

Wolkite University

**Department of Natural Resource Management,
College Of Agriculture and Natural Resource,**



**Effect of Deforestation on Livelihoods of Local Community: The Case of Chaha
Woreda Gasore Kebele in Gurage Zone, SNNPR, Ethiopia.**

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List of Acronym

FAO.....	Food and Agricultural Organization
GO.....	Governmental Office
FAO.....	Food and Agricultural Organization]
ITTO.....	International Tropical Timber Organization
MOEF.....	Ministry of Environment and Forest
NGO.....	None Governmental Organization
NTFPs.....	Non Timber Forest Products
DADU.....	District agricultural development unit

Abstract

Deforestation, inappropriate agricultural practices, overgrazing and agricultural land expansion have been the major cause of land degradation and desertification. Poor and vulnerable households depend on forest product of like charcoal and firewood their livelihood. Deforestation, accelerated soil erosion, and land degradation are serious problems in Ethiopia. The study were conducted in gasore kebele Chaha woreda of gurage zone, SNNP. The objective of the study was to investigate the livelihood strategies, to assess impacts of deforestation on livelihood and to assess the major Cause of Deforestation on Farmers In this study both primary and secondary sources of data were employed for which questionnaire survey, interview, discussion and observation were used in primary data sources. The results of analyzed data were presented in form of frequency and percentage by using tabular form. The result of the study revealed that, most of respondents (96.8%) claim that forest was the major sources of energy use. Grazing and farmland expansion were the main drivers of forest destruction as indicated by 6.5% and 77.4% respondents respectively but in study area grazing land decrease by 93.5%.

CHAPTER ONE

1. INTRODUCTION

1. BACKGROUND

Forests are one of the most important natural resources on this earth. Covering the earth like a green blanket these forest not only produce innumerable material goods, but also provide several environmental services, which are essential for like, (Kaushik:, 2006). Forests and its benefits provide in the form of food, income and watershed protection have an important and often critical role in enabling people around the world to secure a stable and adequate food supply, (FAO, 2005). Forest also provides multiple benefits at local to global scales. These include the global goods of carbon sequestration and local national level contribution to livelihood for more than half billion uses according to (FAO, 2005). Puts the annual harvest the industry worth approximately used 420 million per years (FAO, 2005). We are still far behind the target of achieving 33% forest area, as per our national policy, as we are still having only 19.27% of our land area (63.38m ha) covered by forests based on satellite data Kaushik, 2006). The data for various forest sectors together shows an estimated us2.02 billion for the total annual financial return over in the forest sector, even though these figure should be qualified, (GetachewMamo, sjaosted, & vedeld., 2007). Father at it is not exhaustive revenue from scale of fuel wood, food, honey and construction materials is also significant in the livelihoods of households as a study conducted in to dandy distort Ethiopia contributing an amperage of 39 percent to annual income.

Forests provide us a large number of commercial goods which include timber, firewood, pulpwood, food items, gum, resins, non-edible oils, rubber, fibers, fodder, medicine, drugs and many more items, the total worth of which is estimated to be more than \$300 billion per year (Kaushik, 2006).

Ecological services provided by forests may be summed as production of oxygen by photosynthesis, reducing global warming, homes of millions of wild animals and plants,

regulation of hydrological cycle, prevent soil erosion, pollution moderators can absorb many toxic gases and can help in keeping the air pure (Kaushik Etal, 2006).

Half of the timber cut each year was used as fuel for heating and cooking on third of the wood

Harvest used for building materials as lumber, plywood and hardwood, particleboard and chipboard one sixth of the wood harvest is convert in to pulp and used for paper industry. Many forestlands are used for mining, agriculture, grazing and recreation and for development.

Currently these forests are deforest at an alarming rate all over the world. As per FAO estimates, the deforestation rate per unit population in India is the lowest amongst the major tropical countries, despite the fact that we have a huge population size and very low per capita forest area (0.075 ha per capita) (Kahshik, 2006). However

Deforestation is the loss of forests by cutting down all of its trees or the process of clearing forest or trees,(mulgeta, 1988). According to Ki done, (done, 2002) deforestation is the main environmental problems in Ethiopia in the form of soil erosion and soil fertility loss. Loss of the biodiversity and the loss productivities, (sner, 2005)

Deforestation influences food security through its impacts on community supplies of fuel wood, which is a major source of income to many poor households (son, 1995) Two in five people worldwide, or approximately 3000 million people rely on fuel wood or charcoal for heating or coking and approximately 1000 million people are already facing a “fuel wood famine (fao, 1995). Deforestation also affects human livelihood and ecological service it is provide for the ecosystem to function too. Therefore, this study is aim to investigate the impact of deforestation on livelihood of local community of the study area

1.2 Statement of the problem

Deforestation is a serious, environmental, social and economic problem; particularly in problem related to deforestation is production decline through climate change, soil erosion and reduction of water quality. It has lost the structure, function, species composition and or productivity normally associated with the natural forest type expected at time (FAO, 1989). Deforestation also influence food security through its impacts on supplies of fuel wood, which is a major source of income to many poor household (Townson, 1995 The loss of nutrient-rich top soil can result insignificant decrease in agricultural productivity (Tenberg, stocking and dechey,1998).

Even if deforestation has so many problems, sufficient studies have not been conducted in gasore Kebele concerning on the impacts of deforestation on local livelihood. Therefore, this study were conducted to understand the impact of deforestation on local livelihood developing countries. Timber and NTFPS are reduce with the deforestation that influences the community gasore kebele, by generating reliable and relevant information from local communities living in the Kebele.

