DYNAMICS AND ROLE OF INSTITUTIONS FOR SUSTAINABLE LAND AND BIODIVERSITY MANAGEMENT IN BALE ECO-REGION, OROMIA, ETHIOPIA

M.Sc. THESIS

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APPROVAL SHEET – I

This is to certify the thesis entitled *"**Dynamics and role of institutions for sustainable land and biodiversity management in BER, Oromia, Ethiopia"*** submitted in partial fulfillment of the requirements for the degree of Master of Science in natural resources and environmental studies program with specialization in ***Natural Resource Economics and Policy***, Wondo Genet College of Forestry and Natural Resources, and is a record of original research carried out by ***Getahun Fikre Ashebo,*** Id. No. MSc/NREP/R006/07 under our supervision and no part of the thesis has been submitted for any other degree or diploma. The assistances and help received during the course of this investigation have been duly acknowledged. Therefore, we recommend that the student has fulfilled the requirements and hence hereby can submit the thesis to the department.

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APPROVAL SHEET – II

We, the undersigned, members of the board of examiners of the final open defense by Getahun Fikre Ashebo have read and evaluated his thesis entitled ‘‘Dynamics and role of institutions for sustainable land and biodiversity management in BER, Oromia, Ethiopia” and examined the candidate. This is, therefore, to certify that the thesis has been accepted in partial fulfillment of the requirements for the degree of Masters of Science in Natural Resource Economics and Policy.

Name of the chairperson	Signature	Date
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Name of major advisor	Signature	Date
Name of co-advisor	Signature	Date

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DECLARATION

I, Getahun Fikre Ashebo, hereby declare that this thesis entitled ‘‘**Dynamics and role of institutions for sustainable land and biodiversity management** in BER, Oromia, Ethiopia’’ submitted for the partial fulfillment of the requirements for the Master of Science in Natural Resource Economics and Policy, is the original work done by me under the supervision of Dr. Melaku Bekele and Dr. Teshale W/Amanuel and this thesis has not been published or submitted elsewhere for the requirement of a degree program to the best of my knowledge and belief. Materials or ideas of other authors used in this Thesis have been duly acknowledged and references are listed at the end of the main text.

Getahun Fikre Ashebo	_____	_____
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DEDICATION

This thesis manuscript is dedicated to all my respected and beloved families, especially my father **Fikre Ashebo**, my mother **Amarech Eridado** for their valuable love, treatment with affection and for their devoted partnership in the success of my life.

Lists of Abbreviations and Acronyms

BER	Bale Eco-Region
BERSMP	Bale Eco-Region Sustainable Management Plan
BMNP	Bale Mountains National Park
CBD	Convention on Biological Diversity
CSE	Conservation Strategy of Ethiopia
FDRE	Federal Democratic Republic Ethiopia
EWCA	Ethiopia Wildlife Conservation Authority
FAO	Food and Agricultural Organization of United Nations
FGD	Focus group discussion
FMA	Forest Management Agreement
HHs	Households
ICRAF	International Center of Research in Agro-forestry
IEM	Integrated environmental management
IFPRI	International Food Policy Research Institution
Kebele	The smallest administrative unit (ward) in Ethiopia
KII	Key informant interview
Koreee	Village level state-community joint resource administration
m.a.s.l	Meter above sea level
MoA	Ministry of Agriculture
MoWR	Ministry of Water Resources-Ethiopia
NGOs	Nongovernmental organizations
NRM	Natural Resource Management
NRs	Natural Resources
NTFP	Non Timber Forest Products
ORFA	Oromia Regional Forest Administration
OFWE	Oromia Forest and Wildlife Enterprise
PFM	Participatory forest management
PNRM	Participatory Natural Resources Management
Proc.	Proclamation
REDD+	Reduced Emission from Deforestation and Degradation
SHARE	European Union's Support for Horn of Africa Resilience
SLBDM	Sustainable land and biodiversity management
SLM	Sustainable land management
SNNPR	South nation and nationality and peoples region
SPSS	Statistical Package for Social Studies
SWC	Soil and Watershed Conservation
UNESCO	United Nations Educational Scientific and Cultural Organization
WFP	World Food Programme
Woldia	Cooperation of Village level state-community joint resource administration which contains number of Korees
Woreda	An administrative structure in Ethiopia equivalent to Woreda

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Dynamics and Role of Institutions for Sustainable Land and Biodiversity Management in BER, Oromia, Ethiopia.

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Abstract

Institutions are human devices that guide the use and management of resources including land and biodiversity. Unfair utilization and degradation of resources are manifestation of lack and necessity of institutional arrangement; furthermore, illegal encroachment, unsustainable natural resource exploitation throughout the area is increasingly threatening the sustainability of resource. This study was conducted to investigate the dynamics and role of institutions and the interactions between them in shaping land and biodiversity management in BER, Oromia, Ethiopia. The data for this study were collected using socioeconomic survey including formal interviews, key informant interview, observation and focus group discussions. Both quantitative and qualitative research methods were employed to achieve the objectives set. The study areas were selected purposely with Agro- ecological classification and one woreda then two Kebeles were selected purposely from each Agro- ecological. One hundred sixty households were surveyed. Respondents from each Kebeles were selected randomly proportionally categorized in wealth status. The result showed that dynamics of institutional frameworks and property right affect land and biodiversity. During Haile Silasse land and forests were owned by state, community and privately and resource management was good. During Derg regime ownership of all resources including land and forest changed to state ownership and there were strong management law makes the resource better at Derg regime. In the incumbent government, resource ownership was also state ownership and in the early stages forest resources highly affected due to lack of capacity to enforce the law. After 2006 current government provides participatory forest management and this provides better management opportunity to sustainable management. However, currently land use and biodiversity management is poor. Joint management through Woldia (cooperation) was found as better management system; but, corruption of koree and absence of replantation of forest by permitted users were found as drawbacks. Illegal encroachments of immigrants were affect forest using the gap of rule of coffee, absence of participation of local community on Bale Mountain National Park use creates enemy with local community, and not issuing land certificate in mid and lowland creates tenure insecurity. Also absence of exceptional resource management law for BER as its unique resource endowment was found as a drawback. Customary grass growth promotion practices affect biodiversity. The interactions of formal and informal institutions were more of substitutive and sometimes competitive. Customary role of natural resources management is being declining and factors were identified. Strategy that support monitoring of koree though taskforce, illegal encroachment protection by using informal institutional actors, and providing alternative income source for forest dependent community, provision of land certificate at household level, interacting complementary with informal institution and studying acceptance of existing institutions by the respective community are recommended to better manage land and biodiversity.

Key words: Institution, Taboos, Biodiversity, Forest, Illegal encroachment

1. INTRODUCTION

1.1. Background

Institutions are defined as the rules and norms that structure human interaction, including their enforcement characteristics and sanctioning mechanisms (North, 1990) and include any form of shared constraint that human beings devise to shape their daily interactions and transactions. Institutions may either include or exclude an actor group (e.g. individual, households, or ethnic groups) from access to resources. According to Singh (1994) institutions are formal or informal rules.

Formal institutions constitute the written or codified rules such as the constitution, judiciary laws and property rights. Property right institution (PRIs) is one of the most important formal institutions among a range of rules and regulations society has developed over time (Bromely 1991; Blaser *et al.,* 2005: cited in Bekele *et al.,* 2015). PRIs significantly affect sustainability and incentive mechanisms of resource management (Namaalwa, 2008). Fairly constructed and stable PRIs presuppose tenure security and good governance, which motivate communities to participate in REDD^{+1}. That puts rally round to achieve national goals of Ethiopia.

Informal institutions are rules governed by behavioral norms and include sanctions, taboos, traditions and code of conduct (Mowo *et al.,* 2011). Taboos are strongly believed that could play an active role in nature conservation (Murphree, 1994). That is highly adaptive from an ecological perspective and contributes to biodiversity conservation (Colding and Folke, 2001). They do not depend on government for either promulgation or enforcement but may overlap

[1] REDD+ = reducing emissions from deforestation and forest degradation, including the role of conservation, sustainable management of forests and enhancement of forest carbon stocks.

them; there are norms against stealing and lying, and also laws against these behaviors (Posner and Rasmusen, 1999).

Local people use indigenous knowledge and well organized indigenous institutions to manage their forest resources. *Acacia–Commiphora* woodlands managed as rangelands by the Borana people with the Gada governance institution (Watson, 2003) cited in Edwards, (2010), and the management of Afromontane forests in the southwest for extraction and use of non-timber forest products managed by the Kobo system (Dereje & Tadesse, 2007).

The Kobo system is a forest (tree) tenure institution that grants first claimers an exclusive use right over a block of forest, usually for collection of forest coffee, hanging beehives and access to other non-timber forest products. Once claimed, the forest block is *de facto* individual property, respected by fellow citizens of the area, and the owner has the right to exclude others. This way, the system has resolved what could have been an open access system with threat of degradation by one that allows the interests of the 'owner' in maintaining a sustained supply of products to also prevent access by 'outsiders' and hence prevent degradation (Dereje & Tadesse, 2007).

The Borana Gada system that has been recognized by UNESCO as an intangible cultural heritage of the world in 2016, has embeds a hierarchical rangeland management institution. The most important part of the rangeland management institution is the obligation for animal movement to be regulated according to the patterns outlined by elders based on range availability, rangeland condition and seasonal carrying capacity of the NRs of the Borana plateau to avoid degradation (Watson, 2003). In this way, the informal institution has managed the rangelands for generations.

1.2. Problem statements

The BER area in Ethiopia included in the priority forest areas, mountains and valleys, grasslands, agricultural land, and represents the largest area of Afro alpine habitat on the African continent. The Bale Mountains are relatively environmentally intact, despite the lack of control on the use of NRs in the 1990's and 2000's. The area is not blighted by an ancient history of cultivation, land degradation, recurrent drought or chronic food insecurity (BERSMP, 2008).

However, negative pressures on NRs in the Bale Mountains are rapidly growing. Unsustainable natural resource exploitation and degradation throughout the area is increasingly threatening the sustainability of the environment, food security and sustainable livelihoods. Current resource exploitation is opportunistic and unfair. Agricultural land is expanding rapidly (often at the cost of forests), grazing areas are heavily degraded necessitating a continuous search for new pasture, forests are being cut and cleared, and water systems disrupted.

Unfair forest utilization increases pressures on forest resources, lead to forest degradation and permanent losses in biodiversity. It can also have negative impacts on local communities' livelihoods by competing to access a finite forest resource base, and by disregarding cultural or spiritual sites and practices (FDRE, 2014). The effectiveness of the protection and management of land and biodiversity in Bale Mountains National Park (BMNP) decreased dramatically following the fall of the Derg regime in 1991 (Dereje 2015).

Unsustainable utilization of biological resources threat biodiversity and ecosystems services. *Hagenia abyssinica (yekosso zaf* in Amharic*)* and *Taverniera abyssinica* are threatened by over-utilization. Overgrazing/browsing causes ecological disturbance, loss of species and

ecosystem services thereby affecting livelihoods of local communities (FDRE, 2014). Forest resource access and limited withdrawal rights granted to local communities under the recently introduced Forest Management Agreement (FMAs) have thus far not been bringing sustainable management and uses. The FMAs have provided a short window of opportunity to catalyze further action from the relevant government agencies to enhance the sustainability of the existing forest resource management systems, and to introduce additional measures to preserve the forest's integrity and biodiversity (Dereje, 2015). The penalties for forest resource users who fail to comply with the (PFM) bylaws remain largely symbolic.

Rapid immigration with unplanned and unrestricted settlement is a significant and mounting problem both within and outside the Bale Mountains National Park. Existing settlements are growing, and new settlements are appearing in previously unsettled and environmentally sensitive areas (BERSMP, 2008). Regarding these problems much research was conducted and identified the following causes and problems:

Temesgen (2015) indicated that, rapidly expanding agricultural land heavily degraded grazing areas, clearing forests and water systems disturbance as the major problems in the study area. It also identifies the factors that undermine conservation resources in BER are; lack of specific legislation and policy concerning BMNP. Absence of effective resource ownership and resource management regimes are other problems in the area. Consequently, resource losses are increasing alarmingly.

Study by Van Rooijen and Langan, (2015) stated that, the Bale Mountains in South Central Ethiopia provide a range of high-value ecosystem services to communities living on high and mid altitude, but also to pastoralist livelihoods of lowland communities. Notwithstanding the

large availability of NRs, their continuity seems unlikely because the forest area is characterized by recurrent conflicts due to "exclusion access to resource and illegal activities of individuals and groups". (Antenah *et al*, 2014) confirms as in current time, the NRs including forest resources are exposed even more to sever depletion due to the presence of illegal settlers and cultivation in the forest.

Smallholder farmers in Ethiopia including those in BER are facing widespread problems related to inappropriate cultivation (e.g. steep slop ploughing and changing natural forest to farm land), overgrazing and deforestation, resulting in soil erosion and soil fertility decline, water system disturbance, lack of livestock feed, and fuel wood crisis. Regarding these problems government development policies may play an important role in maintaining ratified resource use policy by smallholders that directly link with their livelihoods and its level of resource management.

This study assumes that, the failure in understanding the role of institutions leads to failure in PRIs arrangements. This may cause imbalanced utilization of NRs and affects both the sustainable land use and biodiversity conservations in the study area. Failure to understand the property rights issues may mean failure to understand the factors triggering conflict between and among the forest resource users. It can be said that it is extremely difficult to sustainably manage NRs such as forests when understanding of property relations among stakeholders are not well known or misinterpreted and their enforcement remains weak.

Complex institutional arrangements with various stakeholders in BER including local communities, Oromia Regional State Government, Ethiopian Wildlife Authority, National Biodiversity Institute, different NGOs and others lack cohesion with government project

implementation, and they specifically design to achieve different objectives. Such differences are common when conservation activities are linked to donor funding for development (Alers *et al.,* 2007). These differences complicate management of the biodiversity in BER.

Inadequate collaboration among development projects is another problem in the study area. Development projects linkages have not been created. For example, projects to improve the livelihoods of local community in and around the BMNP and projects to conserve biodiversity of the park should have a common message of conserving the park resources. If a project concerning to improve the livelihoods of the community is at the expense of the park resources, it is very problematic for the future status of the park. This undermines conservation which further enhances degradation of BMNP.

Studies so far carried out in the area are limited in describing the role of formal and informal institutions in the management of sustainable land and biodiversity conservation in BER (BER). Failure in property rights arrangements and enforcement that contributed to resource decline have not yet been studied well in the study area. Formal institution and their interactions with informal institutions in land and biodiversity management and their dynamics have not yet been well examined in the study area. This study was initiated to address this knowledge gap.

1.3. Objectives

1.3.1. General Objectives

The general objective of this study is to examine the dynamics and role of formal and informal institutions and government development strategies on sustainable land and biodiversity management in BER.

1.3.2. Specific Objectives

1. To investigate the dynamics and role of formal institutions (policies, and legal framework) on sustainable land and biodiversity managements.
2. To assess dynamics and roles of informal institutions (traditional beliefs, taboos and rituals) in the management and conservation of land and biodiversity.
3. To examine the interaction between formal and informal institutions in shaping land and biodiversity management and put together recommendation to improve the situation.

1.4. Research Questions

1. What type of formal institutions and strategies exist in BER that shape land and biodiversity management?
2. What type of informal institutions (traditional beliefs, taboos and rituals) exist in BER that helps management and use of land and biodiversity?
3. How do formal and informal institutions interact in the management and use of land and biodiversity resources?

1.5. Significance of the Study

Building comprehensive biodiversity management, poverty reduction and development is a crucial task for sustainable development. This involves ensuring property right, participation of stakeholders, and use of informal and formal institutional tools in management of land and biodiversity resources. It also includes strengthening partnerships and collaboration between biodiversity and development sectors. Therefore, the findings from this study will gives insights for policy makers regarding the role of institutions and their interactions in context specific way implying the importance of context and local setting.

Since pastoralist and Agro-pastoralist are at the center of the process of resilience building they need to be given the tools and incentives through providing better local institutions,

capable of giving them the knowledge and helping them to develop their skills. The result of this study could provide pastoralist and Agro-pastoralists' land and biodiversity management socially acceptable and adaptable land and biodiversity management system that helps them to enhance their livelihood income through conserving resource bases.

Changing the mindsets of pastoralist and Agro-pastoralist to adopt innovation is the most crucial facet that assists the transformational journey the country. The findings from this study will also come up with alternative institutional arrangements of resource management and uses that help to increase sustainable use and conservation. It also provides policy options regarding formal and informal institutional applications in sustainable land and biodiversity management and use.

The study provides basis for environmentalists and BER communities and any individuals who need to have better land and biodiversity management tools through using institutions. It endows with insights on the role of indigenous land use practices on enhancing sustainable land and biodiversity managements and uses. It provides bases for sustainable biodiversity conservation through enhancing local livelihoods by identifying the best combination of applications of formal and informal institutions on the sustainable land and biodiversity management and uses. It also serves as a source of information for any interested individuals or groups who have interest to do further studies on related issues.

1.6. Scope and Limitation of the Study

The study have addressed some aspects of the problems associated with sustainable land and biodiversity management and use at BER by using cross sectional data collected by using household survey (HHS), key informant interview (KII) and focus group discussion (FGD) and Observation on the access, utilization, and management of land resources uses.

However, lack of baseline data and absence of time series data on the area of study become one of the limitations of this study.

2. LITERATURE REVIEW

2.1. Institutions and Natural Resource Management

Property rights over an asset can be defined as a bundle of decision rights involving the asset, which provide "rights of access" and to prevent others from taking certain actions "rights of exclusion", including the right to take the profit generated by use of the asset and to prevent others from doing so, often called "profit rights" or "cash flow rights" (Ilya and Michael, 2010).

