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The Effect of Forest Governance on Forest Management: A Case of Choke Mountain Watersheds, Amhara National State, Ethiopia

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Abstract
In Ethiopian highlands, Choke Mountain watersheds is endowed with a number of natural resources such as fresh water, fertile soils, wildlife and a large number of natural vegetation species and it is located at the center of Blue Nile Highlands. It has considerable ecological and socioeconomic significance at the local, regional, and national levels. However, land degradation has impaired the capacity of the land to contribute to food security. This study therefore, assesses the Performance of forest governance on forest management. The necessary data were generated both from primary and secondary sources. This study revealed that growth in population without increases opportunities to acquire off-farm income tends to place increased pressure on forest and communal grazing land, weak forest governance, greater increment of agricultural and bare land at the expense of decreasing forest and afro-alpine vegetations, limited institutional capacity and limited law enforcement to protect encroachment of forest and communal grazing land clearly indicates the prevailing danger of land degradation in the area.
Keywords*:* choke mountains, forest governance, forest management, forest degradation.

1. Introduction

Ethiopia owns diverse vegetation resources that include high forest, woodland, bush land, plantations, and trees outside forest. Each of these vegetation resources variously contributes to the production, protection and conservation functions, and play significant role in the national and local economy. At local level forests and trees provide food, medicine, energy, fodder, farm implement and construction materials. Conservation forest land have been offering fertile croplands to sustain crop production (Gobeze et al. 2009).However, Deforestation and land degradation should be seen as the most important issues threatening the survival of Ethiopia. Floods, drought, desertification, drying of streams, and soil erosion are connected one way or another with the process of forest exploitation and destruction. Although various potential strategies for tree planting and natural resource conservation on the Ethiopian highlands are proposed, their successful implementation is limited (Badege, 2001). As World Bank report (2005 cited in Beyene, Randall and Alemu, 2013, p. 6) indicate, Ethiopia is suffering from different sources of forest degradation. For instance, Ethiopia has a 0.8% annual deforestation rate and 83% of the 80 million people live in rural areas since the year 2000. In his study, Forest resource management systems in Ethiopia, Amogne (2013) stated that there has been a rapid decreasing percentage of the forest cover of the country from 40% in 1900 to 16% in 1954, 8% in 1961, 4% in 1975, 3.2% in 1980 and now it is estimated to be less than 3%(Ibid,p.6).

Bane et al. (2008) also stated in Ethiopia, the presence of high rates of deforestation and forest degradation is due to the presence of problems in the way forests are managed and used. Virtually all the major forests are owned and managed by the (federal and regional) governments and this is one reason for the poor performance of the forestry sector as there was limited capacity to enforce rules and a *de facto* open access situation is created. This is in turn associated with frequent change in institutional arrangements. Furthermore, Yemishaw (2002 in Gobeze et al.2009) stated the sector is characterized by weak governance and regulatory frameworks expressed in terms of lack of policy, weak law enforcement, institutional instability, poor human and logistic capacity, meager budgetary allocation, and lack of legal clarity on the nature of communal rights and ways to record or enforce them threaten to undermine equity and management of common property resources, with negative social and environmental impacts.

In addition, Badge (2001) described in Ethiopia, as compared with other parts, little of the natural vegetation of the highlands remains today and the influence of man and his domestic animals has profoundly altered both the vegetation and the landscape. Ecological degradation, including deforestation and erosion is wide spread, particularly in the northern and central highlands. Among different regions of Ethiopia, Birhanu and Feyera (2005) stated that, Amhara region is one of the worst affected regions, with 71% of the land vulnerable to soil erosion. It has been estimated that the region loses about 1.1 billion tons of soil every year.

Choke mountains watersheds are located at the center of Blue Nile/Abbay Highlands, Amhara region. It has considerable ecological and socioeconomic significance at the local, regional, and national levels. However, land degradation has impaired the capacity of the land to contribute to food security. It has also undermined local access to water supply and woody biomass, negatively affecting social stability. Erratic rain fall, increase in temperature, drought, flood, annual runoff and water availability are also exacerbate deterioration of basic

services such as drinking water, sanitation, housing and health facilities which causes food insecurity in poor farm household (Belay, 2011). Against this backdrop, the paper tries to investigate the effect of forest governance on forest management in Choke Mountain Watersheds. The specific objectives of the study were to(1)explain the practices of forest governance principles in implementing rural forest Policies;(2)analyze the perception of farmers about forest management , causes and consequences of forest degradation; (3) analyze the practices of forest governance in implementing rural forest policy and its impact on forest management; and (4) to show the forest cover and land use change of Choke Mountains.

2. Conceptual Framework

The general conceptual framework of this study is constructed based on the idea how the practices of forest governance in implementing forest policy affect forest management in Choke mountains, The main theoretical argument being supported is that low level of practices of forest governance in implementing forest policy is an obstacle to forest management. The aim is to better understand the relationship between forest governance practices, forest policy and their implications on forest management. In doing so, the study identifies the situations where good forest governance practices can help to slow deforestation.

Assessing practices good forest governance to the implementation of forest policy towards sustainable forest management lies in its contribution to identifying/evaluating the practices of forest governance in the forest sector. Further, understanding the linkages between forest policy, forest governance, institutional arrangements, and actors involved in the implementation of policies and processes are essential.

The implementation of forest policy has a lot to do with institutional arrangements such as the organizational framework of Environmental Protection Rural Land Administration and Use (EPLAU) and enforcement of forest laws. In general, forest management is not attainable without the practices of good forest governance in Environmental Protection Rural Land Administration and Use (EPLAU).