1.3. Objective

1.3.1. General Objective

- The overall objective of this study is to assess the impact of deforestation on livelihood of the study area.

1.3.2. Specific Objective

- To investigate the livelihood strategies in the local community in the study area
- To assess the major causes of deforestation in the study area
- To assess impacts of deforestation on livelihood.

1.4 Research Questions

1. What are major livelihood strategies in the study area?
2. What are the major cause of deforestation?
3. What are the impact of deforestation on livelihood?

1.5 Significance of the study

The result of the study has to be helpful to local community, governmental office (GO). DA/experts/ and non-governmental organization (NGO) by forwarding some concrete ideas about the impacts of deforestation on local livelihood of gasore kebele.

1.6. Scope and limitation of the study

Although the issue is very critical and were investigated thoroughly, it was in fact, not possible to go through each kebeles of the woreda. Due to that in a short time, it was difficult to cove the whole Kebeles of the woreda. In addition, the weakness of the study the farmers cannot give the data directly for the targeted points of the study purposely. Therefore, the study is confine to only gasore kebele in cheha Woreda.

CHAPTER TWO

2. LITERATURE OF REVIEW

2.1. Definition of Terms and Concept

Deforestation: Deforestation refers to reduction of the capacity of a forest to produce goods and services. Capacity includes the maintenance of ecosystem structure, function, (Itto, 2002). It has lost the structure, function, species composition and or natural forest type expected of site (Itto, 2005). Deforestation is usually associated with a reduction of vegetation cover from an area, especially traces, (Lund, 2009), with the notable exception of the “empty forest” syndrome caused by excessive hunting valuable timber species, when these changes pass threshold a deforested (Lund, 2009).

The process of deforestation can be abrupt (e.g. due to excessive logging) or a slow gradual process which can take long times (e.g. Due to fuel wood collection) in appropriate high grudging or excessive hunting, (Angsen, 2008). Deforestation and consequent land degradation are global menaces and so are they in Ethiopia, However, similar or to the problem with statistics, there is no reliable source for data on rate of forest degradation and deforestation in Ethiopia, (Dereje, 2007). Foresters are arguing that deforestation has accelerated over the past 150 years, driven largely by the high growth in the population of the country (Kaushi, 2006), whether recent or earlier, forests and other natural vegetation res (ITTO:, 2002) sources have been with no significant efforts to reverse the trend (Dereje, 2007). Indeed, even the inadequate database shows the extent of annual loss at national level, ant it is very clear that Ethiopia has lost and it continuing to lose much of its vegetation cover. This clearly seen in the reports from several studies in local regions of the country.

For instance, Dereje (2007), investigated forest cover change between 1973 and 2005 in four districts in the south western rainforest and found a 67% decrease over 32 years which corresponds to 2.1 percent per year deforestation rate (Dereje, 2007).

As indicated by revsing (1998), a deforestation rate of about 163,600 wood plants per hectare a year between 1998 and 1990 (1 percent per year), and the report of FAO (2005)

indicate a deforestation rate of 0.93 to 1.04 percent per year between 1990 and 2005. By combining these different studies, it can be shown that Ethiopia is losing an average rate of 1.0 to 1.5 percent of its woody biomass annually through deforestation. Resettlement programs, migration, bio-fuel development initiatives and present poverty are fuelling the rate of deforestation in Ethiopia (FAO, 2005). This indicates that it has a major impact on globally as well as locally which alters the agricultural productivity, water resource degradation and decline of forest products, which is economic incentives for local livelihood (Dereje, 2007).

Livelihood: Livelihood is defined as adequate stocks and flows of food and cash to meet basic needs. Security refers to secure ownership of, or access to, resources and income earning activities, including reserves and assets to offset risk, ease shocks and meet contingencies. Sustainable refers to the maintenance or enhancement of resource productivity on a long-term basis. A household may be enabled to gain sustainable livelihood security in many ways - through ownership of land, livestock or trees; rights to grazing, fishing, hunting or gathering; through stable employment with adequate remuneration; or through varied repertoire of activities" (Wced, 1987).

2.2. Causes of deforestation

2.2.1. Expansion of agricultural activities

Agricultural activities are one of the major factors affecting deforestation due to overgrowing demand for food products. Huge amount trees are felled down to grow crops (Kaushik, 2006). The major causes of deforestations are shifting cultivation estimated 300 million people living as shifting cultivators who practice slash and burn agriculture and are supposed to clear more than 5 ha of forest annually (Itto, 2002), Increasing demand for fuel wood by the growing population, raw materials for industrial use, development projects, growing food needs, overgrazing, expansion all of these the causes of deforestation according to (Kaushik, 2006).

2.2.2. Human population growth

Human population growth is at the root of virtually all of the world's environmental problems. Although the growth rate of the world's population has slightly since the

2018s, increased by about 110 million human beings each year according to, (.Forlett, 2011). As the result of population growth 2.1 percent of forest, cover deforested each year by the people in the tropical forest regions (Richard T. Forlett, 2011).

2.2.3. Wood extraction

Wood has always been an important fuel for forest dwellers, and even in the mid-21th century 80% of all wood harvested waste for fuel commercial loggers in the tropics concentrated only on a few valuable timber species such as teak and mahogany (Lund, 1999) Following World War II. Wood of lighter density were also extracted to be sold in national or foreign markets from 150-1980, tropical hard wood export rate 14 fold, from 4.6 to 61.2 million M³ of round wood per year. (FAO, wood has always been an important fuel for forest dwellers, and even in the mid-21th century 80% of all wood harvested wastefor fuel comercial loggers in the tropics, 1989).

