status 1-4	217	58%
B. grade status 5-8	47	13%
C. grade 9-12	35	9%
D. Illiterates	73	20%
Total	372	100%

Source ; own field survey November 2024

Current *Marital Status* Marital status has to do with family size and family heads which, in turn, has an impact on. The organization of collected data (Table 6) reveals that 265 (71%) respondents were married, whereas 98 (27%) of the respondents is single, 9 (2%) of the respondents is divorced and widowed.

Table 6; marital status of the sample

Marital Status	No.of respondent	Percentage (%) of Farmers
A. Married	265	71%
B.Single	98	27%
C. Divorced and Widowed	9	2%
Total	372	100%

Source ; own field survey November 2024

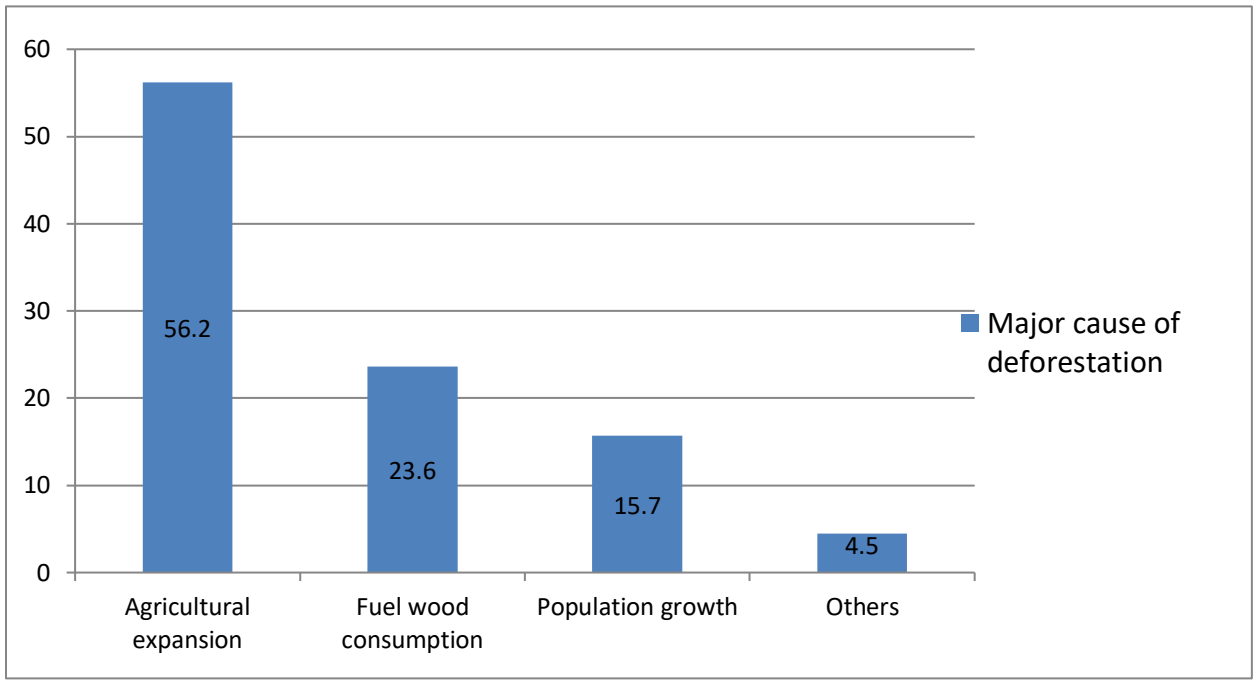
Religious status

Table 7; religious status of the sample

Religious status	No.of respondent	Percentage (%) of Farmers
A. Orthodox	353	95%
B. Protestant		
C. Muslim	19	5%
D. Others		
Total	372	100%

Source ; own field survey November 2024

4.2. Major Causes of Deforestation in the Study Area



Source own computation 2024

Figure 3; Major cause of deforestation

According to local community, the major cause's deforestation in the study area agricultural expansions, urbanization, fuel wood energy consumption population growth and others. (See table 5). Results under firure 3 indicated that out of the total 372 respondents, 56.2 % of them agreed that Agricultural expansion as the major causes of deforestation, 23.6 % of them agreed fuel wood,15.73% of them agreed that population growth is the major cause of deforestation, and 4.5% others

4.2.1 Agricultural Expansion

Out of the total respondents, 56.2% (n=209) of them agreed that agricultural expansion as a cause of deforestation. During discussions with key-informants, agriculture was mentioned as a major player of livelihood for most rural households in the study area. Like; teff, maize, etc. were some of cereals important to generate income for local communities. During discussion with key informants the majority of local community in the study area were mainly depend on agriculture. Farmers in the study area pursue mixed agriculture. Both crop farming and rearing of livestock

One of the key-informants said that the reason why expansion of agriculture is due to immediate solution rather long term that means, products being obtained from agriculture takes short period of time and also it is possible to generate income in short period of time than forests which takes long period to get its outputs and also it takes long period of time to get income from it.

