JIMMA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

COLLEGE OF NATURAL SCIENCES

DEPARTMENT OF BIOLOGY

Conservation practices, perceptions and community attitudes towards Dubata forest in Menesibu District,Oromia Region,West Ethiopia

By: Temesgen Gemechu

A Thesis submitted to Department of Biology, College of Natural Sciences, Jimma University, in partial fulfillment for the requirement for the degree of Master of Science in Biology (General Biology).

Advisors:MulugetaWakjira (PhD)

TokumaNegisho (PhD candidate)

October, 2019

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Approval form

Jimma University

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The thesis entitled as Conservation practices, perceptions and community attitudes towards Dubata forest in Menesibu district, Oromia region, west Ethiopia has been approved by the department of Biology for the partial fulfillment of the Degree of Master of science in General Biology

Approved by the examining board

1. Chairperson, examination board

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Declaration

I, the under signed, declare that this is my original work, has never been presented in this or other University, and that all the resources and materials used for the thesis have been dully acknowledged.

Name: Temesgen Gemechu

Signature_____

Date _____

Place: Jimma University

Date of submission_____

This thesis has been submitted for examination with our approval as candidate' advisors

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Tokuma Negisho (PhD candidate)

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Date_____

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Abstract

Forest is the major source of livelihood and a sign of the identity of the indigenous people. Attitudes play a major role in acceptance of environmental policies or management actions. Perceptions of forest value are a valuable source of information on local perspectives, knowledge and beliefs. Forest degradation is a threat to the economic development of Ethiopia in general and in Menesibu district in particular.Local communities are directly and indirectly dependent on the forests for their livelihood. The study was conducted between October 2018 and February 2019. The study assessed conservation practices, perceptions and community attitudes towards Dubata forest in Menesibu District,Oromia Region,West Ethiopia. A sample of 200 respondents were randomly selected from Buke Sachi kebele.Data was analyzed using percentages, frequency, and Chi-square test for associations between independent and dependent variables in SPSS version 20.Chi-square testrevealed that there was significant association between educational level and occupation with most attitude and perception variables at 5% significant level., In contrast sex and age did not significantly associate with most issues, with one exceptionthe actual and potential threats to the conservation of Dubata forest were explored, such as lack of enoughwell- trained staff, lack of strict rule and regulation of trade associated forest products, intermittent support from governmental and nongovernmental stakeholders, shortage of grazing land andagricultural expansion due to population growth , low level of participation of local people in forest management,etc. The study also identified practices that enhance forest conservation, such as afforestation, woodlot plantation on non-forested land and reforestation of degraded natural forest, occasional patrolling activity as well as communities attitudes were greatly explored, and some recommendations were forwarded.

***Keywords**:Forest conservation, socio-demographic variables, practice, attitude, perception, Dubata forest*

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Acknowledgment

First of all, I would like to give my glory to almighty God as nothing could have been possible without Him. And then I would like to express my deepest gratitude to my main advisor Dr.

Mulugeta Wakjira and my co advisor Mr. Tokuma Negisho for their encouragement, eagerness to help, valuable and constructive comments from early stage of research proposal development to final write up of the thesis. Since their continuous technical and expertise support and commitment throughout my research have been a huge input to productively finish this research. Last but not least, I would like to extend my thanks to Jimma University, College of Natural Sciences for financial support and Department of Biology for facilitation of my study and material support

List of Acronyms

CDM = Clean Development Mechanism

CFUG= Community Forest Users Group

Df =Degree of freedom

DF: Department of Forest

DFO= District Forest Office

EFAP = Ethiopian Forestry Action Program,

EFAP = Ethiopian Forestry Action Program

FD= Forest Department

FGD= Focus Group Discussion

FRL= Forest Reference Level

FUG= Forest Users Group

GHG= Green House Gas

IPCC = Intergovernmental on Climate Change

NFTP= none forest timber product

NP =National Park

NTFPs = Non Timber Forest Products

PA= Protected Area

PES = Payment for environmental service

PFM= participatory forest management

REDD+ = Reduced Emissions from Deforestation , Degradation and conservation management.

RF= Reserved Forest

SLMP= sustainable land management program

1. Introduction

1.1 Background of the study

In Ethiopia forests covered around 40% of the countrys total landmass around the 19th centuary (Ethiopia forestry action program ,1994).However, forest areas have alarmingly decreased to 15.1 million ha by 1990 and 12.5 million ha by 2015 ,covering only 11.4 % of the total landmass(FAO 2015). The large majority of people's lives are closely linked to natural resource, particularly forests. However, the absence of appropriate forest use and benefit sharing mechanisms are resulted in a situation where by forest dependents are forced to over utilize forest resource to the extent of irreversible destruction. . Rapid population growth (3% per year), extensive forest clearing for cultivation, over-grazing, movement of political centers, and exploitation of forests for fuel wood and construction materials without replanting has reduced the forest area of the country to 16% in the 1950s and to 3.1% by 1982 (UNEP, 1983).Currentely in Ethiopia a tiny fraction of natural forest is found in small patches mainly in the southern and southwestern parts particularly in oromia,south Nation,Nationalities and peoples region and Gambella regional state accounts about 95% of high natural forest(WBISPP 2004). The latest forest cover figure available for Ethiopia is from the data from the forest resource assessment(FAO 2010) is 12.2 million hac (11%).Among different opportunities for conservation of forest and biological resources; the improvement in the attitude of communities towards biological resources and their values, the prevalence of NGOs that works on conservation activities and the presence of good political support from government are the majors Yang *et al*. (2015)

People may express anti-environmental attitudes for variety of reasons, including low education levels, lack of awareness and participation Allendorf *et al*. (2006). In addition, income level often influences people's support for particular issues (Kaczensky *et al*., 2004; Kleiven *et al.* 2004). Positive attitudes might not necessarily translate into sustainable practices if only those who had no resource use interest in the protected area supported conservation (Arjunan *et al*., 2006).

Understanding local Community perceptions of forest management and the factors that influence these perceptions is important for designing management policies that are sensitive to their needs. However, more often than not local communities' perceptions do not receive as much

attention as they deserve (Guthiga, 2008). This implies that, low attention given to local communities' perception towards a given forest management approach has been a telling factor for their unsustainable (Mngumi, 2013). Previously, Chase *et al*. (2004) cited in Guthiga (2008) mentioned that in many cases people's perceptions of these efforts are rarely elicited, analyzed and included in decision-making processes. Since two decades, the people-centered management approach has been emphasized in several forest conservation policies and projects in most of the tropical countries, and yet due to differences in abilities, attitudes and perceptions of the forest community, securing active and equitable participation from all social layers remains a challenge for all forest conservation projects (Ratsimbazafy *et al*., 2012).

Unless a strong measure is taken to develop the already dwindled forest resources, no question, the country will turn out to be a barren land in the near future, unable to support life. Therefore, efforts have to be made to create conducive environment, such as clear policy frame work and other supportive rules and regulations, efficient bureaucratic procedures to encourage the involvement of the private sector in the forestry conservation and development activities. This situation also calls for an immediate action of developing forest resource together with devising an effective method of conserving the devastated forest resources. The relevant law has to be in place. If there is an effective law that has a strong mechanism to enforce it there by correcting the situation with the forestry sector of the country will change for the better. (Demele, 2001)

Despite numerous studies conducted to determine household's attitudes on forest conservation; there is still a need to understand the experiences in Ethiopia. This will help in shaping the ever changing forestry policies as they drive towards inclusion of locals in conservation of the forest resources. Though literature review has revealed that more studies were done elsewhere in respect to forests, which may serve as the basis of informing policy and practice in Ethiopia. The fact that attitudes are volatile in nature (Infield and Namara 2001),makes it difficult to generalize some study findings to different locations. Following on the proposition that attitudes are shaped by the ecological, economic and ethnological/cultural factors, it becomes important to undertake site specific studies to assess conservation attitudes practice and perception. Therefore, it is necessary to investigate current practices, perceptions and attitudes of Mensibu people for long term forest management.

1.2. Statement of the problem

The vegetation's of Ethiopia that may qualify as 'forests' are natural high forests, woodlands, plantations, bamboo forests and shrubs. Forest destruction is not the problem of one or two regions but the problem of Whole Ethiopia.

Dubata forest is under inability to impeding illegal extraction from different corners. Threats become more intense and Dubata forest vulnerability is more numerous and potentially serious in consequence. The resultant repercussion such as deforestation is occurring at an alarming rate. The effect of these resultant repercussion observed in navigation of forest conversion to other land cover class.

But no previous research works attempted to examine local community conservation practices, perceptions and attitudes towards Dubata forest. The Factors which determine local residents' perceptions, attitudes and practices to conserve or not the forest were not properly studied and identified by the concerned stakeholders. Also local community' participations towards forest conservation and practices in conserving forest or trees at their plantation area not clearly identified. Though these perceptions and attitudes have effect at all levels, their effect is seemingly high in the district. Thus, the purpose of the study was to fill the gaps and also manifesting awareness in the effect of community practices, perceptions and attitudes on forest conservation in Menesibu district West Wollega zone, Oromia region.

1.3. Objectives of the study

1.3.1 General objective of the study

To assess perceptions, conservation practices and community attitudes towards Dubata forest conservation in Menesibu District, Oromia region, west Ethiopia.

1.3.2. Specific objectives of the study

- ♠ To identify the community practices that enhance forest conservation.
- ♠ To assess perception of the local community towards forest conservation
- ♠ To assess attitudes of local community towards use offorest and its conservation.
- ♠ To identify the association between socio–demographic characteristics (with attitude, perception and forest conservation practices of the local community.

1.4. Significance of the study

This study will provide baseline information on the practice, attitude and perception of local community on Dubata forest conservation as well as the main conservation problem to Dubata forest. This study will also provide necessary information for authorities who work on conservation management. and other researchers interested to carry out additional studies on the current community perception, attitude and practice on forest conservation.

1.5 Delimitation of the Study

To make the research manageable and feasible, the study was conducted in Buke sachi Kebele of Menesibu District. This is because good attention is given to Dubata forest in relative to other forests in the district to different information to understand the issue under study.

1.6. Ethical Issues Consideration

The researcher has been strived to be open and honest to any stakeholders as much as possible. Great care was taken to ensure that the procedures used to collect data are ethical. Before the data collection, a formal letter was given to respective officials in the Kebeles as well as Menesibu District agricultural office and related centers to collect the necessary data to conduct this research in the area.

2. Review of related literature

2.1 Forest conservation and threats in Ethiopia

2.1.1 Forest conservation in Ethiopia

In Ethiopia,considerable amount of forest and woodland resources are being managed effectively by local communities and individuals that are able to use diverse traditional management practices either commonly or privately. The *Gada* system, for example, divided society into age classes, the peak of which males entered the *Gada* council for a period of eight years. These elders were responsible for day-to-day jurisdiction as well as reiteration and introduction of the locally agreed rules and norms of resource use (Wakijira *et al*., 2013). Traditional rights to the forest and cultural practices are important in influencing attitudes (Badola *et al*., 2000). Since the last two decades, the involvement of civil society (CSOs and NGOs) in forest management is increasing with considerable multi–dimensional successes such as lobbying for improved policy and introducing and testing new community based forest management schemes(Edwards, 2010).

Ethiopia face the challenge of how best to manage and conserve their forests. Forest management systems adopted by governments, whether they are protectionist oriented or incentive-based are important in determining outcomes of conservation and sustainable use (Agrawal and Gibson, 1999). Historically, conservation strategies have been dominated by attempts to fence off or reserve areas for nature and exclude people from the reserved areas (Adams and Hulme, 2001).

Ethiopia has taken significant legal steps towards improved management of forests and may change the forest management regime in the country. The new forests policy and forest proclamation (542/2007) is one such step. In this proclamation, besides the definition of forest ownerships (primate and state) and purpose (protection and production), decentralized forest administration is recognized. Ethiopia has also gathered experiences on innovative forest management approaches including Participatory Forest Management and area enclosures. Woodlots, agroforestry and public afforestation and reforestation are also increasing. Additionally, NGOs are pioneering special forest management strategies such as Biosphere Reserves and REDD carbon projects. The government has also introduced a national tree planting campaign every year all over the country in which every person is encouraged to plant

trees, with significance influence on the attitude of the population on the trees (Moges *et al*., 2010).

Ethiopia formulated the first ever comprehensive forest policy in 2007. A forest law enacted with Proclamation No. 94/1994, in 1994 was in use earlier. The proclamation recognizes three types of forestland ownership, namely: state, regional and private forests. It also states that forest development should derive benefits for local people. In addition, tree cutting, grazing, beekeeping and harvesting all sorts of forest products require a written permit from the appropriate regional government or ministry. It also prohibits cutting products or performing activities in protected forests. In order to preserve the remaining natural forest, protect the environment, and the genetic pool reserve, 58 National Forest Priority Areas (NFPA) covering an estimated area of 3.6 million hectares have been selected. However, these protected NFPAs suffer from heavy pressure due to increasing demands for new agricultural lands and fuel-wood (Thomas and Bekele, 2003).

Participatory forest management (PFM) was introduced in Ethiopia around the mid-1990sas a new system of forest governance. PFM was meant to avert the persistent problems ofdeforestation and to deliver better social and economic outcomes compared with theformer centralized command-and-control resource management approach. In the Ethiopian context, PFM is recognized as a co-governance institutional arrangementwhere forest management responsibilities and use rights are legally shared between agovernment agency and a community-based organization (CBO), such as forest user groups or forest cooperatives (Bradstock *et al.,*2007; Winberg,2010). The inception of PFM in Ethiopia was considered a radical departure from the centralized and technocratic forest management style to a more inclusive arrangement. The PFM institutionalization process and its subsequent performance have proved controversial among scholars, policy-makers, practitioners and international development partners. Some claim that a major transformation has taken place consequent to PFM on the management of physical resources, institutional arrangements and livelihoods of

resource-dependent communities. Proponents of PFM present performance indicators such as a decline in the deforestation rate and an increase in forest regeneration(Tsegaye *et al.*2009) and the establishment of community based forest management organizations (Bradstock *et al*. 2007; Tsegaye *et al*.,2009).

2.2. Threats to Ethiopian forests

Several researchers and projects have carried out assessments and documented about the extent and some threat of forest resources and other land uses of Ethiopia. According to Moges*et al.* (2010, Ethiopia's forest resources supply most of the wood products used within the country, as well as a large volume of diverse (NTFPs), besides their ecological functions. As Dinkayoh (2016) mentioned one challenge Ethiopia faces in light of managing forest resources for multiple purposes including carbon is that the national energy balance is dominated by fuel wood, which is the main source of energy to both urban and rural areas, accounting for over 90% of the primary total energy supply.

2.2.1. Deforestation in Ethiopia

Uncontrolled logging, illegal charcoal production and fuel wood collection are some of the major causes of deforestation (Amare, 2015). The main driving force behind this forest loss is population growth, both due to natural increased and through in-migration. This has led to an increased demand for farm land – a need which is usually met through forest clearance (Wood et al., 2012).

In Ethiopia, deforestation is an ongoing issue that is causing extinction, changes to climatic conditions, desertification, and displacement of indigenous people. However, among countries with a per capita GDP of at least $4,600, net deforestation rates have ceased to increase (Rojahn, 2006). According to Dinkayoh (2016) the main causes are agricultural expansion; the increasing demand for construction material, industrial use, fuel wood and charcoal; lack of a forest protection and conservation policy; absence of a strong forest administration system capable of arresting the rapidly increasing rate of deforestation. Corruption of government institutions, the inequitable distribution of wealth and power population growth and overpopulation, and urbanization are also the major factor pointed out by (Sucoff , 2003).

Globalization is often viewed as another root cause of deforestation, though there are cases in which the impacts of globalization (new flows of labor, capital, commodities, and ideas) have promoted localized forest recovery (Alain, 2000). Rehabilitation of forests through afforestation, reforestation low agricultural productivity, the poor economic performance of the country, shifting agriculture, livestock production & fuel in drier areas and area enclosures with participatory forest management practices are major causes (Dinkayoh, 2016). According to Zeleke and Hurni (2001) mentioned that lack of viable land use policy and corresponding law

also aggravated the rate of deforestation. New settlements in forests are increasing from time to time and hence resulted in the conversion of forested land into agricultural and other land use systems. At present, the few remaining high forests are threatened by pressure from investors who are converting the moist evergreen mountain forests into other land use systems such as coffee and tea plantations.

2.2.2 Impacts of deforestation

The extensive deforestation has also led to the extinction of various biotas as resulting in significant biodiversity loss. Now, more than 17.1% of the country's land is protected area. However, much of this is forest land that is now widely used for cultivation, grazing, fuel wood and construction (Amare, 2015).Forests play an important role in the global carbon balance. As both carbon sources and sinks, they have the potential to form an important component in efforts to combat global climate change. But the following data indicated that what is happening and its impact that, the national carbon stocks shown here largely agree with 2.5 billion tons in 2005 reported by (Sisay, 2010). On the other hand, the carbon stocks estimates for Ethiopia based on biome-averaged values of 153 million tons by Houghton (1999) and 867 million tons by Gibbs and Brown, (2007) are very low. The removal of trees without sufficient reforestation has resulted in damage to habitat, biodiversity loss and aridity and deforested regions often degrade into wasteland (Dessie and Christiansson, 2007). In northern highlands, one couldn't find forests except old-aged Afro montane forests around the churches and in some inaccessible areas. However, other areas have been completely destroyed and converted to farms and grazing lands.

Globally, Human beings have become a component in the earth's system, driving and accelerating global warming through the rapid release of greenhouse gases (GHGs) into the atmosphere. Human beings alter the composition of the atmosphere through increasing the concentration of greenhouse gases in the atmosphere by anthropogenic causes. There is no doubt that our climate is changing. This poses huge challenges to nations, organizations, enterprises, cities, communities and individuals Developing countries suffer most from adverse consequences of climate change, and the highly vulnerable regions and people are already being affected (Moges*et al*., 2010).