2.2.4. Expansions of infrastructure

The settlement and subsequent clearance of frontier land in Latin America have closely followed the expansion of the road network. Exclusively governments do not always carry out Road building,, (Brunijneel, 1990). In Ecuador, the early penetration road in to the environmentally triangle eastern region was largely built by multinational oil companies. Maher and Schneider (1994) argue that road building is the single most powerful factors causing the deforestation frontier areas in Latin America certainly oil exploration, agricultural expansion, and timber extraction are not possible without roads, and they are important reasons why roads are built in many forest regions (Bruijnzeel, 1990).

2.2.5. Urbanization

As cities, growth larger to accommodation more people cut down trees to make more rooms for house building and roads construction (Richard T. Corlett, 2011). Urbanization directly affects forest covers deforested with the expansion on cities more forest lands in needed to establish housing and settlements (FAO, 2005).

2.3. Impacts of deforestation

2.3.1. Socio economic impacts of deforestation

Decrease in biomass produced i.e. a decrease in the future capacity of the forest to produce wood fodder, fruit and medicinal plants and so on (Reddy, 1999).

Forest products including food, household items, and the income generated by them can be quite significant to the food security of local communities throughout the developing world, many of which are household generally have the highest degree of reliance on forest products for income and food as they have the least access to cultivable land and so supplement their production with the gathering of forest products on common property forest lands, (Chakroverty, 1999). (Lands that are owned and managed collectively) or open access forestland (lands that have no effective collective or private ownership status) (chakroverty, 1999).

2.3.2. Impacts of deforestation on biodiversity

Deforestation is a serious problem for the loss of biodiversity i.e. different animals and diversity of plant species. It has lost the structure, function, species composition and productivity normally associated with the natural forest type expected at time (Itto, 2002). As civilization developed, the need for wood increased use of wood and clearing of land, locally shortage of wood to be expressed (Waugh, 1990)

2.3.3. Deforestation and food security

Forest 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 world to secure stable and adequate food supply (Kaushlk, 2005).

Forests are important to the food secure because they are one of the most accessible productive resources available to them. Deforestation and forest degradation; however, are impairing the capacity of forests to contribute to food security and other needs (Mulgeta, 2008). Tropical forests, which are currently experiencing the highest rate of clearing and degradation. From 1980 to 1990 an estimated 146 million hectares of natural forests in the tropic were clear, with an additional loss of 65 million hectores between 1990 and (FAO, Forestry and Food security. FAO , 1997).

Tropical forests are located in the areas of the world with the highest concentration of the food insecure. (FAO, they are home to approximately 300 million people who depend on shifting cultivation, hunting and gathering to survive, 1996) many are at risk of not consuming enough food to meet their daily energy requirement on a chronic, transitory or seasonal basis. In addition to these forests inhabitants, millions of people living adjacent to forest areas depend on forest for some aspects of their food security. (FAO, 2005).

The full implications of the loss or deterioration of tropical forests for human kind as well as other life forms is not known. What is known; however is that the loss of forest resources can lead to diminished income and food generating capacity for forest dependent community, higher rates of soil erosion and siltation of waterways, loss of species and genetic diversity and an increase in carbon emissions, which contribute to global warming (Kaimowitz, *etal*: 1998).

CHAPTER THREE

3. MATERIALS AND METHODOLOGY

3.1. Description of the study area

Chaha Woreda are found in Gurage Zone, SNNPR State, and Wolkite from Addis Ababa far away 158km. In addition to Gasore are found from Wolkite town 10km. Gasore are bordered by the abeshge woreda on the south, kafa kebele in the west, by karacho kebele in the north, by chanco kebele in the east. Cheha Woreda has total area of land 58537ha, and in terms of Administrative Structure, the Woreda has totally 43 kebele from which 38 of them are rural and five of them are sub city. From 58537ha of Cheha woreda Gasore kebele, cover277.4ha.

The Gasore kebele is located at 37°54'0" N to 37° 55'0" N latitude and 37°04' E to 37°15' E longitude and ranges from 1800 to 2158 meters above sea level (masl) with a mean annual rainfall of 1200 mm and a mean annual temperature 24°C. The dominant soil type in the Gasore kebele is verity soil. Coffee, *Zea mays L.*, finger millet, *Eragrostis teff*, *Guizotiaabyssinica* and others, such as chickpea and vegetables are cultivated throughout the study area.