Most of the respondents said that the way to obtain agricultural land was by clearing forest because there was no alternative to full fill basic needs for survive. These basic needs are shelter, food etc. So in order to survive clearing forest are necessary in that area.

Table 8; Mechanisms of obtaining agricultural land

Mechanism of obtaining agricultural land	Respondents	percent
By clearing forest	176	47.2
From government	121	32.58
By inheritance	75	20.22
Total	372	100

Source: Own Field Survey November 2024

In the above table 8 :47.2% (176) agreed the mechanism to obtain agricultural land were by clearing forest ,32.58 % (121) agreed by the government ,20.22 %(75) by inheritance.

The majority of respondents to get agricultural land were by clearing forest due to the shortage of agricultural land because of population growth .So in order to increase the life span of our children agricultural land availability must be satisfied .These land was obtain by clearing of forest from the surrounding. Some of the respondents get agricultural land from the government. The key informant said that the agricultural land obtain from the government is no sufficient to sustain our life because the land was not equally distribute, this means some farmer get enough land ,some farmer get small land ,some farmer were not farm land to sustain their life these leads to expanding agricultural land by clearing forest .Some of the respondent get agricultural land from inheritance. The key informant said that land obtain by inheritance were distribute by small farmer, this leads to luck of agricultural land to some farmer.

4.2.2 Fuel Wood Collection

Out of the total respondents, 23.6% (n=88) of them showed that fuel wood collection as the major factor of deforestation in the study area. According to the respondents, in the study area fuel wood consumption was the common and major household energy source for home based activities (food cooking, water heating, etc.). Because of the lack of modern electric energy supply, the majority of the households are depends on fuel wood. As information obtained from the sampled households, fuel

wood consumption was very exhaustive, time consuming, however, they use it as main energy source because of lack of options to use another improved energy sources

According to the information obtained from respondents, the price of fuel wood was fluctuated during summer and winter season. The reason why the price of fuel wood varies through season in the study area was because during summer many people from rural area and the town residents collect and bring fuel wood to the town and the demand of fuel wood by the community decrease as it takes long time to dry. During summer, instead of fuel wood some households use kerosene for different home based activities.

4.2.3 Settlement

Out of the total of 372 respondents, 15.7% (n=58) of them near settled to the forest to be the major cause of deforestation. According to their opinions, house and other constructions took place on the area, which replaced the forest areas for expansions of residential centers. As a result, various constructions and infrastructures were built. As the key-informants, in the study area informed us agricultural expansion is playing major role for deforestation. The key-informants also said that to expand infrastructures, many hectares of forest covered area is also being depleted in the study area.

Urbanization assures socio-economic status of the majority of local people in the study area in one way, and also aggravating environmental degradation on the other way. So, before urbanization it was better to consider issues related to protection and management of the environment, especially the local people should have access to awareness creation regarding how to conserve forests and other natural resources on sustainable manners and the stakeholders in the study area should participate and working, on the environment in sustainable way.

4.3 Some of the Others Drivers of Deforestation

4.3.1 Population Growth

According to the local leaders, due to population growth in the study area increased demand for more agricultural land, timber production, fuel wood consumption and other uses, at that time the tree cover was reduced, so the stock of tress diminishes as the forest resource was overly exploited rather than being managed on a sustainable basis. The local leaders, also perceived that over exploitation of forests resource in the study area led to fuel wood scarcity and the diversion of animal dung from its traditional role as soil nutrient to direct burning for fuel, while the reduced dunging of the land and soil erosion caused by trees cover clearance or succeeded deforestation, further impairs soil fertility, this in turn,

promote water run off which takes soil from the land to produce sediment in rivers, polluting drinking water supplies, loss of productivity and aggravate formation of gullies, soil erosion and floods.