2.2.3.Deforestation – Contributing Factorof Climate Change

The extensive deforestation has led to the extinction of various biotas as resulting in significant biodiversity loss. Now, more than 17.1% of the country's land is protected area. However, much of this is forest land that is now widely used for cultivation, grazing, fuel wood and construction (Amare, 2015).

As a result of forests being cleared forother land uses such as farming or ranching. Some limit the definition of deforestationto the permanent conversion of forests to another habitat. Deforestation activitiesaffect carbon flux in the soil, vegetation, and atmosphere. Deforestation results in soildegradation, carbon emission as a result of plant decomposition left on forest floor,albedo effect, and intensification of hydro-meteorological hazards.Approximately 30% of the Earth's land mass is covered by forests (Percy *et al.,* 2003). Forests influence the global climatic pattern through climate through physical,chemical, and biological processes that regulates the hydrological cycle, temperaturestability and atmospheric composition. There has been a significant decrease in primaryforest area by 300 million ha since 1990. Between 2000 and 2010, around 13 millionhectares of forest were converted to other uses or naturally lost, compared to 16 millionhectares per year during the earlier decade (Joseph *et al.,*2004). This results not onlyin degradation of biodiversity, but also adds 12–15% to global warming by releasingCO2 into the atmosphere and impeding further CO2 storage.

Forests cover~42 million km2 in tropical, temperate, and boreal lands. Forests provide social, economic, ecological and aesthetic benefits to natural systems and people. They actas a hub for biodiversity, act as food supply, have medicinal and economic value,help in hydrological cycle regulation, protect soil cover, and serve as aesthetic andrecreational sites. Additionally, forests influence climate through exchanges of water,carbon dioxide, energy and other chemical species with the atmosphere (Joseph *et al.,*2004; Song *et al.,*2014). Forests store ~45% of terrestrial carbon and can sequester large amounts of carbon(Percy *et al.,*2003). Forests have low surface albedo and can mask the high albedo ofsnow, and help in regulating surface temperatures of the earth. Forests play a key rolein regulating the hydrologic cycle through evapotranspiration and can be used as aneffective tool to mitigate climate change Climate model simulations show that tropicalforests maintain high rates of evapotranspiration, increase precipitation and resultsin a decrease in surface air temperature. Deforestation on the other hand increasessurface temperature, excessive emission rates of carbon dioxide, soil degradationand increase in surface

runoff resulting in flash floods. Removal of forest coveralters global and regional climate patterns and results in catastrophic rainfall spellsfollowed by prolongeddry periods (Strasser *et al.,*2014). During the last few decadesincrease in urbanization and change in land use have resulted in massive increase inthe rate of deforestation causing a distortion of global climate patterns and increasing catastrophic hydro-meteorological events.

Accordingly, Dinkayoh (2016) summarization, Deforestation is a contributor to:

- Global climate change, and is often cited as one of the major causes of the enhanced greenhouse effect. Tropical deforestation is responsible for approximately 20% of world greenhouse gas emissions. Deforestation mainly in tropical areas account for up to one-third of total anthropogenic carbon dioxide emissions (Tadesse, 2007).
- Deforestation results in declines in biodiversity. The removal or destruction of areas of forest cover has resulted in a degraded environment with reduced biodiversity.
- The water cycle is also affected due to deforestation.

Deforestation generally increases rates of soil erosion, by increasing the amount of runoff and reducing the protection of the soil from tree litter

2.3.Practices toward forest conservation

2.3.1 Priority of Government bodies for forest conservation

Managers and planners aware of the systematic differences in values, beliefs, and attitudes held by the public and stakeholder groups are in a better position to define resource issues, develop alternative ways of addressing them, assess their social and cultural impacts, identify acceptable management measures, and monitor the results (Allen *et al*., 2009).

Participation is limited only to forest designation and demarcation during development, conservation and utilization plans (Stauder, 1971). Moreover, it does not require community participation/consultation/consent regarding large-scale farming, mining operations, construction of roads, irrigation, dam construction and other similar investment activities that affect forests. It only requires government approval (Medhane, 2007). In fact, priority is accorded to the protection of communities' interests whenever such designation necessitates eviction of communities. There is a general scientific agreement that the long-term sustainable management of natural resources depends on local people's support. Consequently, assessing local people's

attitudes, taking into account their needs and respecting their opinions, should become a management priority (Moges*et al*., 2010). To minimize the deforestation problem, many efforts have been and are being made by the government and non-government organizations. The development of improved stoves, area closure and plantations are the primary remedial action taken (Dinkayoh, 2016).

In general various studies reviewed pointed that the challenges of biodiversity conservation in Ethiopia are the lack of proper information and awareness about biodiversity among the general public, development planners and policy makers. Usually, biodiversity values are neglected or under-estimated in development planning. A number of policy options could enhance local attitudes toward forest and protected areas. Existing laws, regulations, and policies reflect prevailing social views, but may not adequately describe public sentiments regarding current issues.

2.3.2. Plantations in Ethiopia

Plantations are even-aged forest stands deliberately established by humans on formerly non-forested lands or deforested lands. To strike the balance between the two interests, afforestation/reforestation (referred to as plantations) is very important (Dinkayoh, 2016). However, the monoculture crop plantations, especially rubber and tea, have caused widespread deforestation of areas outside protected areas in recent years (Ziegler *et al*., 2009). Forests were often cleared to plant tea trees and other forests have been cleared for terrace tea plantations. With regard to tea plantations, establishment of new plantations should be strictly prohibited because of the negative effects of this action on biodiversity (Yang *et al*., 2015).

According to studies such as Ethiopian Forestry Action program (EFAP, 1994) indicate that about 35% of Ethiopia's land area or nearly 40 million ha might once have been covered by high forests. By the early 1950s the forest area cover declined to 16% of the total land area. In 1989, the land area covered by forests declined to 2.7% of the total land area. This shows that about 36 million ha of land in Ethiopia is eligible for CDM A/R (Table 1)

Table 1, Potential land area eligible for CDM in Ethiopia: Dinkayoh (2016)

YEAR	Total Land Area (hectare)	Forest Cover (hectare)	Land Potentially Eligible for A/R	Remarks
Pre- 1950	112,800,000	39,480,000		
1950	112,800,000	18,048,000	21,432,000	Afforestation
1989	112,800,000	3,045,6000	15,002,400	Reforestation
Total land that may be dedicated for CDM through A/R			36,434,400	

2.3.3. Conservation organizations to manage forest conservation

Stake holders such as NGOs are contributing for conservation of biological resources in different forest, protected areas and Parks, they accomplish to reduce biological resource threats are awareness creation, introducing the rules and policies and delivering short term training on conservation of natural forest and utilizing plantation forest to full fill their house hold demand. This enables to develop the capacity of communities in terms of resource conservation (Kaltenborn *et al*., 2008 cited in Petros *et al*., 2016). However, any programs should be design to effectively change public attitudes will first require more in-depth knowledge of these attitudes and preferences (Bowker *et al*., 2005). The gap in perceptions and use of forests by local, state and global actors results in disputes over desirable forest management strategies, with powerful non-local actors including state and scientific entities determining policy on forest use and management (Moges *et al*., 2010).

Recently, Moges *et al*. (2010) clearly mentioned that a Policy discrepancy among sectors of the economy is one of challenge in Ethiopia. The implementation of investment and settlement

policies without undertaking Environmental Impact Assessment and implementing the Social and Environmental Management Plan for resettlement program will be in conflict with forest conservation and development efforts. Additionally, despite significant progress in the policy arena, the main challenge is still weak implementation of the policies concerning land use planning, creating capacitated institutions at various levels, land use conflicts, illegal cutting of trees, benefit sharing mechanisms in participatory forest management, etc.

In general, as different literature pointed that the presence of conservation organizations or different NGOs are very important for long term conservation programs by supporting the community and different actors at different level and support the conservation program and policies. But firstly, it is important to improve understanding of local biodiversity and ecosystem features, and local communities' perceptions about the usage of resources especially in West wollegaLandscape. Also it should be known that, local communities are the direct users of biodiversity and ecosystems, and hold valuable information and knowledge. Forest management plans are also essential components of sustainable forest management, but the lack of up-to-date data on forest resources will constrain the development of such plans.

2.4.Local community Attitudes, Perceptions &participations toward forest conservation

2.4.1 Local community attitude toward forest conservation

Attitudes reflect people's evaluations of something as favorable or unfavorable. It is learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object. The evaluative or affective component (like/dislike or favorable/unfavorable) distinguishes attitudes from other concepts. Attitudes can be strong and well-formed or weak and broad, and are generally developed through various learning processes. According toInanç (2017) suggested that Understanding local residents' attitude and using them as a starting point to improve their awareness on future necessity of forest could help management staffs to involve more effectively local communities and improve their awareness about forest conservation within the area.

The positive attitude and ambition of the communities particularly the local elders ,regarding the welfare existence of the resource and its conservation activities are the major opportunity to promote conservation (Petros*et al*., 2016). But, People's perceptions of the protected areas management also strongly influenced their attitude about conservation (Inanç, 2017). People's attitudes, beliefs, and values are relevant to understanding perceptions of natural resources and public land management in the area.

According to Petros*et al*. (2016) indicated that One interviewee elder in his study area described the situation as; "The occurrence of all problems in the park are not because of the local communities dislike the park, but the high demand of the local communities to improve their socioeconomic conditions". Even the local communities have shown their support for the park in occasions the park had faced problems of fire outbreak. Individuals from communities that involve in illegal resource extraction activities lack cultural respect and acceptance. Hence, if alternative ways are implemented to improve the life of communities, the conservation of the park would be successful. Although a benefit obtained is the main factor that improves people awareness about biodiversity conservation, then communities will supported the existence of the forest (Inanç, 2017).

2.4.2 Local community perceptions towards forest conservation

Conservation seeks to accommodate local peoples' needs and aspirations by empowering them, promoting their active participation in local resource management, and improving their economic welfare (Mehta and Heinen, 2001). Perceptions of the local community towards a given natural resource management program is very essential and hence need not to be underestimated. Understanding of community perceptions is of paramount importance in natural resources management (Logomo, 2009 cited in Mngumi, 2013). The rationale of using local people's perception as a basic input for designing appropriate management plans for sustainable development is anchored upon the fact that, local people are the ones who interact with natural environment on daily basis as their mega source of livelihood, thus other things being equal, the acceptability and hence success of any natural resource management intervention will highly depend on the perceptions of the local community towards the same, since such an intervention implies tempering with their livelihoods (Mngumi, 2013).

According to Menon *et al*. (2009) cited in Macura (2010) mentioned that, the gap in perceptions and use of forests by local, state and global actors results in disputes over desirable forest management strategies, with powerful non-local actors including state and scientific entities determining policy on forest use and management Perception may influenced by two essential steps of elements for response and recognition towards the stimulus and elements of sensory experience. These beliefs and perceptions are influenced by judgments, prior experience, knowledge and the education and information efforts by policy makers (Ramli*et al*., 2008). According to Guthiga (2008) mentioned that people's perceptions of conservation issues are likely to be influenced by an array of socio-economic (for example level of education, wealth status and such other) demographic (household size, age of household head etc.) and geophysical (distance of household from the forest or markets etc.).

Changing perceptions of forest values over time can reflect the effects of forest management on local communities (Yang *et al*., 2015). The ecological value is the life-supporting environmental functions and services of a forest. Unlike economic value, the perception of ecological value requires the residents to understand why maintain of forests is essential (Yang *et al*., 2015). Through the perceptional dimension, sustainable ecosystem services perception was the strongest users' perception towards biodiversity conservation (Ramli*et al*., 2008). Regarding to distinctions of the communities, People from the same tribal colonies are most likely to have more similar perceptions due to the similar experiences with the Forest Department than the inhabitants from the different communities (Triguero*et al*., 2010 cited in Macura, 2010).

2.4.3 Local community participation towards forest conservation

According to Petros*et al*. (2016) mentioned that the causes of biological resource threats are factors lack of adequate community participation in conservation of resources as the major factor of the threats followed by socioeconomic factor and Lack of incentive. This is likely because the communities are not involved in conservation of biological resources in an organized manner. Similarly, they have received no financial benefits as an incentive or the limited livelihood opportunities to enhance their income.This shows the necessity of alternative income generation mechanisms for communities as well as their involvement in conservation activity (Andrade and Rhodes, 2012). The lack of effort to ensure the participation of communities in forest protection

and conservation and the sharing of benefits, and failure to clearly demarcate and enforce the boundaries of natural forest reserves are the major causes of forest lose (Dinkayehu, 2016).

Community participation is seen to be the building block for the efficiency of the Reducing Emissions from Deforestation and Forest Degradation (REDD) project. In order for local residents to cooperate with a reduction of deforestation and forest degradation, they must have a positive perception toward the forest conservation system and positive attitude toward the forest conservation project (Ratsimbazafy *et al*., 2012).Therefore, it can be concluded that communities' participation in decision-making of the forest area and regarding issue makes them to change their attitude in positive manner. In contrast, inadequate communities' participation execute management program contributes for biological resource threats.

2.5. Values of forest

Forest play indispensable role in the upkeep of an environment that facilitates sustainable development. Forests, apart from their short to long-term positive effects on weather and climatic conditions, are instrumental in controlling soil erosion, land degradation and desertification, problems that appear to have reached their climax in Ethiopia (Dinkayoh, 2016). Many important forest functions have no markets, and hence, no economic value that is readily apparent to the forests' owners or the communities that rely on forests for their wellbeing (Gatzweiler*et al*., 2007). Forests support biodiversity, providing habitat for wildlife; moreover, forests foster medicinal conservation. Forest serves as wildlife habitat and as a genetic pool for biotic diversity, providing material and areas for human settlement and agriculture as well as raw materials for wooden products and non-wood forest products. With forest biotopes being irreplaceable source of new drugs, deforestation can destroy genetic variations (such as crop resistance) irretrievably (Hance and Jeremy, 2008).

3. Methodology

3.1. Description of the study area and period

Menesibu district is found in the western part of Ethiopia in the Oromia National Regional State. It is one of the districts in west Wollega Zone, Oromia region with capital town Mendi. The relative location of the study area is bordered on the east by Kiltukara district, on the west by Kondala district and on the north by Benishangul Gumuz regional state and on the south by Babo Gambel district. The district is found at the altitude of 1385-1961m.a.s.l with the total rainfall and average monthly temperature of 900-1600 mmand 25°C respectively for the year 2008 (report from the Woreda agricultural Office, year 2008). Menesibu district has the totol surface landmass of 191,178,189 hectare .Out of this ,Dubata forest covers 948.063 hectare (from district agricultural office ,2008). The topography is characterized by subtropical =70%,and desert=30% that is partially covered by forest. The area receives its rainfall season (kirmet) from May to October and its dry season (bega) is between December and February (from district agricultural office, 2008). There are quite a lot of indications and evidences of the unique and existential link bond between the Bukesachi people and the forest. Forest is where they dwell, collect honey, hunt and practice shifting cultivation, and obtain traditional medicine and worship.

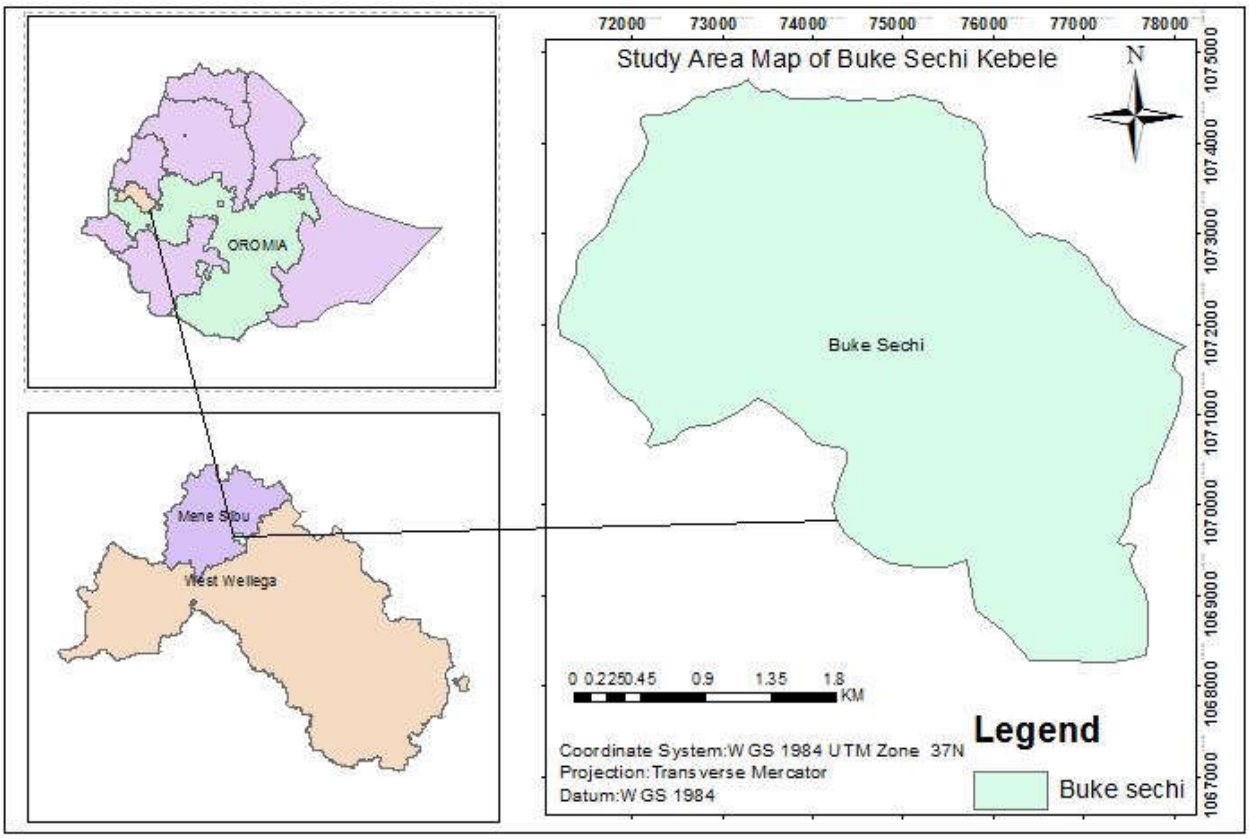

Figure 1.**Map of the study area of West Wollega Zone,Oromia region,West ethiopia. (source districts agricultural office**)

3.2. Sample size and sampling technique

For house hold survey, a total of 200 households were selected based on proximity to forest resources. The sample size was determined by using Israel (1992) sample size determination formula

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

Where n- number of sampled households

'N' - total target households

n- total number of households

e - Level of precision.

$$n = \frac{209}{1 + 209(0.05\ \ )2} = 137.3$$

30% of 209=62.7
n=137.3+62.7=200

n=200

Where n- number of sampled households

'N' - total target population=209

e - Level of precision.=0.05

In order to determine the sample size of the study area simple random sampling techniques was employed and for a desired level of confidence and precision the sample is increased by 30% to compensate for no-response (Israel, 1992).