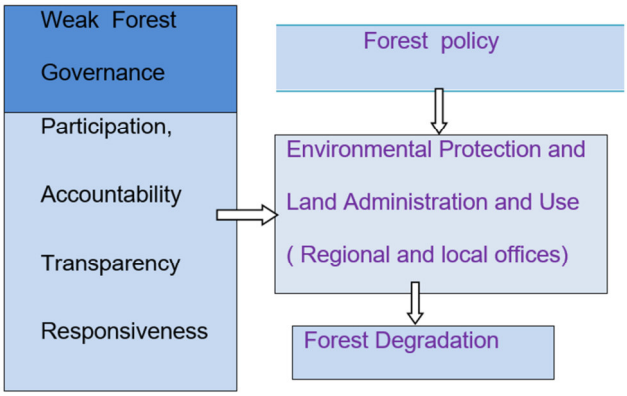

Figure 1: The interaction between forest policy, forest governance and forest degradation

3. Review of Literature

3.1 Forest Policy in Ethiopia

In Ethiopia, as Alemayehu Arts& Freerk(2012),described the first recorded of forest management intervention by the state has begun a century ago through introduction of fast growing exotic species notably Eucalyptus to augment the supply of fuel wood and construction material from natural forests. During the Durge regime as stated by Dessalegn (2001 in Amogne 2013 p.123), state natural resource policy was also responsible for aggravating the process of land degradation. The imperial regime laid claim to all "unutilized" land, land that had no "legal" owners, and all forests, lakes and river systems which ended up with friction between communities and the government. The current government revised the 1975 Proclamation in 1994 and 2007 with Forestry Proclamation No. 94/1994 and Forestry Proclamation No. 542/ 2007, respectively, natural forests remained nationalized. It delegated the authority for carrying out the exclusion responsibility on forests to guards and inspectors. Accordingly, it recognized three forms of forest ownership: state, regional and private. The forest policy, issued in 2007, also encourages tree planting as it proposes tax incentives to farmers for planting trees. Fearing that plantations will expand and take over productive agricultural fields, some regional states discourage farmers from planting *Eucalyptus*. These measures are not popular with farmers, and researchers are challenging their rationale. **(**Mulugeta & Habtemariam 2014,p.1903-1904).

3.2 Land administration

The UN Economic Commission for Europe (1996) defines land administration as ''the processes of determining, recording and disseminating information about the ownership, value and use of land when implementing land management policies. Steudler, Rajabifard *et al* (2004) also describe land administration in terms of its functions.

They divide the functions of land administration into four components ;(1) Juridical; which refers land ownership.(2) Regulatory: land development control and land use planning.(3)Fiscal: land taxation.(4)Information management: integral component fulfilling the information requirements of the other three components. The first three functions are traditionally organized around three sets of organizations while the latter, information management is integral to the other three components. In Ethiopia, the federal Proc. No. 456/2005 and the Amhara Region's Proclamation No.133/2006 have stipulated that land related information should describe the acquisition of land holding, adjacent parcels bordering the subject parcel, fertility standard of each parcel, current land use and encumbrances, if any, etc. Such land related data could be established in either traditional or modern ways such as through cadastral surveying.

3.3 Forest Governance

Forest governance generally concerns the qualities of decision-making processes in forest management. Forest governance is associated with the government agencies where official authority and power is located, including ministries of forestry, agriculture, environment and other regulatory agencies. It associated with the laws, regulations and policies that govern the activities of those agencies. It also is affected by how these agencies engage with other institutions of the civil society, the private sector and private individuals. "Good" forest governance, in turn, is governance that best meets, in a transparent, equitable and sustainable way, the forest related needs and goals of the population of the country and its constituent parts. Forest governance is about who in government holds power, who is responsible and how accountable decision makers are to citizens and to each other (Hermosilla, Gregersen and White 2008). IIED (2004 cited in Zoysa & Inoue, 2008, p.29), Further, stated that forest governance fosters participation, accountability, predictability and transparency of community forest management with equitable relations among government and all other stakeholders.

The five pillars of forest governance framework identified by the World Bank (2009a cited in Castren & Madhavi 2011,p.13)include; (1) transparency, accountability, and public participation; (2) stability of forest institutions and conflict management; (3) quality of forest administration; (4) coherence of forest legislation and the rule of law; and (5) economic efficiency, equity, and incentives. In this regard, the focus of this study is devoted to the consideration of the implementation of forest governance in the forest sector. It is assumed that the performance of forest governance (transparency, accountability, and public participation and stability of forest institutions) in implementing forest policy is crucial to achieve forest management in other words improving the performance of forest governance in implementing forest policy reduces forest degradation.

4. Materials and Methods

4.1 Description of the study area

The study area '*Choke* Mountains Watersheds' was selected as it is endowed with a number of natural resources such as fresh water, fertile soils, wildlife and a large number of natural vegetation species and it is located at the center of Blue Nile/Abbay Highlands. This highland zone has the most favorable climate with land resources suitable to grow large variety of crop and livestock species, it stands as the most intensively cultivated and is considered as one of the bread basket areas of the country.

Choke Mountain Watersheds is located between 37^{o} 44 – 37^{o}88 N and 10^{o}88 – 10^{o}63 E. The study area comprises 13 woredas in Amhara region (Figure 2). The elevation of Choke mountain varies between 1855 and 4040 meters above sea level (asl) (Figure3). Accordingly, the type of vegetation also shows variability along the altitudinal gradient. Regions beyond 3000 m asl (Figure3)comprise afro-alpine vegetation dominated by Helichrysum Spp., Artemesia Sp. and Lobelia rhynchopetalum. The same type of vegetations is also evident in Bale and Simien mountains at the same altitude. Below 3000 m asl, the vegetation is dominated broad leaved stands of indigenous plants.