4.3.2 Land Scarcity

The majority of the respondents in the Kebele agreed that there was definitely land scarcity problem in the study area. Key-informants have mentioned that the dominant farming system in the study area was mixed farming that means, both crops farming and rearing of livestock. Moreover, according to the data based on the responses of the survey, family size was one of the major factors that affect land holding size and agricultural expansion of the farm households.

Population pressure in the study area was one of the key factors which aggravate land scarcity and land degradation, resulted in environmental deterioration.

4.4 Socio economic impact of deforestation

4.4.1 Positive impact of deforestation

Table 9; Socio economic benefits of deforestation

NO	Item	Frequency	Percent
1	Income generation	140	37.71
2	Creating job opportunity	79	21.35
3	Improving house hold service	59	15.73
4	Agriculture production	94	25.21
5	Total	372	100

Source; own field survey November. 2024

The other objective of the study was to identify socio economic benefits of deforestation

Out 372 respondent 37.71 (n=140) were agreed deforestation are use for income generation .the key informant said that deforestation were highly used for income generation by selling TFP and NTFP.These obtain through the engagement in the various forest activities (agriculture, timber, fuel wood, gum and risen, local material and others) which are practice in the communities. The amount earned varies considerably depending on the kind of forest activity .The general characteristics of personal income derived from the various activities are that it is seasonal.

Some were agreed that deforestation are use for employment opportunity .The respondent said that if there is deforestation there is a probability to improve infrastructure in that area ,for example school ,hospital etc .This infrastructure are employ the people for different activities .

Some were agreed that deforestation are used for house hold service. The process of deforestation substantively benefited house hold livelihood in the communities. The definition of livelihood adapted is the access and entitlement to a range of assets and opportunities which are essential in human well-being(UNEP,2006).The research finding s indicate the the exploitation of forest resource s particularly

NTFP have contributed to household livelihoods through energy supply ,materials for shelter and others .

Some were agreed that deforestation are used for agricultural production .The majority of study areas income is agricultural production so in order to get land for this activity deforestation is necessary.

4.4.2 The Negative Effects of Deforestation

The negative impact is manifest in several ways in communities. The major effect include global warming ,sol degradation ,loss of biodiversity ,and loss of lively hood and these relate with the conventional negative effect of deforestation as espoused in the scientific literature(Mahapatra and Kant ;Mayers and Vermeulen,2002) .But it is important to recognize that to recognize that the perception how these effects are really manifesting varies from respondent to respondent and this difference can be explained from the opinion that deforestation is location specific (Adams ,2009)

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4.5 Forest Resource Status in the Study Area

Table 10; Current forest status in the study area

Current forest Condition	Frequency	Percent
Excellent	-	-
Good	-	-
Moderate	50	13.48
Degraded	100	26.97
Very much degraded	222	59.55
Total	372	100

Source: Field Survey November. 2024

Out of 372 respondents 59.55% (n=222) were agreed the forest status of the study area were very much degraded, 26.97%(n=100) were degraded,13.485(n=50) were moderate.

According to the key informants the forest coverage before 30 years was large in size and they had high amount of plant and animal diversity. But today the coverage of forest was very much degraded due to population growth, urbanization, and agricultural expansion. If there was the population growth the land resource leads to scarce .If they had a scarce resource of land it was difficult to sustain our life. So in order to sustain our life we expand agricultural land to satisfy our basic needs.

4.6 Communities Perceptions about Deforestation in the Study Area

According to local source, forests used to support the livelihood of most rural communities. The farmers used to get different functions and services from the forest; such as fire wood, herbal medicine, house construction materials, food, etc. However, decrease in forest area coverage in the study area was indicated as indicators of decrease in functions and services of forests. One of the community leaders said that the last few decades' forests were depleted and evens currently the local communities supplying forest products in the market as income generation. He also said that although forests were being used as income generation, but the communities were not in the condition that conserving forests resource rather than depleting and changing its area to agriculture.