In order to determine the sample size of the study area simple random sampling techniques was employed and for a desired level of confidence and precision the sample is increased by 30% to compensate for no-response (Israel, 1992).

Interviews were carried out using open and close ended questions. In doing so the interviewee was selected purposively based on the responsibilities they have, experience, and relevance to issues understudy.

3.3. Methods of data collection

Data was collected through questionnaire, interview and focus group discussion. A structured questionnaire was developed, considering the various socio-economic and cognition variables (e.g., knowledge, beliefs, and experience) that likely affect the perceptions and attitudes of local people towards forest conservation. Questionnaire was prepared and distributed both for local communities and relevant stakeholders to get important details about perceptions and attitudes of community and also some practices towards conservation from the respondents. Questionnaire was first prepared in Afan oromo and then translated into English and in order to reduce language problem. Most closed ended questions were included in the questioner to examine respondents' perception and attitude about forest value and conservation activities. Although, some questions was included to investigate participants' perception towards forest conservation and to identify the reasons why respondents hold some kind of view on related issues. The questions was include a category with closed style items requiring the respondents to rank their rate of agreement with a particular item depending on a particular question. Interviews was conducted using open and close ended questions. Participants for the interview were selected purposively based on the responsibilities they have, experience and relevance to issues.

Observation of the surrounding environment have been done for the sake of comparing the result obtained from questionnaire and interview with the reality on the field.

3.4. Independent variables

Independent variables were derived from questions like: sex, age, level of education, occupation type, enough grazing land, desire to keep more livestock than had at present, shortage of fodder for their livestock, private land ownership, allocated land for woodlot plantations, shortage of fuel wood.

3.5 Dependent variables

The dependent variables were derived from the following statements: Perception towards the concept of forest conservation, forest conservation practice and attitude towards forest conservation.

3.6 Data Analysis

Data was analyzed using SPSS statistical software (SPSS version 20.0). Based on the given data, descriptions were made using percentages, frequency and graphic methods. In addition Chi-square test was used to test for associations between independent variables and the dependent variables

4 Result

4.1 Socio-demographic characteristics of the study participants

4.1.1 Gender distribution of respondents

One hundred and fifty (75%) out of the 200 respondents were male while the rest fifty (25%) were female households. most of the time when the data collector was in the communities, most women were busy in the house cooking and preparing food for their family and other related duties. when they had the freedom and opportunity, women were equally eager as the men and ready to fill the questionnier..

4.1.2 Age distribution

Most respondents (54,5%) were in the age group between 31-55,while the least were in age group above 55(Table 2).

4.1.3 Occupation of respondents

Most of the people in the study area were farmers who are engaged in agriculture (88.5). A few about (5%) involved in different trade business in addition to farming some of the traders are involved in the processing and marketing of different forest products. Thus, these people depend on forests and agricultural practices for their household livelihood and the rest of the respondents about (6.5%) were civil servants working in different governmental sectors but none of the respondents were claimed to work in non governmental agencies.(Table 2)

4.1.4 Educational background of respondents

The majority of the respondents (41%) were from elementary school (grade 1-8), (62%) from junior secondary school (grade 9-12)l,(6.5%)from higher education and (6.5%) were non educated(Table 2)

Table 2. Socio-demographic characteristic of respondents

Socio economic and demographic Items	Frequency (%)
Age (years)	
• 18-30	76(38%)
• 31-55	109(54.5)
• >55	15(7.5)
Mean age	38.5
Sex	
• Male	150 (75%)
• Female	50 (25%)
Occupation	
• Merchant	10(5%)
• Farmer	177(88.5)
• Government employee	13(6.5%)
• NGO employee	0
level of Education	
• Non educated	43(21.5%)
• 1-8	82(41%)
• 9-12	62(31%)
• College and above	13(6.5%)

4.2 Economic distribution of respondents

Key: HLST= Do you have Livestock? EGLFLS = Is there enough grazing land for your livestock? WTHMLS =Dou you want to have more livestock than had at present? SUFFLS= Is there any shortage of fodder for your livestock? PLOWS =Is there Private land ownership? ALFWLP= Is there Allocated land for woodlot plantation?, SOFWD= Is there Shortage of fuel wood?

The majority of the respondents (85%) had livestock. However, the greater proportion of the respondents (84%) claimed that they did not have enough grazing land. In contrast, a considerable percentage (90%) of the respondents felt a need to keep more livestockthan they had at present. Accordingly, they noted that having more livestock serves as insurance during crop failure. However, about (58%) of the respondents confirmed that they had a shortage of fodder for their livestock, and (45%) of them noted that they had their own private lands. The largest proportion of the respondents (54.5%) confirmed that they had allocated landholdings for woodlot plantations. on the other hand, (80%) of the respondents noted that they had no a shortage of fuel wood (Table 3).

Table 3: Socio economic distribution of respondents

Items	Yes=n(%)	No=n(%)
Do you have Livestock?	170(85%)	30(15%)
Is there enough grazing land for your livestock?	32(16%)	168(84%)
Dou you want to have more livestock than had at present?	180(90%)	20(10%)
Is there any shortage of fodder for their livestock?	116(58%)	84(42%)
Is there Private land ownership?	90(45%)	110(55%)
Is there Allocated land for woodlot plantation?	109(54.5%)	91(45.5%)
Is there Shortage of fuel wood?	40(20%)	160(80%)

4.3. Local communities' Practices of forest conservation

As the results in table 4 demonstrated respondents were asked regarding their practice toward forest conservation using a 5-point rating scale with the options 'always, ' often, sometimes, rarely, never, respondents indicated how they involved in issues concerning Dubeta forest conservation(DFC).

In this regard the majority, (43.5%) of the respondents claimed that they were participating sometimes or somewhat in afforestation such as plantation of coffee, native and commercial tree species and reforestation of existing degraded natural forest. In the contrary very low proportion

of respondents, (1.5%) participate always, and (19.5%) often or regularly involved in the issue but the rest respondents (26.5%) rarely and (19%) of respondents were never involved in the issue.

Study participants were also asked about playing a great role in supporting conservation effort in the area.Theyrated their practice as follows (4.5%) always, (16.5%) often, (34%) sometimes, (39%) and (5.5) rarely and never respectively (Table 4).Concerning the idea of maintaining commercial tree species, about (9%) of respondents mentioned that they practiced always 53(26.5%) involved often, (42%) sometimes (19%) and (3.5%) rarely and never respectively (table 4).

Assessment was also done on whether they were participated in different activities such as patrolling to prevent deforestation and enhance forest conservation, most of the respondents (65%) and (21%) rarely and never participated respectively, (12.5%) said that they were participating sometimes but very few (0.5%) of the respondents stated that they were participating often and (1%) always.

Concerning the usage of pruning and rotation extracts for fuels and house hold use a greater number of the respondents (60.5%) uses rarely and (34.5%) claimed that they never use pruning and rotation extracts for fuels and house hold on the other hand, very few respondents 10(5%) claimed that they were sometimes engage in the issue.

Concerning the statement about taking part in the decision making process and management of forest resources (40%) claimed that they were taking part sometimes but about (7.5%) stated they always involved, but other respondents (40%) engaged rarely and (12.5%) stated that they never involved in any decision making process and management of forest resources, (Table 4).

Regarding the question about being cooperatively and genuinely work with conservation staffs Some participants about (2.5%) claimed always (13%) often or reasonable positive cooperation between local community and conservation staffs, most of the respondents (60%) reported that they were sometimes supportive, however (19%) of respondents claimed that their relationship with conservation staff was hardly ever or not encouraging, the rest (5.5%) asserted that they never had positive relationship and were not supportive for conservation staffs, (Table 4).

Table 4: Frequency of the local communities' Practices toward forest conservation

Practice Items	Always =n(%)	Often =n(%)	Sometimes =n(%)	Rarely =n(%)	Never =n(%)
Are you participating in plantation of coffee, native and commercial tree species (Aforestation) and Reforestation natural forest	3(1.5%)	19(9.5%)	87(43.5%)	53(26.5%)	38(19%)
Are you playing a great role in supporting conservation effort in the area?	9(4.5%)	33(16.5%)	68(34%)	79(39.%)	11(5.5)
Are you participated in different activities such as patrolling to prevent deforestation and enhance forest conservation?	1(0.5%)	2(1%)	25(12.5%)	130(65%)	42(21%)
How is your usage of Pruning and rotation extracts for fuels and house hold use?	0(0%)	0(0%)	10(5%)	121(60/5%)	69(34.5%)
Are you involved in the decision making process and management of forest resources?	0(0%)	15(7.5%)	80(40%)	80(40%)	25(12.5%)
Are you cooperatively and genuinely work with conservation staffs?	5(2.5%)	26(13%)	120(60%)	38(19%)	11(5.5%)

4.4. Relationship between respondents socio-demographic characteristics and practice that enhance forest conservation

In order to find out whether there is a significant difference between the respondents practice that enhance forest conservation to some socio demographic characteristics cross tabulation and Chi-square test were employed

4.4.1 Socio demographic characteristics and their participation in afforestationand reforestation programs.

Chi square($\chi 2$) test In Table 5 below showed that level of education is significantly associated with the respondents participation in Aforestation and Reforestation as well as protect existing natural forest In this association the reverse was true in that the more educated respondents, showed less participation in the issue than the less educated and an illiterate counterparts, In

contrast shows that there was no significant association between the age, sex, as well as occupation of respondents and the issue under discussion.

Table 5 Association between respondents socio demographic characteristics and participating in (Aforestation) and Reforestation natural forest

Socio-demographic characteristics	Always n(%)	Often n(%)	Sometimes n(%)	Rarely n(%)	Never n(%)	$\chi 2$, df p-value
sex						
Male	3(2%)	13(8.7%)	62(41.3%)	42(28%)	30(20%)	$\chi 2 = 2.911$ df=4 p= 0.573
Female	0(0%)	6(12%)	25(50%)	11(22%)	8(16%)	
Age						
18-30	0(0%)	5(6.6%)	32(42.1%)	23(30.3%)	16(21.1%)	$\chi 2$=13.542, df=8 p=0.095
31-55	3(2.8%)	13(11.9%)	43(39.4%)	28(25.7%)	22(20.2%)	
>55	0(0%)	1(6.7%)	12(80%)	2(13.3%)	0(0%)	
Education level						
None educated	1(2.3%)	7(16.3%)	27(62.8%)	6(14%)	2(4.7%)	
1-8	1(1.2%)	11(13.4%)	41(50%)	18(22%)	11(13.4%)	$\chi 2$=50.137,df=12 p<0.001
9-12	0(0%)	1(1.6%)	17(27.4%)	26(41.9%)	18(29%)	
College and above	1(7.7%)	0(0%)	2(15.4%)	3(23.1%)	7(53.8.%)	
Occupation						
Merchant	0(0%)	2(20%)	5(50%)	3(30%)	0(0%)	$\chi 2$= 10.510, df=8 p= 0.231
Farmer	3(1.7%)	17(9.6%)	78(44.1%)	47(26.6%)	32(18.1%)	
Government employee	0(0%)	0(0%)	4(30.8%)	3(23.1%)	6(46.2%)	

4.4.2. Socio demographic characteristics and participants role in supporting conservation effort in the area

Table 6 below showed level of education is significantly associated with the respondents great role in supporting conservation effort in the area surprisingly in this association also less educated and an illiterate respondents take part more role in supporting conservation effort in the area than more educated ones, In contrast shows that there was no significant association between the age, sex, as well as occupation of respondents and the issue under discussion

Table 6 Association between respondents socio demographic characteristics and playing a great role in supporting conservation effort in the area

Socio-demographic characteristics	Always n(%)	Often n(%)	Sometimes n(%)	Rarely n(%)	Never n(%)	$\chi 2$, df p-value
Male	6(4%)	23(15.3%)	57(38%)	57(38%)	7(4.7%)	$\chi 2 = 4.751$ df=4 p= 0.314
Female	3(6%)	10(20%)	11(22%)	22(44%)	4(8%)	
Age						
18-30	4(5.3%)	14(18.4%)	24(31.6%)	28(36.8%)	6(7.9%)	$\chi 2$= 13.211, df=8 p=0.105
31-55	5(4.6%)	16(14.7%)	34(31.2%)	50(45.9%)	4(3.7%)	
>55	0(0%)	3(20%)	10(66.7%)	1(6.7%)	1(6.7%)	
Education level						
Non educated	1(2.3%)	9(20.9%)	22(51.2%)	10(23.3%)	1(2.3%)	
1-8	7(8.5%)	19(23.2%)	25(30.5%)	28(34.1%)	3(3.7%)	$\chi 2$=36.141, df=12 p<0.001
9-12	0(0%)	4(6.5%)	18(29%)	36(58.1%)	4(6.5%)	
College and above	1(7.7%)	1(7.7%)	3(23.1%)	5(38.5%)	3(23.1%)	
Occupation						
Merchant	1(10%)	3(30%)	1(10%)	4(40%)	1(10%)	$\chi 2$= 13.284, df=12 p= 0.102
Farmer	8(4.5%)	29(16.4%)	63(35.6%)	70(39.5%)	7(4%)	
Government employee	0(0%)	1(7.7%)	4(30.8%)	5(38.5%)	3(23.1%)	

4.4.3. Socio demographic characteristics and participation in activities such as patrolling to prevent deforestation

Table 7 below showed occupation and level of education is significantly associated with the respondents participation in different activities such as patrolling to prevent deforestation and enhance forest conservation respectively, but age and sex had no significant association with the issue .

Table 7 Association between respondents socio demographic characteristics and participated in different activities such as patrolling to prevent deforestation

Socio-demographic characteristics	Always n(%)	Often n(%)	Sometimes n(%)	Rarely n(%)	Never n(%)	$\chi 2$, df p-value
Male	1(0.7%)	2(1.3%)	17(11.3%)	99(66%)	31(20.7%)	$\chi 2 = 1.777$ df=4 p= 0.777
Female	0(0%)	0(0%)	8(16%)	31(62%)	11(22%)	
Age						
18-30	0(0%)	0(0%)	9(11.8%)	49(64.5%)	18(23.7%)	$\chi 2= 7.270$, df=8 p=0.508
31-55	1(0.9%)	2(1.8%)	13(11.9%)	69(63.3%)	24(22%)	
>55	0(0%)	0(0%)	3(20%)	12(80%)	0(0%)	
Education level						
Non educated	1(2.3%)	0(0%)	5(11.6%)	33(76.7%)	4(9.3%)	
1-8	0(0%)	1(1.2%)	17(20.7%)	50(61%)	14(17.1%)	$\chi 2= 34.481$, df=12 p<0.005
9-12	0(0%)	0(0%)	2(3.2%)	43(69.4%)	17(27.4%)	
College and above	0(0%)	1(7.7%)	1(2.3%)	4(30.8%)	7(53.8%)	
Occupation						
Merchant	0(0%)	1(10%)	3(30%)	5(50%)	1(10%)	$\chi 2= 20.367$, df=8 p= 0.009
Farmer	1(0.6%)	1(0.6%)	19(10.7%)	121(68.4%)	35(19.8%)	
Government employee	0(0%)	0(0%)	3(23.1%)	4(30.8%)	6(46.2%)	

4.4.4. Sociodemographic characteristics and involvement in the decision making process and management of forest resources

Table 8 below showed that there is a statistically significant association between the involvement in the decision making process and management of forest resources and level of education as well as occupation of the respondents respectively. But age and sex had no significant association with the issue .

Table 8 Association between respondents socio demographic characteristics and involved in the decision making process and management of forest resources

Socio-demographic characteristics	Always n(%)	Often n(%)	Sometimes n(%)	Rarely n(%)	Never n(%)	$\chi 2$, df p-value
Male	-	12(8%)	58(38.7%)	62(41.3%)	18(12.%)	$\chi 2 = 0.853$ df=3 p= 0.837
Female	-	3(6%)	22(44%)	18(36%)	7(14%)	
Age						
18-30	-	4(5.3%)	28(36.8%)	38(50%)	6(7.9%)	$\chi 2= 8.519$, df=6 p=0.202
31-55	-	9(8.3%)	44(40.4%)	38(34.9%)	18(16.5%)	
>55	-	2(13.3%)	8(53.3%)	4(26.7%)	1(6.7%)	
Education level						
Non educated	-	4(9.3%)	24(55.8%)	12(27.9%)	3(7%)	
1-8	-	10(12.2%)	39(47.6%)	26(31.7%)	7(8.5%)	$\chi 2= 30.264$, df=9 p<0.001
9-12	-	0(0%)	14(22.6%)	35(56.5%)	13(21%)	
College and above	-	1(7.7%)	3(23.1%)	7(53.8%)	2(15.4%)	
Occupation						
Merchant	-	4(40%)	2(20%)	2(20%)	2(20%)	$\chi 2= 18.051$, df=6 p= 0.006
Farmer	-	10(5.6%)	74(41.8%)	72(40.7%)	21(11.9%)	
Government employee	-	1(7.7%)	4(30.8%)	6(46.2%)	2(15.4%)	

4.4.5. Socio -demographic characteristics and genuine cooperation with conservation staff

In table 9 below illustrated that there is a statistically significant association between whether they are cooperatively and genuinely work with conservation staffs and level of education as well as occupation of the respondents $\chi 2$ respectively. but age, sex had no significant association with the issue .