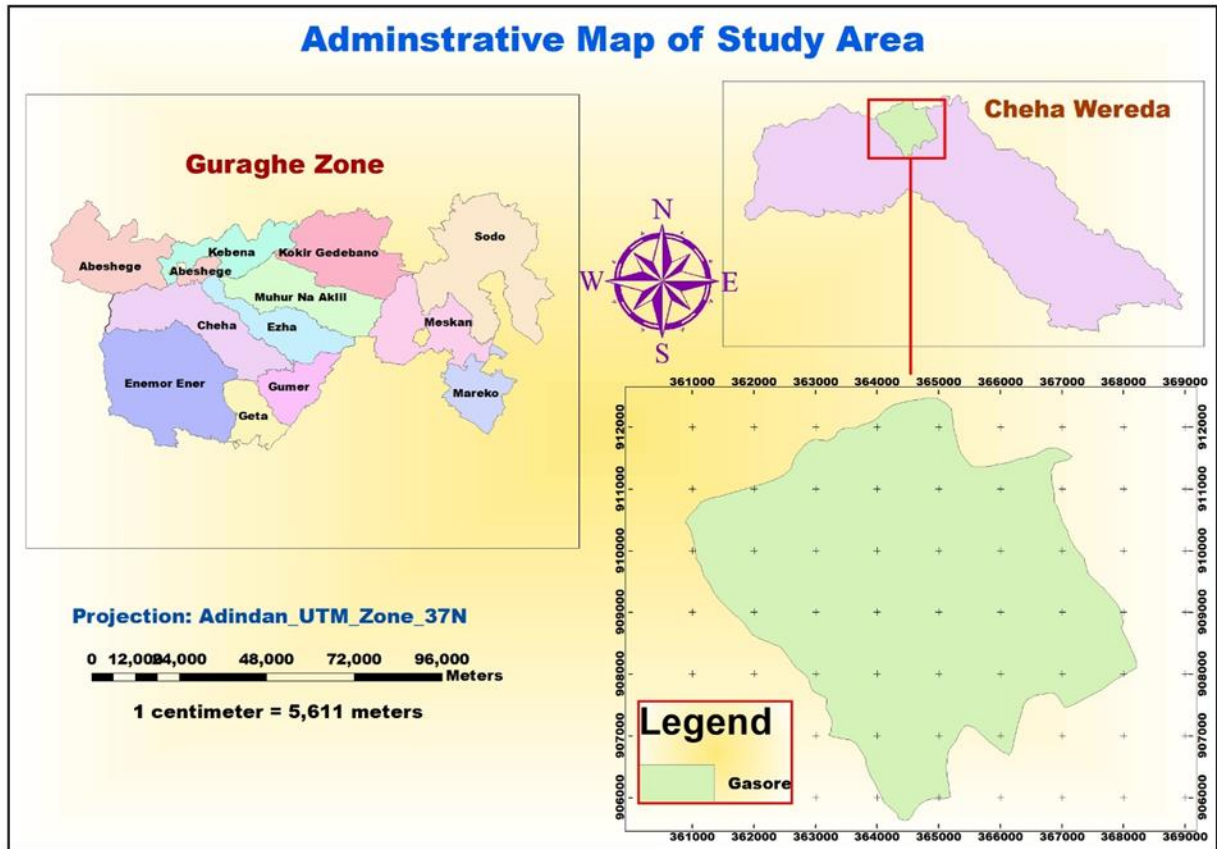


Figure 1 Map of study

Population: Gasore Kebele has Population of 3500 total populations from which 1680 are males and 1820 are females. The Kebele comprises 100 total households of which females (gasore kebele agricultural office reports, 2009) head mal head 60 and the rest 40. Population in gasore kebele is increases exponentially than other neighboring kebeles.

Vegetation Cover: The study area farmers have their own ways of classifying pieces of lands depending on the slope for perennial or annual crops in local knowledge. Different species of trees, shrubs and vegetation types. The study area the area coverage which having 1745 in hectare total coverage. The natural forest and grazing land, 245.6 (15%) and 45.5 (2%) in hectare respectively. The maximum hectares cover in permanent crops such as teff, maize, chat and others (Gasore agricultural office report, 2011).

Soil type : The dominant soil type in the study area are black soil 48%, red soil 22% and clay soil 30%. No detail survey has so far been carried out in the study area. The agricultural office of Cheha however identified the general soil types (20011).

Land use and Farming system: In the study area, the farmers are practicing mixed farming system perennial crops and annual crops with the help of seasonal rain distribution.

Table 1 Land use system in the study area

Types of land use	Area coverage in ha	Percentage (%)
Forest land	245.6	15
Cultivated land	1352	77
Grazing land	45.5	2
Others land use	102	6
Total	1745 ha	100%

Source Cheha woreda agricultural office report, 2010).

Livestock population in the study area: The farmers also dependent on the livestock production, which are cattle, goats, are present in the kebele.

Table 2 Livestock population in the study area

Types of livestock	Numbers	Percentage of total livestock (%)
Cattles	770	49.8
Goats	563	36.4
Sheep	50	3.2
Horses	10	0.6
Donkeys	145	9.4
Mule	9	0.6
Total	1547	100

Sources, Gasore kebele agricultural office reports 2008)

3.2 Research Methodology

3.2.1 Data source and type

To meet the designed objective both primary and secondary data are necessary. Primary data were collected directly Voluntary interviewers, key informant, FDG, the secondary data collected sources used for the study from different published and unpublished documents, projects, previous researches done and data files from the internet or websites. Both quantitative and qualitative data types were collected from the relevant sources.

3.2.2 Data collection method

The primary data were collected through questionnaires, field observation, key informant interviews (elders, religious leader and DA), & focus Group discussion that has purposely selected.

Key informal: a key informant has made with selected farmers who are knowledgeable about the trend of forest area coverage and impacts of deforestation on local livelihood at Gasore kebele.

Field observation: a critical field observation was used see the fact on the ground like land use system, land degradation status, and other associated problems are a result of deforestation in the study area.

Questionnaires: structured questionnaires were prepared and distribute for the selected respondent in a way to obtain the relevant and reliable data about the impacts of deforestation on local livelihood of the study area.

Focus group discussion: discussion with experts and local community also held in order to supplement the data obtained from the above stated data collection instrument, thus two Focus group discussion having 14 participant were formed.