An important characteristic of an effective institution of property rights is its extent that the privileges of right holders are recognized by society at large and defended by the authority system (Bromley 1991; Agrawal and Elbow 2006 cited in Bekele, 2015). In contrast to an effective institution of property rights; unfair and unstable property relations create insecurity. According to Agrawal and Elbow (2006), such a system invites conflict, blocks investment and discourages sustainable NRM. As Keefer and Shirley (2000) rightly stated, a focus on economic policy reforms to the exclusion of property rights would be an oversight. The realization economic policy reforms depend on the attributes of property rights.

The concept of *'Custom'* refers to a set of established patterns of interactive behavior among humans, which can be objectively verified in a particular social setting, because these behaviors are adopted in everyday routines (Ørebech 2005) cited in (CIRUM, 2012) . *'Law'* refers to principles, rules, rights and obligations that govern social interactions and processes.

As study in North Vietnam (CIRUM, 2012), indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. In my argument here in BER also

(elders) Gadaa resource management system, taboos, sacred area and ritual areas informal institutions that contribute sustainable land and biodiversity management. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.

2.2. Formal institutions

Institutions are the set of rules to govern individuals, groups, NGOs, government agencies behaviors, and their actions. Institutions are "rules" that govern a specific activity of groups of individuals or organizations (Melaku, 2003; FAO, 2005). Tenure institutions are full bundles of rights. These bundles of rights as defined by Schlager and Ostrom, 1992 cited in Aggarwal and Elbow (2006), comprise access, withdrawal, management, exclusion and transfer/alienate rights over resources. Property rights are institutions, which can have role in predicting individual actions and relationship in relation to NRs (Melaku, 2003; Meinze-Dick, 2005 and Abebe, 2010).

These institutions are about the claims, entitlements and related obligations among individuals or groups regarding the use of scarce resources with full or part of the bundles of rights (Furubotn and Pejovich 1993 Cited in Bruns *et al.,* (2005)). Bromley (1992) as cited in IFPRI (2005), defined property rights as correlations of duties of an aspiring users to refrain from use of a resource. PRIs under any property regimes play role in regulating and deregulating rights and duties of individuals in relation to properties.

These institutions answer questions like "who owns what and how" (Melaku, 2003; FAO, 2005 and World Bank, 2008). It seems also clear that the emphasis of PRIs is how a right holder can use a particular resource and be secure from external effects.

Bromley (1994) emphasized that, a state can be the owner of resources with control and management responsibility through its government agencies. Although the state may control use and manage, lease to a group, or permit individuals with usufruct rights, the use right for local people need to be regulated and consider the interest of other people who may be ecologically interested on the resource. As it can be viewed from such explanations, PRIs are the issue of setting rules and regulations to give duties and rights of individuals/users in relation to a specific resource. Regarding property rights regimes, NRs can be under state/public, private and common ownership (Melaku, 2003; Bruns *et al.,* 2005 and FAO, 2005).

Any resource out of such property regimes is called an "open access" or a "no property" which implies that resources under "open access" are not regulated and that means no one takes responsibility of protection for the resources. The boundaries with property right regimes enable both protection and use conditions under recognized owner with certain features in regulating the access to resource (Melaku, 2003; FAO, 2005 and World Bank, 2008).

Failure to establish and enforce rules and regulations over resource utilization aggravates conflicts and natural resource degradation. Besides, to such failures, (Yeraswork, 2000) also explained that, de legitimization of the indigenous/customary institutions of local people and their authorities in NRM may increase these problems.

2.1.1. Constitutional principles

The constitution is supreme law of country which lays the foundation for community participation in NRM. According to Article 40(3) of the FDRE Constitution, the right to ownership of land and land based resources are exclusively vested in the state and the people.

In effect the state is a trustee to the property rights of the Ethiopian people. This is to say that NRs of the country are jointly-owned by the state and the people.

As Ethiopia following a federal form of governance, power of administering communal property vested in the state is further divided between the federal government and the respective regional states. The former has the power to enact laws concerning the modalities of utilization of the resources as well as conservation of land and other NRs. The regions on the other hand administer land and NRs on the basis of federal laws.

In addition to this, the Constitution explicitly acknowledges the right of the people to participate in national development and to be consulted with respect to policies and projects affecting their community (Article 43(2)). This right essentially includes the right to develop community forests and the rights of communities to at least be consulted and give approval before any forestry related projects are implemented. Furthermore, an obligation is placed on the government and any government entity to respect the right of the people in getting full consultation to implement any environmental project. Article 92 in particular places that people have the right to full consultation and to the expression of views in the planning and implementation of environmental policies and projects that affect them directly.

Taking reference to the foregoing constitutional provisions, it is clear that the Ethiopian people at any level are recognized as joint owners, together with the state on forests and other NRs and have the right to be consulted during planning of forest related projects and can involve in the implementation of forest development and utilization projects.

2.3. Land Tenure System in Ethiopia: Historical Perspective

2.3.1. Land Tenure System in Ethiopia

Land is the basic socio-economic asset in Ethiopia. It has been emphasized that the way land rights are defined influences how land resources are used and economic growth. Historically, in Ethiopia, the North-South regional distinction was reflected in land tenure differences (Melkamu and Shewakena 2010). Shimelles *et al.,* (2009) categorizes the pattern of land tenure policy and property rights farmers have are dependent mainly on policy exercised by three different political regimes since the beginning of the 20th century namely: the Imperial, the Derg and the Current regime.

2.3.2. Pre-1974 Period (imperial regime)

Until the l974 revolution, Ethiopia had a complex land tenure system. The nature of the land tenure arrangement comprised private, state, church land, kinship and other forms (Bhalla, 1999). The land tenure types referred mainly to the imperial administrative classification which is commonly distinguished between communal (*rist*), grant land (*gult*), freehold, or sometimes referred to as private (*gebbar tenures*), Church (*Samon*), and state (*maderia, mengist)* tenure regimes.

Emperor Haile Selassie made extensive land grants to members of the royal family, the loyal members of the nobility, members of the armed forces and the police, top government officials and civil servants and notable businessmen. This type of land tenure system adopted by the Ethiopian Empire is described as one of the most complex compilations of different land use systems in Africa. It was a time when more than 70% of the fertile land was owned only by 1% of the property owner of the entire population in Ethiopia. The immediate three most

important consequences of land privatization were the eviction of a large number of peasants, the spread of tenancy, emergence of absentee landlordism and the displacement of pastoralists.

2.3.3. Derg Period (1974 – 1990)

The Derg, in its land reform in 1975, appropriated all land and abolished the diverse tenure arrangements in the imperial regime. The land reform destroyed the feudal order; changed land owning patterns, particularly in the south, in favor of peasants and small landowners; and provided the opportunity for peasants to participate in local matters by permitting them to form associations (Dassalegn, 1994). Landlords lost their land rights and land was distributed to individual households, with household system size being the main criterion for land allocation. Under Proclamation (No.31/1975), all rural lands were nationalized and private ownership of rural lands was totally abolished to realize the following policy objectives:

> *To eradicate the feudal land-lord tenant agrarian relations and to do away with the exploitation of the masses by the few to increase agricultural production by enabling the tiller the owner of the fruits of his labor and increase rural income; and to release for industry the human labor suppressed under the feudal system.*

The "Public Ownership of Rural Land Proclamation" nationalized all rural land and set out to redistribute it to its tillers and to organize farmers in *associations,* thereby abolishing exploitative landlord-tenant relations so pertinent under the imperial regime. The provisions of the Proclamation (No. 31/ 1975) include: public ownership of all rural lands; distribution of private land to the tiller; prohibitions on transfer-of-use rights by sale, exchange, succession, mortgage or lease, except upon death and only then to a wife, husband or children of the

deceased; and in the case of communal lands, possession rights over the land for those working on the land at the time of the reform.

The power of administering land was vested in the Ministry of Land Reform and Administration (MLRA) through Peasant Associations at the grassroots level (Proc No.31/1975, Art.8). The law also provided the maximum land a family can possess. Although no able adult person was allowed to use hired labour to cultivate their holdings, problems associated with declining agricultural productivity and poor farming techniques were prevalent. Government attempts to implement land reform also created problems related to land fragmentation, insecurity of tenure, and shortages of farm inputs and tools (Yigremew, 2002). In general, diminution and land fragmentation of holdings, tenure insecurity, land degradation and inefficient allocation of land by the way of restrictions on land transfer and to some extent lack of appropriate land use and administration were among commonly cited problems in relation to the land policy of the Derg Regime.

2.3.4. Land Tenure System Since 1991

The current government announced the continuation of the land policy of the Derg regime under the Constitution of 1995 that approved and confirmed the state ownership of land in Ethiopia. The present government's land policy, in addition to Derg regime, is enshrined in the Constitution. Article 40 of the 1995 constitution (which provides for property rights) states that, the right to ownership of rural and urban land as well as of all NRs is exclusively vested in the state and in the people of Ethiopia. Pursuant to the Constitution "Land is a common property of the Nations, Nationalities and Peoples of Ethiopia and shall not be subject to sale or other means of exchange (FDRE Constitution 1995 Art 40 (3))". In addition, the

Constitution states that “Ethiopian peasants and pastoralists have the right to obtain land without payment and are guaranteed the protection against eviction from their possession”.

The Constitution guarantees the rights of peasants and pastoralists of free access to land and the right of individuals to claim compensation for improvements they make on land including the right to bequeath, transfer or remove such improvements when the right to use the land expires (Art. 40 (7) and (8)). Now, farmers have the right to use the land indefinitely, lease it out temporarily to other farmers and transfer it to their children but cannot sell it permanently or mortgage it. This was to protect the rural peasants from selling off their land to wealthy individuals leaving them landless and without source of livelihoods.

Another important provision regarding property rights states that, “Every Ethiopian shall have the full right to the immovable property he/she builds and to the permanent improvements he/she brings about on the land by his/her labor or capital. This right shall include the right to alienate, to bequeath and where the right of use expires, to remove his property, transfer his title or claim compensation for it.

Government builds its argument on the premises of social and historical justice that is based on two principles: (i) Justice Understood as Egalitarianism: guaranteeing every farmer in need of agricultural land equal rights of access to land, and (ii) Historical Justice: granting tenure security to the Ethiopian farmers who had experienced land deprivation and land expropriation through different mechanisms during the imperial era.

The Constitution also states that, the Federal Government shall enact laws for the utilization and conservation of land and other NRs (FDRE Constitution, 1995, Art.51). Moreover, it adds

that, Regional Governments have the duty to administer land and other NRs according to federal laws (FDRE Constitution, 1995, Art.52).

The first Federal Land Administration and Use Law was enacted in July 1997 which is referred to as "*Rural Land Administration and Use Proclamation No. 89/1997."* This law vested Regional Governments with the power of land administration which is defined as "the assignment of holding rights and the execution of distribution of holdings. Furthermore, holding rights were also defined as "the right any peasant shall have to use rural land for agricultural purposes as well as to lease and, while the right remains in effect, bequeath it to his family member; and includes the right to acquire property thereon, by his labor or capital and to sell exchange and bequeath same.

In July 2005, the Federal government enacted the "Federal Rural Land Administration and Use Proclamation No.456/2005", which reaffirms state ownership of rural land but confers indefinite tenure rights (Proc No.456/2005, Art.7 (1)), rights to property produced on the land, rights to intergenerational tenure transfer (Proc No.456/2005, Art.7 (2)), rights to rent out land, and lease rights to land users for commercial investments (Proc No.456/2005, Art.8 (1)). The law makes provision for the registration and certification of tenure rights (Proc No.456/2005, Art.6).

The proclamation also specifically addresses degradation of rural land, including defining the obligations of tenure holders to sustain the land, with specific requirements depending on slope, requirements for gully rehabilitation, restrictions on free grazing and protection of wetland biodiversity (Proc No.456/2005, Art.10). This Proclamation also has provisions indicating that, there will be no further land redistribution, except under special circumstances.

It is worth noting that, this proclamation applies to any rural land in Ethiopia including the Oromia regional state BER, the subject of this study.

Despite the existing policy and legal measures, land related problems such as tenure insecurity, restrictions on transfer and lack of adequate land administration system still prevail. Although the existing legal framework has resolved some issues, it seems to create other ambiguities and does not address some important issues. For example, given the scarcity of land, it is not clear how peasants' rights of free access to land can be assured in practice, and how much land peasants are entitled. Particularly in the rural areas, scarcity and landlessness of young peasants, women and re-settlers characterize the country's land resource administration.

2.4. Land and Natural Resource Use Policy of Ethiopia

2.4.1. Rural Land Use and Administration Policy and Strategy

Policy is course of action that guides what governments do and not do. The overall policy goal of Ethiopia is to promote sustainable social and economic development through the sound management and use of resources so as to achieve sustainable development (FDRE, 2004). Mainstreaming natural resource conservation into the forestry sector is helping to reduce pressure on biodiversity (FDRE 2014).

The FDRE Rural Land Administration and Use Policy and Strategy (2004) are aimed to establish sustainable use and a favorable system of rural land administration in Ethiopia. Drawing from the FDRE constitution which confirms the right to ownership of land is exclusively vested in the State and in the people. The policy strategies are based on two

guiding principles: ensuring state and public ownership of rural land, and ascertaining participation of land users, including women, in the management of the land.

Proclamation (456/2005) is a follow up legislation issued to implement the FDRE Rural Land Administration and Use Policy and Strategy (2004). It also states that, private agricultural investors shall have the right to use rural land in accordance with the investment policies and laws of the federal and regional levels. Article 6 of the proclamation states that, any holder of rural land shall be given a holding certificate that indicates among other things, the obligations and the right of the holder. Article 7 on duration of rural land use right, while it provides unlimited time limit for peasant farmers, pastoralists, and semi-pastoralists, leaves the duration for other holders to be determined by the regional rural land administration laws. The proclamation further provides for rights of transfer, lease and compensation for and land properties developed on it.

2.4.2. Rural Land Use and Administration Policy and Strategy in the Oromia Regional State

A number of laws relevant to the administration and rural land use have been adopted in the Oromia Regional State in light of the Federal Rural Land Laws since 2002. The State of Oromia issued Proclamation (No. 56/2002) of "Oromia Rural land Use and Administration" which was amended by Proclamation (No. 70/2003). The original rural land proclamation laid down the principles of landholding right of the State in light of the Federal Land Use and Administration Law. It extends a lifelong use right of agricultural land and provides for expropriation of such land under the exigencies of a need to use the land for a more important public purpose.

The proclamation determines the minimum plot size as 0.5 hectares for cereals and 0.25 hectares for perennials. Consolidation of fragmented plots belonging to a farmer could be done on voluntary basis. This kind of consolidation should be encouraged on all counts since it will facilitate proper use of agricultural land.

Article 5 of the Proclamation stipulates that, any adult resident of the region who is aged 18 or above and who wishes to base his livelihood primarily on agriculture is entitled to get rural land free of payment. Article 14 (1) states that redistribution shall not be carried out on the holdings of either peasants or pastoralists in the region except on irrigation land. It is only unoccupied or vacant land and land with no heirs that is at the disposal of the state for future redistribution to landless poor or land deficit peasants pursuant to Articles 14 (2) and 10 (3) of this Proclamation respectively. In light of the objectives of strengthening tenure security set out in the preamble of the Proclamation, Article 6 (1) reaffirms that rights to holdings are for life and accordingly peasants and pastoralists have the right to use land under their possession during their life time and bequeath same to members of their family.

Nevertheless, the right to transfer one's holding to an heir at law, it is restricted to natural or adopted children of the land holder (Proclamation No.70/2003 Art.2 (1)). The use right of any holder cannot be terminated during the life of that very holder unless and otherwise the land in question is required by the state for "more important public uses" after payment of prompt and adequate compensation for all investments and improvements on the land. The expropriation of land for public uses should not only be determined by the state and the latter has to do it in consultation with the local community. The law seems to be progressive in restraining the power of the state to expropriate holdings of farmers or pastoralists as it specifically declares

that the State can only decide to expropriate land for public use through participation of local community only for investment in public goods.

In line with the principles enshrined in the Federal and Regional Constitutions, Article 6(1) of the Proclamation provides that landholders will have the right to acquire property on the land under their possession and are also entitled to sale, exchange or bequeath property they have produced through their labor or capital without any restriction.

This law also lays down a number of obligations that landholders should fulfill as a precondition of exercising their holding rights and keeping the land under their possession for lifelong use. These include proper management of land, maintaining and preserving farmland boundaries, refraining from activities that exacerbate soil erosion, refraining from cultivating gullies, ravines and river boundaries and rehabilitating same, undertaking soil and water conservation measures, refraining from planting harmful vegetation and caring for "mother trees" standing on farm plot(Proc No.56/2002).

2.4.3. Ethiopian Forest Policy and Strategy

Forest law was enacted with Proclamation No. 94/1994 with the aim of contributing to forest development and protection for its ecosystem services and economic functions. It introduces the principle of benefit sharing with local communities and the invitation for public participation in forest management. In this law three types of forest ownership, namely: federal forest, regional state forest and private forest were recognized. In 2007, a new Forest Management, Development and Utilization Policy (MoARD, 2007) and strategy was passed to implement Proclamation No. 524/2007 (FDRE, 2007). The main objective of this policy is 'to

meet the forest product demands of the society and increase the contribution of forest resources to the national economy through appropriate management'. The policy strategies pursued include a systematic control of forest resources from possible threats of theft and misuse. The strategy devised to overcome this problem through community participation by way of protecting priority state forests, planting tree species that has the natural propensity for fire resilience, sustaining participation through availing trainings and institutional support.