Table 9 Association between respondents socio demographic characteristics whetherthey are cooperatively and genuinely work with conservation staffs

Socio-demographic characteristics	Always n(%)	Often n(%)	Sometimes n(%)	Rarely n(%)	Never n(%)	$\chi 2$, df p-value
Male	4(2.7%)	20(13.3%)	86(57.3%)	33(22%)	7(4.7%)	$\chi 2$=4.429 df=4
Female	1(2%)	6(12%)	34(68%)	5(10%)	11(5.5%)	p= 0.351
Age						
18-30	2(2.6%)	12(15.8%)	45(59.2%)	14(18.4%)	3(3.9%)	$\chi 2$=2.476, df=8
31-55	3(2.8%)	13(11.9%)	66(60.6%)	20(18.3)	7(6.4%)	p<0.963
>55	0(0%)	1(6.7%)	9(60%)	4(26.7%)	1(6.7%)	
Education level						
Non educated	1(2.3%)	5(11.6%)	29(67.4%)	7(16.3%)	1(2.3%)	
1-8	2(2.4%)	10(12.2%)	52(63.4%)	14(17.1%)	4(4.9%)	$\chi 2$= 38.812, df=12
9-12	0(0%)	4(6.5%)	36(58.1%)	16(25.8)	6(9.7%)	p<0.001
College and above	2(15.4%)	7(53.8%)	3(23.1%)	1(7.7%)	0(0%)	
Occupation						
Merchant	0(0%)	2(20%)	5(50%)	2(20%)	1(10%)	$\chi 2$= 17.860, df=8
Farmer	4(2.3%)	18(10.2%)	111(62.7%)	35(19.8%)	9(5.1%)	p<0.022
Government employee	1(7.7%)	6(46.2%)	4(30.8%)	1(7.7%)	1(7.7%)	

4.5. Local communities attitude toward conservation of Dubata forest

Assessing local communities' attitude is fundamental purpose to highlight the status of the relationship between local communities and conservation of Dubata forest(CDF)**.** Thus, the respondents were asked questions associated to the factors responsible for degradation of Dubata forest including the benefits that the local communities can get, the responsibility that they may carry out as well as their participation in conserving the Dubata forest and other related questions to state whether they are strongly agree, agree, undecided, disagree & strongly disagree

In order to identify respondents attitude towards forest conservation positive and negative statements were separately prepared in different tables , accordingly table 10 and table 11 positive statements that the respondents assumed to be agree with and table 12 negative statements the respondents assumed not to agree with, to make interpretation more convenience we used collapsing variable techniques (Strongly agree and agree= positive attitude); (Strongly disagree and disagree= negative attitude) and undecided as neutral with no clear position.

Accordingly, table 10 below demonstrate, for statement forests are source of rain and prevent soil erosion and maintaining the fertility of soil (13.5%) selected strongly agree while (68%) were agree and (18.5%) were undecided none of the respondents were marked disagree and strongly disagree,

For the second statement about forests are our cultural and natural identities. Most of respondents (49.5%) were strongly agree with the issue while about (33%)were agree. (15%) of respondents were undecided or but the rest (2%) and (0.5%) were disagree and strongly disagree respectively.

Regarding the statement forest is natural resource should be preserved for future generation. Most of the respondents (55.5%)were strongly agree with the issue while (43.5%) of sample households were agree. The remaining (1%) of respondents take the middle position Moreover, as specified in table 10 below none of respondents were disagree or strongly disagree with the subject.

Concerning question about maintaining shade of diverse native tree species help coffee production, the majority (41%) and (50.5%) of respondents were strongly agree and agree

respectively but the rest only about (8.5%) have no clear position, besides none of the respondents showed negative attitude with the issue table 10.

For proceeding statement about setting up protective area is necessary to sustain forest in their area, the majority of respondents (41.5%) and (28%) were strongly agree and agree respectively, while 12(6%) took the middle position the but the rest (18%) disagree and (6.5%)strongly disagree with the issue,

Moreover, respondents were asked also a question about their belief of the importance of woodlot plantations in reducing deforestation of natural forest or not. As the result (43%) and 106(53%) of respondents were strongly agree and agree respectively only a few (4%) were stand neutral, but none of them were strongly disagree and disagree. Furthermore, respondents were asked question about diminishing forest coverage is leading to bio-diversity degradation, majority of respondents (29.5%)and (28.5%0 strongly agree and agree respectively whereas (37.5)% undecided while the rest (4.5%) were disagree, none of them strongly disagree with the idea.

Regarding to deforestation is the main causes of global climate change. (32%) of sample households were strongly agree while (27%) were agree, (37%) were neutral which is undecided what to say about the issue, the remaining very few (4%) respondents were disagree, but none of them were strongly disagree.

Table 10: Local communities attitude toward conservation of Dubata forest

Items	Attitude scale				
	Positive attitude		Neutral	Negative attitude	
	Strongly agree n(%)	agree n(%)	Undecided n(%)	Disagree n(%	Strongly disagree (%)
Forests are source of rain and prevent soil erosion, maintaining the fertility of soil	27(13.5%)	136(68%)	37(18.5%)	0(0%)	0(0%)
Forests are our cultural and natural identity.	99(49.5%)	66(33%)	30(15%)	4(2%)	1(0.5%)
Forest is natural resource should be preserved for future generation	111(55.5%)	87(43.5%)	2(1%)	0(0%)	0(0%)
Maintaining shade of diverse native tree species help coffee production.	82(41%)	101(50.5%)	17(8.5%)	0(0%)	0(0%)
Setting up protective area is necessary to sustain forest in your area	83(41.5%)	56(28%)	12(6%)	36(18%)	13(6.5%)
woodlot plantations is important because it reduces deforestation of natural forest	86(43%)	106(53%)	8(4%)	0(0%)	0(0%)
Diminishing Forest Coverage is leading to bio-diversity degradation.	59(29.5%)	57(28.5%	75(37.5)%	9(4.5%)	0(0%)
Deforestation is the main causes of global climate change.	64(32%)	54(27%)	74(37%)	8(4%)	0(0%)

Additionally, respondents were asked to point out their attitude on the importance of forests and their active role in its conservation. majority of respondents (51.5%) strongly agree (37.5%) agree but the rest (11%) undecided but there were no respondents who were disagree and strongly disagree with the subject under consideration. Respondents were also asked to point out their stand on the strict conservation measure can save the forest from degradation, in this regard

equal sample (43%) and (43%) of respondents were strongly agree and agree with the issue. The remaining (14%) were undecided and none of the respondents were disagree and strongly disagree with the subject .

For statement illegal utilization of forest and cutting trees are bad actions. (31%) selected strongly agree (41%) were agree and (15%) were undecided whereas only (12.5%) respondents were marked disagree, but none of them respond strongly disagree .

Regarding to the statement about Forest cover has been declined over the past decade's most of the respondents (35%) were strongly agree with the issue while (33.5%) of sample households were agree. The remaining (8%) and (23.5%) of respondents were undecided and disagree respectively but none of them respond strongly disagree .Moreover, for the question about livelihoods are affected by the forest decline: most of respondents (73.5%) were agreeing whereas 28(14%) were strongly agreed and (12.5%) were undecided, but none of the respondents were strongly disagreeing and disagree with the issue .

Furthermore, for question about supporting conservation staffs is one of your roles in the forest conservation(17.5%) of respondents were strongly agree and (34.5%) agree, (20%) of respondents undecided, whereas (25.5%) and (2.5%) responded disagree and strongly disagree respectively.

In addition to this, for statement about every one of the local community have responsibility to protect and participated in forest conservation, majority of the respondents about (36.5%) and (22%) were agreeand strongly agree respectively, (29%) of respondents were undecided that show neutral position, but the rest (8.5%) disagree and (4%) of respondents were strongly disagree with the issue .

Table 11: local communities' attitude toward forest conservation (continued)

Items	Attitude scale				
	Positive attitude		Neutral	Negative attitude	
	Strongly agree n(%)	agree n(%)	Undecided n(%)	Disagree n(%	Strongly disagree (%)
Do you agree Forest is important and your active role is necessary for its conservation?	103(51.5%)	75(37.5%)	22(11%)	0(0%)	0(0%)
Strict conservation measure can save the forest from degradation	86(43%)	86(43%)	28(14%)	0(0%)	0(0%)
Illegal utilization of forest and cutting trees are bad actions.	62(31%)	83(41%)	30(15%)	25(12.5%)	0(0%)
Forest cover has been declined over the past decades	70(35%)	67(33.5%)	16(8%)	47(23.5%)	0(0%)
Livelihoods are affected by the forest decline	28(14%)	147(73.5%)	25(12.5%)	0(0%)	0(0%)
Supporting conservation staffs is one of your roles in conservation of forest.	35(17.5%)	69(34.5%)	40(20%)	51(25.5%)	5(2.5%)
Every one of the local community have responsibility to protect and participated in forest conservation.	44(22%)	73(36.5%)	58(29%)	17(8.5%)	8(4%)

Regarding the statement everyone should get permission to have access to protect forest the majority of the respondents (33%)and (30.5%) strongly agreed and agreed respectively; which shows that they had a negative attitude towards forest conservation, there were also small proportion of respondents about (23%) who had neutral attitude with no clear position, while the rest about (11.5%) disagree and very few (2%) strongly disagree about the issue who are considered to show negative attitude towards forest conservation.

For the statement everyone should be financially benefited to protect & participate in conservation most of the respondents (38%) and (32%) strongly agree and agree respectively but about (20.5%) respondents were nether agree or disagree, few respondents (7.5%) disagree while the rest 4(2%)strongly disagree with getting financial benefit to protect forest(Table 12).

Furthermore, respondents were also asked question about natural forest product should be exploited by the nearby villages freely, some proportion (16%) strongly agree, (69%) were agree whereas 46(23%) undecided while the rest (11.5%) and (2%) were disagree and strongly disagree respectively As table 12 reveals those respondents who agreed to the unfavorable statement regarding misunderstanding of the right of the people in protecting forest and use of forest resources showing negative attitude towards the issue in contrast the rest of the respondents who disagreed to this negative statements assumed to have positive attitude towards forest conservation (Table 12).

Table 12: local communities' attitude toward forest conservation (continued)

Items	Strongly agree n(%)	agree n(%)	Undecided n(%)	Disagree n(%	Strongly disagree n(%)
Everyone should get permission to have access to protect forest.	66(33%)	61(30.5%)	46(23%)	23(11.5%)	4((2%)
Everyone should be financially benefited to protect & participate in conservation	76(38%)	64(32%)	41(20.5%)	15(7.5%)	4(2%)
Natural forest product should be exploited by the nearby villages freely	32(16%)	138(69%)	11(5.5%)	19(9.5%)	0(0%)

4.6. Relationship between respondent's socio- demographic characteristics and attitude towards forest conservation

In order to find out whether there is a significant difference between the respondents in their attitude based on their socio demographic characteristics Chi- square test were employed in table 13-

4.6.1. Socio demographic characteristics and attitude towards illegal utilization of forest and cutting trees.

It is interesting to observe that in Table 13 below level of education is significantly associated with the above statement the more the education of the respondent, the more positive attitude but the less the education of the respondents the less attitude towards forest conservation in the study area. In contrast table 13 shows that there was no significant association between the age and

attitude on whether illegal utilization of forest and cutting trees are bad actions or not. Generally, the outlook among the respondents in all age groups were high about the issue,. In addition to this there is no significant association between the sex of respondents and the issue under discussion .Table 13 below once more showed that occupation is significantly associated with the issue, this can be explained by the higher education of the government employers which exposes them to adequate information about the subject to have superior understanding.

Table 13 Association between respondents socio demographic characteristics and whether illegal utilization of forest and cutting trees are bad actions or not

Socio-demographic characteristics	Strongly agree n(%)	Agree n(%)	Undecided n(%)	Disagree n(%)	Strongly disagree n(%)	$\chi 2$, df p-value
Male	48(32%)	59(39.3%)	20(13.3%)	23(15.3%)	-	$\chi 2 = 5.837$ df=3 p= 0.120
Female	14(28%)	24(48%)	10(20%)	2(4%)	-	
Age						
18-30	25(32.9%)	29(38.2%)	11(14.5%)	11(14.5%)	-	$\chi 2= 4.911$, df=6 0.555
31-55	35(32.1%)	44(40.4%)	17(15.6%)	13(11.9%)	-	
>55	2(13.3%)	10(66.7%)	2(13.3%)	1(6.7%)	-	
Education level						
Non educated	4(9.3%)	26(60.5%)	6(14%)	7(16.3%)		
1-8	21(25.6%)	36(43.9%)	13(15.9%)	12(14.6%)	-	$\chi 2= 28.878$, df=9 p<0.005
9-12	29(46.8%)	16(25.8%)	11(17.7%)	6(9.7%)	-	
College and above	8(61.5%)	5(38.5%)	0(0%)	0(0%)		
Occupation						
Merchant	3(30%)	2(20%)	0(0%)	5(50%)		$\chi 2= 22.395$, df=6 p= 0.001
Farmer	51(28.8%)	76(42.9%)	30(16.9%)	20(11.3%)		
Government employee	8(61.5%)	5(38.5%)	0(0.0%)	0(0.0%)		

4.6.2 Socio-demographic characteristics and attitude towards their belief forest as natural resource that should be conserved for future generation

Table 14 below illustrate that there was no significant association between the age and attitude towards their belief about the importance of conserving forests for future generation, normally, the view among the respondents in all age groups were more or less high about the issue,. Besides, there is no also significant association between the sex of respondents and the issue under discussion .Table 14 below showed that occupation is significantly associated with the issue (, in contrast the level of education is not significantly associated with the issue Unexpectedly, almost all respondents from all educational level showed positive attitude on the significance of forest for future generation.

Table 14 Association between respondents socio demographic characteristics and Attitude towards natural resource that should be conserved for future generation

Socio-demographic characteristics	Strongly agree n(%)	Agree n(%)	Undecided n(%)	Disagree n(%)	Strongly disagree n(%)	$\chi 2$, df p-value
Sex						
Male	84(56%)	64(42.7%)	2(1.3%)	-	-	$\chi 2$= 0.789 , df= 2 P= 0.674
Female	27(54%)	23(46%)	0(0.0%)	-	-	
Age						
18-30	41(53.9%)	34(44.7%)	1(1.3%	-	-	$\chi 2$= 0.420 , df=4 P= 0.981
31-55	62(56.9%)	46(42.2%)	1(0.9%)	-	-	
>55	8(53.3%)	7(46.7%)	0(0%)	-	-	
Education level						
Non educated	22(51.2%)	20(46.5%)	1(2.3%)			
1-8	46(56.1%)	36(43.9%)	0(0%)	-	-	$\chi 2$= 9.866 , df=6 P= 0.130
9-12	31(50%)	30(48.4%)	1(1.6%)	-	-	
College and above	12(92.3%)	1(7.7%)	0(0%)	-	-	
Occupation						
Merchant	5(50%)	4(40%)	1(10%)	-	-	$\chi 2$ =16.161, df-4 P= 0.003
Farmer	94(53.1%)	82(46.3%)	1(0.6%)	-	-	
Government employee	12(92.3%)	1(7.7%)	0(0%)			

4.6.3 Socio-demographic characteristics and attitude towards the impact of diminishing forest coverage on bio-diversity

Table 15 demonstrated that there is no significant association between the sex of respondents and the issue, accordingly 39.3% male and 32% female respondents were neutral without a clear position . In addition to this there was no significant association between the age and attitude on whether diminishing forest coverage is leading to bio-diversity degradation or not. occupation is significantly associated with the issue),. In addition to this level of education of the respondent is also highly associated with the statement this implied that the more the education level, the high positive attitude were recorded.