Figure 2: Interview and discussion by researcher

3.2.3 Sampling Method and Techniques

In cheha there are 38 kebele from these Kebeles gasore can be select purposely because of it is highly deforested. The Kebeles have eight villages from these villages although the localities in which the research was conducted. Because the reliable information would be collected as, the respondents are those who are participating in deforestation in study areas. 100 household were selected randomly. The sample size was decided based on sample size determination formula, which is give a care to have the sample size of the study to be as representative as possible in accordance with the time. The extent of households were selected by using simple random sampling techniques. Therefore, to find out representative sample for this study, we would have been taken the following formula adapted from Israel (1992) is used.

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

Where

N= the total population

n= the required sample size

e= the precision level which is = (±5%) Precision

Levels

Where Confidence Level is 95%

$$100/1+100(0.05)^2= 80$$

The sample size was 80 but due to time and resources constraints, the researcher has determined the sample size to be 31. For key informant interviews, two carefully selected persons from each sample village were involved: elders and village representative. The sample from each sampling technique was to give an equal chance for the population.

3.2.4. Data analysis and presentation

The data were collected through questionnaires, key informant interviews and observations about the impacts of deforestation on local livelihood of the communities can be analyzed by using descriptive statistics. The qualitative data collected through key informant interviews were summarized and narrated. The quantitative data obtained through formal surveys can be analyzed using numbers and tables. To make the data clearer, some tables, figures and charts or graphs were included. After analyzing the data, it was interpreted thoroughly. In this case, descriptive statistics SPSS software program was used to see the mean, and percentage differences among the respondents.

CHAPTER FOURE

4. RESULT AND DISCUSSION

4.1 Background of Respondents

This section looks at the demographic characteristics of the respondents interviewed during the field survey for the study. Though this section does not necessarily address the core objectives of the study, however it provides useful information that complement the findings for policy decisions to be made on the affected population.

Age status in study area: The study focused on respondents who were twenty and above since, this age cohort (20+) is largely, economically active and regarded as matured. Thus the ages of the respondents were categorized as: 20-30 years, 30-40 years, 40-50 years, 50-60 years, 60-75 years, and was found to constitute 29 percent, 32.4 percent, 29 percent, 3.2 percent 6.4 percent, respectively (table 3). The ages of the respondents as noted depicts that rural urban migration of the youth population is eminent since the youth age cohort (20-30) constitute 29% of the respondents.

The interview conducted with some of the youth during the survey also indicated that the youth in the communities do not find much prospects in the forest and its resources. Farming has been left in the hands of the elderly and the aged who depend on hire labor with their little earnings instead of the youth being encouraged to take over farming activities that will increase productivity. The situation has led to subsistence and peasant farming.

Table 3: Ages of Respondents

Age	Frequency	Percent (%)
20-30	9	29
30-40	10	32.4
40-50	9	29
50-60	1	3.2
60-75	2	6.4
Total	31	100

Sources: Own survey, 2019

Marital status of respondent; As indicate below the table were some of the respondent marital status of the total respondent were married 28(90.3%), single 3(9.7%) this much of the respondents were married, they had an indigenous knowledge to assess the major causes of deforestation and assess socio-economic impacts of deforestation (table4).

Table 4: Marital status of respondent in study area

Marital status	Frequency	Percent
Single	3	9.7
Married	28	90.3
Total	31	100.0

Sources: Own survey, 2019

Religion statuses; As show below table in the study area are out of the 31 total respondents 58.1% were Muslim and 41.9% were orthodox this shows that more famers Muslim in study area (table 5).

Table 5: Religion statues in study area

Religion statues	Frequency	Percent
Muslim	18	58.1
Orthodox	13	41.9
Total	31	100.0

Sources: Own survey, 2019

Length of stay as show below table length of stay of the respondents from 31 total respondents 61.1% and 32.3% were stays more. This shows that more farmers have long stay in study area.

Table 6: Length of stay at current place of residence

Length of stay at current place	Frequency	Percent
11-20	2	6.5
21-30	10	32.3
>30	19	61.3
Total	31	100.0

Sources: Own survey, 2019

Educational statuses; As show blow the table the majority of respondents are no formal education 11(35.5%), read and write 2 (6.5%), primary9 (29%), secondary 1(3.2%),

college/ diploma 6(19.4), university 2(6.5) they are contributed the effect of deforestation on livelihoods (table 7). However, there is the some barrier that related with the information about the effect of deforestation on livelihood due to the majority of the respondents are no formal education and primary education 20(64.5%).

Table 7: Educational statuses of respondent

Educational statuses	Frequency	Percent
no formal education	11	35.5
read and write	2	6.5
Primary	9	29.0
Secondary	1	3.2
college/diploma	6	19.4
University	2	6.5
Total	31	100.0

Sources: Own survey, 2019

4.2 The livelihood strategies in the local community

Economic Activity: As Show blow table the communities in study area have been engaged on different economic activities including the forest-based activities (35.5%) as one of the main sources of income for their livelihoods (32.3%)whereas mixed,(22.3%) crop production and 6.4%,3.2% are governmental and trade respectively (table 8). The local forests and other natural resources have been supporting the livelihoods of the communities in diverse ways in ensuring household food security forest- based activities

Table 8: major economic activity in study area

Major economic activity	Frequency	Percent
crop production	7	22.3
Mixed	10	32.3
governmental employer	1	3.2
Trade	2	6.4
Forest based activities	11	35.5
Total	31	100.0

Sources: Own survey, 2019

Farmland; as show below the table, the farmland condition of the respondents the majority of the respondents have the own farmland 24(77.4%) and 7 (22.6%) have no their lands. As we get the information from the respondents their land is at least one

species of the plant can be founded this used for protection of soil erosion, for fuel wood and other uses.