2.4.3.1. National Legal Framework on Participatory Forest Management

Forest Development, Conservation and Utilization Proclamation (No.542/2007) states that the sustainable utilization of the country's forest resources is possible through ensuring the participation of, and benefit sharing by the concerned communities. Article 9(3) of the same Proclamation stipulates that, forest development; conservation and utilization plans shall be formulated to allow the participation of local communities in the development and conservation and also in the sharing of benefits from the development of state forest. Some aspects of benefit sharing modalities are envisaged under this law.

For instance, Article 10 (3) of the law puts that, the local community may reap grasses, collect fallen woods and utilize herbs from a state forest in conformity with the management plan developed for the forest, which actually appears to be more about recognizing traditional use rights. Article 18 of the Forest Proclamation discussing on powers and duties of regional states stipulates under sub-article (3) that, regional governments shall encourage forest development programs, which involve the participation of farmers and semi-pastoralists, and provide technical support.

The Draft Forest Development Protection and Utilization Regulation is a significant step forward in providing specific legal provisions for guiding forest management practice. It defines roles and responsibilities of the forestry institution and the community in forest management and moreover gives provisions on the establishment and registration of forest development associations. It is clear that the draft forest regulation is issued to provide an implementation modality for the forest proclamation.

2.4.3.2. Oromia Regional Government Legal Framework on Participatory Forest Management

Oromia Regional Forest Proclamation (Proclamation No. 72/95) issued in 1995 attempts to explicitly recognize community participation in the conservation of forest resource. The proclamation starts by asserting what community forest means in article 2 definitions part and defines "community forest means the state forest that user right and management responsibility is transferred to organized community or developed by organized community on communal land". The pertinent provisions of this law regarding PFM are Articles 4(3), 4(6), 9(5), 11(1) and 12(1). It is a paradox that, all the umbrella national policies like the CSE, EPE and the Oromia forest proclamation 72/2003 are more explicit on the community participation than the latest federal forest proclamation (No. 542/2007) which should have benefited from experiences gained in community participation.

According to Rural Land Administration and Use Determination Proclamation No.133/ 2006, Article 5 of the Regional Land Administration Proclamation, the task of administering land should be carried out based on public participation and according to Article 2 (5) and Article 2 (23); land administration essentially includes the enforcement of rights and obligations of

communal holdings used by the local people in common for forestry purposes. Though the specific purpose of this law is to determine holding rights and security of rural land holding, it mentions that participation is an important element of the process. However, the law does not prescribe how this enforcement of rights is carried out. It does not also guide one as to how public participation is undertaken with respect to rural land administration.

Ethiopian Water Resources Management Proclamation also states that, it is prohibited to clearing, cutting trees and vegetation and construction of residential houses, within the delimited banks of water bodies (Proclamation No. 197/2000, Art 25 (2)).

2.4.4. Genetic Resources, Community Knowledge and Community Right Proclamations

FDRE provides Proclamation No.482/2006 (*Access to Genetic Resources and Community Knowledge, and Community Rights Proclamation)* with objective of ensuring that the country and its communities obtain fair and equitable share from the benefits arising out of the use of genetic resources so as to promote the conservation and sustainable utilization of the country's biodiversity resources.

Proclamation No. 482/2006 art (1) States that the ownership of genetic resources shall be vested in the state and the Ethiopian people and the ownership of community knowledge shall be vested in the concerned local community (art (2)).

Local communities shall have the following rights over their genetic resources and community knowledge: the right to regulate the access to their community knowledge (art 6(1)); an inalienable right to use their genetic resources and community knowledge (art 6(2)); and the

right to share from the benefit arising out of the utilization of their genetic resources and community knowledge (art 6(3)).

2.5. Informal Institutions

In different countries local knowledge and traditions have shown diversified means of forest management based on the customary rules. Long *et al.*, (1992), Parkin and Croll (1992), Hobart (1993) and Pottier, (1993) as cited in Madge (1998) have found that, ethnographic knowledge has important contribution with traditional institutions for forest use and management. Larson *et al.,* (2010) have explained that most of the African forest management institutions are stemmed from the local traditions by which some are formalized with some modification and others still in an informal structure. Nevertheless, traditional knowledge and informal institutions are dominated and ignored as if they are weak to manage NRs.

The other problem towards indigenous people and their knowledge is that, most formal institutions and experts consider them as against NRs. However, (Tefera, 2006) noticed that, farmers value NRs in use and management. Other evidences also exist in the case of Ethiopia. Among local knowledge, Gedeo Agro- forestry system, the Sheka people in SNNPR for forest management (Tadesse and Masresha, 2007) and Konso for soil and water conservation (Mutiku *et al.,* 2006) are the popular local traditions to Ethiopia.

Many studies also point out that, the Ethiopian traditional knowledge and cultural mechanisms towards NRs such as forest have conserved (Zewdie, 2007). As a solution for strengthening the role of local knowledge on NRs management, experience sharing between modern and traditional knowledge is important (Donovan, 1994). In addition to this, in the Oromia Region in general and in BER particularly there are different informal institutions that have a great

role in management of NRs particularly forests through their cultural and religion perspectives. Some of them are explained below.

2.5.1. Gadaa Natural Resource Management System

Ethiopia's forests were historically under traditional management practices throughout the 19th Century. The *Gadaa* system, for example, divided society into age classes, the peak of which males entered the *Gadaa* 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., in press*).

There also exist various traditional institutions in the country that have their own customary methods to settle conflicts. In this regard, the Gadaa system of conflict resolution is one that deserves attention. This institution is well respected by the Oromo society at large in the country. If this indigenous knowledge can be harnessed, then it is thought that it can be a means through which sustainable development can be achieved (Watson, 2001).

Desalegn *et al.,* (2005) states that, full authority should be given to the indigenous (Gadaa) institution in making decisions regarding access rights to scarce NRs. The traditional NRs management and conflict resolution are combined; and as a result of the great respect that receives from the local communities, the customary institution is the best institution to deal with the operation and management aspects of NRs governance.

2.5.2. Sacred Areas

The *Qaalluu* (holy man) and *Qaallitti* (holy woman) among the Oromos in Ethiopia were believed to be the media through which their God (*Waaqaa*) made contact with his people. People would go to these institutions to fulfill religious obligations, meet friends and kinsmen, witness a spectacle, sing, and dance. The *Qaalluu* were also known as councilors. In Galessa and Baga Watersheds, traditional rituals are performed in sacred areas at the base of sacred trees such as *Ficus thonningii* or in *sacred forests*. Trees considered sacred in the Baga Watershed are predominant in the agricultural landscape as giant trees, and unauthorized people are not allowed to approach or cut such trees (Mowo, *et al.*, 2011). This traditional institution helps to conserve biodiversity through protecting unnecessary and unregulated removal of trees.

In Baga Watershed, people go to cleansing from evil spirits (Mbungwa) is done in a small hut constructed by men at the base of a sacred tree such as Ficus thonningii and many people fear going near such places (Mowo, *et al.*, 2011).

2.5.3. Taboos

Taboos prohibits the use or mentioning of something because of its sacred nature and it is one of traditional practice which vital for sustainability of NRs including forests, water, and Agro-ecosystems across landscape continuum spanning from households through farms, village, commons and wilderness. There are many studies in Africa which suggest that incorporating cultural norms and taboos into conservation programs may provide incentives to communities to conserve NRs. For instance, in Madagascar, (Lingard *et al.*, 2003), (Schachenmann 2006), (Tengo *et al.*, 2007), and (Jones *et al.*, 2008) reported the relevance of taboos and cultural laws

in the continued existence of forest biodiversity. Also in Ghana, studies have shown that, how clans protect their NRs through the use of taboos (Kobina and Kofi, 2009 and Nganje, 2009). East Africa also has a good record of effectiveness of taboo and social norms in wild life conservation (Kideghesho, 2008; Kassilly and Tsingalia, 2009).

2.5.4. Resource and Habitat Taboos and Resource Management Functions

The Resource and habitat taboos (RHTs) are grouped into six major categories in relation to their conservation and resource management functions (Table 1.). The last two categories of RHTs in the table can be referred to as *non-use taboos*, because they do not allow for human use of biological resources. The other four categories may be referred to as *use-taboos* since the taboos permit restrictive use of resources (Colding & Folke, 2001).

Table 1. Category and function of taboos

	Category	Function
1	Segment taboos	Regulate resource withdrawal
2	Temporal taboos	Regulate access to resources in time
3	Method taboos	Regulate methods of withdrawal
4	Life history taboos	Regulate withdrawal of vulnerable life history stages of species
5	Specific-species taboos	Total protection to species in time and space
6	Habitat taboos	Restrict access and use of resources in time and space

(Source: Johan *et al.,* 2003).

2.5.4.1. Segment Taboos

Segment taboos apply when a cultural group bans the utilization of particular species for specific time periods for human individuals of a particular age, sex or social status. Example Pregnant and menstruating females, women after child birth are restricted the resource use in Uttarakhand adapted from Colding and Folke 2001 cited in (Singh, 2010). The reason of debarring the womenfolk's entry into the sacred natural sites is due to the tribals' horror of menses, which is supposed to attract evil spirits.

From conservation aspect, it seems appropriate that the womenfolk, representing the dominant workforce involved in the resource exploitation and significantly restricts the resource withdrawal. Thus, certain segments of a human population may be temporarily proscribed from the gathering and/or consumption of species. This group of taboos exists in a number of traditional societies. In this study, Cultural perceptions, customs and superstitious beliefs of human health risks are frequently associated with such taboos (religious and burial areas). Some literature sources (Johan *et al.*, 2003) indicated that, segment taboos serve as strategic responses to avoid game depletion among South American groups since they depress rates of species withdrawal.

2.5.4.2.Temporal Taboos

Temporal taboos may be imposed *sporadically*, *daily* or on a *weekly* to *seasonal* basis. Such taboos are imposed on both aquatic and terrestrial resources. In an ecological context, they function to reduce harvesting pressure on particular subsistence resources and are closely related to the dynamic change of resource stocks. Hence, they follow the same principle as

traditional fallow systems. *Ofu Dibu* is a traditional law which forbids men from hunting on certain days especially *Mbge* day in Nigeria **(**Oladunni *et al.*, 2012).

2.5.4.3. Method Taboos

Method taboos are imposed on certain gear types and extraction methods that may easily reduce or deplete the stock of a resource. Method taboos are common in South East Asia and are often fishing-related. This category of RHTs may also have the institutional function of providing better management to a resource harvest. Example, *Ademwa Law* traditionally against use of chemical for fishing in Nigeria i.e. the *Chans* in the *Oban* Sector have traditional law against the use of poisonous herbs and chemicals in the harvesting of fish in streams and rivers **(**Oladunni *et al.*, 2012).

2.5.4.4. Life History Taboos

Life history taboos apply when a cultural group bans the use of certain vulnerable stages of a species' life history based on its age, size, sex or reproductive status. Example offered from the landscape, includes the institution of Mrigoli, wherein the hunters do not hunt the pregnant doe, or when they are in a flock. In this way the communities are able to ensure continued population growth of their wildlife resources (Singh, 2010). Such taboos may be imposed on reproducing and nesting species and species particularly susceptible to over harvesting, such as slow moving or sessile, marine species. Hence, they often have resource management functions.

2.5.4.5. Specific-Species Taboos

Specific-species taboos prohibit any use of particular species and their population. The reasons for the existence of specific species taboos vary, ranging from beliefs in species being toxic,

serving as religious symbols, representing reincarnated humans and species being avoided due to their behavioral and physical appearance (Johan *et al*, 2003) such reasons constitute strong sentiments behind self-enforcement of taboos due to beliefs in "automatic sanctions" (Colding & Folke, 2001).

Example offered from the landscape includes the complete ban on killing of *Fiya* (Himalayan marmot, *Marmot bobak*) in Vyas valley (Singh, 2010) and the taboos imposed on some keystone related plant species, such as Deodar (*Cedrus deodara*), Paiyan (*Prunus ceresoides*), these species play pivotal role in the conservation or sustenance of the ecosystem.

2.5.4.6. Habitat Taboos

Habitat taboos are often imposed on terrestrial habitats, river stretches, ponds and coastal reefs. Examples of such 'socially fenced' ecosystem types (Colding *et al.*, 2003), include 'sacred groves' of India and Africa, 'spirit sanctuaries' of South America, *waahi tapu* and *ahupua'a* in the South Pacific and *hima* of Saudi Arabia. Habitat taboos provide for the protection of a number of ecological services on which a local community may depend. Example from the landscape includes the stretch of land on both the banks of the *Latu ka gadera*, the small rivulet which runs along the sacred grove of *Latu*, near Van village, remains a taboo, and hence no agriculture is practiced within the zone. Similarly, a small patch of land measuring around 50 by 5 m located within the prime agricultural field in the village *Pujeli, Uttarkashi* is not cultivated (Singh, 2010). These may help provision of services include the maintenance of biodiversity, regulation of local hydrological cycles, prevention of soil erosion, pollination of crops, preservation of locally adapted crop varieties, habitat for threatened species and predators on noxious insect and pest species of crops and serving as wind and fire brakes.

2.6. Interaction between Formal and Informal Institutions

Informal institutions are norms embedded in interactions between groups or individuals. They can consist of codes of conduct about appropriate behavior in the society or within particular organizations or professions. Just like formal institutions, informal institutions shape and condition what actors can do, should and should not do (Ostrom, 1990; Scott, 2001; Primmer, 2011 cited in Primmer *et al.,* 2014). They differ from the formal ones in that they are not explicitly stated or written. The control of customs is social; breaking against informal rules triggers disapproval. As an example of informal institutions organizations or policy processes might give certain actors a decisive role, even if all actors formally hold similar positions.

Informal institutions about biodiversity conservation can include customary rights to access a resource, shared norms about what rights humans or animals have, or ways that phenomena are understood, framed, and categorized in everyday practice (Primmer *et al.,* 2014). The stability of institutions and the clarity of rules contribute to predictability and efficiency in the society and in organizations. However, because institutions incorporate and express power relations, they may constrain the available management options. For this reason, institutions might cause tensions, trade-offs, and conflicts.

To avert the threats of biodiversity loss, natural and social sciences have helped by acquiring and applying knowledge about ecosystem conservation and restoration by strengthening the policy and practice of sustainable development. The concept recognizes that, the well-being of human society is closely related to the well-being of natural ecosystems. Sustainability science is building on need to take into account the knowledge of indigenous people as well and needs collective intellectual resources of both formal sciences, and indigenous knowledge systems.

Value of traditional Agro-ecosystems in supporting the plant and animal diversity is immense and tree diversity in farms and Agro-ecosystems is often the product of interaction of indigenous and formal knowledge.

2.7. Theories and Concepts of Sustainable Land use and Management

The foundation of sustainable theory lies, first, in recognizing the biological limits to growth, the ecological carrying capacity and the maximum sustainable yield the ecological sustainability view (Rees, 1990; Adams, 1990; Shiva, 1992 cited in Pelesikoti, 2003). Sustainability in this view means environmental sustainability. Sustainable land use has been variously defined, although the Food and Agricultural Organization of United Nations (FAO) definition has gained common acceptance. The essential feature is that sustainable land use achieves production combined with conservation of NRs on which production depends. For a land use system to be sustainable requires first, that it should meet the needs of farmer and other land users; and secondly, that it should achieve conservation of the whole range of natural resources including climate, water, soils, landforms, forests and pastures.

Simplified definitions: sustainable land use is that which meets the needs for production of present land users, whilst conserving for the future generations the basic resources on which that production depends. The objectives of sustainable land management (SLM) is to harmonize the complementary goals of providing environmental, economic and social opportunities for the benefit of present and future generations, while maintaining and enhancing the quality of the land (soil, water and air) resources (Dumanski *et al.*, 1998).

In addition to this, the concept of Sustainable Land Management can be defined as the use of land resources such as soils, water, animals and plants for the production of goods to meet

changing human needs while assuring the long-term productive potential of these resources and the maintenance of their environmental functions (Molla, 2016).

World Bank (2006) state that sustainable land management combines technologies, policies and activities aimed at integrating socio economic principles with environmental concerns, so as to simultaneously; maintain and enhance production (productivity), reduce the level of production risk and enhance soil capacity to buffer against degradation processes (stability/resilience), protect the potential of natural resources and prevent degradation of soil and water quality (protection), be economically viable (viability), be socially acceptable and assure access to the benefits improved land management (acceptability/equity).

The definition and these criteria called pillars of SLM are the basic principles and the foundation on which sustainable land management is being developed. Thus, any evaluation of sustainability has to be based on the following objectives: Productivity, stability/resilience and production. SLM is necessary to meet the requirements of a growing population. Improper land management can lead to land degradation and a significant reduction in the productive and service functions (World Bank, 2006).

2.8. Land Management Practices in Ethiopia

Sustainable land management (SLM) has been defined as a system of technologies and/or planning that aims to integrate ecological with socio-economic and political principles in the management of land for agricultural and other purposes to achieve intra and intergenerational equity (Dumanski, 1994 and Hurni, 1996). SLM is thus composed of the three development components technology, policy and land use planning. While knowledge is generally

considered the key factor for achieving better land management, it will not succeed if efforts to create better knowledge are made exclusively here, *i.e.* by using only a scientific approach.

In Ethiopia, since the 1970s, considerable efforts have been made to reverse the problem of land degradation. What were once considered to be SLM practices such as soil and water conservation, soil fertility management, controlled grazing and other land management practices were introduced. However, the impact of those efforts did not curb the impact of land degradation in a meaningful and sustainable manner.

Betru (2003) identifies traditionally through time, farmers have developed different soil conservation and land management practices of their own. With these practices, farmers have been able to sustain their production for centuries. Even up to now, it has been acknowledged that these technologies, which include ploughing of narrow ditches on sloping fields to control run-off, farmland terraces, traditional ditches and furrows, contour ploughing, fallowing, crop rotation, farmyard manure and Agro- forestry continue to play a significant role in the production of subsistence agriculture.