Table 15 Association between respondents socio demographic characteristics and Attitude towards diminishing Forest Coverage is leading to bio-diversity degradation

Socio-demographic characteristics	Strongly agree n(%)	Agree n(%)	Undecided n(%)	Disagree n(%)	Strongly disagree n(%)	$\chi 2$, df p-value
Sex						
Male	45(30%)	40(26.7%)	59(39.3%)	6(4%)		$\chi 2$=1.630, df=3 P= 0.653
Female	14(28%)	17(34%)	16(32%)	3(6%)		
Age						
18-30	21(27.6%)	17(22.4%)	36(47.4%)	2(2.6%)	-	$\chi 2$= 10.251, df=6 p= 0.114
31-55	36(33%)	34(31.2%)	32(29.4%)	7(6.4%)	-	
>55	2(13.3%)	6(40%)	7(46.7%)	0(0%)	-	
Education level						
Non educated	4(9.3%)	16(37.2%)	21(48.8%)	2(4.7%)		
1-8	14(17.1%)	19(23.2%)	45(54.9%)	4(4.9%)	-	$\chi 2$= 57.476, df=9 P<0.001
9-12	30(48.4%)	21(33.9%)	8(12.9%)	3(4.8%)	-	
College and above	11(84.6%)	1(7.7%)	1(7.7%)	0(0%)	-	
Occupation						
Merchant	0(0%)	4(40%)	5(50%)	1(10%)		$\chi 2$= 14.888 df=6 P= 0.021
Farmer	50(28.2%)	52(29.4%)	67(37.9%)	8(4.5%)		
Government employee	9(69.2%)	1(7.7)	3(23.1%)	0(0%)		

4.6.4 Socio-demographic characteristics and attitude towards supporting conservation staffs in conservation of forest.

Table 16 below revealed that there is no significant association between the sex of respondents and their belief in supporting conservation staffs. In addition to this there was no significant association between the age and attitude on the issue, but level of education and occupation of the respondent were highly associated with the issue respectively,

Table 16 Association between respondents socio demographic characteristics and Attitude towards supporting conservation staffs is one of their roles in conservation of forest.

socio demographic characteristics	Strongly agree n(%)	Agree n(%)	Undecided n(%)	Disagree n(%)	Strongly disagree n(%)	χ2,df p-value
Sex						
Male	30(20%)	47(20%)	30(22.4%)	38(25.3%)	5(3.3%)	χ2= 5.560, df 4
Female	5(10%)	22(44%)	10(20%)	13(26%)	0(0%)	P= 0.235
Age						
18-30	13(17.1%)	25(32.9%)	17(22.4%)	18(23.7%)	3(3.9%)	χ2=5.818, df 8
31-55	22(19.1%)	37(33.9%)	20(18.3%)	28(25.7%)	2(1.8%)	P= 0.668
>55	0(0%)	7(46.7%)	3(20%)	5(33.3%)	0(0%)	
Education level						
Non educated	0(0%)	12(27.9%)	13(30.2%)	16(37.2%)	2(4.7%)	
1-8	2(2.4%)	28(34.1%)	22(26.8%)	28(34.1%)	2(2.4%)	χ2= 91.904 df 12 P<0.001
9-12	22(35.5%)	27(43.5%)	5(8.1%)	7(11.3%)	1(1.6%	
College and above	11(84.6%)	2(15.4%)	0(0%)	0(0%)	0(0%)	
Occupation						
Merchant	0(0%)	4(40%)	3(30%)	3(30%)	0(0%)	χ2=28.743 P<0.001
Farmer	26(14.7%)	62(35%)	36(20.3%)	48(27.1%)	5(2.8%)	
Government employee	9(69.2%)	3(23.1%)	1(7.7%)	0(0%)	0(0%)	

4.6.5 Socio demographic characteristics and belief on strict conservation measure to save the forest from degradation

Table 17 below revealed that there is no significant association between the sex of respondents and about their belief in the importance of strict conservation measure to save forests from degradation, accordingly the majority of the respondents from both sexes (85.4% male and 88% female) showed positive attitude with no statistically different association , In addition to this there was no significant difference between the age of the respondents'as well as level of education and attitude on the subject under discussion and respectively. In contrast occupation has significant association with the issue .

Table 17 Association between respondent's different background characteristics and attitude towards strict conservation measure can save the forest from degradation

socio demographic characteristics	Strongly agree n(%)	Agree n(%)	Undecided n(%)	Disagree n(%)	Strongly disagree n(%)	$\chi 2$, df p-value
Sex						
Male	67(44.7%)	61(40.7%)	22(14.7%)	-	-	$\chi 2$= 1.338, df=2 P= 0.512
Female	19(38%)	25(50%)	6(12%)	-	-	
Age						
18-30	33(43.4%)	31(40.8%)	12(15.8%)	-	-	$\chi 2$ = 1.354, df=4 P= 0.852
31-55	45(41.3%)	50(45.9%)	14(12.8%)	-	-	
>55	8(53.3%)	5(33.3%)	2(13.3%)	-	-	
Education level				-	-	
Non educated	15(34.9%)	22(51.2%)	6(14%)			
1-8	28(34.1%)	40(48.8%)	14(17.1%)	-	-	$\chi 2$=12.101, df=6 P>0.05
9-12	34(54.8%)	20(32.3%)	8(12.9%)	-	-	
College and above	8(61.5%)	5(38.5%)	0(0%)	-	-	
Occupation				-	-	
Merchant	3(30%)	3(30%)	4(40%)	-	-	$\chi 2$= 10.160, df=4 P= 0.038
Farmer	74(41.8%)	79(44.6%)	24(13.6%)	-	-	
Government employee	9(69.2%)	4(30.8%)	0(0%)	-	-	

4.6.6 Socio demographic characteristics and their attitude on the importance of getting permission from the government to have access to protect forest.

Table 18 Regarding the statement, everyone should get permission from the government to have access to protect forest, since this statement is unfavorable the majority of the respondents (84.6 %) from relatively highly educated category disagreed to the negative statement, which proved that they have positive attitude towards forest conservation. In contrast 66.3 % from high school (9-12), 73..2% from elementary school and 55.8% illiterate respondents showed favorable attitudes towards unfavorable statements which suggest misconceptions were found to be higher in those respondents. Table 18 also illustrate that there was no significant association between the age and attitude about the issue, . Besides, there is no also significant association between the sex of respondents and the issue under discussion, in contrast occupation is significantly associated with the issue .

Table 18 Association between respondent's socio demographic characteristics and attitude of getting permission from the government to protect forest.

socio demographic characteristics	Strongly agree n(%)	Agree n(%)	Undecided n(%)	Disagree n(%)	Strongly disagree n(%)	$\chi 2$, df p-value
Sex						
Male	47(31.3%)	44(29.3%)	37(24,7%)	19(12.7%)	3(2%)	$\chi 2$= 2.208 df= 4 P=0.698
Female	19(38%)	17(34%)	9(18%)	4(8%)	1(2%)	
Age						
18-30	20(26.3%)	25(32.9%)	22(28.9%)	7(9.2%)	2(2.6%)	$\chi 2$= 12.364, df= 8 P=0.136
31-55	41(37.6%)	34(31.2%)	17(15.6%)	15(13.8%)	2(1.8%)	
>55	5(33.3%)	2(13.3%)	7(46.7%)	1(6.7%)	0(0%)	
Education level						
Non educated	11(25.6%)	13(30.2%)	14(32.6%)	5(11.6%)	0(0%)	
1-8	24(29.3%)	36(43.9%)	16(19.5%)	5(6.1%)	1(1.2%)	$\chi 2$=84.762, df= 12 P<0.001
9-12	29(46.8%)	12(19.4%)	16(25.8%)	5(8.1%)	0(0%)	
College and above	2(15.4%)	0(0%)	0(0%)	8(61.5%)	3(23.1%)	
Occupation						
Merchant	5(50%)	3(30%)	2(20%)	0(0%)	0(0%)	$\chi 2$= 53.199 df= 8 P<0.001)
Farmer	58(32.8%)	58(32.8%)	43(24.3%)	17(9.6%)	1(0.6%)	
Government employee	3(23.1%)	0(0%)	1(7,7%)	6(46.2%)	3(23.1%)	

4.6.7 Socio demographic characteristics and attitude towards financial benefit to protect & participate in conservation

concerning the issue, about importance of financial benefit to protect & participate in forest conservation Table 19 revealed that there was statistically significant association between educational level and the issue, the majority of the respondents from relatively highly educated category opposed this negative statement, which proved that they have positive attitude towards forest conservation, but majority of the illiterate and less educated ones approved the idea which shows negative attitudes about the issue.). In addition to this occupation is significantly associated with the issue. In contrast there was no significant association between the age and sex of the respondents in attitude about the issue, respectively ..

Table 19 Association between respondents socio demographic characteristics and Attitude towards financially benefited to protect & participate in conservation

Background Characteristics	Strongly agree n(%)	Agree n(%)	Undecided n(%)	Disagree n(%)	Strongly disagree n(%)	$\chi 2$, df p-value
Sex						
Male	58(38.7%)	53(35.3%)	24(16%)	12(8%)	3(2%)	$\chi 2$= 8.280, df =4 P= 0.082
Female	18(36%)	11(22%)	17(34%)	3(6%)	1(2%)	
Age						
18-30	30(39.5%)	24(31.6%)	17(22.4%)	4(5.3%)	1(1.3%)	$\chi 2$ =7.458, df =8 P=0.488
31-55	41(37.6%)	36(33%)	18(16.5%)	11(10.1%)	3(2.8%)	
>55	5(33.3%)	4(26.7%)	6(40%)	0(0%)	0(0%)	
Education level						
Non educated	12(27.9%)	17(39.5%)	13(30.2%)	1(2.3%)	0(0%)	
1-8	35(42.7%)	27(32.9%)	17(20.7%)	3(3.7%)	0(0%)	$\chi 2$=112.168,df =12 P<0.001
9-12	28(45.2%)	20(32.3%)	10(16.1%)	4(6.5%)	0(0%)	
College and above	1(7.7%)	0(0%)	1(7.7%)	7(53.8%)	4(30.8%)	
Occupation						
Merchant	4(40%)	5(50%)	1(10%)	0(0%)	0(0%)	$\chi 2$ =60.520, df =8 P<0.001
Farmer	70(39.5%)	59(33.3%)	38(21.5%)	8(4.5%)	2(1.1%)	
Government emp	2(15.4%)	0(0%)	2(15.4%)	7(53.8%)	2(15.4%)	

4.6.8 Socio-demographic characteristics and attitude towards their belief in setting up protective area to sustain forest in the study area.

Table 20 below illustrate that there was no significant association between the age and attitude towards their belief in setting up protective area to sustain forest in the study area. but, there is a statistically significant association between the sex of respondents and the issue under discussion. similarly occupation and educational level is alsosignificantly associated with the issue respectively.

Table 20 Association between respondents socio demographic characteristics and whether they agree or not in setting up protective area to sustain forest in the study area.

Socio-demographic characteristics	Strongly agree n(%)	Agree n(%)	Undecided n(%)	Disagree n(%)	Strongly disagree n(%)	$\chi 2$, df p-value
Male	70(46.7%)	48(32%)	8(5.3%)	12(8%)	12(8%)	$\chi 2$ = 43.143 df=4
Female	13(26%)	8(16%)	4(8%)	24(48%)	1(2%)	p=<0.001
Age						
18-30	31(40%)	23(30.3%)	3(3.9%)	12(15.8%)	7(9.2%)	$\chi 2$= 10.710, df=8
31-55	46(42.2%)	29(26.6%)	9(8.3%)	22(20.2%)	3(2.8%)	p=0.219
>55	6(40%)	4(26.7%)	0(0%)	2(13.3%)	3(20%)	
Education level						
Non educated	11(25.6%)	13(30.2%)	3(7%)	10(23/3%)	6(14%)	
1-8	28(34.1%)	29(35.4%)	3(3.7%)	17(20.7%)	5(6.1%)	$\chi 2$=33.766, df=12, p<0.005
9-12	31(50%)	14(22.6%)	6(9.7%)	9(14.5%)	2(3.2%)	
College and above	13(100%)	0(0%)	0(0%)	0(0%)	0(0%)	
Occupation						
Merchant	3(30%)	4(40%)	0(0%)	2(20%)	1(10%)	$\chi 2$= 16.401, df=8
Farmer	68(38.4%)	51(28.8 %)	12(6.8%)	34(19.2%)	12(6.8%	p= 0.037
Government employee	12(92.3%)	1(7.7%)	0(0.0%)	0(0.0%)	0(0%)	

4.7. Local communities perception toward different issues in conservation of Dubata forest

Regarding the statement to what extent they are satisfied with regulation of trade associated forest products; the largest proportion of the respondents (71%) not to be satisfied with the rule and regulation of trading wood products but (28%) of the respondents asserted that they were somewhat satisfied and proved that there were no reasonable control, but very few respondents (1%) of them were very satisfied, claimed. Table 21.Regarding statement to what extent they are satisfied with getting support from governmental and nongovernmental stakeholders to enhance plantation and maintaining of large trees very few percentage of respondents (21%) stated that they were somewhat satisfied with the support but the majority of the respondents claimed that they were not satisfied .

Concerning the idea to what extent they are satisfied with the presence of enough skilled staffs to manage forest activity very few of the respondents (1.5%) claimed that they were very satisfied and (25.5%) stated that they are somewhat satisfied most of the respondents about (73%) claimed that they are not satisfied .

Finally respondents were also asked to what extent they are satisfied with the awareness creating educational program towards forest conservation. The majority of the study participants (81%) reported that they were not satisfied with the awareness creating educational program towards forest conservation in contrast (18%) of respondents somewhat satisfied but very few of respondents (1%) were very satisfied .

Table 21: Local communities perception toward different issues in conservation of Dubata forest Menesibu districts, Ethiopia

Items	Satisfaction scale		
	Very satisfied n(%)	Somehow satisfied n(%)	Not satisfied n(%)
To what extent are you satisfied with the strict rule and regulation of trade associated forest products to prevent forest degradation	2(1%)	56(28%)	142(71%)
To what extent are you satisfied with the getting support from governmental and nongovernmental stakeholders to enhance forest conservation activities	0(0%)	42(21%)	158(79%)
To what extent are you satisfied with the presence of enough skilled staffs to manage forest activity	3(1.5%)	51(25.5%)	146(73%)
To what extent are you satisfied with the awareness creating educational program towards forest conservation	2(1%)	36(18%)	162(81%)

4.8 Association between Respondent's different socio demographic characteristics and perception towards forest conservation

4.8.1 Satisfaction of respondents with the strict rule and regulation of trade associated forest products to prevent forest degradation

For the statement to what extent are you satisfied with the strict rule and regulation of trade associated forest products such as fuel wood, Logging, material for housing, such as roofing material and timber for the house and furniture that seriously degrade forests the largest proportion of the respondents 71% claimed not to be satisfied with the rule and regulation of trading wood products but 28% of the respondents were somewhat satisfied, chi square test revealed that this perception is not statistically associated with sex, age and occupation but it was statistically associated with educational level of the respondents.

Table 22. Association between respondents socio- demographic characteristics and satisfaction with the strict rule and regulation of trade associated forest products

socio-demographic characteristics	Very satisfied n(%)	Somehow satisfied n(%)	Not satisfied n(%)	χ2, df, p-value
Sex				
Male	1(0.7%)	43(28.7%)	106(70.7%)	χ2= 0.771, df =2 P= 0.680
Female	1(2%)	13(26%)	36(72%)	
Age				
18-30	0(0%)	26(34.2%)	50(65.8%)	χ2 =4.472, df =4 P=0.346
31-55	2(1.8%)	25(22.9%)	82(75.2%)	
>55	0(0%)	5(33.3%)	10(66.7%)	
Education level				
Non educated	1(2.3%)	11(25.6%)	31(72.1%)	
1-8	0(0%)	32(39%)	50(61%)	χ2 =13.390, df =6 P<0.05
9-12	1(1.6%)	13(21%)	48(77.4%)	
College and above	0(0%)	0(0%)	13(100%)	
Occupation				
Merchant	0(0%)	5(50%)	5(50%)	χ2 =7.853, df =4 P=0.097
Farmer	2(1.1%)	51(28.8%)	124(21.6%)	
Government employee	0(0%)	0(0%)	13(100%)	

4.8. Socio- demographic characteristics and Satisfaction of respondents with the support from governmental and nongovernmental stakeholders to enhance plantation and maintaining of large trees

According to FGD and field survey governmental and nongovernmental stakeholders such us SLMP who works in raising awareness on different issues including forest management, introducing improved forage, Fruit Nurseries, improved crop seeds, etc were involved to

enhance their capacityin forest management, however, most respondents (79%) claimed that they were not satisfied with the support, $\chi 2$ test showed that this perception didn't show any difference across different socio-demographic characteristics: gender, age, occupation and educational level were not statistically associated with the issue.

Table 23. Association between respondents' different background characteristics andsatisfaction with getting support from governmental and nongovernmental stakeholders to enhance forest conservation.

Background Characteristics	Very satisfied n(%)	Somehow satisfied n(%)	Not satisfied n(%)	$\chi 2$, df, p-value
Sex				
Male	0(0%)	28(18.7%)	122(81.3%)	$\chi 2$= 1.969, df =1 P= 0.161
Female	0(0%)	14(28%)	36(72%)	
Age				
18-30	0(0%)	16(21.1%)	60(78.9%)	$\chi 2$ =0.010, df =2 P=0.995
31-55	0(0%)	23(21.1%)	86(78.9%)	
>55	0(0%)	3(20%)	12(80%)	
Education level				
Non educated	0(0%)	11(25.6%)	32(74.4%)	
1-8	0(0%)	18(22%)	64(78%)	$\chi 2$ =4.044, df =3 P=0.257
9-12	0(0%)	13(21%)	49(79%)	
College and above	0(0%)	0(0%)	13(100%)	
Occupation				
Merchant	0(0%)	1(10%)	9(90%)	$\chi 2$ =2.390, df =2 P<0.303
Farmer	0(0%)	40(22.6%)	237(77.4%)	
Government employee	0(0%)	1(7.7%)	12(92.3%)	

4.8.3 Socio- demographic characteristics and satisfaction of respondents with the presence of enough skilled staffs to manage forest activity

concerning the idea for the presence of enough skilled staffs to manage forest activity, very few of the respondents (1.5%) claimed that they were very satisfied and (25.5%)somewhat satisfied most of the respondents about (73%) claimed that they were not satisfied at all. $\chi 2$-test revealed that three socio-demographic characteristics: gender, age and educational level have no statistically significant association with the issue. but occupation appear to be statistically associated with the subject .

Table 24. Association between respondents socio- demographic characteristics and satisfaction with the presence of enough skilled staffs to manage forest activity

socio- demographic characteristics	Very satisfied n(%)	Somehow satisfied n(%)	Not satisfied n(%)	$\chi 2$, df, p-value
Sex				
Male	2(1.3%)	36(24%)	112(74.7%)	$\chi 2$= 0.869, df =2 P= 0. 648
Female	1(2%)	15(30%)	34(68%)	
Age				
18-30	2(2.6%)	23(30.3%)	51(67.1%)	$\chi 2$ =3.799, df =4 P= 0.434
31-55	1(0.9%)	23(21.1%)	85(78%)	
>55	0(0%)	5(33.3%)	10(66.7%)	
Education level				
Non educated	0(0%)	12(27.9%)	31(72.1%)	
1-8	2(2.4%)	22(26.8%)	58(70.7%)	$\chi 2$ =6.282, df =6 P=0.392
9-12	1(1.6%)	17(27.4%)	44(71%)	
College and above	0(0%)	0(0%)	13(100%)	
Occupation				
Merchant	1(10%)	2(20%)	7(70%)	$\chi 2$ =10.328, df =4 P<0.05
Farmer	2(1.1%)	49(27.7%)	126(71.2%)	
Government employee	0(0%)	0(0%)	13(100%)	

4.8.4 Socio- demographic characteristics of respondents and satisfaction with the awareness creating educational program towards forest conservation

Table 25 below showed us the majority of the respondents of all socio- demographic characteristics claimed that they were not satisfied with the awareness creating educational program towards forest conservation, furthermore $\chi 2$-test revealed that the result was not vary across different socio-demographic characteristics in this regard gender, age and educational level as well as occupation have no statistically significant association with the issue under consideration .