Table 9: farmland in study area

Farmland	Frequency	Percent
Yes	24	77.4
No	7	22.6
Total	31	100.0

Sources: Own survey, 2019

According to below table, the people more 80.6% can use of the chemical fertilizer and 19.4% not use the chemical fertilizer. According to this reason the local people say's the major peoples can use chemical fertilizer the problem of deforestation happened in the environment.

Table 10: use chemical fertilizer and other agricultural input in study area

Chemical fertilizer user	Frequency	Percent
Yes	25	80.6
No	6	19.4
Total	31	100.0

Sources: Own survey, 2019

According to below the table, the landholding size more decrease 93.5% reported the out of the 31 respondent 29 respondents.

Table 11: land-holding size over the past 30 year in study area

Land holding size over past 30 year	Frequency	Percent
Increase	2	6.5
Decrease	29	93.5
Total	31	100.0

Sources: Own survey, 201

Number of domestic animals; as show below the table, domestic animal in study area the more people 48.4%, 51.6%, 32.3% the people in study area more give attention to product of those domestic animals.

: Table 12 the number of domestic animals in study area

Number of domestic animal	Number of respondent	Percent
Cow	6	19.4
Oxen	2	6.4
Sheep	-	-
Chicken	10	32.3
Goat	13	41.9
Donkey	-	-
Total	31	100

Sources: Own survey, 2019

Livestock feed; According to below the table, in study area 19(61.3%) and 7 (22.6%) feed on free grazing on communal land and have their own grazing land and remain 1(3.2%) and 4(12.9%) were feeding their livestock cut and carry from postural land and using other alternative.

Table 13: Livestock feed in study area

Livestock feed	Frequency	Percent
free grazing on communal grazing land	19	61.3
own grazing land	7	22.6
cut and carry from communal pasture land	1	3.2
No additional land	4	12.9
Total	31	100.0

Sources: Own survey, 2019

Trend of Grazing land size; as show below the table, out of the 31 respondents 29 (93.5%) mentioned that their grazing land size is decreasing and the remaining (6.5%) of the respondents' report that it is increasing

Table 14: the size of grazing land in study area

The size of grazing land	Frequency	Percent
Increasing	2	6.5
Decreasing	29	93.5
Total	31	100.0

Sources: Own survey, 2019

Energy source; as indicated below the table, around 96.8% of the households are use wood as the primary energy source, the remaining 3.2% used charcoal. The local

communities depend on forest resource order to meet their energy need. more forest for energy household consumption without sustain ways of use of forest.

Table 15: The most commonly used energy source household in study area

Energy source	Frequency	Percent
Wood	30	96.8
Charcoal	1	3.2
Total	31	100.0

Sources: Own survey, 2019

Sources of wood; As show below the table, the major (41.9%) observed that fuel wood was a significant source of domestic energy from their own plantation forest, whereas 25.8% from market, and the remaining 22.6% from natural forest. The respondent reportedly unsustainable fuel woods and other forest product uses, however, have led to severe forest degradation and climate change to the environment whereas the livelihood easily affected.

Table 16:the sources of wood

Sources of wood	Frequency	Percent
own tree	13	41.9
natural forest	7	22.6
from market	8	25.8
Total	31	100.0

Sources: Own survey, 2019

4.3 The major causes of deforestation

As indicated below the table, all human being depend on their environment direct contact get different purpose by cutting tree for construction, expansion farmland for fuel wood (table 17). From this easily understand reflect the rate of deforestation in the study area is forest cleared for agricultural production, high population in the area and some people cannot see forest as a useful.

The information from the respondents the effect of deforestation in the study area is Agricultural land expansion 26(83.7%), and population growth 31(100%) (Table 17). In that it severely the soil fertility in the form of splash and sheet erosion due to low coverage of the tree and some of land the gully erosion formed especially in the range land in forest land as well as in the degraded land.

Because of the number of population rapid increases, expansion of farmland and expansion of urbanization in study area. The major causes of deforestations are shifting cultivation estimated 300 million people living as shifting cultivators who practice slash and burn agriculture and are supposed to clear more than 5 ha of forest annually (ITTO, 2002).

Table 17: Causes of deforestation in study area

Cause of deforestation	Severely		Moderately		Low		Total	
	Frequency	%	Frequency	%	frequency	%	frequency	%
Agricultural land expansion	26	83.7	5	16.3	-	-	31	100
Over grazing	12	38.7	19	61.3	-	-	31	100
Infrastructural expansion	10	32.3	18	58.1	3	9.7	31	100
Population growth	31	100	31	100	31	10	31	100
Scarcity of farm land	19	61.3	12	38.7	-	-	31	100
Scarcity of grazing land	17	54.8	12	38.7	2	6.7	31	100

Sources: Own survey, 2019

As show below, the table, in study area, respond that the major (38.7%) causes of land degradation are lack of god management, in this case the land which found around Gasore keble decrease the quality of land fertility. Whereas 22.6%, 35.5%, the major form of land degradation problem soil erosion and deforestation respectively the people that depend on those resource vulnerability by different environmental disturb. The relative supported idea Agricultural activities are one of the major factors affecting

deforestation due to overgrowing demand for food products. Hung amount tree are fell down to grow crops (Kaushik, 2006).