Several soil and water conservation measures were introduced in the early 1970‘s to improve land management practices. These projects were supported by food aid organizations USAID and the World Food Program (WFP). The main activities under those projects were reforestation and soil and water conservation in the drought prone areas of the country. In the 1980s, the WFP consolidated its support to include rehabilitation of forest, grazing and agricultural lands. On government‘s part, the watershed or catchment approach became it key strategy. The major elements of the soil conservation activities were a range of physical structures such as farmland and hillside terracing, cut-off drains and waterways, micro-basins,

check dams, water harvesting structures like ponds and farm dams, spring development, reforestation, area closure and management and gully rehabilitation (Betru, 2003).

It is becoming increasingly clear especially in the case of Ethiopia that, land management practices are a complex issue requiring further investigations as they are influenced by different factors operating at different scales. These factors include government policies, programs, and institutions at many levels.

2.9. Biodiversity Management

Biodiversity is variety of life in particular habitat or ecosystem. It provides services free of charge that are crucial for the well-being of the human being. These services include clean water, pure air, soil formation, protection, pollination, crop pest control, and the provision of foods, fuel, fibres and drugs. As elsewhere, these services are not widely recognized, nor are properly valued in economic or even in social terms. Reduction in biodiversity affects these ecosystem services. The sustainability of ecosystems depends to a large extent on the buffering capacity provided by having a rich and healthy diversity of genes, species and habitats. Losing biodiversity is like losing the life support systems that the human beings, and other species, are desperately depend on.

The relationships between land use and biodiversity are fundamental to understanding the links between people and their environment. Biodiversity can be measured in many ways. The concept covers not only the overall richness of species present in a particular area but also the diversity of genotypes, functional groups, communities, habitats and ecosystems there. As a result, the relationships between biodiversity in its broadest sense and land use can be complex and highly context dependent. Moreover, the relationships between them are often two-way,

so that simple relationships between cause and effect can be difficult to identify. In some places, specific land uses or land management practices may be important in sustaining particular patterns of biodiversity. Elsewhere, the uses to which land can be put are highly dependent on the biodiversity resources present.

In Oromia region in general and in areas where farming community live in particular, where both human and livestock populations heavily concentrated, biodiversity loss becomes more serious during prolonged droughts and severe water stress. During this time, pressure on surrounding ecosystems that are embodied with diverse biological resources will increase. Destruction of forests, removal of grasses, forest fire, soil erosion by winds, killing of wild animals for different purposes, extraction of water from scarce sources, and conflict over scarce resources in general will be more and more as local people will be forced to exploit and utilize scarce resources around in order to sustain their live and adapt themselves to increasing climate change shocks and risks.

2.10. Conceptual Framework of the Study

Maintaining both informal and formal institutions for sustainable land and biodiversity management and use are crucial for sustainable land and biodiversity management. Based on the interaction of formal and informal institutions, (Helmke and Levitsky, 2003) cited in (Leković, 2011) consider that both compatible and conflicting objectives can be established between the mentioned institutions. Combinations of these two properties and the quality of formal institutions give the following typology of informal institutional interaction: Complementary, accommodating, competing and substitutive institutional interactions.

- Complementary informal institutional interactions fill in the gaps left by formal rules that do not explicitly deal with certain problems or contingencies. The formal rules are

not violated; however the more efficient functioning of the government structure and other organizations is facilitated.

- Accommodating informal institutional interactions are the result of combining effective formal institutions and conflicting actor goals. They do not change the legal norm, but violate the spirit of the written rules by mitigating their effects. In so doing, the interests of key actors are reconciled with the existing formal institutional arrangements. Accommodating informal institutions is the informal power sharing arrangements (Helmke and Levitsky, 2003). Accommodating informal institutions can be viewed as a "second best" strategy for actors who dislike outcomes generated by the formal rules but are unable to change or openly break those rules.
- Competing informal institutional interactions emerge as a solution for the combination of weak formal institutions and antagonistic goals. They structure actors' incentives in such ways that are incompatible with the formal rules: in order to follow one rule, actors must violate another.
- Substitutive informal institutional interactions are created or employed by actors seeking to achieve outcomes that formal institutions were expected, but have failed, to generate.

Complementary and accommodating informal institutions are characteristic for developed stable institutional settings which are mainly found in advanced industrial countries, while the substitutive and competing informal institutions emerge in the context of formal institutional weakness and instability, which are mainly found in developing and transition economies.

In developed economies, the gap concerning the non-compliance between the formal and informal rules is less pronounced, because the formal rules are the result of long-term practice and testing while the informal rules are embedded in social values.

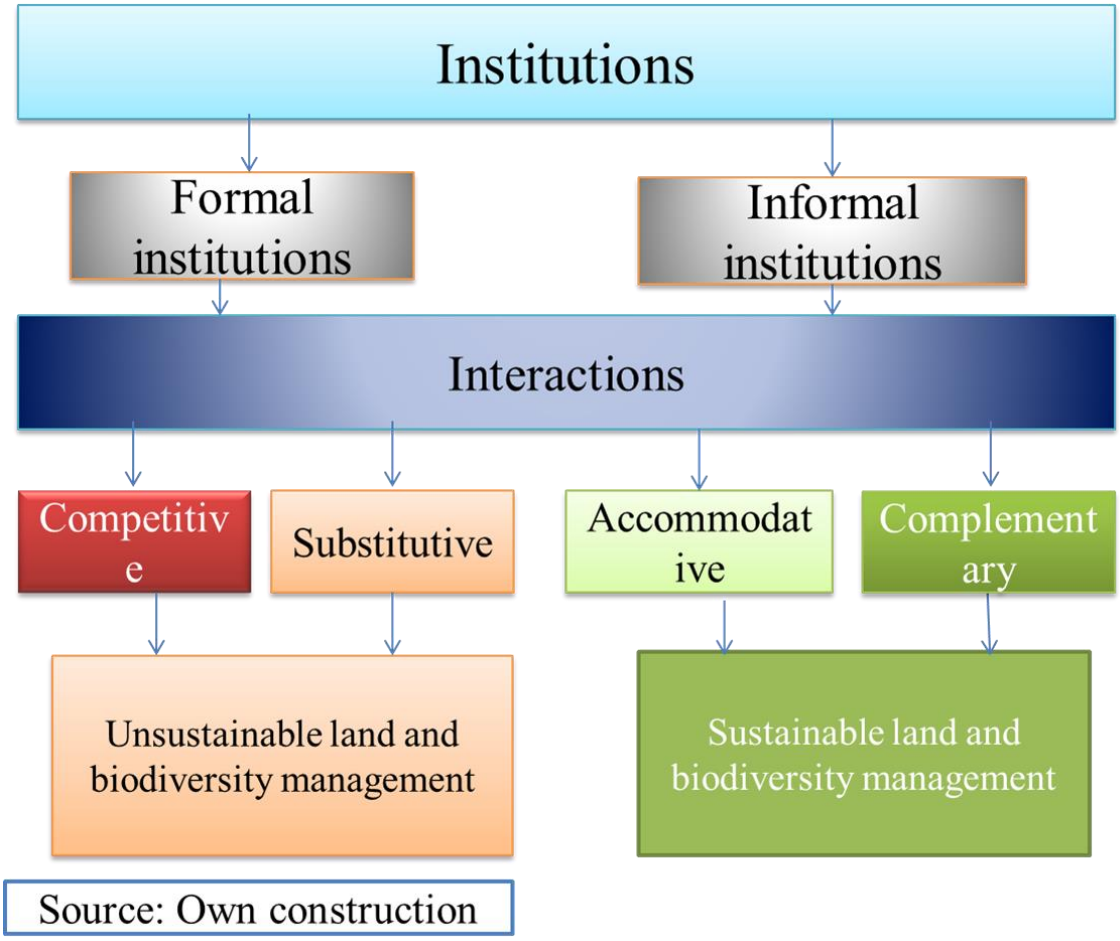


Figure 1. Conceptual framework: role and interaction of formal and informal institutions

3. METHODOLOGY

This section is comprised of two sections. The first section is about the description of the study area. In the second section the research methodology including types and source of data, data collection, sampling methods, sample size and data analysis methods are presented.

3.1. Study Area Description

3.1.1. Location

The study was conducted in Bale zone specifically the BER, South East, Oromia, Ethiopia. BER lies 400km South East of Addis Ababa, the capital of the Federal Democratic Republic of Ethiopia. The BER geographically found between 05˚22' to 08˚08'N and 38˚41 to 40˚44'E. (Charinet, 2013). Total area of the BER Covers 2,527,661.59 ha over 14 woredas (CSA, 2013). The area of study woreda: Delomena, Goba, Harenna-Buluk is 489,336.62, 149,036.36 and 192,365.98 ha respectively. The population density of Delomena is 4.26, the population density of Goba, 2.94 and the population density of Harenna-Buluk is 1.87 CSA (2013) report of total population projected for 2016 based on 2007 census.

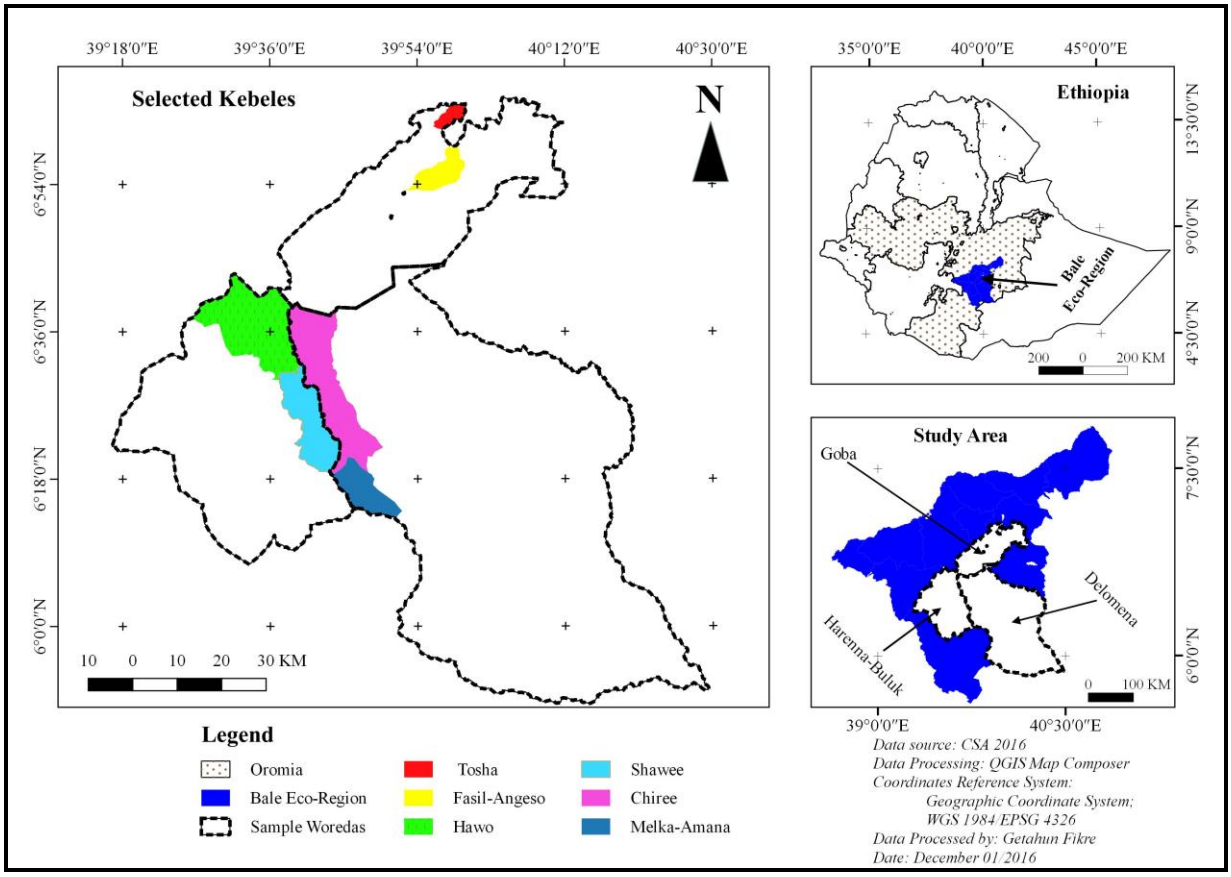


Figure 2. Map of the study area.

3.1.2. Topography, Climate and Vegetation

The BER is made up of three Agro-ecological zones: highland, mid-altitude and lowland. The mean annual temperature of the Bale zone is 17.5˚C ranging from 10˚C to 25˚C, with annual rainfall of 875mm experienced in one long season between June and October, and one short rainy season between March and May (Yimer *et al.*, 2006). This range obscures the substantial topographic variation, which characterizes the vegetation in the BER. The Afro-alpine plateau of the central area of the BER reaches more than 4000 meters above sea level (m.a.s.l). Containing *Erica*, Giant lobelia (*Lobelia rinchopatelum*) and *Helichrysum*, this is the largest remaining area of Afro alpine habitat on the African continent (BMNP, 2007). South of the

plateau the altitude falls rapidly with moist tropical forest between 2600 m.a.s.l and 1500 m.a.s.l. The moist forest is characterized by *Hagenia abyssinica* and wild coffee (*Coffea arabica*). North of the plateau habitats comprise of dry forest, woodlands, grasslands and wetlands, largely between 2500 m.a.s.l and 3500 m.a.s.l. The dry forests contain high-value commercial species such as *Juniperus procera* and *Podocarpus falcatus* as well as *Prunus africanus,* a threatened species. The lower altitude land of the south east of the BER, below 1500 m.a.s.l, is dominated by *acacia* woodland.

3.1.3. Population

The BER falls within the Oromia regional state, the most populous province in the region. Based on census 2007, the total population of BER projected for 2016 is 1,811,892 of which 906,689 are male and 905,203 female (CSA, 2013). Accordingly the population of Delomena woreda is 114,742 , of which 58,106 male and 56,636 female; Harenna-Buluk woreda is 102,872, of which 52,080 male and 50,792 female and Goba woreda is 50,729, of which 25,577 male and 25,152 female and none of its population was urban dwellers.

3.1.4. Economic Activity

Communities living in the mountainous forest highlands mainly earn a living from forest products and mixed crop and livestock farming, while communities living in mid-altitude areas and the lowlands are predominantly pastoralists and Agro-pastoralists. The dominant livelihood strategy in the BER, as in wider Ethiopia, is small-scale farming using traditional technologies for low input, low output rain-fed mixed farming (World Bank, 2007 and Rosell, 2011). Households cultivate crops on land plots. Most commonly cultivated are cereal crops

including maize, barley, and sorghum. Households also engage in livestock rearing for meat and milk products, manure, drought power, transport and skins. Rural households also gather many products from the forest making up a significant portion of their income.

3.2. Sampling Procedure and Strategy

3.2.1. Site selection

In this study, a three-stage sampling procedure was employed to select the study area and sampled households. In the first stage, a purposive sampling technique was employed to select woredas and Kebeles. As a result, Delomena, Harenna-Buluk, and Goba woredas were selected purposively as they are part of the woredas of the BER program and on the basis of the following criteria: (i) Agro-ecological variations highland (2300 – 3200), mid altitude (1500 - 2300) and lowland (500 – 1500) m.a.s.l. **(**Addisu, 2014) and on the type of the communities livelihood in relation to the natural resources (Resource vs Livelihood Interaction). (ii) The role of institutional changes on the resource managements (from gov't administration to 'woldia' cooperatives). (iii) On the type of natural resource endowment of the woreda (Delomena: Range land, Harenna-Buluk: Natural forest, and Goba: Agricultural land) and variation of the currently governing system/arrangement of the management and use of the natural resources (Oromia Regional Forest Administration (ORFA) and FDRE).

In the second stage, two representative Kebeles were purposively selected from each of the three selected woredas basis on: (i) variation in institutional structure in management and use of natural resources, (ii) trends in change of the management and use of natural resources and its effects on the livelihoods and sustainability of the resource management, (iii) level of the participation and collective decision making system of the local committee in NRM and uses,

and variation of the major livelihood sources and natural resource uses of the local communities.

In addition to above criteria, Kebeles from the Woredas was selected through purposive sampling based on the Kebeles' potential of forest (parks) and informal institutions like sacred areas and religious areas that community uses for their beliefs that have also roles on conservation of the natural resources. Based on the above criteria, Fasil-Angaso and Tosha Kebeles from Goba; Hawo and Shawee Kebeles from Harenna-Buluk and Chiree and Malka-Amana Kebeles from Delomena woredas' were selected.

In the third stage, sample households were selected using stratified random sampling technique based on: (i) Household residing inside the BMNP (federal administration) and regional administration institutional structure (e.g. Hawo), (ii) households organized under PFM in the NGOs ($REDD^{+}$) intervention Kebeles and OFA including PFM corporative (e.g. Shawee) and (iii) household/ Agro-pastoralists under community based participatory range land management institutions governed by locally established bylaws (e.g. Malka-Amana), formal (regional) and informal (customary) which mean mixed institutions.

3.2.2. Sample Size Determination

For sample size determination, households of the Kebeles were stratified into rich, medium and poor groups before sample selection. From each strata sample size was determined proportionally to the population size of households in each strata. Sample households were selected randomly from each stratum. In this regard the required total sample size is determined by using Yamene (1967) cited in (Antenah, 2014)

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

Where n is the sample size, N is the population size of study area and e is the level of precision 8%. Finally 160 sample household were employed for the study from 3882 households. Accordingly, 65, 56 and 39 households were surveyed from low land, mid altitude and highland is respectively and kebele level sample size selection was presented in the table 2 below.