Table 25. Association between respondents socio- demographic characteristics and satisfaction with the awareness creating educational program towards forest conservation

socio- demographic characteristics	Very satisfied n(%)	Somehow satisfied n(%)	Not satisfied n(%)	$\chi 2$, df, p-value
Sex				
Male	2(1.3%)	26(17.3%)	122(81.3%)	$\chi 2$= 0.823, df =2 P= 0.663
Female	0(0%)	10(20%)	40(80%)	
Age				
18-30	0(0%)	13(17.1%)	63(82.9%)	$\chi 2$ =2.135, df =4 P= 0.711
31-55	2(1.8%)	21(19.3%)	86(78.9%)	
>55	0(0%)	2(13.3%)	13(86.7%)	
Education level				
Non educated	1(2.3%)	10(23.3%)	32(74.4%)	
1-8	1(1.2%)	14(17.1%)	67(81.7%)	$\chi 2$ =3.466, df =6 P=0.748
9-12	0(0%)	11(17.7%)	51(82.3%)	
College and above	0(0%)	1(7.7%)	12(92.3%)	
Occupation				
Merchant	0(00%)	1(10%)	9(90%)	$\chi 2$ =0.840, df =4 P=0.933
Farmer	2(1.1%)	33(31.9%)	142(80.2%)	
Government employee	0(0%)	2(15.4%)	11(84.6%)	

Chapter five

5.0 Discussion

5.1. Socio-demographic characteristics of respondents

The results on gender (Table 2) showed that males dominate the study area as males recorded 75% compared to females with only 25%. In the study areas as male is the chief bread winner of his family and as a rule men are to be interviewed since they are heads of the households and in charge of the major land use activities. The role of women in the rural areas is to supply water, collection of fuel-wood, cooking, looking after the children, and carrying out other household affairs so the women who are involved in the study are those who were free as well as whose husbands are absent. This is consistent with the report that the Ghanaian society is traditionally male-dominated (Ardayfio, 2007).

As (Table 2) and figure 3 indicated that there were a relatively adult population in the sampled communities, with most respondents (54.5%) in the 31-55 year-old age group which is in line with the study findings by Ratsimbazafy *et al*. (2012),case of the Makira in which majority of the respondents were between 30 and 55 years of age which is representing most productive age group. matured enough to understand and takes part in decision making process for a particular community issue.

And there is low level of education among the local people as 62.5% of the 200 respondents interviewed were from elementary school and farming is the major economic activity in the study area and accounts for almost 88.5% of all the occupational activities, higher than observed by Samuel T. (2017) The Case of Chilimo-Gaji Forest in Dendi District, in which (70%) livelihood sources of the surveyed households were from subsistence agriculture and slightly higher than findings by Ratsimbazafy *et al.* (2012).Case of the Makira in which eighty percent of the livelihood sources of the surveyed household were from subsistence agriculture which may be a reason for farmers to need vast forest vegetation or farmlands.

5.2. Current practices of local community to enhance forest conservation

5.2.1 Practices that enhance afforestationand reforestation as well as protect exiting natural forest

Sumit *et al*. (2012) stated that increasing the area of forest plantations by using vacant or unused lands and waste and marginal lands especially as road side and on land not suited for agricultural production should have a net positive benefit. Planting trees outside forest areas reduce pressure on forests for timber, fodder and fuel wood demands. Moreover the deforested areas need to be reforested (Sumit*et al*., 2012). Even if most FGD groups claimed that they had tree planting and growing tradition only few respondents (21%) were participated in plantation of coffee, native and commercial tree species in non-forested land (Aforestation) and Reforestation of degraded natural forest in a reasonable way (that respond always and often) table 4, their practice in plantation of coffee and other commercial plants in non-forested land and maintaining shade of diverse native & commercial tree species was not encouraging, for instance the majority of respondents 44.5% were participated less than expected but very low percentage of respondents claimed that their tree planting and growing tradition were in acceptable manner. even if the rest asserted they involve occasionally or rarely but there were also respondents who have never been involved in the issue table 4.

Furthermore table 5 $\chi 2$ test were employed in order to find out whether there is a significant difference between the respondents socio demographic characteristics and their participation in plantation of coffee, native as well as commercial tree species in non-forested land (aforestation) and Reforestation of degraded natural forest in this association the reverse is true in that the more educated respondents, showed less participation in the issue than the less educated counterparts ($p<0.05$) Table 5, in contrast there was no significant association between the age and sex, as well as occupation of respondents and the issue under discussion table 5. This result contradicts the finding by Tadesse and Teketay (2017) the case of Wof-Washa Forests in which gender is significantly associated to PFM according to them this could be attributed to the fact that men play a central role in tree planting, and women are not fully involved in tree growing in the surveyed village.

5.2.2 Extent of participation in forest management to enhance forest Conservation

AsObua *et al* (1998) stated the lack of local community participation in forest management has generally meant local communities have a negative attitude towards conservation efforts and the enforcement of conservation-related regulations. This study finding revealed that most of the local Communities in the study area were not participated satisfactorily, table 4, for instance participate in patrolling activity towards forest conservation and prevent deforestation was not satisfactory, even if the focal group discussants claimed that there was moderate participation of the local community, this study finding revealed that participate in patrolling activity towards forest conservation and prevent deforestation by the community is very low only 1.5% of the respondents were involved in the acceptable manner.

Furthermore Table 7 showed occupation and level of education is significantly associated with the respondents participation in different activities such as patrolling to prevent deforestation and enhance forest conservation, Table 7 but age and sex had no significant association with the issue Table 7. The results of this study contradict the findings by Ratsimbazafy*et al* (2012) the case of the Makira in which the local people in the study area shared the same opinion about the low level of involvement of local people in the decision making process regarding the forest however, this is statistically associated with gender, educational level and age Elder men that were more educated comparing with the average were those who stated to be satisfy with the issue. However, for forest management to achieve its goal all parties should be communally involved in planning, managing, protecting and profit sharing.

According to Obua *et al* (1998) genuine local involvement in the decision making process and management of forest resources has several advantages. Firstly, it serves to promote public interest and confidence in forest activities. Secondly, it helps to build credibility and transparency in forest management. Thirdly, it reduces management costs and forest degradation and increases benefit flow to local communities.The inclusion of local communities in protected area management is likely to be a key determinant of the level of fulfillment in protected area conservation strategies (Andrade *et al*., 2012).

5.2.3 Extent of relationship between local community and conservation staffs on the forest conservation

As Obua *et al* (1998) stated new approaches to forest management that emphasize local community participation need to be introduced as a measure for reducing mistrust and conflict between local communities and forest managers. For instance in Uganda, community forestry is a recent concept and there is a need to develop mechanisms for involving local people in forest management. In this Regard respondents were asked a question about being work cooperatively and genuinely with conservation staffs. only very few of the respondents (15.5 %) were fully supportive (those answer always and often) and most study participants (60%) claimed that they are only sometimes work cooperatively because relationship between conservation staff and the local community was not encouraging, Table 4 but the rest 5.5% asserted that they never had positive relationship and were not supportive for conservation staffs. Furthermore $\chi 2$ test in table 9 illustrated that there is a statistically significant association between being work cooperatively and genuinely with conservation staffs and level of education as well as occupation of the respondents however age and sex had no significant association with the issue ($p>0.05$) Table 9.

This low level of support and low participation of local people with conservation officials put a serious problem on the conservation strategies and a major constraint for sustained forest management in the study area, which is similar to the findings by Obua *et al*.(1998) the case of Budongo forest reserve in which the majority (85%) of the respondents asserted that the forest officials or conservation staffs are careless and do not give them the chance to discuss problems related to forest resource management, the forest reserve should still be managed under the Forest Department, on the contrary, participants in the FGD group from Menesibu agricultural office confirmed that currently the relationship is very encouraging because of awareness creation program by both the government and the NGO (SLMP), this seems similar to the study findings reported by Sultan *et al*., (2017) in South Eastern Ethiopia where most of local communities are willing to play role in conservation of sanctuary, because of the awareness creation by sanctuary staffs and Culture and Tourism office and local community participation in decision making about Sanctuary. As Mekonen *et al*. (2017) stated that awareness creation to local communities on the benefits of wildlife creates high level of community participation to conserve wildlife.

5.2.4 Extent of contribution of the local community in different conservation efforts.

As Tilahun *et al.* (2017) stated the inclusion of local communities in protected area management is likely to be a key determinant of the level of compliance with protected area conservation strategies. Their involvement in protected area decision-making processes promotes sense of ownership, where locals cooperatively protect reserves from outsiders and also regulate their own use of natural resource. Table 4 regarding the question about being playing a great role in supporting conservation effort in the area only very few of the respondents (21%) (those who answer always and often) claimed that they were playing a great role in supporting conservation effort directly and indirectly most study participants (34%) claimed that they are only occasionally involved, but the rest 44.5% asserted that they either hardly ever or never involved in the issue

This result showed us having positive attitude toward forest conservation does not necessarily resulted in high participation of effort which is in line with finding by (Macura *et al*., 2011). The case impact of legal awareness, trust, and participation in India in which there was a negative association between attitudes toward reserved forest and participation in forest management groups .Table 4. Moreover $\chi 2$ test in table 6 revealed that there was no significant association between the age, sex, as well as occupation of respondents and the issue under discussion ($p>0.05$) In contrast table 6, showed level of education is significantly associated with the respondents great effort surprisingly in this association the reverse is true more educated ones who had more positive attitude showed low involvement than less educated respondents ($\chi 2=35.752$, $df=8$, $p<0.001$) Which is similar to the finding by(Ratsimbazafy *et al*., 2012). Case of the Makira, in their study, the percentage of respondents who favored conservation of the forest was 80.45%; however, due to several reasons only 46% of the total respondents showed a willingness to support the forest conservation project

Table 4 Concerning the statement about taking part in the decision making process and management of forest resources only very few of the respondents (7.5%) often involved large proportion study participants (40%) claimed that their participation is occasional, 40% asserted that they are almost non responsive, but the rest 12.5%) never involved in the decision making and management related to forest resources Table 4. Similar result was found by (Macura *et al*.,

2011).The case impact of legal awareness, trust, and participation in India in which participation in forest management groups was low.

Moreover $\chi 2$ test in table 8 revealed that age and sex had no significant association with the issue ($p>0.05$). In contrast Table 8 $\chi 2$ test showed that there is a statistically significant association between the involvement in the decision making process and management of forest resources and level of education as well as occupation of the respondents ($p<0.05$). This result is also showed discrepancy in which more educated respondents who had superior attitude than less educated ones, showed reluctance to support forest conservation effort, which is in line with the finding by (Ratsimbazafy *et al*., 2012). Case of the Makira, in their study, the percentage of respondents who favored conservation of the forest showed ales willingness to support the forest conservation project.

5.3 Attitude of local communities towards forest and forest conservation

Assessing local communities' attitude is fundamental purpose to highlight the status of the relationship between local communities and conservation of Dubata forest (CDF)**.** Thus, the respondents were asked questions associated to the attitude of local communities towards forest and forest conservation including the possible factors associated to degradation of Dubata forest, the responsibility that they may carry out as well as their participation in conserving the Dubata forest. Accordingly the study results have provided outstanding insights on household's attitudes towards forest conservation. The findings revealed that majority of respondents held positive attitudes towards CDF. In line with some other findings such as, Garekae*et al.* (2016) a case study of Chobe Forest Reserve Botswana.

5.3.1 Attitude towards the responsibility to protect, cooperates, and participates in forest conservation.

Additionally, respondents were asked to point out their attitude on the importance of forests and their active role in its conservation. Table 11 showed that majority of respondents (89%) had positive attitude, even though (11%) were reluctant to answer the question and responded with neutral comments but none of the respondents showed negative attitude on the issue which is in line with the views byRatsimbazafy *et al.* (2012).Case of the Makira in which all interviewed people were aware of the existence of the Makira PA; 60.5% were in favor of conservation of the Makira forest. table 11

Furthermore, for question about supporting conservation staffs as one of their roles in the forest.conservation about 28% of respondents show negative attitude towards supporting conservation staffs table 11 which is similar to the findings by Sultan et al. (2017) Local community have negative attitude toward SSHS management staffs. This is as a result of control of access to sanctuary. As population increases the demand for resources found people illegally use and then destroy the natural resources inside protected areas and getting into conflict with conservation authorities such observations were also reported by Rohini et al. (2017) the case in kerala part of the western ghats, india About 35% of them expressed negative response towards forest officials, which was mostly associated with incidences of conflict and people's perception that the forest authorities were not effectively managing the wildlife intrusion to human habitations. table 11

Table 16 $\chi 2$- test revealed that there is no significant association between the sex and age of respondents with their belief in supporting conservation staffs ($P>0.05$), This result contradicts the finding by Ratsimbazafy et al. (2012).Case of the Makira in which the percentage of women who supported the conservation project was higher than men. This can be explained by the fact that women have less dependency on the forest than men, and the use of forest resources by women is generally limited to the collection of consumptive products and fiber for handicrafts.

In contrast, the forest provides important resources for the livelihood of men, such as mining and the extraction of timber. Therefore, men are more affected by the restriction of the forest than women and thus less supportive of the conservation project. In contrast level of education and occupation of the respondent were highly associated with the issue ($\chi 2= 67.894$, df 6 $P<0.05$) , table 16, These results are in agreement with the observations by Shan (2012) which showed that respondents with a university and higher degree had stronger willingness to participate than those with an upper secondary education in conservation of urban green spaces in China. Furthermore, positive influence of education towards conservation of environmental resources is similar to the findings of Steriani and Soutsas (2005),

5.3.2 Attitude towards the consequence of forest deforestation.

As noted by EFAP (1994) the general destruction of vegetation results in increased soil erosion, loss of soil fertility, loss of plant and animal genetic resources, climate change, increased run off that leads to flooding reduced infiltration to the water table and decreased water supply to rivers

during dry seasons. In this regard the local people attitude related to the consequence of destruction of vegetation were assessed for instance for the idea diminishing forest coverage is leading to bio-diversity degradation, as table 10 clearly showed more than 50% of respondents were in favor of the statement but still there were a misunderstanding with other respondents, 37.5% were undecided, and very few, 4.5% had negative attitude, this findings contradicts the findings by Abdel Rahim (2012) in Kosti Province-Central Sudan in which all communities have developed positive attitudes towards tree planting as 100% of the respondents believe that trees preserve soil fertility and reduce the land susceptibility to wind and water erosion. 99% of the respondents explained that tree planting secure their future and trees should be planted to meet their personal requirements (Abdel Rahim, 2012).

As table 15 demonstrated there is no significant association between the sex, age and occupation and attitude on whether diminishing Forest Coverage is leading to bio-diversity degradation or not ($p>0.05$). which contradicts the findings by Abdel Rahim (2012) a case in Kosti Province-Central Sudan in which sex and age proved to have a positive significant effect on respondents attitude towards tree planting.

In contrast level of education of the respondent is highly associated with the statement $P<0.05$) table 15, this implied that the more the education level, the high positive attitude of the respondents. In this regard respondents also asked about whether deforestation is the main causes of global climate change. or not, table 10, above 50% of respondents agreed with the idea but still there were a misunderstanding with other respondents, 37% were undecided, and very few, 4.% oppose the issue under discussion, table 10. But the study Sumit *et al*. (2012) declared that deforestation can cause global climate for instance by increasing the concentration of carbon dioxide responsible for absorption of thermal infrared radiation in the atmosphereaffects the radiation budget of the region by increasing the albedo of the land surface, affects wind flows, water vapor flows, and so on, thus clearly influencing local and global climate (Chomitz *et al*., 2007).

5.3.3 Attitude of respondents in relation to rule and regulation to conserve forest

As Girima and Amante (2005) reported about 5% of the total forest areas in developing countries are managed properly (FAO, 2001), which is very low when compared with developed countries,

Table 10, for statement illegal utilization of forest and cutting trees are bad actions majority of the respondents (72%) were agree 15%, undecided but 12.5% were in favor of illegal utilization of forest and cutting trees. Furthermore Table 13 showed us level of education and occupation are significantly associated with the above statement ($P<0.05$). Not surprisingly the more the education of the respondent, the more positive attitude towards the issue and the higher education of the government employers which exposes them to adequate information about the subject to have superior understanding. In contrast table 13 shows that there was no statistically significant association between age and sex attitude on whether illegal utilization of forest and cutting trees are bad actions or not ($p>0.05$) (Table 13)

Table 11 respondents were also asked to point out their insight on the strict conservation measure can save the forest from degradation, even if few respondents (14%) undecided what to answer majority of the respondents (86%) were supported the idea of strict conservation measure to save the forest from degradation Table 11 in addition to this Table 17 chi square test revealed that there is no significant association between the sex, age, occupation as well as educational level of respondents with their belief in the issue ($p>0.05$). That contradicts the finding by Torgler and Gracia et al. (2005) and Flintan (2003) in which there would be a significant association between age and sex with the attitude towards the environment.