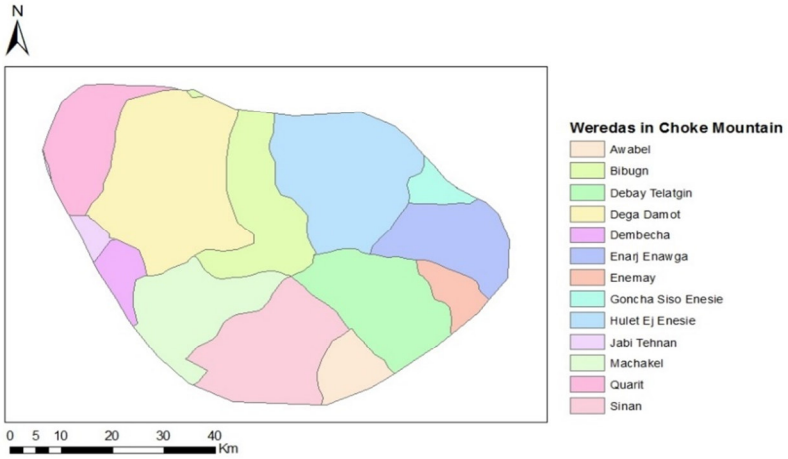

Figure 2: Distribution of administrative Woredas within Choke mountain

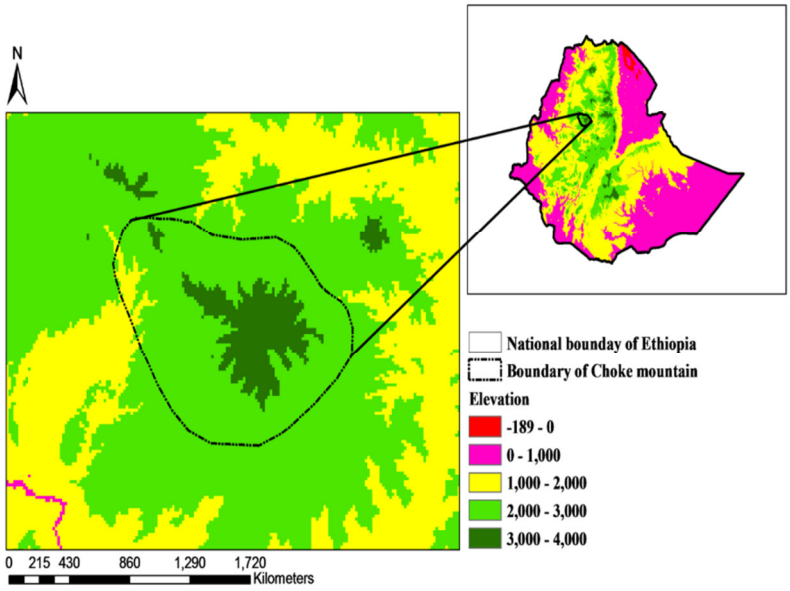

Figure 3: Altitudinal variation within Choke mountains

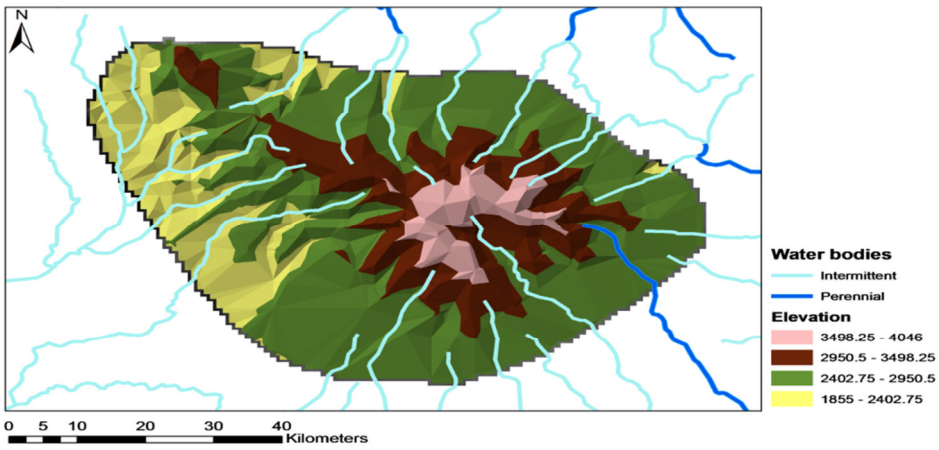

Figure 4: Watershed of Choke Mountain

As depicted from figure 3, the streams of Choke mountain originate from the high altitudes of the mountain and join a network of rivers in the lower altitudes. Both intermittent streams which are only wet during the wet season and perennial rivers that flows throughout the year constitutes the Choke mountain watershed.

4.2 Sampling design

There are thirteen woredas found in Choke Mountain. This study covered three woredas surrounding Choke mountain watershed and forests (Sinan, Bibugn and Debaytilatgen).From three woredas, lower kebeles were selected based on the proximity to choke mountain watersheds and forests. Hence, proximity to choke mountain watershed and forest exert an influence on the watershed and forest management. The three woredas surrounding Choke mountain watershed are Sinan, Bibugn and Debaytilatgen. Among the three woredas, Bibugn woreda is more close to Choke mountain watershed followed by Sinan and Debaytilatgen woreda's. As shown table 1, below from Bibugn (39.2%), Sinan (36.4%), and Debaytilatgen (24.4%) of samples of farmer household heads have taken.

A three stage sampling technique was used to select the sample farmer households. In the first stage three woredas were selected, In the second stage 34 kebeles close to the Choke mountain watershed area and forests were selected. In the final stage, household heads in the selected small kebeles were listed down and take in to consideration the homogeneity of rural population and given limited time at the disposal of the researcher, a total of farmer 357 households were selected randomly using probability proportional to sample size sampling technique.

Table 1; Distribution of sample size according to woredas

Name of woredas	Frequency	Percent
Sinan	130	36.4
Bibugne	140	39.2
Debaytilatgin	87	24.4
Total	357	100

Sampling Size; Considering time and homogeneity of the population (i.e. farmers) an appropriate sample size were taken for conducting a semi-structured and open ended questionnaire survey. The sample size was determined based on close proximity of the rural kebeles to choke mountain watershed area and forests. The total sample sizes of farmer households were 357. The sample size of experts both from regional and woreda's justice bureau, Environmental Protection Land Administration and Use and agricultural experts was determined based on non-probability sampling in which questionnaires are distributed to all experts. The total sample size of experts were 24.

4.3 Method of data collection

Field research was conducted from March to August 2016. In this study, multiple sources of data were used to understand the performance of forest governance on forest management. This study is based on primary and secondary sources. To provide a detailed perspective on the issues raised, questionnaire survey, interviews, focus group discussion and direct observation were used in collecting first hand information.

Questionnaire: A total of 357 questionnaires with close ended and open ended questions were collected from farmer households.

Interviews: In order to obtain a detailed perspective on the issue, key informant interviews were carried out with the EPLAU process owners, EPLAU experts, and woreda SLM(Sustainable Land Management)expert.