Table 2. Selected Sample Kebeles and HHs from each Agro- ecology

Agro-ecology	Kebele	No. of respondents
Low land	Chiree	35
	Malka-Amana	30
Mid altitude	Shawee	30
	Hawo	26
High land	Fasil-Angaso	20
	Tosha	19
	Total	160

Source: own construction 2016

3.3. Data Sources and Methods of Data Collection

Both primary and secondary data sources were used for the study. The primary data was obtained from household heads, local level government and non-government organizations, and professionals working in the area of conservation. The primary data was collected using household survey, key informant interview (KII), focus group discussion (FGD) and personal observations. Relevant secondary data was obtained from official documents of government and non-government organizations, articles, statistical report, internet, and books.

A. Household Survey (HHS)

Interview was made with sampled households by using both close and open-ended questionnaires. A semi-structured questionnaire with multiple choices, closed ended of

‘yes/no’ and open ended questions were used to collect HHs data and a total of 160 HHs were interviewed.

The issues considered in household survey includes demographic variables, sustainable land and biodiversity management activities, and attitude of HHs on the rules and regulations of the state on sustainable land use and biodiversity management and the role of informal institution on land and biodiversity managements.

Enumerators’ recruitment and training was done in order to properly manage data collection, the enumerators was recruited based on a set of criteria such as educational level (diploma/degree holder); language (who have better skills of English Language and Oromiffa, preferably Bale accent and who know local culture), and experience (who have participated in similar kind of surveys was given priority). The survey questionnaire was supported by translated questionnaire of local language. Enumerators were given training one day on the subject that was acquaint them with the helpful know how and skills in achieving data collection mission and ensuring quality and consistency. After designing the survey and training the enumerators, the data was collected from the respondent households (household head) by enumerators, under the strict follow up and supervision of the researcher.

B. Focus Group Discussion (FGD)

FGD is a technique used to get a sense of the diversity of experience and perception to study a particular subject at community level. In this study, the FGD was held with community representatives to collect information as well as triangulate the reliability and validity of the data collected by other methods. The discussion was made with separate groups of elders, youth, and women groups ranging from 6 to 10 people in each group. The participants were

given chance to raise questions. As a result, in this research, three focus group discussions in each Kebele were conducted with different groups of elders, women and youth.

C. Key Informant Interviews (KII)

KII was conducted with different people who have comprehensive knowledge regarding the dynamics, role and influence of institutions on sustainable land use and biodiversity managements. These include agricultural experts, formal (Kebeles administrations) and elders and model farmers. The key informants were selected through snowball methods. Interviews with local elders were focused on the history of the land ownership and management and the customary institutions on use and monitoring mechanisms.

D. Field Observations

Field observations can also serve as a technique for verifying information provided and can provide valuable background information about the environment where study being undertaken. Deforestation and charcoal production in the way from Delomena Woreda to Malka-Amana Kebele; illegal encroachments in Rira Kebele in Goba woreda; high potential of vegetable (cabbage) in Rira; changing of forest and grassland to agricultural land in Goba, surprisingly only one (Enset) that indicates high potential land which is not still practiced for livelihoods in the study area in Fasil-Angaso Kebele Goba woreda; and people addicted in chat in Delomena woreda (Chiree Kebele) and Harenna-Buluk Woreda in Shawee Kebele were observed events during data collection.

Finally to analyze role of changes in land and NRM policies and governance institutions over different periods and the resultant effects of the changes in the institutional arrangements on the property rights of rural HHs and NRs conditions in BER were carried out by using two

analysis tools. The first involved review of policies and institutions (formal and informal) governing land and NRM in BER by the last three governments of Ethiopia i.e. the Imperial period (1930-1974), Derg period (1974-1991) and the EPRDF period (1991- 2016); and by the two recent Participatory NRM systems (PFM and PRM).

The first analysis involved retrospective examination of the effects of changes in the policy and institutional frameworks on the property rights, access and use of NRs by rural HHs in the BER. The later also involved assessment and comparative analysis of the effects and contributions existing governmental and non-governmental institutional arrangements for sustainable NRM and biodiversity conservation in the Eco-region.

To that effect, information on various issues related to land and NRs ownership, management and use under the different institutional arrangements and government periods was collected from review of pertinent policy documents, findings of the current survey, key informant. KIIs and elders in the selected Kebeles were asked to elucidate and rate the property rights, possessions and legal access of resource by rural HHs under the different institutions and governance systems including Change in land ownership and user right.

The Productivity of the land (farm income and livelihood), Land management practice, Household forest ownership, enforcement and capacity of government institution, Strength, enforcement and capacity of custom traditional rules, evaluation of land and forest management activities, participation and benefit sharing of local communities from NRs, state of biodiversity conservation, productivity and income from local farming practices, deforestation and illegal use of NRs. The recalling methods along with historical facts thrown to evoke memory of the KIIs were used to retrieve information.

3.4. Data Analysis

In this study both qualitative and quantitative data analysis techniques were employed. To analyze quantitative data, descriptive statistics analyses were used. Descriptive statistics such as percentage and frequency of occurrence were employed to analyze data gathered through the use of structured questionnaires. In addition Chi-square test was used to see the significances of discrete variables. For this analysis, the Statistical Package for Social Sciences (SPSS.16) program was employed. The data collected by ranking was calculated weighted mean and interpreted. The data was tabulated using absolute figures and percentages followed by qualitative analyses or descriptions. Data obtained from key informant interview and focus group discussions was analyzed qualitatively by organizing sentence themes and interpreting for relationship.

4. RESULTS AND DISCUSSION

4.1. Socio Economic Characteristics of the Households

4.1.1. Age of the Respondents

Age of respondent was one of the important variable that affect land and biodiversity use and management. The age of the respondents varies between age 24 and 76 years with a mean age of 45.60 years. That is, the majority of the respondents were in the range of active age that is between (15 – 64 age) the implication is that they needs more land for their livelihoods and this might affects the forest through tree cutting and clearance of forest.

On the other hand, age class may have its effect on the natural resource conservation and depletion depending on the situation of the economic activities. Here in this study area, local community prefers immediate income form agriculture especially, cash crop (chat) is than forest income. Most of the middle age class of community needs to have high income and wealth accumulation today rather than waiting for income from forest in the long time (KII with NGO expert in mid altitude).

According to key informants interview, in different Agro- ecology of the study area, aged people have comprehensive knowledge on the effects of dynamics of institutions on the natural resources management and uses through their life time experience and information from their parents. So they suggest the type of institution that best fit to resource management and uses. Elderly people value their norms and custom more. Elders have knowledge and acceptance by the local community on natural resource protection and conservation.

4.1.2. Sex of Respondents

Being male or female household head has its own implication in affecting land use and biodiversity management of a given area. Hence, knowing the proportion of female and male headed households for the given study is crucial. Accordingly, the sex of respondents was depicted in the table 3.

The result in table 3, show that majority of respondents were male. This is due to the fact that female headed of households was small in number. In this study area, male headed households were may engaged more in forest clearance than female headed households because traditionally females are not allowed to clear trees in order to expand agricultural land. This result is in contrary to the study carried out in Kilimanjaro of Tanzania that states as men have more keen interest than women in involvement traditional practices of sustainable land management due to the fact that, customarily, it is men who inherit and own land (Kangalawe *et al.*, 2014). The chi-square statistics test revealed that there is significant relation between sex and land and biodiversity management decisions at a less than one percent probability level.

Table 3. Sex distribution of sampled households' heads with respect to Agro-ecology

Variable		Agro- ecology				
Sex		Highland	Mid altitude	Lowland	Chi-square	P-value
Male	Frequency	30	47	61		
	Percent	76.9	83.9	93.8	167.3	0.000*
Female	Frequency	9	9	4		
	Percent	23.1	16.1	6.2		

Source: Compiled from field survey, 2016

* Significant at less than 1 percent level

4.1.3. Educational Level of the Household Head

The result in table 4, show that the majority of the respondents have no formal education; i.e. 28.20%, 25% and 21.54% of respondents in highland, mid altitude and lowlands respectively have no formal education. Only 12.82%, 1.86% and 0% of respondents were attended high school (grade 9-12) in highland, mid altitude and lowland respectively. Not only is this but also average education level (grade) is very low. This figure indicates that less proportion of household heads who attend formal education in mid altitude and lowlands may affect land and biodiversity management because of little expose of formal education that may help to conserve land and forest rather than giving priority only for other economic activities like cropping.

Table 4. Distribution of respondents by educational level based on Agro-ecology

Agro- ecology	Educational level	Frequency	percentage	mean
Highland	No formal education	11	28.20	4
	1 - 4	16	25.64	
	5 - 8	7	10.25	
	9 – 12	5	7.70	
Mid altitude	No formal education	14	25.00	3
	1 - 4	25	44.64	
	5 - 8	16	28.57	
	9 – 12	1	1.78	
Lowland	No formal education	14	21.54	3
	1 - 4	34	52.30	
	5 - 8	17	26.15	
	9 – 12	0	0	

Source: Compiled from field survey, 2016

Since level of education of household head determines ability to analyze policy and adopt new technology of natural resources use. The findings of the present study also agreed with

previous study by (Berhanu *et al.,* 2016) that states as, educational status of the household head increased the probability of planting trees to rehabilitate the degraded environment. However, contradicted by (Alamirew, 2011) that states as, educational status provide better opportunities outside the farm sector, reducing labour availability for agricultural and farm management practices.

4.1.4. Land Holdings Size

The result in the table 5. show that (land size)[2] of sampled households on average was 2.63 ha, 2.58 ha, 4.12 ha in highland, midlands and lowland respectively. In both highland and mid altitudes, there is small of land size for households. According to development agent in mid altitude, local community have no large land size because of the area is covered by forest land. In highland also the land size declines due to population increasing followed by land fragmentation among family members. So the shortage of land size for households may force them to expand the agricultural land at the expense of forest in order to get livelihood income.

Table 5. Land holding of the respondents per Agro-ecology

	Crop Land Total	Grazing Land total	Coffee or Tree	
	Mean	Mean	Mean	Total
Highland	1.89	0.45	0.29	2.63
Midland	1.12	0.7	0.76	2.58
Lowland	2.16	0.88	1.08	4.12

Source: Compiled from field survey, 2016

[2] Land holding size refers to the total farm size (in hectares) owned by the household.

4.1.5. Family Size

The result in table 6. show that, family size of households per Agro-ecology on average is 6.41, 10.40 and 10.10 in highland, mid altitude and low lands have respectively. In lowland and mid altitudes the number of family sizes is large this may be due to that local community customarily needs to have large family size to get social status in the area. On the other hand the religious factor may contribute for having large family size because majority of community are Muslim that may encourages having large family size.

Increasing population pressure affects land and biodiversity management to expand agricultural, as number of population increases they may try to increase agricultural land since their livelihood depends on the agro-pastoral practices and those may increase at the expenses of forest. The result is contradicted study by (Berhan *et al.,* 2016) that states as, large rural family size is on the whole linked with a higher human-labour resource, which would enable a household to realize land resource conservation and management practices.

Table 6. Family size of respondents per Agro-ecology

		Family Size		
Agro- Ecology	N	Minimum	Maximum	Mean
Highland	39	0	13	6.41
Mid altitude	56	2	24	10.40
Lowland	65	2	26	10.10

Source: Compiled from field survey, 2016

4.2. Dynamics in Policies, Institutions and Government Development Strategies

4.2.1. Land Tenure

Household land holding tenure is changing from one regime to another. According to key informants, during imperial period majority of households in lowland and mid altitudes had no

land except those on the highland area; e.g. Goba Woreda were some households had owned land. The land was owned by land lords and tenants worked on such lands as share-croppers giving away a quarter or one third of their produce to the land lords. In 1975 the feudal system was abolished when all rural land was nationalized and distributed for those tenants and people who would like to be farmers.

As shown in the fig 3, the overthrow of the Feudal system by the Derg regime in 1974 brought fundamental changes to the land ownership and use right arrangements of farmers in the BER and the country in general. The most notable change was the 1975 land proclamation commonly known as the *'Land to the Tiller' decree* that unprecedentedly brought all lands and natural resources in the country under absolute state control.

The new proclamation unequivocally vested the ownership of all lands and land resources in the Ethiopian state, while rural HHs were given the right to use the land they are tilling. According to the KIIs and literatures reviewed, the new land policies and laws of the Derg brought two fundamental changes on the property rights of rural HHs to land and NRs in BER. On one hand the land decree adequately increased the landholding sizes of many rural HHs. Then again, the proclamation effectively outlawed the private ownership right of land by rural HHs.

The new land and NRs property right systems of the Derg had also led to changes in the state of forest and biodiversity management in BER. According to elders interviewed, the abolishment of the formal private land ownership and the redistribution of land to smallholder farmers by the Derg led to degradation of some valuable forest and biodiversity resources of the BER. On the other hand forest that found less than eight hectare within the Kebele put

under Kebele administration for common use. However, this Kebele forests administration destroyed the forest because of poor management. Following the 1980 forest law, Kebele forests were taken away and put under state control.

State control of all land and forests has also led to restricted private tree planting and use in the BER. When the land policy changed and land was declared state property user rights was given to farmers. However, tenure security was not fully guaranteed as elderly man in highland (Goba woreda) stated: "*if the land is not ploughed in one month it was taken away and given to other farmer who has oxen to plough".* Under the current government land is owned by state and the people of Ethiopia.

However, land security is little bit modified in current government than preceding that provides land renting right for households even if, they may not have oxen to plough land, they may get income by renting land for others for fixed time interval.

Land registration and certification have been issued to individual households since 2005/6 to increase tenure security. However, majority of the study area land certificate is not given to individuals. It may limit security of the land holding that causes low initiation of land managements and investment in forest. The result is supported by previous study by (Berhanu *et al.,* 2016) that confirm as, land certification, as a partial indicator of land tenure security for households in Ethiopia.

4.2.2. Productivity of the Land (Farm Income and Livelihood)

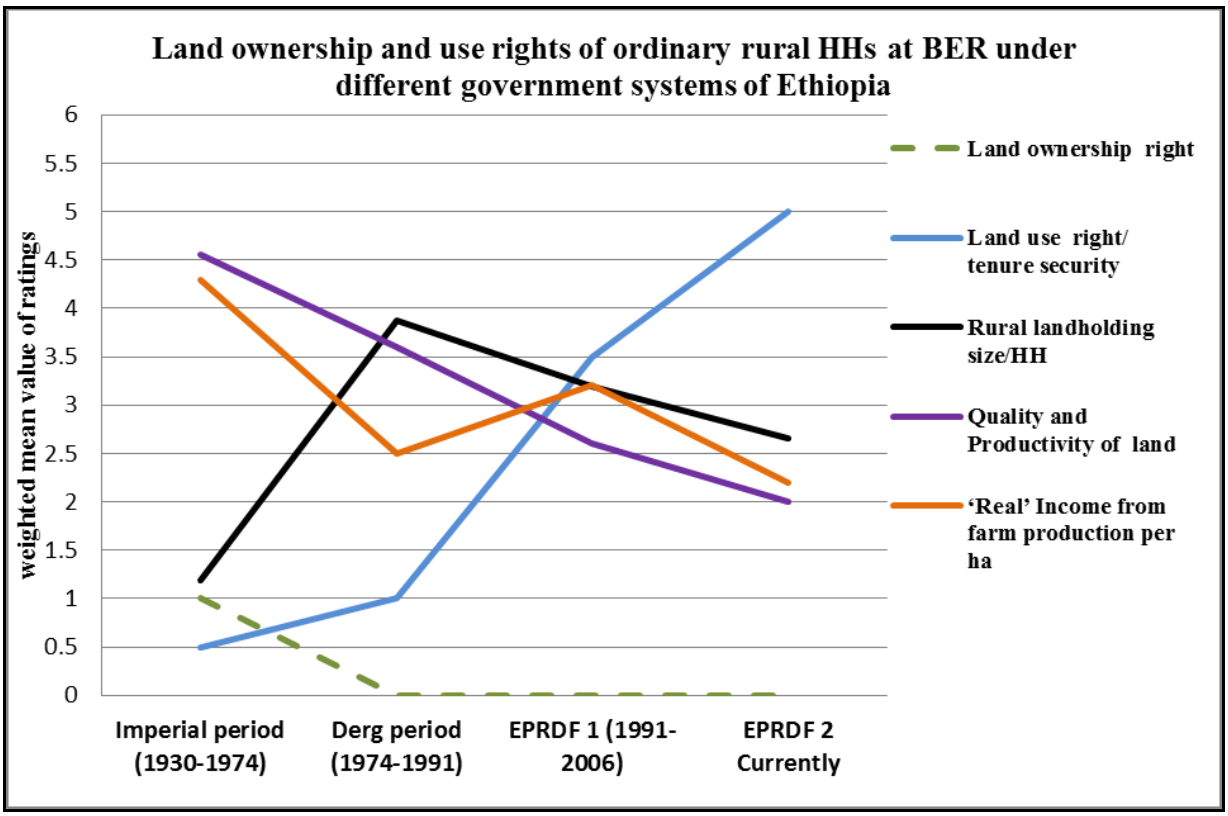
Productivity of the land changes under different regimes. This is due to change of land use policy and increased population growth pressure. As seen from figure 3, the productivity and quality of land was better during Haile Silasse period, as per KIIs and FGD participants in

Goba woreda. The reasons were the relative intactness of the land and smaller human population and private ownership of the land that increase incentive of owners to manage the land.