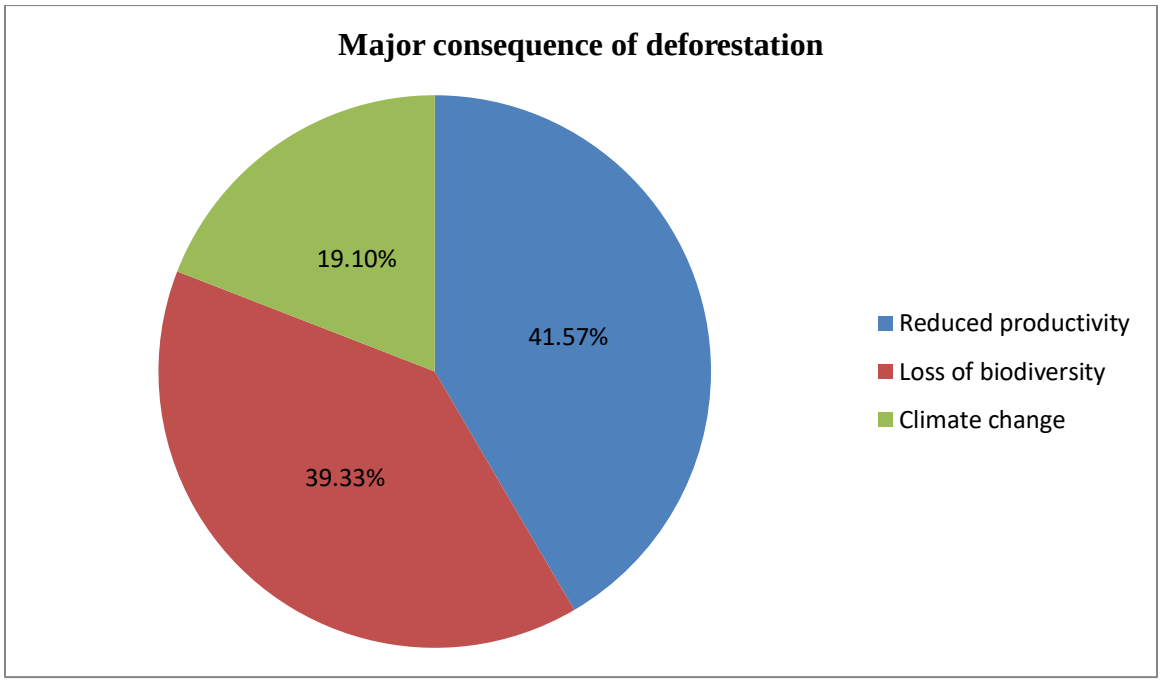
The farmers in the study area perceived that forests were being depleted intentionally or unintentionally. He said that, forests depleted intentionally because of lack of alternatives for income generation for the communities' livelihood, to ensure their way of life, there should be immediate income sources to do so, forests are being exploited and its products are supplied to the market. The interviewee also added, forests were being exploited inadvertently because of lack of awareness creation for the local communities concerning protection of forests and other natural resources.

According to the interview, in the study area, the local communities had no access being gained awareness creation regarding how forests resource was being used on sustainable manner. The local communities were being applied only their traditional knowledge for forests resource conservation rather than integrating their knowledge with scientific way which was being important to ensure environmental sustainability. One of the interviewee, who lived over 40 years in the study area, said that, the decrease of forest products such as wild fruits, , firewood and other forest products are due to over use of forests for consumption and livelihood of rural communities. These have further aggravated soil erosion, and reduced land productivity, accelerated loss of biodiversity, and interruption of water flows.

According to the key-informants, in the study area, forests have been under tremendous pressure from an increasing human population and their ever growing demands for shelter, land for cultivation as well as their demands for fuel wood, timber and other forest products necessary for the livelihood. The key-informants also said that expanding of infrastructures for the sake of attaining urbanization was being created key roles for easily occurrence of deforestation in the study area. Issues which were noted earlier were some of the key factors which aggravated deforestation. Therefore, from the key-informants, it was possible to say that for the last decades and even recently in the study area forests

resource was being depleted and its area also being changed to other activities, resulted not only for loss of benefits being gained from forests but also aggravated environmental degradation.

4.7 Major Consequences of Deforestation in the Study Area



Source: Own field survey November 2024

Figure 4; Major consequence of deforestation

The causes and consequences of deforestation were interlinked with each other's, that means if there was causes it also consequences and vice versa. According to most respondents the major consequences of deforestation in the area are reduction in productivity, loss of biodiversity, and climate change. According to the figure 4: 41.57% (n=155) of the respondents agreed that reduction in productivity as consequences of deforestation, 19.10 % (n=71) as climate change, and 39.33 %(n=146) of the respondents said loss of biodiversity also as a consequence of deforestation in the study area

4.7.1 Reduction in Productivity

Mixed Agriculture was the major activities in which the community in the study area was being employed for their livelihood. According to the key-informants, the majority of the community in the study area was being highly depended on Agriculture. This was because, sustaining of their life as well as income generating strategy was being used mainly from mixed agriculture. As it was described earlier, one can possible to say that highly dependency of the communities on agriculture was being aggravated the lands to be degraded; as a result reduction in productivity in the area was happened.