5.3.4 Attitude towards the importance of conservation of forest and planting trees

Table 10 respondents were asked about importance of setting up protective area to sustain forest in the study area in this regard the majority of respondents about 69.5% were in favor of the idea while 24.5% of them opposing the establishment of the protective area with 6% reluctance Table 10, which showed a slight difference from the finding by Macura et al., (2011). The case impact of legal awareness, trust, and participation in India in which most of the respondents (89%) expressed a positive attitude toward reserved forests. chi square test were employed to check association between establishment of the protective area to some socio-demographic characteristics Table 20 for instance, chi square test were employed to test the influence of socio-demographic variables on conservation attitude which illustrate that there was no significant association between the age and attitude towards their belief in setting up protective area to sustain forest in the study are, ($p>0.05$) similar to the findings by Mekonen et al. (2017) the case in Harenna Forest, South East Ethiopia in which age was not important in determining the

attitude towards conservation area (P>0.05), but contradict with the finding by Samuel T. (2017) The Case of Chilimo-Gaji Forest in Dendi District, West Shewa Zone, Oromia, Ethiopia in which the older respondents were generally more responsive to forest conservation and were concerned about the consequences of deforestation and degradation of the forest.but, there is a statistically significant association between the sex of respondents and the issue under discussion, this result is in line with the finding by Tilahun et al. (2017), the case in Gibe Sheleko National Park, Southwestern Ethiopia the perception about conservation importance of GSNP was significantly different between sex categories, in their finding female respondents had low knowledge about importance of wildlife conservation and the significance of GSNP while more than 70% of male respondents were viewed that the establishment of GSNP is for biodiversity conservation and tourism attraction, but contradicts the findings by Mekonen et al. (2017) the case in Harenna Forest, South East Ethiopia, there was no significant difference in the attitude towards wildlife conservation between Sex (P>0.05).

in addition Table 20showed that occupation and educational level is also significantly associated with the issue p<0.05) This is similar with Tilahun, et al. (2017) and Mekonen et al. (2017) finding, the perception of local communities about wildlife conservation importance has relationship with educational level, better-educated respondents had more positive attitude than less educated groups.

Accordingly, table 10 demonstrate, for statement forests are source of rain and prevent soil erosion, maintaining the fertility of soil most of the respondents 81.5% have a positive attitude on the issue table 10, even if the rest showed reluctance to answer, while taking the neutral position, which is relatively very high percentage than the result findings by Samuel T. (2017) The Case of Chilimo-Gaji Forest in Dendi District, West Shewa Zone, Oromia in which only 37.25% of the interviewed people perceived forest as a source of rain and water; habitat for various wildlife and biodiversity; and as a resource for maintaining the fertility of the land. As for the second statement table 10, about forests are our cultural and natural identity, even if very few were against the statement most of respondents (82.5.5%) were in favor of the statement, which is in line with the findings by Abdel Rahim (2012) in which his results showed that most of the respondents are aware of the productive and the protective role of trees, and they express

their urgent need to plant trees to combat the threatening environmental problems and to provide them with fodder and other useful tree products.

Regarding to the statement forest is natural resource and should be preserved for future generation table 10, almost all respondents (99%) had a strong belief on the issue with only 1% reluctance. A strong aspiration was expressed for the protection of the forest for future generations, which can be inferred as indicative of a deep sense of approval and concern for forests by local community, table 10. Moreover a $\chi 2$ test, table 14, did not show any significant association between preserving forest for future generation and the age as well as sex ($p > 0.05$) table 14, that contradicts the findings by Rohini et al. (2017) The case in kerala part of the western ghats, india in which gender and age was identified as a significant predictor of conservation attitude, with men and younger generation being more likely to express positive attitudes than women and relatively adult respondents($p < 0.05$) (Rohini et al. 2017) Educational level has no significantly associated with the attitude towards their belief about the importance of conserving forests for future generation ($p > 0.05$), table 14 while occupation is significantly associated with the issue ($P < 0.05$), in contrast almost all respondents from all categories of educational level showed positive attitude on the significance of forest for future generation, table 14. Which is similar to the findings by Samuel (2017) The Case of Chilimo-Gaji Forest in Dendi District, West Shewa Zone, Oromia, Ethiopia in which the more educated people were generally more aware about the ecosystem function of the forest and were concerned about the consequences of complete deforestation and degradation of the forest.

5.3.5 Attitude of respondents towards participatory forest management

Table 12 Regarding the statement everyone should get permission to have access to protect forest, 63.5% of the respondents had a positive attitude towards forest conservation, table 12 there were also small proportion of respondents about (23%) who showed neutral attitude with no clear position, while the rest about (13.5%) had negative attitude on the issue table 12, regarding the statement, everyone should get permission from the government to have access to protect forest which contradicts the findings by Samuel T. (2017) The Case of Chilimo-Gaji Forest in Dendi District,West Shewa Zone, Oromia, Ethiopia in which the large proportion of the respondents (92%) agreed that it was the local community's responsibility to safeguard the forest in their surroundings, in addition to thisprevious studies suggested that the perception and

attitudes of local people towards participatory forest management were affected by socio-economic variables, such as sex, age, level of education, occupation, etc (Tadesse and Teketay 2017). Chi square test were employed to check the relationship between the issue and socio-demographic characteristicsin this regard Table 18 showed that occupation is significantly associated with the subject ($p<0.05$) and also it is not odd to get the majority of the respondents (84.6 %) from relatively highly educated category disagreed to the negative statement, which proved that they have positive attitude towards forest conservation which suggest that fallacy were found in less educated and illiterate respondents ($p<0.05$), but no significant association between the sex as well as age of respondents and attitude about the issue, ($p>0.05$) Table 18,this result contradicts the findings by Ratsimbazafy et al. (2012) case of the Makira Reducing Emissions from Deforestation and Forest Degradation Project, Madagascar in which all interviewed people regardless of sociodemographic characteristics were aware of that it was the local community's responsibility to safeguard the forest in their surroundings.

Table 12, for the statement everyone should be financially benefited to protect & participate in conservation most of the respondents (70%) were in favor of this negative statement with very few (9.5%) against financial benefit to participate in conservation issue Table 12,, this result contradicts the finding by Sultan et al. (2017) The Case of Senkele Swayne's Hartebeest Sanctuary, South Eastern Ethiopia in which currently, most of local communities are willing to play role in conservation of sanctuary. This is due to the Awareness creation by sanctuary staffs and Culture and Tourism office of Siraro woreda and local community participation in decision making about Sanctuary.Table 19, Chi square test revealed that there was statistically significant association between educational level as well as occupation and the issue under discussion. which is unconstructive statement, majority of the respondents from relatively highly educated category and government employees opposed this negative statement which proved that they have positive attitude towards forest conservation but majority of the respondents from elementary and high school approved the idea which seems to have negative attitudes about the issue ($p<0.05$), in contrast Table 19 showed sex and age were not significantly associated with the issue. Generally as study findings by Tesfaye *et al*. (2012); Ameha *et al*. (2014) noted previous benefits and values can affect the conservation attitudes of the local people towards forest conservation and management.

Furthermore, Table 12, respondents were asked question about their position in using natural forest product by the nearby villages without any restriction, the majority of respondents (85%) were in favor of this negative idea with relatively very few respondents (13.5%) were against the issue. Table 12, reveals those who agreed to the unfavorable statement or abusing of the right of the people in utilizing forest resources seems to have a negative attitude towards the issue, in contrast the rest of the respondents disagreed to the negative statements, which shows that the respondents have positive attitude towards forest conservation. Table 12, Similar attitude were also found by Ratsimbazafy *et al*. (2012),case of the Makira Reducing Emissions from Deforestation and Forest Degradation Project, Madagascar in which the interviewed local residents, 43.6% perceived the forest as an important source of supplemental income and agricultural land, and of these, majority (64%) were young and middle aged men who depended entirely on agriculture plus some cash from the forest resources. Fifteen percent of the respondents (n = 24) claimed that the forest did not have any importance regardless of protection, of this, 79.1% (n = 19) were women Ratsimbazafy *et al*. (2012).As Mekonen *et al*. (2017) the case in Harenna Forest, South East Ethiopia concluded from his findings the seemingly small negative attitude might grow into big wildlife conservation challenge in Harenna forest if steps are not taken to address it.

5.3.6 Attitude of respondents towards current status of forest

Regarding to the statement about forest cover has been declined over the past decades more than 50% believe that forest cover has been declined but about 23.5% study participants were against this idea and the rest were reluctant additionally respondents were asked whether they believe or not local people's livelihoods are affected by the forest decline: in this regard most of respondents 87.5% agreed with only 14% reluctance but none of the respondents were against the issue, this result was in line with the finding by Ratsimbazafy *et al*. (2012),case of the Makira Reducing Emissions from Deforestation and Forest Degradation Project, Madagascar in which 83% of respondents agreed that the forest area had declined and this had an impact on their livelihood.

5.4. Perceptions of the local community about the forest conservation

5.4.1 Regulation of trade associated forest products

As Sumit *et al*. (2012) explained a wide variety of policy statements and legislative and regulatory measures have been established to protect forests but need to be effectively enforced. Table 21 Regarding the statement about their satisfaction in strict rule and regulation of trade associated forest products such as fuel wood, logging, material for housing such as roofing material and timber for the house and furniture that seriously degrade forests; the largest proportion of the respondents 71% were not satisfied with the rule and regulation of trading wood products but 28% of the respondents acknowledge that they were somewhat satisfied or there was no reasonable control, but only 1% of the respondents asserted that they were very satisfied. Table 22 chi square test revealed that this perception is not statistically associated with sex, age and occupation ($p>0.05$) but it was statistically associated with educational level of the respondents ($p<0.05$) Table 22.As Sumit *et al*. (2012) suggested strong and stable government is essential to slow down the rate of deforestation. FAO (2010) also stated that half of the current tropical deforestation could be stopped if the governments of deforesting countries were determined to do so.

5.4.2 Support from governmental and nongovernmental stakeholders to enhance forest conservation activities

Table 21, Regarding satisfaction of the local community in getting support from governmental and nongovernmental stakeholders to enhance their forest conservation activities, from interview of the house hold and FGD the Government and SLMP (Sustainable Land Management Program.) who works in raising awareness on different issues including forest management, introducing improved forage, Fruit Nurseries, improved crop seeds, etc however, only very few percentage of respondents 21% claimed that they were somewhat satisfied with the support but the majority of the respondents (79%) declared that they were not satisfied (Table 21)

(Table 23) chi square test showed that this perception differ across different socio-demographic characteristics: for instance gender and age were not statistically associated with the issue($p>0.05$), this result disagree with the finding by Samuel T. (2017) in which the majority the respondents were satisfied and only 22.2% of the respondents were dissatisfied. In addition

this satisfaction with the issue were associated with age and gender, which also contradicted this finding but occupation and educational level were appear to be statistically associated with the issue under discussion ($p<0.05$), Table 23 the presence of NGOs might be important in preserving forests such as Dubeta Forest in line with the findings by Mekonen *et al*. (2017), the presences of biodiversity-related conservation organizations have different roles for conservation and sustainable utilizations (Mekonen *et al*., 2017) Non-governmental organizations like Farm Africa, SOS Ethiopia, Oromia Forest and Wildlife Enterprise etc, have their roles for conservation of wildlife and forest which is used as an opportunity for conservation of Dubeta Forest, (Mekonen *et al*., 2017)

5.4.3. Presence of enough skilled staffs to manage forest activity

Concerning the idea for the presence of enough skilled staffs to manage forest activity the largest proportion of the respondents (73%) asserted that they were not satisfied with the presence of enough skilled staffs.(Table 21), chi square test revealed that three socio-demographic characteristics: gender, age and educational did not show statistically significant association with the issue ($p>0.05$). Table 24 but occupation appear to be statistically associated with the subject ($p<0.05$Table 24 Such observations were reported by Obua *et al*.(1998) the case of Budongo forest reserve in which about 75% of the respondents claimed that the forest officials in Budongo are harsh and do not give them the opportunity to discuss problems of forest resource use. forest reserves still be dominantly managed under the Forest Department and they did not have sufficient knowledge of forest management.

5.4.4. Awareness creating educational program towards forest conservation

In addition to household survey FGD participants claimed that even though the District's agricultural office cooperating with SLMP (Sustainable Land Management Program.) who involved in different issues including raising awareness of the local community with different formal and non formal trainings to enhance forest management, Table 21 the majority of the study participants 81% reported that they were not satisfied with the awareness creating educational program, Table 25 chi square test revealed that the result was not vary across different socio-demographic characteristics in this regard gender, age and educational level as well as occupation have no statistically significant association with the issue under consideration,

(p>0.05), Table 25 this is similar to the finding by Samuel T. (2017) The Case of Chilimo-Gaji Forest in Dendi District, West Shewa Zone,Oromia, Ethiopia to strengthen the communities' know-how, improve their livelihood, several capacities building related activities were initiated and implemented by the FUGs

5.5 Actual and potential threats of forest conservation in Dubata forest

As Murthy *et al* (2002) forest have been providing human food, recreation, spiritual sustenance,commercially traded products ranging from pharmaceutical to timber and it provide a wide range of products and services. Theeconomic values of forest are the basis of a variety of industries including timber,processed wood and paper, rubber and fruits. They also contain products that are necessary for rural communities including fuel, construction materials and medicines(FAO, 2005)

According to FGD it was found that the rural people in the study area are engaged in various practices that affect forest resource conservation including, forest clearing for agricultural fields, forest resource extraction such as charcoal, timber, fuel wood, for income generation. Some respondents were aware of the negative changes in the conditions of the forest as a result of their practice, the same is true in the study by Tesfaye and Bezabih (2017), Tocha District Southern Ethiopia as population growth increased demand for more agricultural land, timber production, fuel wood consumption and other unwise uses largely contributes to forest degradation in the study area.

5.5.1 Destruction of forest by Agricultural expansion

According to FGDs held with the district agricultural office and forest administration, due to population growth still there are agricultural expansion. Consistent to this finding UNEP, (1995) reported in Ethiopia, there is extreme exploitation of natural forests without minimum repair as well as the extension of cultivation to marginal lands by clearing and burning fragile ecosystem. The report agree with Tesfaye and Bezabih (2017),the case in the Tocha District Southern Ethiopia whom stated that, forest cover of Ethiopia has suffered severe deforestation and degradation through heavy exploitation resulting from an increasing demand for agricultural expansion, fuel wood and grazing but agricultural land expansion was serious than the rest of extraction, Tesfaye and Bezabih (2017),

5.5.2. Destruction by over extraction of forest for timber logging

According to discussion with key-informants and FGD, one of the major causes of deforestation in the study area are over extraction of forest for timber logging which is in line with Tesfaye and Bezabih (2017),the case in the Tocha District Southern Ethiopia

5.5.3. Overgrazing by stock animals

As the discussion with key-informants and FGD, indicated there was shortage of public grazing land, Since majority of the respondents (85%) have live stock And most (84%) claimed they had no enough grazing land for their livestock in the study area overgrazing is a serious problem since stripping trees to provide fodder for their live stock can also be a common practice in the study area, for instance FGD and respondents in table 3 showed us about 42% of the respondents explain that they have no shortage of fodder for their livestock because they usually exploit the nearby forest as a fodder without any restriction, similar to findings by Tadesse and Teketay (2017) the case in Tarmaber District of North Shewa Administrative Zone, Ethiopia: access to free-range livestock grazing during drought periods when there was a scarcity of fodder for livestock, and source of fodder for livestock through cut-and-carry system and wood products.

5.5.4. Extraction of Forest for Charcoal and Firewood

Information from FGD and structured questionnaire confirmed that even if Charcoal extraction is intense, they most used as means of income or for market the same result was found by Debela and Hundie (2012) The Case of Komto Forest in which charcoal is produced mostly for commercial purpose than for own consumption. In addition to this a greater number of respondents above 95% claimed that they have no the tradition of using pruning and rotation extracts for fuels, which contradicts the study findings by Debela and Hundie (2012) the Case of Komto Forest in which the community use leftovers, scraps of tree cut for different purposes as a source of fuel woods avoiding cutting of live trees for immediate service.

Generally fuel wood is not usually the major cause of deforestation in the study area since the majority of the respondents (80%) noted that they had no a shortage of fuel wood, because more respondents (54.5%) claimed that they had allocated landholdings for woodlot plantations (Table 3) this result contradicts the study findings by Tesfaye and Bezabih (2017), which identified over extraction of forest for fuel wood as one of serious problem for forest lose.

5.5.5 Destruction of forest by Fire

FGD discussants confirmed that fire also are a major problem particularly from wild honey collectors in fact fire is a tool in clearing the forest for shifting and permanent agriculture and for developing pastures. As Repetto, 1988; Rowe *et al*., 1992 explained fire is a good servant but has a poor master, if we use responsibly can be a valuable tool in agricultural and forest management but if abused it can be a significant cause of deforestation.

5.5.6. Urbanization and infra-structure

Menesibu is one of expanding and fast growing district in western wollega which require land to establish the infrastructures necessary to support growing population which is done by clearing the forests which greatly contribute for forest degradation which is in line with (Wilkie *et al*., 2000; Amor, 2008; cited in sumit et al., 2012) construction of roads, railways, bridges, and airports opens up the land to development and brings increasing numbers of people to the forest frontier and cause deforestation.

5.5.7. Factors influence local residents' perception and attitudes towards forest conservation

As Tadesse and Teketay (2017) argued the successful conservation of forests is dependent upon the attitudes of the local people who are inherently connected to the benefits and values that they can derive to play active role in forest conservation and management and as Ratsimbazafy et al. (2012) Case of the Makira indicated attitudinal surveys have been used in many countries to assess the success of a conservation program and hypothesized that a high percentage of local residents having positive attitudes toward conservation indicates forest conservation success.

The result of this study showed that, the majority of the respondents who had a positive attitude toward conservation demonstrate poor practice, for instance cooperatively and genuinely work with conservation staffs Table 9 and participating in (Aforestation) and Reforestation natural forest Table 5 were practiced more by relatively less educated counterparts which is in line with findings Ratsimbazafy et al. (2012) Case of the Makira, in their study, the percentage of respondents who favored conservation of the forest was 80.45%; however, due to several reasons only 46% of the total respondents showed a willingness to support the forest conservation

project, then it can be argued that a positive attitude does not necessarily translate into the success of the conservation project.