Focus Group Discussion (FGD); Focus groups discussion was held with farmers. The focus group was chosen to explore about forest management, utilization of pasture and forest resources.

Field observations and photographs

During field surveys, transect walks down to woredas was carried out with the guidance of EPLAU expert and data supervisors. During field visits and walk-through Pictures on some important observations was taken to support the qualitative information like serious environmental degradations (over grazing and bare land), informal settlement patterns and eucalyptus tree plantations.

To supplement the primary data, secondary sources collected from published and unpublished research papers, government proclamations, policies, journal articles, and research reports by various national and international organizations, books and internet and other pertinent documents. Maps/images from Google, Maps and Earth used to analyze land use/cover change.

Methods applied for Land use analysis: Landsat data acquisition and analysis

Data acquisition: a three banded landsat images for 1972, 1989 and 2015 was analyzed for characterizing the land use/cover of Choke Mountain in the three government regimes. A preference was given for dry season as this procedure avoids cloud cover in our images.

Image classification: Interactive supervised classification according was used for classifying the images into four different land use/cover types including afro-alpine, agriculture, bare land and forest areas. Additional land use/cover information was obtained from goggle earth to check the reliability of our classification. Since our classification was not efficient enough to clearly delineate the distribution of broadleaved forest from afro-alpine

vegetation, we use the tree line (i.e. 3000 m asl) as a boundary to delineate the distribution of the two land covers. Since the distribution of housings in our study area is too patchy, it was not possible to map its distribution however, it is assumed that the distribution of agriculture can reiterate the distribution of housings in this study area. The entire process of classification was done in ArcGIS 10.3 ® software.

Data Analysis; Data were verified by cross-checking the filled-in questionnaires, that were also edited and coded. Coded data were entered in to computer using the statistical Package for Social Scientists(SPSS)Version 20 and describe using descriptive statistics to determine averages, frequencies distributions, statistical tables, and MS-Excel was also used for drawing graphs depending on its convenience. Qualitative information gathered from interview and focus group discussion (FGD) participants were transcribed, thematically classified, interpreted and analyzed. Data from two sets of approaches complemented each other. Earth, Google Maps, were also used to generate the maps required for discussion and analysis

5. Result and Discussion

5.1 Demographic characteristics

The survey results indicate that out of the 357 sample household respondents, the majority (91.7%) are male and the remaining (8.3%) female. With regard to age structure of the sample respondent households as indicated in figure 1, between the ages of 22 and 30 (18.3%), between the ages of 36 and 45 (35.5%), between the ages of 46 and 55 (31.8%) and above 55(14.4%).The average family size of sample respondents was 5.43. Which is (0.49) greater than national average of 4.9 persons (CSA 2007 p. 23).

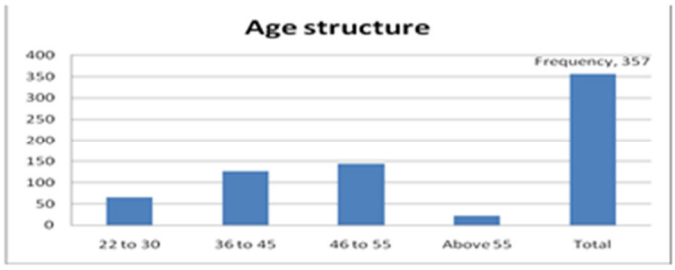

Figure 5 :Age structure of sample respondents

From the age structure of sample respondent it is possible to understand that respondent are active age group in which they have and will have more family size. An increase family size means further increase land fragmentation. The increasing of family size also results the encroachment of land forest and communal grazing land for farming and further expansion of farming land which in turn leads to forest clearing and land degradation. This trend will be continued unless the government and all concerned bodies give attention to reduce the problem. This means addressing the problem in terms of minimizing the family size trough family planning and strengthening rural girl's education is important.

With regard to education status of respondents, as indicated in figure 7, about (51.1%) of respondents are illiterate (42.8 %) could only write and read and the remaining (6.1%)had formal schooling of Primary levels. About (89.9%) are married, (4.1%), divorced and (6%)widowed. All respondents are orthodox religion followers.

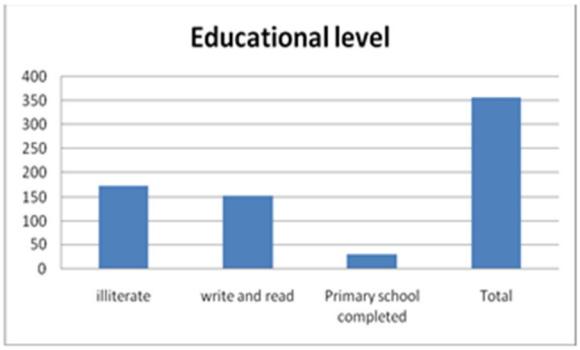

Figure 6: Education status of respondents

5.2 Economic characteristics

Concerning the economic activities, the major economic activities of all respondents are farming. As shown in figure 7, below, respondents acquiring farm land through inheritance (33.6%) through re-distribution (43.7%), through re-distribution and inheritance (15.3%), clearing forest (0.6%) share cropping (4.9 %) and (1.8%) rented. Respondents who rented farm land is on temporary basis they may be continue or lose the rent. The average

landholding of sample respondents since redistribution, 95.1pecent of sample respondent's less than half hectare, 3.41 percent of sample respondents 0.6 1 hectare and 0.91pecent of sample *respondents1.5hectare.*