During discussion with key-informants, they perceived that decrease of production was mainly due to population growth together with land scarcity, informal settlement; high demands of crops, other agricultural products and etc were some of the factors devastated land degradation. One of the key-informants said that among the factors, population growth was being taken the highest contribution.

4.7.2 Climate Change

Deforestation stimulates higher accumulation of CO_2 (carbon dioxide) on the atmosphere, these would continue depleting the ozone layers, which caused an increase of temperature on the atmosphere. The current serious issue in the study area was higher increase of temperature and climate changes, which affect the day to day activities and continued its impact on social, economic and environments. During interviews with key informants, they perceived that climate change was being taken place due to, higher increase of populations, frequent use of forests resource, urbanization, and resettlements programs which were some of the major factors highly accelerated temperature to be raised and as a result climate change in the study area.

Therefore, in order to have environmental sustainability, the communities in the study area should have a habit of planting various trees specious in sustainable manners, the government in the area should create conducive condition in order to protect the forest and other natural resources, and other stakeholders should be participated and even they should be engaged in the protection of the environment in sustainable way.

4.7.3 Loss of Biodiversity

Forests resource have usually high biodiversity resource and its depletion affects directly or indirectly both plants and animals diversity. Unwise uses of forests resource, over use of land resources, were the key factors that can accelerate loss of biodiversity in the study area. Regarding wild animals some the of the community leaders argued that nearly about 20 years ago there were a lot of wild animals, but today only few can be seen near forest fragments. The decreasing of their number was due to depletion of forests, which obligated them to go others, area having forest covers.

One of the interview of key-informants, said that the only option to mitigate loss of biodiversity was that encourage the habit of protecting the environment by practicing planting of trees on a sustainable manners, practice of afforestation program, area closure and etc. According to the key-informants perception, whatever the case, forests land area should be increased and even should be encouraged the programs which was being described earlier, this was, because practicing of afforestation program, was being played important roles which contributed not only for environmental sustainability, but also social, and economical sustainability.

5. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

Deforestation is one of the most serious environmental problems in recent times. It has become an issue of global concern because of the relevance of tropical forests in biodiversity conservation, and in limiting the green house effects. It affects economic activity and threatens the livelihood and cultural integrity of forest dependent people at local level. It reduces the supply of forest products and causes siltation, flooding and soil degradation. In Ethiopia, because of forest destruction, there are many adverse effects on environment and socioeconomic conditions. Among the major adverse effect are erosion, sedimentation of streams, rivers and dams, shortages of wood products, destruction of wild life habitats, degradation of watersheds and catchments, breakdown of hydrological system, formation of gullies and loss of cultivable land and fragmentation of the whole system.

In the study area, the major causes of deforestation are fuel energy consumption, agricultural expansions, urbanization, population growth, land scarcity problems, and ownership condition of forests resource. Among the causes, agricultural expansions took the highest contribution for the depletions of forests resource in the study area. Livelihood of the local community in the study area is mainly depended on agricultural activities. . They generate income from it for sustaining their life, to precede such activities the forest area is changed for expanding agricultural land.

Urbanization also consider as one of the major causes of deforestation in the study area. For expanding of urban areas, the local forests area, near to urban is changed. Land scarcity problem is the other driver of deforestation in the study area. The higher numbers of households are interested on the scarce land resource to do various activities for satisfied their needs. Even though there is land scarcity, having higher competitions among local community to get the lands, these competitions of individuals with scarce land resource aggravated land degradation.

Finally, highly increase of temperature in the study area, is an implication of deforestation. Its main drivers are due to increase of populations, frequently depletion of forests resources, and increase of fuel wood collection, lack of alternatives use of energy sources, accumulations of wastes materials, land scarcity problems, and lack capacity building particularly for local community in the study area. Some of the drivers of deforestation described in the above increased concentrations of CO_2 in the atmosphere through directly or indirectly processes, which depleted the ozone layers which aggravated climate change in the study area.