The *'real income*[3]*'* of rural HHs from crop and livestock production per unit of land was satisfactory to support their family as per KIIs and FGD participants in lowland and mid altitudes. When the KIIs in three Agro- ecology of the study area asked to elaborate what they meant by 'real income' in different regimes, they noted that 'during the Imperial period the land was productive and farm production costs were relatively very small. Indeed the income we use to get from selling a quintal of barley in those days was small in numeric value but that small money had very strong purchasing power'. Hence the actual income (economic worth) of the HHs from farming was more than adequate to support their family. They continued, in contrast today, we are getting higher crop yield per ha today when compared to the Imperial and Derg periods. However, much of this income we earn is spent back to cover production costs.

Moreover, the purchasing power of the money we earn is low and hence our real income (economic worth) from farming may not even suffice to support our subsistence needs'. It was also good during the Derg time and provides good yield and not need much of fertilizer use. Presently, the productivity of the land is dramatically decline because of introduction of inorganic fertilizers and high population pressure in need of agricultural land at the expense of forest which maintain soil fertility in particularly and environmental services in general. But the land gives high yield only by using fertilizers at the expense of sustainable soil fertility management

[3] real income is the income adjusted inflation



Source: Own construction

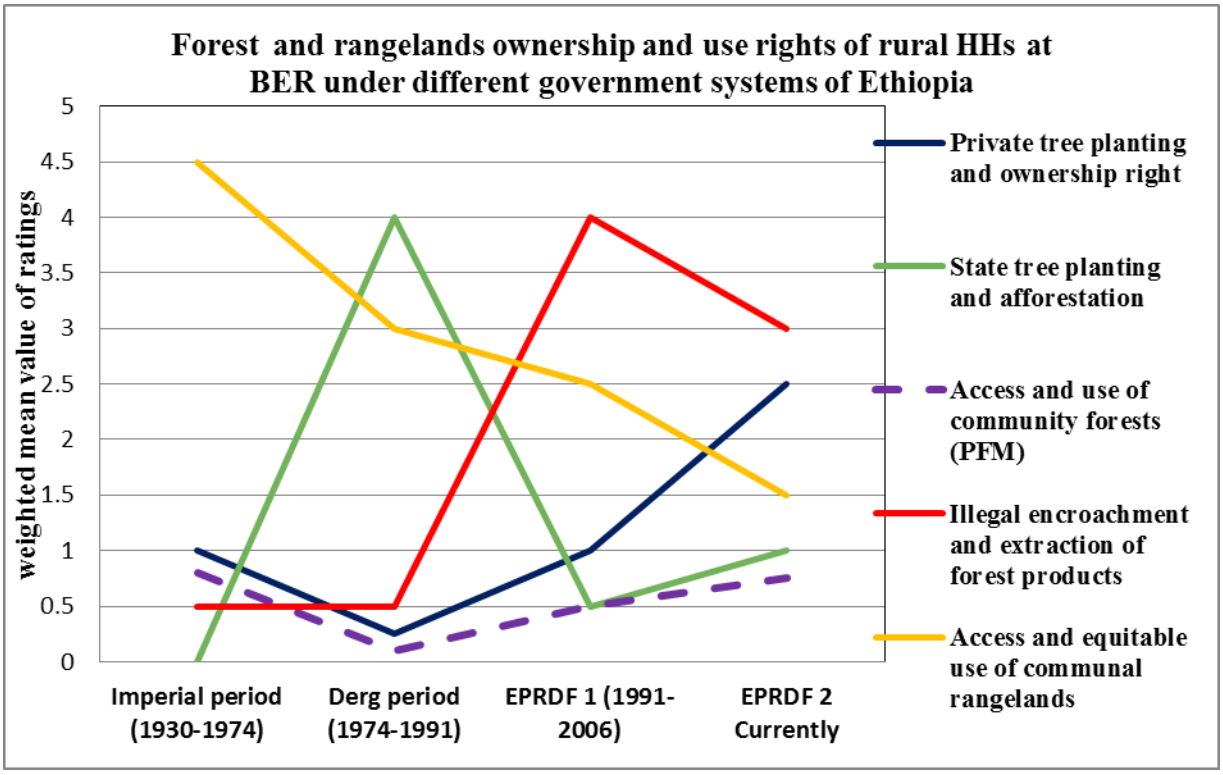
Figure 3. Land ownership and use rights of HHs at BER in different government regimes

4.2.3. Forest and Rangeland Ownership

Forest ownership changes when the change of the regimes occurred. According to KII, during imperial period ownership of forest was complex and the forest was owned by landlords, state, community, private, and church. The ordinary people benefited from forest through permission from the landlords for whom they were working. At the time, the forest was well protected and no deforestation in BER. At the beginning of the Derg, it provides the right for farmers to use the land and due to this people start to expand agriculture and use trees that found in lands they hold. But forest was not owned by individuals and people get user right of the forest at their land and need to have permission to cut the trees. Under FDRE, natural

forest is owned by state and HHs have user right through participatory forest management system in BER (fig 4).

Access to communal range land was equitable during Haile Silassie in BER. According to KIIs, the communal rangeland was managed customarily. They allocate parts of range land for individual households to graze separately and to prevent animals' diseases transmissions. At the same time they got fair access of grazing land. The access of rangeland is going decline time to time since Derg regime to FRDE due to change of land ownership policy and shortage of rangeland.



Source: Own construction

Figure 4. Forest/rangelands ownership and use rights of rural HHs in different government periods

Common natural resources are resources that managed and utilized communally such as forest and range land. Forest in highland and mid altitudes and range land in low altitudes have similar structure of management through cooperation. The forest in Ethiopia including BER where study areas are belongs to state. Currently, organized community in (Woldia/ cooperation) get limited use rights of forest products for fuel wood, house construction, and for sell by lower income level households.

In these common NRM systems, community leaders have joint power (Koree) in the management of the land and its living resources in trust for the entire community. Access to exploit natural resources is derived from being a member of the cooperation (Woldia) by paying initial contribution depending on their respective cooperation bylaws but not by birth or by settlement over a long period of time. However tensions arise from joint use of natural resources as a result of population pressure, political instability and demand of free rider behavior on individuals increasing resource degradation.

Community based forest management protect forest and benefits community through providing livelihoods in terms of being source of cash income, livestock feed, and enhancing soil organic matter with strong follow up and monitoring of government agencies. The result similar with the study by (Dickinson *et al.*, 2012) that, forest management has to be supported by Community-based monitoring. The local community institution (Woldia/cooperatives) is one of community forest management in BER.

According to the key informants and focus group discussion in the study area, Woldia has their own management group which is called (Koree in oromifia) with the role of monitor the forest, rangeland use and management, assign and guide where immigrants to browse and graze their livestock, protect forest fire, and in case of damage on the forest and/or rangeland

report to the woldia leaders. On the other hand, at the highland Koree protect illegal cutting and clearance of trees and forest and guide the use of forest by lower income households whose are permitted to exploit forest products to support their livelihoods.

4.2.4. Law on Indigenous Plants Harvesting

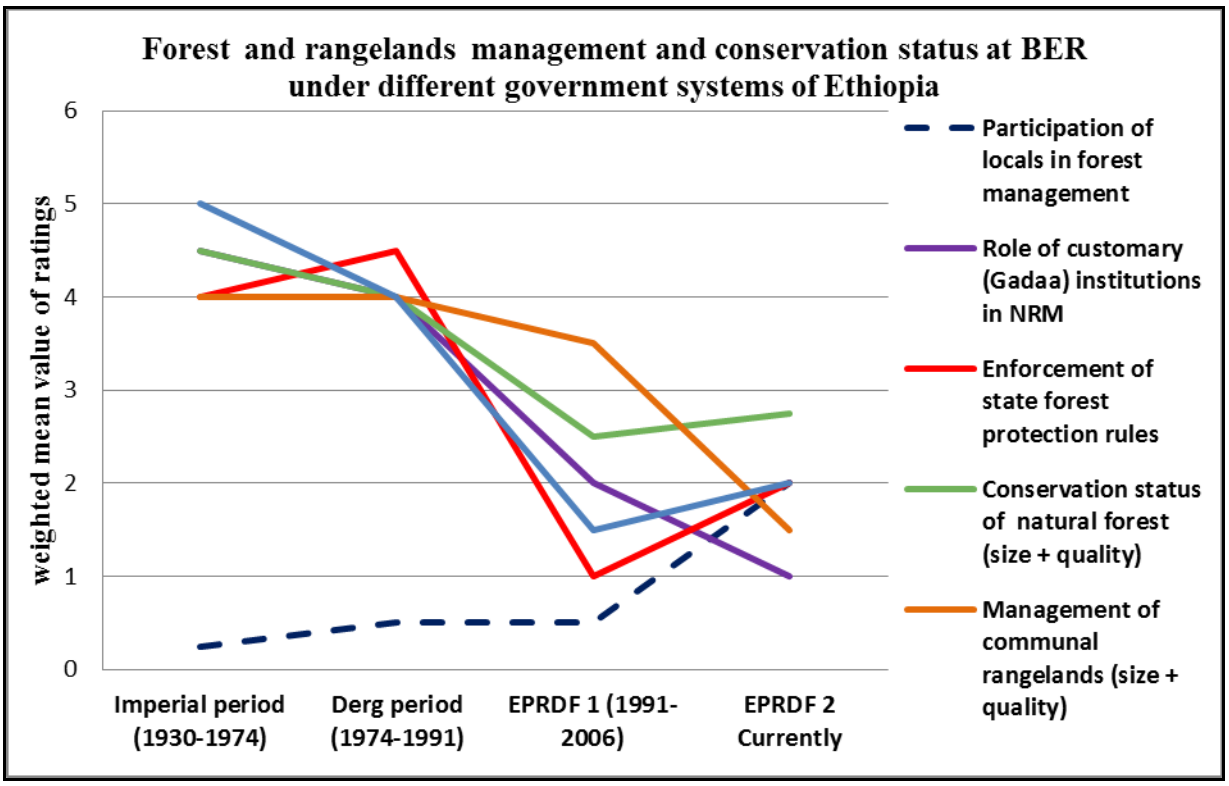
There are laws limiting to harvest indigenous plants in Ethiopia in general including BER. There are restrictions on harvesting specific plant species such as *Birbira (Millettia ferruginea), Wodesa (Cordia Africana), Rukesa, Befti (Warburgia ugandensis), and Gatir (Juniperus procera)* in lowland for their nature of indigenous plant and low abundance in the area. *Podocurpus, Wodesa (Cordia Africana), tid, kosso* in highland also prohibited to cut. The result is confirmed by the study result (Kubsa. A and Tadesse. T, 2001), that explain as utilization of the *Hagenia abyssinica, Podocarpus afrocarpus falcatus* (*Podo*), *Juniperus procera* (African pencil cedar) and *Erica* heather species has been prohibited by law since 1994. Since biological and ecological regenerating capacity of indigenous plants are limited and cost of rising is high. Government put limitation on the harvesting on indigenous trees but not fully implemented in the study area.

According to document review and key informant results, the enforcement of rules and regulation in each regime has their own strength and enforcement capacities. During the imperial period, biodiversity conservation was relatively better for all rural land and forests had clearly defined owners as State, Private, Communal, etc (Daniel, 2012). According to KIIs and elder in Goba woreda, non-owners were unable to access forests without the permission of its owner thus effectively criminalizing and banning illegal encroachment and tree cutting formally and customarily.

As indicate in figure 5 and confirmed by elders in Delomena and Goba Woreda, Forest was much protected during Derg, as *if someone cut one tree illegally, he/she must plant five trees.* On the other hand, other sources provide information as, any individual who violate the forest law and cut tree illegally punished by 3 to 5 times of commercial value of the tree (Milizia Forestate, 1937/38 cited in (Melaku, 2003).

As indicated in fig 5, at the early stage of the FDRE government, natural forest declines due to lack of capacity to enforce the laws in the study area. The result is similar with the study by (Nune *et al.*, 2016) that states as; capacity of the existing institutions is constrained by lack of clear rights and responsibilities. However, currently the government developed a strategy to build climate resilient green economy and reorganizing its formal enforcement capacity and participation of local community in NRM enhanced in BER.

Figure 5 indicate that, forest and range land conservation was declining from imperial period to current regimes. However, after 2006 government introduces participatory forest management which done by agreement between organized community and state on resource use and management. From this time land management practice including rehabilitation of degraded lands is being done with the assistance of development agents through community participation.



Source: Own construction

Figure 5. Trends of forest and biodiversity conservation at BER under different government

As depicted in fig 5, deforestation is being gone at decreasing rate due to increasing of law enforcement capacity of government and change management policy and applying PFM in highland and mid altitudes and PRM in lowlands. However, the rapid population growth aggravated by increasing demand for more agricultural land leads the forest and biodiversity resources reduced in BER due to widespread illegal encroachment particularly between 1991 and 2006. The result is supported by the study (Elisabeth *et al.*, 2016) that states as; migrants are expected to follow extensive and unsustainable agricultural practices that lead to the encroachment of the forest frontier because they have shorter planning horizons, which cause them to be more destructive than host populations.

4.2.5. Community Participation on Natural Resource Management

No participation of the people in land and forest management was exist during imperial regime and they use commonly the natural forest. Agriculture was not expanding, but people move from place to another with their cattle to support their livelihoods. According to KIIs from Chiree Kebele in Delomena Woreda, local communities managed water points customary for their cattle at separate points to prevent the spread of animal disease. In Derg regime people started permanent agricultural settlements in highlands of BER. People started participate in plantation of forest in return of "*food for work" "migib la sire*" program during Derg regime.

However, the EPRDF government is distinguished from its predecessors for implementing new institutional systems regarding the management of natural resources and participation of local community in NRM decision makings. The FDRE government formulates new rural land policies and institutions that delegate power to regional governments for rural land administration (Rural Land Administration Proclamation No.89/1997).

Following the 2005 delegation of power to the regional states by federal government, the Oromia regional state issued the "Oromia Rural land Use and Administration Proclamation No.56/2002" which was amended by proclamation No.70/2003. The regional land proclamation states that 'the task of administering land will be carried out based on public participation'. The proclamations of both the federal government and the Oromia regional state have recognized community forests (under Kebele administration) and participatory management of forest and biodiversity resources. Currently, people participate on SWC, plantation and protection of the forest and range land in the study area.

4.3. Role of Formal Institutions in Land and Biodiversity Management

4.3.1. Forest Resource Management in BER

In BER there is high and dense forest that is managed in two categories protectionist forest management (park) and regional forest management (out of the park). The first one is purely a protection approach and strong in protection and management while the second is less than in protection and participatory in management. Both management methods have strength and weakness.

4.3.1.1. Protectionist Forest Management (BMNP)

The Ethiopian Wildlife Conservation and Development Authority take responsibility to protect the forest and wildlife in the Bale Mountains National Park. The management has strong guards to protect the park from illegal hunters of wild life and unpermitted grazing in the BMNP. So the protection of the park from external agents that affect forest and biodiversity is very strong.

According to key informant in Harenna-Buluk Natural Resource Management Office confirms that, BMNP that administrated by Federal Government is more important for forest (natural resource) conservation rather than benefiting community. He explained this type of management as, "there is immediate penalty on illegal actors since it is kept by federal government and not let intervention of other sector or shimigilina for mediation and no excuse on illegal actors. The scale of punishment is also very high when compared with ORFA". By doing this the biodiversity in the BMNP is in a good condition compared with Forest out of the Park.

According to KII and FGD in Dinsho and Goba woredas respectively in the BER there is no sharing of the park benefit with local community. The weakness of the Park Forest and

biodiversity management is also non-participation of the local community. In Dinsho elders said that *we know that there is killing of animals (e.g. Niyalia) in the park more than four times per year for the purpose of research (national and international) and other purposes with high price.* Part of this birr should have been shared with local community. But still nothing reaches local community. The result is similar with study done by (Nune *et al.,* 2016) that states as, capacity of the existing institutions is constrained by lack failure to respond to the demands of community-based organizations.

The other claim arises in benefit sharing from forest in Goba Woreda explained by FGD is that, "there was high and dense forest planted during Derg period. Now starting from recent years there is continues cutting and logging by government through the facilitation of NGOs (Farm Africa, 2008). They add we need to be benefited from the forest as legally proclaimed (Pro.No.482/2006 art 6(3)) but still now there is no sharing of benefit". The result is similar with the study by (Aerts *et al.,* and Amare *et al.,* 2016) that states as rather than excluding human activities, institutions should focus on management of habitats and species while at the same time increasing involvement of and benefits for local communities.

In BER proclaimed right of local community (Pro.No.482/2006 art 6(3)), which states local community shall have the right to share from the benefit arising out of utilization of their genetic resources and community knowledge is seems violated. This kind of management limits the right of local community on their respective resources and affects sustainability of the NRM, since sustainable resource management is managing the resource while benefiting the community.

4.3.1.2. Participatory Forest Management in the BER

The Oromia Regional Government takes responsibility to protect and develop the forest in the BER outside the park. The management of forest is being done with participation of organized local community with the aim of protecting forest fire, and deforestation, and getting benefit in accordance to the agreements with the government and bylaws. But this type of management has both merit and demerits. The merit is that the forest is kept by both government and community (elders) and benefits community and demerit is corruption

4.3.2. Climate-Resilient Green Economy Strategy

The Government of the FDRE has initiated the Climate-Resilient Green Economy (CRGE) initiatives to protect the country from the adverse effects of climate change and to build a green economy. CRGE initiative has prioritized two strategies that could help to reduce fuelwood demand and develop sustainable forestry:

First one is reducing demand for fuelwood via the dissemination and usage of fuel-efficient stoves and/or alternative-fuel cooking and baking techniques (such as electric, biogas or stoves) leading to reduced forest degradation. To this effect dissemination of stoves in all Agro- ecology of the study area were practiced with the help of NGOs (REDD+ and SHARE).