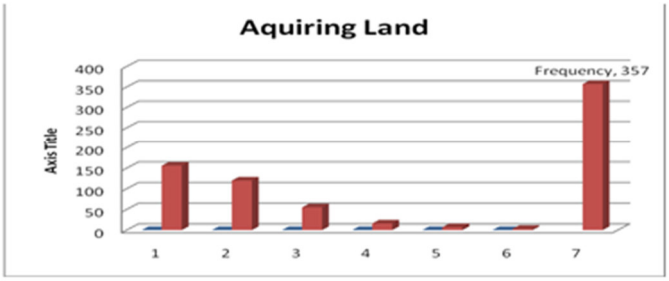

Figure 7: Acquiring farm land

5.3 Land information*:* The registration of property rights is part of land administration. With regard to land registration, different studies explain that limited land registry in the rural areas of Ethiopia. In Amhara region, all woredas Bureau of Rural Land Administration and Use are responsible to provide land certificate and keeping land information at local level. As depicted in table 2, regional Environmental Protection, Rural Land Administration and Use experts were asked the main way to capture land information at woreda level,33.3%, 11.1% and 22.2% responded computerized, cadastre and registration, Whereas, as indicated in table 3, (86.6%) of woredas Environmental Protection, Rural Land Administration and Use experts responded as registration and (6.7%) cadastre. This shows that Woredas Rural Land Administration and Use experts lack keeping modern land information. For example, as i observed from the fieldwork all woredas Environmental Protection, Rural Land Administration and Use experts have no access to computer only one computer for each woredas used by the secretary of the office. Though, land information is one of the important duties of woredas land administration, both woredas still unable to use the modern land information system. The land registration is carried out by using traditional methods such as rope and meter. Thus, the relaying on traditional methods of land information creates the following difficulties;

(3) Relying on traditional methods of land information and lack of boundary demarcation of communal land and forests lead the encroachment of forest and grazing land by the local people for housing and conversion of forest and grazing land to farm land. In this regard, key informants stated that local community are reluctant to inform the Environmental Protection, Rural Land Administration and Use experts if members of the community construct houses and convert forest and pasture land to farm land.

Table 2: Land information used by regional EPLAU experts

Variables	Cases	Frequency	Percent
Land information used by regional EPLAU experts	Computerized	4	44.5
	Cadastre	2	22.2
	Registration	2	22.2
	No response	1	11.1
	Total	9	100

Table 3: Land information used by woredas EPLAU experts

Variables	Cases	Frequency	Percent
Land information used by woredas EPLAU experts	Registration	13	86.6
	Cadastre	1	6.7
	No response	1	6.7
	Total	15	100

5.4 Farmers opinion on forest management, causes and consequences of deforestation

5.4.1 Farmers opinion on the forest management

The communal grazing land in Choke Mountain is open for a large number of livestock grazing from different neighboring communities. From the field that visited, large number of livestock grazing in the natural habitat of Choke mountain and i observed that the seriousness of the extent of overgrazing in the natural habitat of Choke mountain.

Concerning the forest management by the community, sample respondents were asked how the community manages forests in their area. Accordingly, (93.0%) of them replied employing forest guards. Focus group discussants and key informants were share the idea that the only way to manage forests was employing forest guards for government forests and community members serve as forest guards for community forests. Community members are assigned to serve as forest guards without payment and if they are not perform their

duties they are subject to punishment. (in each turn 2.4$). However, majority of focus group discussants claimed that though, forest guards are employed and community members obliged to serve as forest guards some members of the community still use forest resources for housing construction, fuel wood and for farmland. The key informant from woreda agricultural office share the idea that managing forest and grazing land in the area is difficult. Focus group discussants also stated that the neighboring *kebele* communities send their livestock for grazing and there was frequent conflict with the neighboring *kebele* communities. The key informant from woreda SLM project officer further stated that the project is working together with woreda agricultural office in rehabilitating the natural vegetation of communal grazing land through terracing. However, some farmers cleared the vegetation. He further stated that, the expansion of farmland through conversion of grazing land is that the local communities feel lack of ownership of communal land. The responses from focus group discussants and the key informant from woreda SLM project officer confirm that farmers feel that they have no ownership over forest and communal grazing land.Thus, the result of this study shows that insecurity of forest and communal grazing land is another factor, which leads the encroachment of forest and communal grazing land in the study area.

5.4.2 Farmers opinion on the causes for deforestation

Concerning the trends of deforestation, (93.3 %) of sample respondents assume that the trend of deforestation increases from 1978's onwards and (89.5%)of them agreed that the forests found Choke area are degraded. This means, farmers are aware of the forest degradation in their areas. The reasons behind deforestation in their areas as depicted in table 9. **(**34.3%) percent of sample respondents believe that reasons behind deforestation in their areas was due to increasing population size, (44.3%) sample respondents think that through clearing forest for farm land and (19%) sample respondents believe that both due to increasing population size and through clearing forest and for farm land. In this sense, farmers agree that the increasing human population has resulted in the conversion of forest and grazing land to agricultural land. Thus, the result of this survey indicates that population growth is one of the most critical factors that could alter the patterns of forest resource and communal grazing land use. The increasing population pressure has an impact on land resources both through the fragmentation of meager farming plot and the encroachment of forest and communal grazing land. This is a clear indication of the close link between population pressure and fragmentation of size of holdings in the agriculture sector of the region. More people require more food and space, which requires more land for agriculture and habitation. This in turn results in more clearing of forests and expansion of informal settlements and conversion of communal grazing land to farmland.

5.4.3 Farmers opinion on the consequences of deforestation

Figure 8 below shows the impact of deforestation on the study area. Majority of sample respondents believe that the impact of deforestation is severe. The impact of deforestation is loss of biodiversity and soil fertility. As indicated in figure 8 below, 93.2 percent of sample respondents reported that the consequences of deforestation leads the loss of plants and animals and 3.8 percent of sample respondents erosion of soil which leads to loss of soil fertility. The impact of deforestation in the study area includes the loss of forest cover making the soil bare and prone to erosion. As a result the soil losses its fertility which in turn leads to poor crop yield. The loss of animal species that migrated to other areas because of the loss of habitat all contributes negatively to forest management.