Table 18: cause of land degradation on study area

Cause of land degradation	Frequency	Percent
soil erosion	7	22.6
Deforestation	11	35.5
Management problem	12	38.7
Total		100.0

Sources: Own survey, 2019

4.4 impacts of deforestation on livelihood in the study area

As indicated below the majority of the respondents (64.5%) moderately deforestation has reduced availability of fuel wood, this affect local people livelihood, by increase the cost of the fuel wood. Whereas (58.9%) respondent explained that deforestation moderately affect availability of water. This in turn have Impact of livelihood through decreasing available water and walk long distance to get water, and cause to lost their time and resource.

On the other hand 71%, & 74.2% also stated that deforestation decrease the availability of medicinal plant and livestock respectively. The focus group discussion & interview participant indicated that due to deforestation availability of medicinal plant affected severely and forced them to invest on modern medicine means before easily to used extract medicinal plant from the forest, know a day's the people going to hospital extra their safe. Due to deforestation livelihood impact of rearing of livestock because the decrease the amount of fodder, decrease the amount of grazing land and the management problem of livestock. The relatively the supported idea deforestation decrease in the future capacity of the forest to produce wood, fodder, fruit and medicinal plants and so on (Reddy, 1999).

Deforestation also results in declines in biodiversity on physical environment. The removal or distraction of area of forest cover has resulted in a degraded environment with

reduce biodiversity. Due to the impact of deforestation, so majority (87.1%) of the household survey participant depicted moderately gully formation is affect the biophysical and the severely (100%) whereas the soil fertility reducing the environmental productivity serves. This idea also supported by (Itto, 2002), deforestation has decline the different animals and diversity of plant species. It has lost the structure, function, species composition and productivity normally associated with the natural forest type expected at time.

Table 19: Impact of deforestation in study area

Impact of deforestation	Severalty		Moderately		Low		Total	
	Frequen cy	%	Freque ncy	%	Freq uenc y	%	Frequ ency	%
Shortage of fuel wood	11	35.5	20	64.5	-	-	31	100
Shortage of water	13	41.9	18	58.9	-	-	31	100
Decrease traditional medicinal plant	9	29	22	71	-	-	31	100
Decrease number of livestock	8	25.8	23	74.2	-	-	31	100
Gully formation	4	12.9	27	87.1	-	-	31	100
Reducing soil fertility	31	100	-	-	-	-	31	100

Sources: Own survey, 2019

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study showed that, there is a significant deforestation process in the study area. This is as a result of the fact that, most of the dwellers in the study area depend on agriculture, especially crop cultivation; which required the clearing and converting of vast forest areas into farmlands. From interviews with some of the farmers, it was pointed out that, the principal way they expand their farm sizes is by clearing additional virgin lands, which are usually forest areas.

The major causes of deforestation and forest degradation in the study forest communities include bad farming practices such as slash and burn method and clearing of vast forestlands for agricultural purposes. Though some of the farmers indicated that, illegal logging of trees are rampant in their communities; however, they could not provide concrete evidence/data on the activities of such chain-saw operators.

During the field survey, it was also realized in the study communities that, more faire wood production was widespread and thus, serve as another livelihood activity that precipitates deforestation in the study area. During the survey, it was made known to the researcher that; many of the faire wood producers undertake their production in deep forests, which makes it challenging to track and forestall their activities.

Sources of Livelihood for Forest Communities in the Study area the study revealed that the crop farmers are engaged in the cultivation of both food and cash crops with a greater proportion of producing solely food crops. The major food crops, which are cultivated, include maize and vegetables such as tomatoes, onion and fruits such as mango, avocado, and bananas. The cash crops were mainly chat and were grown on large scales as plantation farming.

Effects of deforestation on Crop Production crops yield is one of the major yardsticks in crop production, which can be used to assess the effects of changing forest cover on livelihoods. Data gathered from the District Agricultural Development Unit (DADU) revealed that the yield of most crops including maize, and plantain saw a decline in their production with the exception of yam, which increased. The study has demonstrated that, the yield of major crops in the study district have been decreasing over the years while the ones which experienced increase increase at a decreasing rate. For example, the yield of maize, this trend was similar with all the other crops that are cultivated in the district.

5.2 Recommendations

Based on the findings of the study, a number of recommended is being made to help reduce deforestation and its effects on livelihood. In general, the recommendations is be offered to serve as explicit examples of strategies and measures that can be adopted to reduce deforestation and its impacts on livelihood.

- Awareness creation should made on local community regarding, forest reserve, methods of tree production, sustainable forest management practices, conservation and livelihood based approaches.
- Diversify the local economy. Like the train, the farmers in order to engaged on alternative livelihood approaches such as Beekeeping.
- Enhanced access to long-term financial support and enhance financial capacity to involve on investment.
- Strengthening the public institutional found in the study area and let them to contribute something in solving problem with collaboration to other stakeholder.
- Promotion Action Research and fill the gap identified by researcher.