The second strategy of development of sustainable forestry is being practiced via using green business. In the lowland and mid altitudes of the study area, there is good progress in green business activities of NTFPs such as fruit, cash crop. Afforestation, reforestation, and forest management practices augments to achieve CRGE. Here in the study area there is good progress of afforestation by local community. KII in Delomena confirms that, he has been planting 2500 seedling per year for preceding four years.

4.3.2.1. Nursery Site and Forest Plantation

Ethiopia's forest plantation history has in progress since Derg regime through food for work programs with community participation in different area of the country. There was high indigenous and exotic trees forest plantation that still now have high economic and environmental values in Goba Woreda in BER. There are a lot of stand trees and copies of Derg period forest plantations observed in Goba Woreda in BER.

BER is also one of the plantation areas of the country. According to Natural Resource Management experts in Goba Woreda, there is nursery site and seedling propagation in BER. The nursery site is prepared by both government (woreda administration) and NGOs (Farm Africa, 2008) and plantation is being done by government involving local community and at household level individual plantation.

The two organizations such as government and NGOs have their own limitation on type of species and level of practices. As agricultural office expert in Goba Woreda confirmed that, the GOs produce only indigenous plants and produce 2,500 – 5,000 seedlings per year per ha. While NGOs produces about 6,000 seedling per year per ha of which about 90% of plantation is exotic especially eucalyptus to maximize profit. There is no strong cooperation between GOs and NGOs on the plant species selection for propagation and plantation.

Since exotic species have its own negative impact on environment and on wild species in contrast to its profitability. It should be considered amount and place of plantation on the study area. An elder man in Fasil-Angaso Kebele in Goba Woreda said that "eucalyptus force us to leave the area because the area dominated with eucalyptus tree is not growing grass and our livestock that is back bone of our livelihoods, were affected by lack of palatable grass to feed".

4.3.2.2. Capacity-Building in Natural Resource Management

Capacity-building is one pillar of the FDRE Governments of Rural Development Policy which is applicable at all levels. In a major effort to arrest natural resources degradation, the Government (Natural Resources Management and Regulatory Department (MoA) and Forest and Environmental Protection Authority and EWCA) which has the overall mandate for soil and water conservation, Forest protection and development and wildlife conservation and development; has developed for soil and water conservation measures, afforestation activities, protection of park and forest protection action for all highland, midland and lowland altitudes. The KII and FGD results explicitly showed that, the current government policy and practices of NRM in general and forestry management in particularly helps sustainable land uses and management. Agricultural experts, some official leaders and elders of the Melka-Amana and Fasil-Angaso Kebeles where SHARE intervention Kebeles in Delomena and Goba Woreda were trained by SHARE project experts on the resource managements. The training was based on the forest management and utilization through cooperative and management of seasonal immigration of pastoralists and protection of land degradation. They said that, "we were got good understanding on resource use and management and follow the way that we learnt from training for resource management and use". Training and financial support are tools that help community forest management.

4.3.3. Land Certificate

The Ethiopian government offer land certificate for rural farmers and Agro-pastoralists to ensure land security tenure security for households in Ethiopia. Land certificate is playing important role in security and conservation of land. In Tosha Kebele, Goba Woreda,

rehabilitation of degraded land had restored and becomes home for wildlife in (Meles Park). Meles Park was established in 2013. at Bale Zone, Goba Woreda, Tosha Kebele in Shayya village on the area of 6.5 ha with the objective of rehabilitating the degraded area in commemoration of the late prime mister Meles Zenawi.

Data from Tosh Kebele indicated that, the park was planted with 18,000 seedlings first year and 11,000 seedlings was planted second year to replace damaged seedlings and to cover unplanted areas. According to DA in Tosha Kebele, Natural regeneration of plants in the area also contributes for area coverage with vegetation. The area is free from other livestock and human interaction and disturbances. The park is now home for wild life like Buffalo. The Kebele was issued land certificate since 2007 and the park was established by government and community. Land certificate makes people to feel confident on their land holdings and to guard the park to achieve the intended goal.

In general, in the study site, land certificate is no issued except part of Goba Woreda. Delomena and Harenna-Buluk Woredas, lowland and mid-altitude respectively were not issued land certificate. Two reasons mentioned as case of why land certificate was not issued. First the area is more dominated by forest. DA in Goba woreda tells that, land certificate was issued for Kebeles dominated by agricultural land and not issued forest dominated Kebeles. Second, culturally Agro-pastoralists are not willing to count their wealth like livestock (KII). In this study area of remaining five selected Kebeles are not issued land certificate and no significant changes takes place like plantation of forest and rehabilitation of degraded land. The result is similar with the study by (Aerts *et al.,* 2016), that states as, uncertainties in land ownership issues complicate conservation, especially along the edges of the forests.

On the other hand elder woman in Chiree Kebele in lowland tells her demand of land certificate by explaining its benefits. She said that “it is important to solve boundary dispute”. She adds her feeling by mentioning as she is a wife in polygamous married and the land use right is given for each women and most of the time there is/was conflict on inheritance of the land among father and children of polygamous. In this kind of situation land certificate insure inheritance right of children against opponents. However absence of land certificate provision was seen in the study area.

Source: photo taken by the researcher

Figure 6. photo taken during data collection in the study area

4.3.4. Land Management Systems and Practices

According to Key informant in Fasil-Angaso Kebele in Goba woreda, there was very little land management practice during the Derg regime, except the fallow farming practice that, *if the land is not fertile or degraded, the individuals would be given other productive land because there were spare lands to be given for farmers*. Currently no relocation is possible because of shortage of land. However, the continued state control of land and land resources coupled with the weak law enforcement capacity of the state led to open access of forests and biodiversity resources in the BER during the early days of the EPRDF government.

According to KII in Chiree Kebele from Delomena Woreda (lowland), the development agents show Agro-pastoralists on how to use fertilizers and variety of seeds. The key informant adds that, government employed consultants to give advice to Agro-pastoralist on livestock rearing, agriculture, Agro-forestry, forestry and vegetable production. Using compost and rehabilitation of degraded land have been done under current government as a land management practice. Conservation works are also done through organized mass mobilization. Forestry development, protection and utilization were also implemented with increased effectiveness by active engagement of communities in BER.

The influences of the changes land and NRM policies under different governments were peculiar to the BER in many ways. One important reason was that, land resources in much of the BER (particularly in the pastoral lowlands) were historically governed by customary Gadaa System (elders interview result in lowland, Delomena).

Another important reason could be linked to the natural resources endowment of BER, and the apparent failure of the different government institutions to recognize the unique biodiversity of

the area and strike balance between local economic needs and sustainable NRM. The result contradicts study done by (Nune *el al.,* 2016) that states as capacity of the existing institutions is constrained by absence of common result framework. According to survey and FGD discussion results, local community were being in the high potential of grain production area of BER, are now challenged by increasing human population pressure, land degradation and declining land holding size and farm productivity. At the same time, BER is home to valuable natural ecosystems with immense global and national significance; hence its sustainable management is indispensable amid rising climate change impacts.

However, findings of this study showed that most of the policies and institutional arrangements of the federal and Oromia regional government do not have separate and customized strategies to deal with the unique situation of the BER. Except the few recent initiatives, much of the land and NRs governance in the BER is pursued by the same institutions designed for administering lands in the country at large. This lack of locally customized NRM and use institutions recognizant of the distinct problems facing the BER has contributed to the differing outcomes of state policies and institutions from successive governments in the BER compared to other areas.

According to the key informant (agriculture and rural development expert in Goba woreda), the implementation of the land use policies into practices is better but not quite enough. Steep slope areas more than 60% are not allowing to farming and free grazing (pro. no.456/2005 art 13(6)). But people are ploughing such kind of sloppy land due to shortage of land and absence of alternative income sources for their livelihood. This indicates low law enforcement of land use in the study area by current government.

4.4. Role of Informal Institutions and Social Taboo on Forest and Biodiversity Management

4.4.1. Biodiversity in Sacred Areas

There are a lot of (sacred)[4] areas in BER such as cultural, religious, historical and burial areas that are respected and ban in their taboos. As humans have special fascinations to such areas across the country are considered sacred. Sacredness of the areas in BER, (Atse-fasil and Shali-Goba, in Fasil Angaso Kebele in Goba woreda) elsewhere has been found and support undisturbed ancient woodland, dominated by tiny, slow-growing and widely spaced trees. Some of the most ancient and least-disturbed sacred areas of wooded habitats and water bodies e.g. Fofate, Furame tabali, and Sayid Saleman Masigid that has more than 100 years of history and where holyday celebration practiced are found in Harenna-Buluk Woreda.

FGD participant in Goba woreda confirmed that *if you go sacred area, you can find untouched forest; and in some religions areas are not allowed to walk with shoes but only bare feet* in BER. Result is supported by previous studies by (Trimingham, 1976) cited in (Dereje, 2012) explain as, in reference to the Muslim Yejju Oromo Trimingham indicated that: *….They pay great attention to certain tree. There was a tree in Merse (the area is not clearly indicated) which they particularly hold in the great reverence…. They grease this tree, and perform religious ceremonies under it. Nobody dare touch or damage the tree without risking severe punishment.* Other study done by (Aerts, *et al.,* 2016) confirmed the result as church forests have high conservation value.

[4] Sacred means something related to religion or something treated with great respect.

Vegetation on the area often support populations of biodiversity of animal and plants species that are exceptionally depend on tree for food, stood, live. Due to this services, sacred area play great role on biodiversity conservation. To affirm this, Bhagwat et al. (2005) cited in Oladunni *et al.,* (2012) concluded that sacred forests were richer in biodiversity than any other sites. The study done by (Rukey *et al.,* 2013) is also in line with my study result that states as sacred grove and sacred rivers/ponds are traditional NRM. But this study identifies even if such sites are prohibited from other activities, they are not protected as before and are not provide livelihoods for community.

Source: photo taken during data collection

Figure **7.** Researcher to visit the sacred area in Goba (Atse-Fasil and Shali-Goba)

4.4.2. Resource and Habitat Taboos (RHTs)

Cultural perceptions, customs and superstitious beliefs of human health risks are frequently associated with taboos of religious and burial areas in the study area. According to KII in

lowland (Delomena Woreda, Malka-Amana and Chiree Kebeles) married women use (*Wato, Rukesa* and *Kulafi* in Oromifia) species. They culturally they believe that it make the women attractive for their husbands when they wash with it. Due to this cultural belief on the trees the local community did not cut this species. Big trees of specific plant species (Odaa) are also ban no to cut; they belief that if they cut such kind of tree they may die. Result is supported previous study by (Dereje, 2012) that states as, *Odaa* is customarily believed to be the most respected and the most sacred tree, the shade of which was believed as the source of tranquility.

Specific-species taboos prohibit hunting of particular animal species in BER. *Lion* and *Dikula* in the in the lowland were ban to kill. Survey respondents and FGD in lowland states as, it is forbidden to kill *Lion* and *Dikula* due to its nature of dangerousness (*Lion*) and belief of having evil spirit (*Dikula*). The result is supported by (Oladunni *et al.,* 2012) that states as, *Python (Python spp)* is traditionally forbids to killing because the bile of python is believed to be poisonous in *Ejaghams* clan taboo. The *Lion* may eat their cattle if they kill or hunt it. The result is in line with study carried out in Nigeria that states as *Leopard* is forbidden to hunt because it is regarded as the symbol of *Mgbe*, the deity of the *Ejagham* tribe (Oladunni *et al.,* 2012). So this taboo has biodiversity conservation role.

Habitat taboos imposed on cultural and religious ban not to cut trees in the BER may help to provide ecological services on which a local community may depend. These services include the maintenance of biodiversity, regulation of local hydrological cycles, prevention of soil erosion, pollination of crops, preservation of locally adapted crop varieties, habitat for threatened species and predators on noxious insect and pest species of crops and serving as wind brakes.

4.4.3. Effects of Customary Grass Provision by Pastoralists on the Forest and Biodiversity

The primary livelihood of the Agro- pastoralist and pastoralist is livestock rearing in the study area. In mid and lowlands of Bale Eco Region one individual holding from 50 – 150 livestock (interview with woreda agriculture expert) and all these are graze and browse freely in the natural forest. The woodlands and shrub lands are being depleted with the growing livestock population. This livestock rearing directly or indirectly affects the forest resources. They damage forest by grazing/browsing and trampling on grass and trees (KII in Chiree Kebele).

The indirect effect is setting of fire to promote palatable grass grow to livestock especially in bushy areas. Bush in its' nature has area coverage capacity that protects the growing of grass by confining the area. To stay away from land cover of bush, pastoralists customary set fire on bush and makes the area free to grow grass and get good palatable grass for their livestock.

4.5. Causes for the Declining Role of Informal Institutions

Informal institutions are code of conduct that is not written in documents. They are norms and practices done by particular society on determining society way of life, natural resource valuation and respects. But it can be affected or dominated with some action and changes. Immigration, domination by formal institution and impact of modernization have influence on the role of informal institutions (own study from FGD and KII informally). The result is supported by the study (Edwin et al., 2016) that states as informal institution of natural forest conservation worked effectively in the past because users are socially recognized as an authority to enforce the rules and in situations where land is still widely available.

4.5.1. Immigration

People migrate from place to place to get better income and livelihoods. In BER especially in Harenna-Buluk and Delomena Woredas, there is a lot of migration from in country shawa, Hararege, sidama and Ethiopia Somalia. These migrating people come from different areas having various cultures, belief and norms. These varieties make local way of life to be moderated.

Key informant in Malka-Amana Kebele in Delomena Woreda states that, migrating people prefer legal judiciary conflict resolution for each kind of dispute. As migrating community increases in number, the indigenous conflict resolution becomes low in practice when compared with conflict resolution mechanism before migrating people come. She reminds that before immigrants number increasing, most of the conflicts were solved informally with elders. The finding is supported by study Francis and Tomoya (2013), that states as the feeling of migrating people had lower probability of consulting informal institutions to resolve their conflicts than sending communities. This suggests the lack of trust on customary institutions; elders are likely to be biased in handling conflicts, especially if local committees are dominated by people from one section (ibdi).

4.5.2. Domination by Formal Institution

Formal institution is objective and value-free, and it performs any activities without comprising and by giving fair decision based on the type of conflict occurred. If someone commits crime he/she should be pay or take appropriate penalty through court. According to development agent (DA) in lowland Delomena Woreda Malka-Amana Kebele the judiciary

system in the community practiced explained as follows; if ones' was crops eaten by cattle of other man they solve customarily with elders.

Local dispute resolution mechanism is subjective and value-laden so in informal institutional conflict management, low in punishment at early stage when compared with formal institution and compensation for harmed part is not practiced as its first and second times crime but simply negotiating them. People do not care about others crop that was eaten by their cattle and leave freely their cattle on grazing land and continue conflict among community when these cattle eat or damage crops of others. To reduce this kind of problems, the Kebele administrations starts to punish the criminals and make to composite for harmed one. Because of this type of formal institutional conflict resolution practice increasing, the informal institutional conflict resolution becomes low now days. The result is comparable by the study result (Edwin el *at.,* 2016) that explain as traditional institutions can survive if the authority structure-backed users put resources as the first priority in their lives and make knowledge that forms the institution as truths.

4.5.3. Modernizations Impact on Informal Institutions

Civilization comes with different ideas that may support or deny existing practice. As respondents information, when Modernizations starts in this area the traditional belief on natural resource become lose its power over resource managements. Another common concern was the impact of globalization on culture. It threatening traditional institutions such as the norms and values on forest or threatening the way of life of whole communities' changes. On the other hand globalization benefits in overturning traditional ways and developing modern attitudes such as gender equality. Study in south China support the result by stating as

development eliminated indigenous knowledge and practices in the quest to strengthen the centralized state (Jianchu *et al.,* 2005).

4.6. Conflicts and Resolution Mechanisms

4.6.1. Conflicts in Bale Eco-Region

Conflicts in BER were diversified in nature. However, these days the matter of conflicts are related to multiple uses of the Harenna forest and the park. Participants in group discussion in Delomena and Harenna-Buluk Woredas explained as some complaints raised with immigrants came from Shawa, Hararege, Ethiopian Somalia and Sidama and settle in the Harenna forest. There is no large-scale conflict is between communities in vicinity because they benefit each other. Migrant people help natives by farming their land and the natives also provide land for migrants for share cropping. But there is always conflict with government administration (Harenna-Buluk Woreda Agricultural Office) with immigrants who were being made illegal settlement in the forest. This is similar by (Aert *et al.,* 2016) result that, without active involvement of all stakeholders, illegal forest use including grazing and logging will remain critical issues.

The interview result with of Harenna-Buluk Woreda Natural Resource Management Office head states that always and still now there is illegal encroachment in the Harenna forest which is beyond capacity to be controlled. He explains the situation as "when we catch and send offenders/ illegal settler into in prison; he/she becomes assures user right of the coffee land after his/her imprisonment. The offenders may plant coffee before and, at his imprisonment period, say 3 or 4 year and he/she start opposition by referring the law of coffee planted. Because the law of cash crop (coffee) says, *if it is being for three year after plantation, no one*

take out it. He/she becomes owner of the coffee, which he was planted illegally before his/her imprisonment and this makes difficult to control illegal settlement in the forest.

According to KII and survey results, conflict over access to natural resources in BER was due to following underlying causes:

1) Rapid population growth and declining landholding sizes of HHs; illegal immigration and settlement in forest and communal woodlands leading to turf competition over NRs;
2) 'Unfair' and inequitable/restricted access to natural resources under state protection such as BMNP;
3) The devolution of the customary land and NRs administration institutions and systematic replacement of the same by formal state institutions;
4) Privatization of communal rangelands by the rich and elites along with expansion of large-scale investment in communal lands (e.g. Baraqi); and
5) Poor economic returns of forest and biodiversity conservation under state control intertwined with declining land productivity and limited livelihoods diversification. In the mid-altitude and lowland areas of the BER increased scarcity of land and restrictions on access of rural HHs over state lands and forests has led to increased state-community conflict. The result is supported by the study (Elisabeth *et al.,* 2016) that states as; population growth often accelerated by migration can either result in extensive (if uncultivated lands are available) or intensive land use (if uncultivated lands are not available).