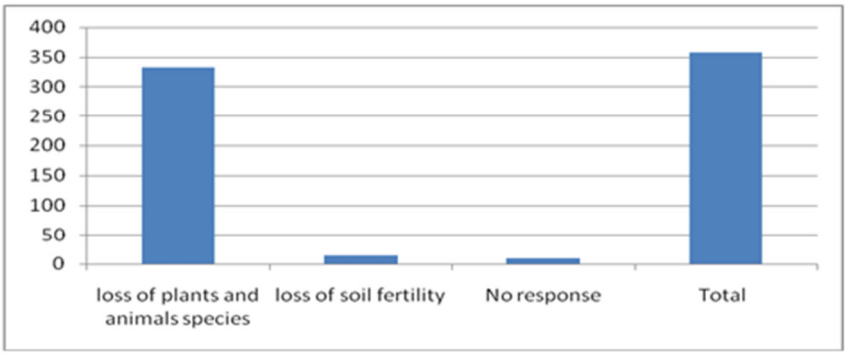

Figure 8: Farmers opinion on the consequences of deforestation

5.6 The performance of forest governance in implementing rural forest Policy.

As seen from the literature, governance in general and forest governance in particular, covers a wide range of issues. World Bank (2009 p.21) identified five pillars or building blocks of forest governance. This research focus on one of five building blocks (Transparency, Accountability, and Public Participation) that captures all dimension of forest governance. Each of building blocks includes principal components. The first principal component of this building block is transparency of processes and operations in the sector. Transparency is

essential if government policy processes are to be made more accountable to stakeholders. Transparency provides information that supports public participation and improves planning. When there is no information about laws and institutions governing forest management, predatory agents or unscrupulous officials can easily manipulate the law to their advantage (Tan et al. 2008 in WB 2009).In this regard, sample respondents were asked about the accessibility of environmental protection institutions responsible to the management of forest resources. As indicated below figure 11, (62.3%) of sample respondents replied yes,(35.6%)no. In relation to this, sample respondents were asked whether environmental protection experts provided the community awareness about forest protection. As indicated in figure 12,(45.9%) of them replied yes, (52.6%) replied their woreda environmental protection experts do not create awareness about forest protection. Focus group discussants also agreed that community awareness about forest protection is not given in a continuous manner rather the there is frequent disputes between neighboring community over the ownership of communal pasture land and forests. The key informants from SLM, woreda EPLAU expert and woreda EPLAU process owner also agreed that there is a frequent dispute between neighboring community over the ownership of communal pastureland and forests. The reason behind the frequent disputes between neighboring community over the ownership of communal pastureland and forests was due to the lack of demarcations of communal pastureland and forests. With regard to low level of community awareness creation about forest protection, the key informants from woreda EPLAU process owners were interviewed whether a continuous community awareness creation about forest protection or not. They agreed that community awareness creation about forest protection was not given on continuous basis. According to them, the reason for the low level of community awareness creation about forest protection is shortage of environmental protection experts. Lack of community awareness creation about forest protection together with lack of demarcations of communal grazing land and forests mean a serious problem in the forest and communal grazing land management. This in turn has been an indication of weak forest governance in the forest sector.

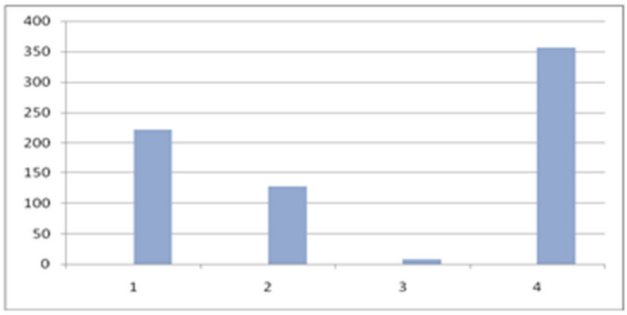

Figure 9: Accessibility of environmental protection institutions responsible to the management of forest resources

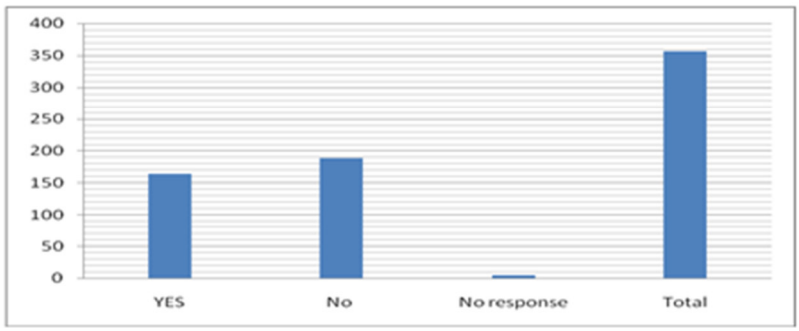

Figure 10 : Community awareness about forest protection

The forest policy in Ethiopia formulated at federal level by the Ministry of natural resource and ministry of agriculture and all regions adopt the forest policy formulated by the federal government. As for the participation of stakeholders to develop forest policy, regional Environmental protection experts were asked whether they participate in developing forest regulation at regional level. Accordingly, as depicted in figure13, majority of (77.8%) replied yes and (22.2%) no. This shows that majority of regional Environmental protection experts participated in developing forest regulation and manuals. In relation to this, woreda Environmental protection experts were asked the clarity of forest regulation and manuals, As indicated from chart 1, (21.4%) of them responded very good, (64.3%) good,(7.1%) low and,(7.1%) very low. This shows that developing forest regulation and manuals at regional level in the forest sector is participatory.

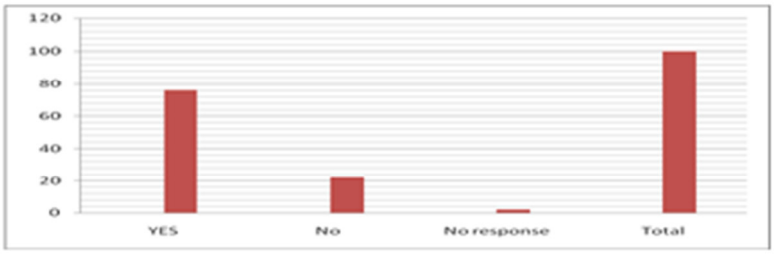

Figure 11: Regional Environmental protection expert's participation in developing forest regulation

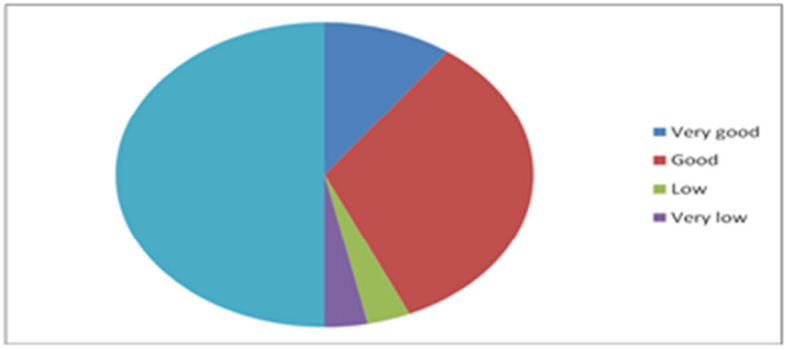

Chart 1: woreda Environmental protection expert's response to the clarity of forest regulation and manuals.