6. Conclusion and Recommendation

6.1. Conclusion

This study assessed perceptions, conservation practices and community attitudes towards Dubata Forest conservation in Menesibu District, Oromia region, west Ethiopia, and identified the problem of conservation of Dubata forest such as lack of well trained enough skilled staffs to manage forest activities, lack of strict rule and regulation of trade associated forest products such as fuel wood and charcoal,for commercial purpose, logging, material for housing, such as roofing material and timber for the house and furniture, stripping trees to provide fodder for grazing animals can also be a common practice in the study area, that seriously degrade forests, intermittent support from governmental and nongovernmental stakeholders to enhance plantation and maintaining of large trees, shortage of communal grazing land and due to population growthconverting forests to agricultural lands as well as lack of viable land policy have been indicated as the main cause for forest degradation,

Since Menesibu is one of the expanding and fast growing districts in Western Ethiopia ,urbanization and infra-structure is also a great challenge as forests must be cleared to establish the infrastructures that can accommodate growing population. Low knowledge of local community in managing forest activities is also another challenge, since the success of effective forest conservation is entirely dependent on the acceptance and cooperation of local communities, low level of participation in forest management may greatly contribute for forest degradation

The study also identified the community practices that enhance forest conservation, such as aforestation and reforestation, occasional patrolling activity towards forest conservation and prevent deforestation, attitudes and perception of the local community towards forest conservation, as well as the association between socio–demographic characteristics (Gender, age, Occupation, educational level, etc.) with , attitude, perception and forest conservation practices of the local community were greatly assessed. Forestdegradation is a threat to the economic development of Ethiopia in general and in Menesibu district in particular. As local communities

are directly and indirectly dependent on the forests for their livelihood, assessing attitude, perception and practice of people on forest deforestation practices has become great importance.

6.2. Recommendation

In general, according to this finding the challenges to forest conservation were greater which requires measures to tackle it by establishing a well established conservation programs to encapsulate all these challenges in order to explore the opportunities.

The following points are recommended based on the findings:

- Restricting population growth to reduce the pressure on the environment, particularly forest resources.
- Pursue energy policies to accelerate the development or providing alternative means of energy like biogas for local community is highly recommended.
- Implementation of agro forestry and social forestry in the rural areas where subsistence farming is practiced,
- Expansion of both industrial and non-industrial plantation forestry on currently uncultivated slopping lands,
- The factors that drive the local people or settlers to burn the forest should be identified and appropriate mitigation measures should be taken to halt the problem,
- It is vital to implement awareness creation, benefit sharing, and creating employment opportunity to local community.
- Establishing a buffer zone between community's village and the forest to protect intensive use area from disturbance.
- woodlot plantations in non-forested land should be encouraged
- strict rule and regulation of trade associated forest products should be established and illegal utilization of forest and cutting trees should be punished with fine
- permanent support from governmental and nongovernmental stakeholders to enhance plantation and maintaining of large trees
- There should be enough well trained skilled and responsible conserving staffs to manage forest activity There should be formal awareness creating educational program and training towards forest conservation

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Appendix 1: Questionnaires

Date: ----------

Dear Respondent,

This questionnaire has been prepared to carry out a study on conservation practices, perceptions and community attitudes toward Dubata forest in Menesibu district, Oromia region. Your cooperation in filling up this questionnaire is important in my academic pursuit and conservation of the forest. There is no right or wrong answers to any of the questions. It is your views and your opinions that I want to measure in this study. The findings will be prepared in a total figure.

No need to write your name. Sex: Male Female

Age: young (18-30) ☐ Adults (31- 55) ☐ olds above 55 ☐

Educational level: Non Educated1-8 ☐ 9-12 ☐ college and above ☐

Occupation: merchant farmer government employer NGO employer

With kindly regards, TemesgenGemechu

Practices toward forest conservation in the study area Menesibu district , Oromia, Ethiopia

No	Practice Items	Always	Often	Sometimes	Rarely	Never
1	Are you participating in Aforestation and Reforestation as well as protect exiting natural forest					
2	Are you playing a great role in supporting conservation effort in the area?					
3	Are you participated in different activities such as patrolling to prevent deforestation and enhance forest conservation?					

4	How is your usage of Pruning and rotation extracts for fuels and house hold use?					
5	Are you involved in the decision making process and management of forest resources?					
6	Is your relationship is positive and supportive for conservation staffs?					

Please point out your response to the following statements Always 1 Often 2 Sometimes 3 Rarely 4 Never 5

Local communities attitude toward conservation of Dubata forest Menesibu districts, Oromia, Ethiopia

No	Items	Attitude scale				
		Positive attitude		Neutral	Negative attitude	
		Strongly agree	agree	Undecided	Disagree	Strongly disagree
1	Forests are source of rain and prevent soil erosion, maintaining the fertility of soil					
2	Forests are our cultural and natural identity.					
3	Forest is natural resource should be preserved for future generation					
4	Maintaining shade of diverse native tree species help coffee production.					
5	Setting up protective area is necessary to sustain forest in your area					
6	woodlot plantations is important because it reduces deforestation of natural forest					

7	Diminishing Forest Coverage is leading to bio-diversity degradation.					
8	Deforestation is the main causes of global climate change.					

Please point out your response to the following statements

Strongly Agree = 1, Agree = 2, Undecided = 3, disagree = 4, strongly disagree = 5

Table 6: local communities' attitude toward forest conservation Menesibu districts, Ethiopia.(continued)

No	Items	Attitude scale				
		Positive attitude		Neutral	Negative attitude	
		Strongly agree	agree	Undecided	Disagree	Strongly disagree
9	Do you agree Forest is important and your active role is necessary for its conservation?					
10	Strict conservation measure can save the forest from degradation					
11	Illegal utilization of forest and cutting trees are bad actions.					
12	Forest cover has been declined over the past decades					
13	Livelihoods are affected by the forest decline					
14	Supporting conservation staffs is one of your roles in conservation					

	of forest.					
15	Every one of the local community have responsibility to protect and participated in forest conservation.					

Please point out your response to the following statements

Strongly Agree = 1, Agree = 2, Undecided = 3, disagree = 4, strongly disagree = 5

Local communities' attitude toward forest conservation Menesibu districts, Ethiopia.(continued)

No	Items	Strongly agree	agree	Undecided	Disagree	Strongly disagree
1	Everyone should get permission to have access to protect forest.					
2	Everyone should be financially benefited to protect & participate in conservation					
3	Natural forest product should be exploited by the nearby villages freely					

Please point out your response to the following statements

Strongly Agree = 1, Agree = 2, Undecided = 3, disagree = 4, strongly disagree = 5

Local communities' Socioeconomic characteristics Menesibu districts, Ethiopia

No	Items	Yes	No
1	Do you have Livestock?		
2	Is there enough grazing land for your livestock?		

3	Dou you want to have more livestock than had at present?		
4	Is there any shortage of fodder for their livestock?		
5	Is there Private land ownership?		
6	Is there Allocated land for woodlot plantation?		
7	Is there Shortage of fuel wood?		

Write 1 = for yes 2= for no for the above question

Local communities perception toward different issues in conservation of Dubata forest Menesibu districts, Ethiopia

No	Items	Satisfaction scale		
		Very satisfied	Somehow satisfied	Not satisfied
1	To what extent are you satisfied with the strict rule and regulation of trade associated forest products to prevent forest degradation			
2	To what extent are you satisfied with the getting support from governmental and nongovernmental stakeholders to enhance forest conservation activities			
3	To what extent are you satisfied with the presence of enough skilled staffs to manage forest activity			
4	To what extent are you satisfied with the awareness creating educational program towards forest conservation			

Please point out your response to the following statements

Very satisfied 1 Somehow satisfied 2 Not satisfied 3

Appendix 2: Interview questions

1, Are there some NGOs that work on conservation activities of the forest? Yes NO

if you say yes, what are their supports towards plantation and forest conservation activities? ----------

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2, is there any contribution of local investors and private companies toward plantation and forest conservation? Yes No if you say yes, what are these contributions?

3, plantation is habitual in our zone? Yes No if you say yes, what types of tree are mostly planted by local communities? ----------

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4, Poverty is the main reason of peoples engaging towards deforestation? Yes No explain your answers ----------

---

5, what are different practices takes place in your locality to enhance forest conservations and develop community attitudes towards forest conservation? ----------

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6, what are some problems with the existing forest conservation system? ----------

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Thanks for your contributions!

Appendix 1: Gaaffilee

Guyyaa-------

Maqaa gandaa---------

Gaafatamtoota kabajamoo:

Gaaffiin kun kan inni qophaa'ef qorannoo waa'ee barteewwan kunuunsaa,hubannoo fi ilaalcha hawaasaa bosona Dubbataa aanaa Manasibuu ,naannoo oromiyaa irratti qaban madaaluudha.Hirmaannaan keessan dhimmi kunuunsa bosonaa barnoota kootiif waan nabarbaachisuuf gaaffii kana guutuun barbaachisaa ta'ee argama.Gaaffiin kun kan debi'u akkaataa ilaalcha keessani an madaaluu barbaaduuniidha .Maqaa keessan barreessuun hinbarbaachisu.

Saala: Dhiira ☐ Dhalaa ☐

Umrii: Dargaggeessa: ☐ (18-30) Ga'eessa(31-55) ☐ Jaarsolii 55 olii ☐

Sadarkaa barnootaa: Kan hinbaranne1 ☐ 9-1 ☐ collee ☐ isaa ol ☐

Ga'ee hojii; Daldalaa ☐ Qotee bulaa ☐ Hojjetaa mootummaa ☐ Hojjetaa miti ☐ mootummaa ☐

Galata guddaa wajjin

Tamasgeen gammachu

Barteewwan kunuunsa bosonaa bakka qorannoo aanaa manasibuu ,Oromiyaa,Itoophiyaa

Lakk	**Gaaffilee barteewwanii**	Yeroo hundaa	yeroo baayyee	Yeroo tokko tokko	Hamma tokko	tasa
1	Bosonoomsuu,bosona deebisanii dhaabuu fi badiinsa bosona uumamaa eeguu keessatti ni hirmaattaa?					
2	Garee kunuunsa bosonaa uumamaa naannoo deggeruu keessatti ga'ee cimaa ni taphattaa?					
3	Gochhaalee graa garaa kanneen akka bosona irra naanna'uun ciramuu bosonaa eeguu fi bosona kunuunsuu keessatti ni hirmaattaa?					
4	Bosona marsaan muruun bobeeffachuu fi tajaajila manaaf oolchuun kee hammami?					
5	Dhimma qabeenya uumamaa irratti murteessuu fi adeemsa bulchiinsa isaa keessatti ni hirmaattaa?					
6	Hariiroon qaama kunuunsitootaa fi sigidduu jiru gaariidhaa?					

Himoota armaan gadiif debii kee knni maaloo

Yeroo hundaa 1 Yeroo baayyee 2 Yeroo tokko tokko 3 Hamma tokko 4 Tasa

Ilaalcha hawaasa naannoo kunuunsa bosona dubbataa irratti ,aanaa manasibuu ,Oromiyaa Itoophiyaa

Lakk	Gaaffilee	Sadarkaa ilaalchaa				
		Ilaalcha gaarii		Ilaalcha dhabeessa	Ilaalcha badaa ykn gadhee	
		Baayyeen	Waliingala	Adda hinbaane	Wali hingalu	Baayyee walii hingalu
1	Bosonni madda roobaa ,dhiqama biyyee ittisuu fi gabbina biyyee ida'uudha.					
2	Bossonni eenyummaa uumamaa fi aadaa keenyaa ti.					
3	Bosonni qabeenya uumamaa dhaloota dhufuuf turuu qabuu dha.					
4	Biqiloota biyyaa garaagaraa deebisanii dhaabuun gaddisi isaanii oomisha bunaaf ni gargaara.					
5	Bakkeen dhorkamoo uumuun bosona naannoo keetii itti fufsiisuuf gargaara					
6	Biqiloota jirma jabaa qaban dhaabuun ciramuu bosona uumamaa ni hir'isa.					
7	Uwwisa bosonaa haphisuun lubbuqabeeyyii adda addaa ni hir'isa.					

8	Ciramuun bosonaa sababa guddaa jijjiirama qilleensaa addunyaa ti.					

Himoota armaan gadiif debii kee knni maaloo

Baay'een waligala = 1, Waliingala = 2, Adda hinbaane = 3, Walii hingalu = 4 Baayyee walihingalu = 5

Ilaalcha hawaasa naannoo kunuunsa bosona dubbataa irratti ,aanaa manasibuu ,Oromiyaa Itoophiyaa

Lakk	Gaaffilee	Sadarkaa ilaalchaa				
		Ilaalcha gaarii		Ilaalcha dhabeessa	Ilaalcha badaa ykn gadhee	
		Baayyeen waliigala	Waliin gala	Adda hinbaane	Walii hingalu	Baayyee walii hingalu
9	Barbaachisummaa bosonaa irratti waliigaluu kee fi hirmaannaa ho'aa ati kunuunsa isaaf qabdu maal fakkaata?					
10	Tarkaanfiin kunuunsaa cimaan bosonni miidhamuu irraa ni eega.					
11	Seeraan ala bosona fayyadamuu fi muruun gocha badaa ykn gadheedha.					
12	Uwwisni bosonaa baroota darban keessa gadi bu'eera.					
13	Haalii jireenya hawaasaa miidhamuu bosonaan gadi bu'a					
14	Garee kunuunsitootaa deggeruun ga'ee ati bosona kunuunsuuf qabdu keessaa tokko.					

15	Hawwaasni kam iyyuu itti gaafatamummaa bosona eeguu fi kunuunsa isaa keessatti hirmaachuu qaba.					

Baayyeen waliigala = 1, Waliingala = 2, Adda hinbaane = 3, Walii hingalu= 4, baayyee walii higalu = 5

Ilaalcha hawaasa naannoo kunuunsa bosona dubbataa irratti ,aanaa manasibuu ,Oromiyaa Itoophiyaa

No	Items	Baayyeen waliigala	Waliingala	Adda hinbaane	Walii hingalu	Baayyee walii hingalu
1	Namni kam iyyuu eeyyama bosona kunuunsuu fi eeguu qaba.					
2	Namni kam iyyuu bosona kunuunsuuf qarshiin deggeramuu fi hirmaachuu qaba.					
3	Bosona uumamaa gandootni cinatti argaman akkafeeteen itti fayyadamuu qabu.					

Himoota armaan gadiif deebii kee kenni maaloo

Baayyeen waliigala = 1, Waliingala = 2, Adda hinbaane = 3, Walii hingalu = 4, Baayyee walii hingalu = 5

Amaloota hawaasdinagdee hawaasa naannoo aanaa manasibuu itoophiyaa

Gaaffilee armaan gadii eeyyee ykn lakki jedhi

Gaaffilee	Eeyyee	lakki
Horii manaa qabdaa?		
Horii keetiif lafa dheedichaa gahaa qabdaa?		

Horii manaa kana caalaa qabaachuu ni feetaa?		
Horii keetiif hir'nni nyaataa mudate jiraa?		
Lafa dhuunfaatti qabdaa?		
Lafti mukkeen dhaabuuf qophaa'e jiraa?		
Hirrina qoraan bobeessani qabdaa?		

Eeyyeef=1 Lakkiif=2 jedhii gaaffilee armaan oliif barreessi

Barteewwan ykn rakkoon miidhamuu bosonaaf sababa ta'an maal fa'i?----------
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Hubannoo hawaasaa yaadota garaa garaa kunuunsa bosona dubbataa aanaa manasibuu,Itoophiyaa

Lakk	Gaaffilee	Sadarkaa itti quufinsaa		
		Baayyee quubsaa	Hammaa tokko quubsaa	Quubsaa miti
1	Seerrii fi ittiin bulmaatni jabaan oomisha bosonaan walqabate miidhamuu bosonaa niittisa kan jedhu hammam si quubsa			
2	Deggersi mootummaa fi miti mootummaa kunuunsa bosonaa irratti jiru hammam siquubsa			
3	Jiraachuu namoota ogummaa qabanii kunuunsa bosonaa irratti hammam siquubsa.			
4	Sagantaan barnootaa hubannoo uumuu kunuunsa bosonaa irratti hammam siquubsa			

Himoota armaan gadiif deebii kenni maaloo

Baayyee quubsaa= 1 Hamma tokko 2 = Quubsaa miti= 3

Appendix 2:Gaaffii fi debii(interview)

1.Qaamni miti mootummaa(NGO) kunuunsa bosonaa irratti hojjechaa jiru jiraa? Eeyyee ☐ Lakki ☐ Eeyyee yoo jette: Dhaabbaa dhaabsisuu fi bosona kunuunsuu keessatti deggersi isaanii maali? ----------

2.Hirmaannaan abbootii qabeenyaa(investers) fi dhaabbilee dhuufaa kunuunsa bosonaa irratti jiraa? Eeyyee ☐ Lakki ☐ Eeyyee yoo jette gaheen isaanii maali?----------

3.naannoo keenya keessatti dhaabbaan amaleeffame jiraa? Eeyyee ☐ Lakki ☐
Eeyyee yoo jette biqilaa gosa kamiitu yeroo baayyee uummataan dhaabbata?----------

4.Hiyyumni ciramuu bosonaaf sababa guddaa dha? Eeyyee ☐ Lakki ☐

Deebii kee ibsi----------

5Barteewwan kunuunsa bosonaaf bu'aa qabanii fi ilalcha uummataa gara kunuunsa bosonaatti guddisan maal fa'i?----------

6.Rakkoowwan kunuunsa bosonaa waliin walitti hidhaman maal fa'i?----------

Hirmaannaa keessaniif galatoomaa