5.2 Recommendation

The result of investigation revealed that the forest in the study area was progressively being depleted. While the majority of the communities, entirely depends for their daily livelihood on the local environmental resources. Thus, conservation and sustainable utilization of these resources are crucial. Therefore, in order to alleviate the challenges, it may better to take the following measures:

- Generally, poverty is the main cause of environmental degradation in general and forest degradation in particular. Hence, in order to achieve food security in rural Ethiopia in general and in the study area in particular attempts should be made to increase the real income of the farm households which release dependency on forest resources.
- The government should create job opportunities for the communities in order to reduce their dependency on forests resource.
- Promoting environmental education and awareness on the use of forest.
- The local community should have a habit of planting various trees species on sustainable way.
- Facilitate the expansion of alternative energy sources, training, and fuel saving technology diffusion in order to reduce dependency on fuel wood.
- Natural resources including forests should be considered in its utilization and management by governments and private owners.
- Expanding modernized agricultural practices and appropriate land use to increase yield per unit area.

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DEBRE MARKOS UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTEMENT OF ECONOMICS

MSC IN PROJECT PLANNING AND MANAGEMENT

Survey Questionnaire

The purpose of this questionnaire is to explore relevant information in order to conduct a study on "The cause of deforestation and its socio-economic impact on farmer in shebel berenta woreda ".This research will be conducted for the partial fulfillment of s master's degree in project planning and management at Debre Markos University. Your full support and willingness to answer questions is essential to the success of the research. Hence, I sincerely request your cooperation to answer the entire questions.

Dear respondents, all informations you provided will be kept strictly confidencial and will not be used for other purpose than for intended research purpose.Please put the check mark (x) in the provided box and write your idea for open ended questions.

I Personal information

1. Name _____ Region _____ Zone _____ Woreda _____
2. Age _____ Sex _____
3. Religion: Orthodox Christian ---------- Muslim ----------
   Others----------

4 . Marital status: Married ----------Single----------Divorced------Widowed----------

5 . Education back ground

Illiterate ---------- Primary school ----------
Read & write ----------Secondary school ----------

II Economic activities

6. What is the major cause of deforestation?

A. Agriculture B. urban development C. population growth D. other (specify):_____

7. Do you have the way in which you get income from forest production

A. Yes B. No

8. It yes, in which forest product do you involves?

A. Charcoal B. Timber C. Fuel wood D. Furniture

9. What is the current forest resource ownership condition in the area?

A. Private B. Open access

C. Communal D. Government/Public E. Others, (specify)

10. What is your opinion about the current forest ownership condition in the area?

A. Very good B. Bad

C. Good D. Very bad

11. If the answer for question number 13 "bad or very bad", then what do you think is the best option in your situation?

12. What do you think about the current forest resource condition in the area?

A. Excellent condition B. Good condition

C. Moderate D. Degraded

E. Very much degraded

13. How do you compare the current forest condition before 10/20 years?

A. Very much improved B. Improved

C. The same D. Degraded

E. Very much degraded

14. Do you know the role of forest resources towards environmental protection? E.g. Soil conservation, climate adaptation, rainfall, etc

A. Yes B. No

15. If your answer for question number 17 is yes, how do you prioritize the benefit obtained from forest? For each option please tick the box that you feel most fits your views

Issue	High	Medium	Low	Don't know
Rain fall pattern				
Improvement of water resource				
Reducing temperature				
Air quality				
Erosion control				
Promotion of biodiversity				

16. With forest change, what do you observe its impact on the environment in terms of?

A) Climate change (i.e., rainfall variability C) Decline of soil fertility

B) Loss of biodiversity (i.e., fauna and flora D) Increase of temperature

17. What did you observe the impact of forest reduction on the socio-economic of the people in terms of?

A. Decline of forest product (quality and quantity) B. Agricultural production

C. Distance to be traveled to collect forest product

18. Are there other socio-economic impacts of forest reduction on the society surrounding? If, exist please list them.

_____

19. What do you think the reasons for forest degradation in your locality?

A. Natural B. Human impact

20. If your answer for question number 22 is b, could you list the means by which human have impact on forest degradation in your area?

21. Do you participate in community based forest management in your local area?

A. Yes B. No C. Specify if others _____

22. Do you think the agricultural land size you owned is sufficient for the production food for your family?

A. Yes B. No

23. If your answer for question number 28 is no, by what means you increase food production for your family?

A. By increasing agricultural land

B. By selling forest product

24. If your answer for question number 27 is A; how do you obtain additional agricultural land?

A. By inheritance D. Contract

B. By clearing forest E. Crop sharing

C. From government F. Please, if other specify _____