The second principal component is decentralization, and public participation of various stakeholders in forest management, and the consideration of the property rights of indigenous communities and forest-dependent people. This is of particular concern due to the essential role indigenous communities and other forest-dependent communities play in sustainable forest management. Legitimate stakeholders should have a voice in public decisions about the forest. Decentralized decision-making can be more responsive to concerns of stakeholders. As for the decentralization of forest sector in the region, the regional government gives the responsibility to implement forest proclamations, regulation and manuals at local/ woreda level. Zonal experts provide technical expertise to the woreda experts. At woreda level, Environmental protection experts are responsible to the management of forests; here the participation of stakeholders at woreda level is similar with those stakeholders involved in land administration. The involvement of stakeholders in the management of forests reveals the region follows decentralization. Despite the region implement decentralization process, the seriousness of forest management problem still exists. This implies that decentralization alone cannot bring about effective forest and communal grazing land management in the study area. Decentralization process in the study area shows between the local government and community. This might hinder the full participation of other relevant stakeholders such as NGO's working in the area, environmental activists, and research institutions. This, therefore implies effective forest and communal grazing management will be possible not by privileging only the local government and the community rather by creating partnership between different types of relevant institutions.

The third principal component is the accountability of forest officials to stakeholders. Accountability of public officers to forest stakeholders could be improved by the presence of active and able civil society groups (including indigenous people's organizations), independent and interested media, and social values that support forest conservation. Independent social watchdogs who are responsible for monitoring forest management and use improve not only accountability but also transparency. Social watchdogs who are independent and are officially recognized can demand and promote policies that are in the interest of the public. They can play an important role of asserting the rights of the citizens to know what the government officials are doing as far as forest management is concerned, hence promoting transparency (Young 2007 in WB 2009).In this regard, as stated above, stakeholders involved at woreda EPLAU level, are EPLAU experts, NGO's specifically SLM, community managed project, woreda committees and the community. However, the role of independent and interested media and social watchdogs that are responsible for monitoring forest management are non-existent. This might be due to the absence of those independent and interested media and social watchdogs. This therefore indicates the lack of accountability by the forest sector, which in turn shows the presence of weak governance.

Accountability of public officers can be measured based on officer's ethics to serve the clients. For example, According to Bovens (1999 in WB,2007) accountability has also been conceptualized in terms of responsibility ensuring that the behavior of officials corresponds to the law or a code of ethics in office. In this respect, sample respondents were asked to rate EPLAU experts ethics to serve the community, As indicated below chart (8.3%) of sample respondents rated very good, (36.1 %) good, (38.5%) low and (14.1%) very low. This shows the accountability of EPLAU experts is not satisfactory. In general, the result of this study show the performance of

forest governance in managing forest resources in the study area was weak.

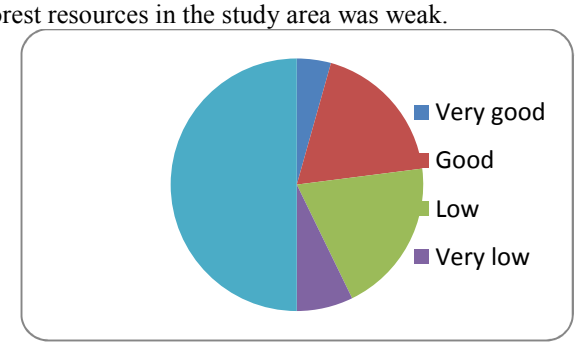

Chart 2: Accountability of EPLAU experts

EPLAU experts were asked whether there exist clear responsibilities between woredas EPLAU experts to protect forests and communal grazing land or not. Accordingly, Environ0mental Protection, Rural Land Administration and Use regional Environmental Protection, regional Environmental Protection Rural Land Administration and Use experts were asked whether there is clear responsibilities of woredas EPLAU,As depicted in chart 8, rated (25.4%) 44.4, (49.4%) good, low and very low. To back up this, an interview was made with the key informants from woreda environmental protection experts regarding the collaboration between Environmental Protection experts and land administration, use experts in protecting forests, and pastureland. Accordingly, both key informants 'claimed that there is a gap in cooperating between woredas Environmental Protection Rural Land Administration and Use experts particularly the enforcement of low towards the protection of forests and grazing land by the land administration experts. They further stated that though, environmental protection experts strive to protect forests and grazing land, the encroachment of forests and grazing land in Choke area by farmers is due to lack of legal enforcement by woredas land administration experts'. This shows that the lack of coordination between Environmental Protection Rural Land Administration and Use experts to protect forests and communal pastureland hinder the protection of forests and grazing land on the one hand and on the other hand woredas land administration experts' are unable to enforce sufficient sanction to protect forest grazing land degradation.

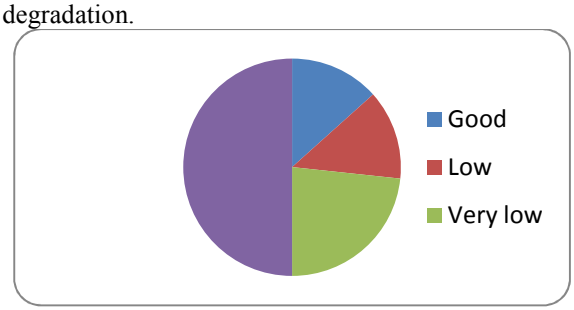

Chart 3: Regional EPLAU expert's response towards clear responsibilities of woredas EPLAU

5.7 Spatial distribution of land uses/covers in the three government regimes

During 1972 representing the imperial regime (Figure 12), it was noticed that significant portion of Choke mountain was covered by forest and afro-alpine vegetation with a patchy distribution of bare land and agriculture in the eastern margin of the study area. However the green vegetation cover and bare land distribution has shown decline during the derg regime (Figure 4). Similarly, it was noticed that the distribution of agriculture was increasing during the derg regime. A further decline in green vegetation cover (both forest and afro-alpine vegetation) was noticed in the current regime (Figure 13). However, the distribution of both agricultural and bare lands showed greater increase than any of the previous periods.