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7. APPENDIXES

Wolkite University
College Of Agriculture And Natural Resource
Department Of Natural Resource Management
Household survey questionnaire

Dear Sir / Madam: A research under the support of Wolkite University on the title called **“Effect Of Deforestation On Livelihoods Of Local Community: The Cause Of Cheha Woreda Gasore Kebele In Gurage Zone, Snnpr, Ethiopia”**. The objective of this survey is to collect data about the livelihood strategies in the local community in the study area, assess the major causes of deforestation in the study area and assess socio economic impacts of deforestation in the study area. It is expected to generate and provide helpful information for policy makers and development practitioners. Therefore, dear respondents; your inputs as a stakeholder to fill this questionnaire is highly appreciated and information provided will stay confidential and your responses are only used for this study. If you hesitate, you are not obliged to mention your name and your right to involve or not is also respected

Prepared by

Tesfaye birhanu Signature _____

Meseret degfa Signature _____

Mintesnot abriham Signature _____

Part I:-General background information

1.1 Sex: _____ Age: _____ Position in the Household: _____

Wereda: _____ Kebelle: _____ Village

1.2 What is your marital status? 1) Single 2) Married 3) Divorce 4) Widowed

5) Other specify _____

1.3 Religion 1) Muslim 2) Orthodox 3) Catholic 4) Protestant 5) Traditional belief

1.4 Family Size: Total _____ F: _____ M: _____

1.5 Length of stay at current place of residence (year):

1)1-10 2) 11 -20 3) 21-30 4) More than 30

1.6 Educational statuses 1) No formal education 2) Read and write 3) Primary- /grade 1 – 8/

4) Secondary- /grade 9 – 12/ 5) College 6) University 7) Other specify _____

Part II:- ECONOMIC ACTIVITY

Direction: Encircle and/or fill in the blanks for the following questions; choosing more than one alternative is possible where necessary.

2.1 What is your major economic activity? 1) Crop production 2) Animal rearing

3) Both 1 & 2 4) Government employee 5) Trade 6) others (specify) _____

2.2 Do you have your own farm land? 1) Yes 2) No

2.3 If your answer for *Q.N. 2.2.* is 'yes', what is the estimated total size of your farmland?

1) Less than 1 ha 2) 1-2 ha 3) 3-4 ha 4) Above 4ha

2.4 How do you see your current landholding to support the household?

1) Insufficient 2) Sufficient 3) Excess

2.5 If your answer for *Q.N 2.4.* is insufficient, do you have any option of having additional land?

1) Yes 2) No

2.6 If your answer for *Q.N 2.5.* is 'Yes', what are the options? 1) Lease/contract land

2) Clearing forest 3) Clearing grazing land 4) Encroaching the park

5) Encroaching communal land 6) Others (specify)_____

2.6 If your answer for *Q.N 2.5.* is 'NO', what supplementary means of income to support your family ? 1) Fuel wood selling 2) charcoal selling 3) use forest resource as direct food source 4) specify other _____

2.7 Do you use chemical fertilizer and other agricultural input for crop production?

1) Yes 2) No

2.8 If your answer for *Q.N 2.7.* is "Yes" when you use for the first time?

1) Over the last 5 years 2) Over the last 10 years 3) Over the last 20 years

4) Over the last 30 years 5) specify if others _____

2.9. Why you use chemical fertilizer 1) To increase land productivity 2) Government pressure

3) Others (Specify)_____

2.10. How is the trend in your landholding size over the past 30 years?

1) Increasing 2) Decreasing 3) No change

2.11. If your answer for **Q.N. 2.10** is ‘**increasing**’, what are the reasons behind the increment?

1) Cultivating forest land 2) Cultivating grazing land 3) Cultivating communal land

4) Others (specify)_____

2.12. If your answer to **Q.N.2.10** above is ‘**decreasing**’, what are the root causes of decreasing?

1) Increase in human population 2) Land redistribution 3) land taken away by government 5) Others (specify)_____

2.13. Is there any way to get the land for newly formed household? 1) Yes 2) No

2.14. If your answer to **Q.N.2.13** above is “**Yes**” how?

1) Share the household land 2) Government provides him/her 3) Illegally encroaching

available land (forest, park, communal) 4) Through cooperative 5) Other (Specify)____

2.15. If you are allowed to sell your piece of land do you want to sell? 1) Yes 2)No

2.16. If no, why not? 1) Not acceptable by the society 2) Not allowed by the family

3) Not allowed by the government 4) Other (specify) _____

2.17. Do you have your own livestock at present? 1) No 2)Yes

2.18 If your answer to **Q.N.2.19** is ‘yes’, what is the type and number of domestic animals you have?

1) Cow_____ 2) Oxen_____ 3) Sheep_____

4)Goat_____ 5) Donkey_____ 6) Chicken _____ 7) Others specify

2.19. What is the trend of your livestock holding?

1) Increasing 2) decreasing 3) no change

2.20. How do you feed your livestock? 1) Free grazing on communal grazing land

2) Own grazing land 3) Cut and carry from communal pasture land

4) Grazing inside the park 5) others (specify)_____

2.23 How do you see the size of grazing land overtime?

1) Increasing 2) Decreasing 3) Remain the same

2.24. If your answer is ‘decreasing’, what are the reasons? 1) Expansion of farm land

2) Degradation of grazing land due to over grazing 3) other (specify)

2.25. What are the most commonly used energy sources for your house hold?

1) Wood 2) Animal dung 3) Crop residues 4) Charcoal 5) others
specify_____

2.26. If your answer is wood where are the sources?

1) Own tree 2) Natural forest 3) from market 5) other, specify_____

Part III Cause of deforestation

What were/are the direct and indirect causes of Deforestation and what is extent?

Reducing the availability of animals					
Gully formation					
Reducing soil fertility					
Seasonal flow and Drying up of streams and river					
Reducing the amount of rainfall					
Increase temperature					
Specify if others					

4.6 Does deforestation considered as a socio-economic problem in your area? 1) Yes

2) No

4.7 If yes please rate it

Socioeconomic impact of Deforestation	Yes	No	Extent		
			Severely	Moderately	Low
Shortage of fuel wood					
Shortage of water					
Decrease availability of traditional medicinal plant					
Decrease number livestock					
Reduced the availability of medicinal plant					
Specify if others					