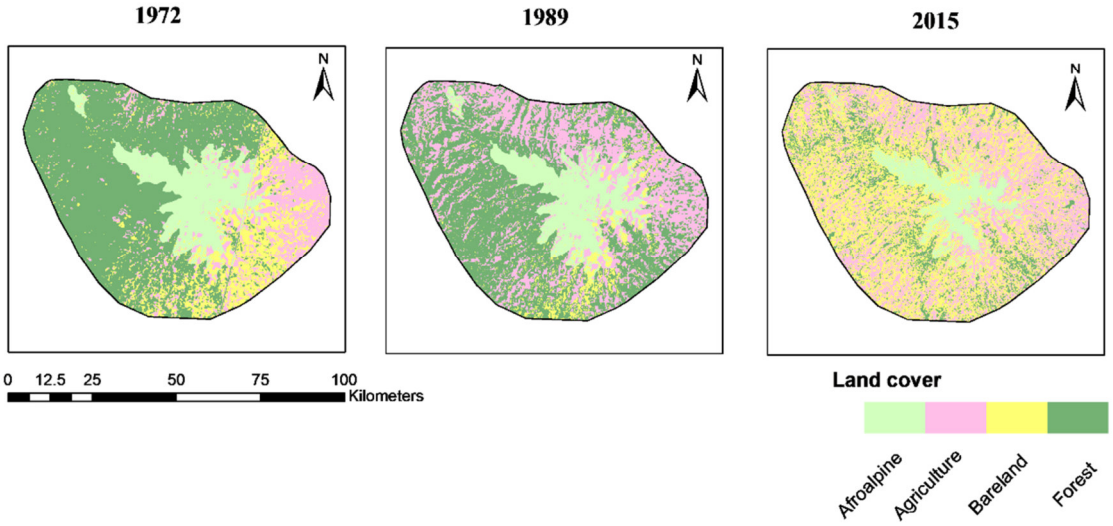

Figure 12; The land use/cover dynamics in Choke mountain for the years between 1972 and 2015

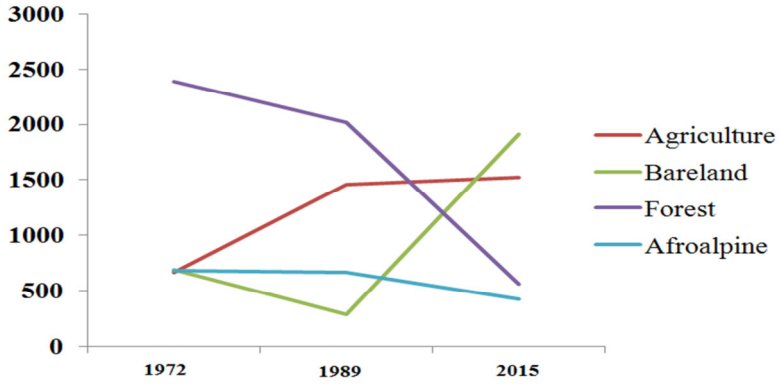

Figure 13: The trend of land use/cover change in Choke Mountain between the years 1972 and 2015

Overall, the trend of land use/cover change in Choke Mountain for 43 years between 1972 and 2015 showed a greater increment of agricultural and bare land at the expense of decreasing forest and afro-alpine vegetations. For example, a report by Sinan woreda Culture and Tourism office (2007) identified the illegal expansion of housing and the conversion of forest and grazing land to farm land. Accordingly, a total of 26.685 hectares of land (Sinan woreda, 14.907 hectares, Bibugn 9.25 hectares, and Debaytilatgen 2.525 hectares) were used by the community illegally. This also shows that the trend of expansion through informal settlement and the conversion of forest and grazing land to agricultural land continue.

6. Conclusion

This study examined the practice of forest governance on forest management. It is believed that this study provide information to all concerned in forest management and governance, rural land management and agriculture development. The study has shown that the link between growth in population and the encroachment of forest and communal grazing land. Growth in population also gives rise to reduction in size of family holdings, which in turn affect the economic viability of rural farming. Growth in population without increases opportunities to acquire off-farm income tends to place increased pressure on forest and communal grazing land and the resulting environmental degradation. It also affect poverty reduction efforts.

All woredas EPLAU offices relied on traditional methods of land information and the boundary of communal grazing land and forests are not demarcated. Inability to use modern land information system and lack of boundary demarcation of communal grazing land and forests resulted frequent conflict between neighboring communities on communal grazing land and forests and the encroachment of forest and grazing land by the local people for expansion of settlement and conversion of forest and grazing land to farm land.

The trend of land us forest cover change in Choke mountains, showed a greater increment of agricultural and bare land at the expense of decreasing forest and afro-alpine vegetations. Strengthening the rural community in the management of forest resources and communal grazing land will help to reduce the pressure and further encroachment by promoting community driven and congruent sustainable use of forest resources and

communal grazing land. This study found that insecurity of forest and communal grazing land leads the encroachment of forest and communal grazing land in the study area. This study also found that there is weak forest governance and insecurity of forest and communal grazing land leads the encroachment of forest and communal grazing land in the study area.

The nature of housing distribution in the rural areas are scattered and this kind of housing pattern affect the proper land use on the one hand and to control the expansion of informal settlements on the other hand. This, therefore needs due attention by the regional government in introducing sustainable rural housing settlement pattern.

In light of these results, it is pivotal that politicians and policy makers pay utmost attention to curb the constraints through strengthening the practices of governance; reducing population growth; diversifying non-farm economic activities; and introducing modern land information system in all woredas and synchronize the functions of land surveying, land information, cadastral, valuation and land registration agencies within one central state department to ensure that key issues and strategies can be uniformly developed and applied.

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