Result in the table 7 shows that, scale of conflict is increasing from time to time among society on the natural forest due to right claim to access forest benefit. On the other hand conflict was caused by boundary of the land with each other and with BMNP amid of scarcity of land.

Table 7. Major Causes of Conflicts in Bale Eco-Region

		Highland		Mid altitude		Lowland	
		N = 39		N = 56		N = 65	
Variable	Response	Freq.	Perc.	Freq.	perc.	Freq.	per.
Inheritance	Yes	22	56.41	16	28.57	26	40
	No	17	43.59	40	71.43	39	60
share cropping	Yes	11	28.21	14	25	12	18.46
	No	28	71.79	42	75	53	81.54
Boundary	Yes	31	79.49	47	83.93	55	84.62
	No	8	20.51	9	16.07	10	15.38
Right Claim	Yes	23	58.97	19	33.93	46	70.77
	No	16	41.03	37	66.07	19	29.23
Scarcity	Yes	15	38.46	35	62.5	38	58.46
	No	23	58.97	21	37.5	27	41.54
Eviction	Yes	1	2.56	2	3.57	7	10.77
	No	38	97.44	54	96.43	58	89.23

Source: Compiled from field survey, 2016

4.6.2. Mechanisms to Solve Land Dispute

According to elders' information, customary administration of land and natural resources are decreasing from time to time from imperial to current government. The strength and enforcement capacity of customary rules were very strong during imperil and Derg period. Elders were had strong role in decision making and dispute resolution; when conflict arises in boundary, water points, grazing land, etc. During the imperial period, the customary (Gadaa institutions) was used for management of expansive woodlands and communal rangelands.

The Gadaa system had well-built in natural resource governance and administration institutions that were effectively implemented through socially entrenched power and responsibility sharing structures. As a result, management and use of land resources in

(lowlands) BER was more sustainable and equitable under the customary system. The devolution of the Gadaa institutions by 'imposed' state institutions from the successive government regimes of Ethiopia has thus led to the loss of some critical roles of the customary institutions for sustainable NRM in BER. One important reason was that, land resources in much of the Bale zone (particularly in the pastoral lowlands) were historically governed by customary Gadaa system. The result is supported by study (Ambaye, 2015) that states as, land negotiation and deal made with the clan chiefs is considered as informal and not acceptable by formal institutions.

The result in table 8 shows that, shimigilina, regular judiciary and social court are the major tools to solve dispute the study area. Both formal and informal institutions were practiced to solve disputes. As indicated in the table and confirmed by FGD results, Shimigilina normally and inclusively has been used to mediate disagreements among and between community and government actors in all Agro-ecology of the study area. Practice of dispute resolution by shimigilina in lowland is relatively higher than mid altitude and lowlands because pastoralists were being use the elders' mediation.

Table 8. Mechanisms to Solve Land Dispute

		Highland		Mid altitude		Lowland	
Variable	Response	Freq.	Per.	Freq.	Per.	Freq.	Per.
Shimigilina	Yes	36	92.3	50	89.3	63	96.92
	No	3	7.69	6	10.7	2	3.08
Social court	Yes	33	84.6	35	62.5	47	72.31
	No	6	15.4	21	37.5	18	27.69
Regular judiciary	Yes	35	89.7	47	83.9	51	78.46
	No	4	10.3	9	16.1	14	21.54
Individual discussion	Yes	8	20.5	18	32.1	12	18.46
	No	31	79.5	38	67.9	53	81.54

Source: Compiled from field survey, 2016

4.6.3. The more Efficient and Effective Dispute Resolution Mechanism

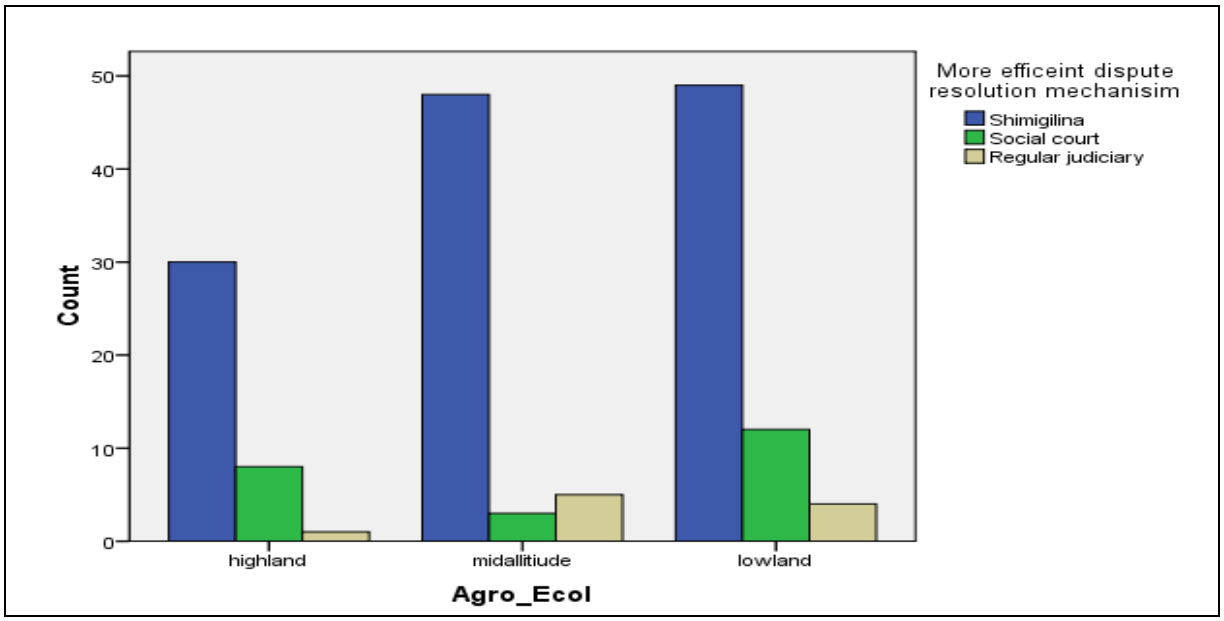
As indicated in figure 8 below, the most effective dispute resolution mechanism is shimigilina followed by social court conflict resolution in the study area. According to survey result and key informant interview result, local people prefer to make dispute resolution with elders when they conflict each other. Key informants explain the reason why community chooses elders' conflict resolution mechanism preference as it is least cost method and no high transaction cost incurred when compared legal judiciary system. Not only this but also in their culture primacy is being given to elders to see the conflict and only they go to court or other legal judiciary system when the case becomes complex and not solved by elders.

In contrast of this, females/women prefer regular judiciary system than shimigilina for their first phase dispute resolution. An elder woman in Delomena Woreda Chiree Kebele confirms that, women prefer legal judiciary system than shimigilina for two reasons. First one is, legal judiciary system empowers women then priority is given for women idea and accepted whatever they said than men's idea.

Second reason is that man/husband is becomes powerful and try to dominate women because men are given higher status than women customarily and may not be voluntary to talk with woman equally unless it comes from court or police office. Finally the case is being solved with elders after legal judiciary involvement. From this idea the interaction of formal and informal conflict resolution mechanism becomes more effective way of conflict resolution mechanism in the study area.

When asked to elaborate why women prefer the formal institution than informal institution on the issues of conflict resolution, the KIIs in Goba and Delomena woreda noted as ‘in formal institution women gets two advantages: first what everything she talk is accepted as it is and the second is men/husbands become voluntary to be bargaining equally unless he may not.

In contrary to this Shure adds her idea as “*the right of men should be protected*.” Because in formal institutional bargaining priority given for women and whatever she does, the judgment is given for women. Elder man in Goba woreda adds his idea as the current government policy is better for women and forest. He adds his analysis as, the forest law is more important for us because the females may change place though marriage but forest remain with us forever. This indicates current government provides better policy for females and forest.



Source: own construction

Figure 8. Comparison of conflict resolution mechanisms under different ecology

4.7. Joint Natural Resource Management

The forest and rangeland in BER are managed by the protectionist and participatory management system. BMNP governed only by protectionist and out of park area managed by participatory (combination of both local community and government i.e. woldia/ joint resource management). According to survey result, in joint management both formal and informal institutional actors manage forest and rangeland complementary. This joint management structure includes stakeholders such as chairman of Kebele, religious leader, customary leader, women representative and DA of the Kebele.

According to Goba and Delomena woreda agricultural and Agro- pastoralist experts, forest and rangeland managed by dividing each Kebele in to different management sub zones. Each zones also categorized in to sub categories of cooperation which is called woldia. The woldia has its own resource management bylaws and power to protecting the forest from illegal encroachment and deforestation and forest fire. According to development agents of highland and lowland Kebeles of study area, the Woldia based forest and rangeland management has brought considerable change in reducing forest fire. Deforestation and illegal encroachment are also are going in decreasing rate in Woldia management system.

In Woldia based forest management, local community get withdrawals right from forest though being member of the woldia/cooperation through paying 10 birr for identification card. Each member has access right from forest according to their bylaws and has responsibility of protecting forest from illegal utilization, forest fire, and deforestation. The members get free access to forest products for fencing and fuelwood by permission from group leader (Koree). Members also have right to use forest tree for house construction at discounted price. Korees

give permission for any member who has in need of wood for house construction by taking 100 birr per house. The return income is deposited for Woldia's/ cooperation account.

According to FGD result, there is seasonal migration from highland to lowland and vice versa. When summer season highland community and lowland migrated people move to the lowlands due to both push and pull factors. The former one is danger of lion and tiger on their livestock and difficulty of life due to high rainfall in the forest during summer. The second is that there is palatable forage in lowland for their cattle attracts Agro- pastoralist to mid altitude and lowlands.

In spring, lowland pastoralists and migrated highland Agro- pastoralists start to migrate to the highland. They are also obligated to migrate to highland due to push and pull factors. The former one is low water and absence forage for their livestock in lowland at spring and high hotness in the lowland make them to migrate into forest in the highland to get shade, forest leave and grass and water for their cattle in the forest.

Koree (group leaders) takes payment on their respective zone from immigrants fixed birr per cattle and guide where to graze and to protect over grazing. The return collected from immigrants deposited to create wealth and enhance livelihoods of respective communities. However, FGD participants explain as they love and accept this type of management, they also inform some limitation as demerit in the woldia NRM system.

According to FDG decision result, the demerit is that there is corruption in Koree, not sustainable utilizations and unsystematic resource use permission. The corruption is being done by Korees through sharing other ordinary individuals. In the Delomena and Goba woreda key informants and DA give witness as Korees sometimes make share with other individuals

to theft forest products for sell and change the forest land to farm land. According to Koree in Fasil-Angaso kebele Delomena Woreda, the Koree has not funded any payment in return of their guarding the forest. This makes the management to be not successful.

According to Harenna-buluk and Goba woreda office head and experts, in BER community use natural forest through Koree permission but not practice re plantation to replace exploited trees/forest. The utilization of forest is not supported with plantation to replace used trees. The Goba Woreda Agricultural Office Woldia agent confirms that, by considering large amount of natural forest coverage, there were no replantation practices. Harenna-Buluk Agriculture Office Head confirms no re-plantation by giving reason as, by considering forest has its own regeneration capacity, no re-plantation takes place to replace the used trees from the forest. This type of utilization decline and affect the stock of the forest in the BER.

According KIIs in Goba Woreda, groups those were given permission to stone extraction, affects forest resources stock. They cause damage on the trees of forest by digging the root of the trees to take stone. The root of trees may damage, loss soil and water, and dried and failed. The finding this study argue that, providing this type of withdrawal right is not well studied and unsystematic because it provides income for the groups of the stone production at the expense of forestry.

4.8. Interaction between Formal and Informal Institutions in Land and Biodiversity Management

Formal and informal institutions are interacting in different ways in the management of forest and rangeland. Social taboos of sacred area in Goba woreda and formal institutions that protect the forest and biodiversity are interacting complementary. That is social taboo put ban

on tree cutting and clearing the forest from sacred area at the same time formal institutions support conservation of the forest. Specific species taboos and protectionist management of the government interact complementary in the study area. They put restrictions of killing and hunting of wild animals that may contributes in biodiversity management. The result is supported by Tengö *et al.*, 2007 cited in (Edwin *et al.*, 2016) Forest conservation in Southern Madagascar is determined by taboo informal institutions, in the form of trust and sanction system, without any formal institution.

However, formal and informal institutions are compete fire setting on the bush and illegal encroachment protections. Informer case, local community practice to burn bush in order to get palatable grass for their livestock customarily on the other hand, government completely against such kind of activities. In case of illegal encroachment in the mid altitude local people are not voluntary to inform new immigrant and settlers in the forest because of that most of community are not native people in the area and try to attract other from their origin rather than informing to government actors. In contrary government protects illegal settlements in the forest.

Formal and informal institutions also interact through substituting one on another in cases of conflict and natural resource managements. According to FGD discussion in lowland, elders protect the forest from deforestation during transition period of FDRE. At the same time women protect conflict though counseling their families as elder women in Chiree kebele. In these manner both formal and informal institutions are interact substitutively in the study area. The result is similar by study result (Osei-Tutu et al., 2015) the interaction of formal and

informal institutions in the context of forest management in Ghana shared the same goal, they will be mutually reinforcing, although one of them is not working.

5. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

This study was carried out in Bale Eco-region to examine the dynamics and role of policies, institutions, and government development interventions on sustainable land and biodiversity management and land uses. The findings show that the management of land and biodiversity resources in the study area is carried out by both formal and informal institutions. Formal institution like, constitutional principles, polices, proclamations and strategies are utilized to shape the interaction of local community with their respective resource in different agro-ecology including the restrictions put on the amount and type of uses and ownership rights.

Institutions and policies are implemented to the extent of introducing specific forest and rangeland management bylaws that guide respective community. However, land certificate is not provided for households in the study area. Above all, social taboos with respect to sacred area and ritual are important informal institutions identified in both the high and mid altitudes. Specific animal and plant species taboos are found in the lowland of the study area. The study has revealed that the sacred area and big trees within the forest area were traditionally protected by these informal institutions to use by local community for religious, cultural reasons and representative purposes and they are not cut ban to cut trees. These informal institutions and their customary authorities played important roles in monitoring and enforcing rules by imposing punishments to illegal users until the change in property right arrangements of the forest took place in the Imperial period.

Besides, the result shows that forest use and management in the study area have experienced dynamics in the past decades. During the Imperial period, the forest was under state, private, and protected forest ownership. When the emergence of the military government, all the forest including forest under individual holding were transferred to state ownership and any means of use restricted and if anyone needs, it was got through local leaders' and officials approval.

In the incumbent government, forest resources are under state ownership. However, the PFM ensure utilization of forest products (outside of park) and protect from illegal users through joint management with Woldia. This type forest management is managing the forest with community and sharing benefit by community as participatory forest management. Koree protection mechanism increased limited access for forest dependent community for their livelihoods but the stock of forest is declining due to absence of re plantation and lack of protection roles on illegal encroachments in the natural forest**.**

The success of PFM depends on the existence and establishment of well-functioning community based institutions. However, the activities of PFM are not taking part on protection of illegal encroachments rather they try to hide them in the mid altitude of the study area. It needs awareness creation on all actors and responsibilities of PFM. Training people, strengthening of protectors' capacity on illegal users, evacuating illegal settlers and plantation on the deforested parts of forest area are my priority suggestions for forest protection.

Formal and informal institutions are interacting complementary in biodiversity management in the study area. However the informal institutional roles are not well recognized in the formal institutional arrangements of the study area and in some cases both formal and informal

institutions are compete each other that causes great damage on the biodiversity in the study area.

5.2. Recommendations

Based on the findings from this study, the following recommendations are drawn:

- Land certificate is believed to improve land holding security for land users and it also have protection role of illegal encroachment and deforestation because it contain who owns what, when and how much. Due to its diverse function, we recommend that it is better to provide land certificate for all woreda in BER to increase security of land use right and conservation of natural resources.
- Illegal settlers and cultivars are currently affecting the forests and still practicing new comers in Harena forest. This is affecting forest and biodiversity in the study area. Re-structuring laws regarding planted coffee in the forest may help to protect illegal encroachments. Local communities have power in control of illegal encroachment if they were empowered. So it is better to protect by using informal institutional tools to inform and protect against illegal settlement.
- Lower income level communities have granted forest utilization right through permission but not imposed responsibility of planting to replace. So making plantation through users and providing alternative income sources may help to sustain the forest resources. Therefore, re-establishment of clearer and enforceable monitoring mechanisms in collaborative approaches among stakeholders is essential to minimize conflict, monitor forest utilization and enable sustainable use of the resources.
- Customary grass growth promotion by pastoralists via fire setting on bush and forest affect biodiversity in the study area. Therefore, it is important to support the practices with extension services to get variety species introduction to produce more with less livestock and pasture provision to reduce pressure from forest.

- Protection of societally sacred area increase biodiversity conservation and has capacity of sustaining for long time. These sacred areas are customary respected with respective community and elders. Empowerment of elders and religious leaders on the management of such area may bring more conservation of biodiversity.
- Local community have right to be benefited and consulted on the use and management of resources that creates ownership and responsibility. Therefore, it is important to participating local community to increase sustainability of the land and biodiversity management.
- Different type of institutional arrangement may be needed to manage different resources. Bale Eco-Region has different natural resources endowment. Therefore, it is important to recognize the nature of resource endowments of the area when the provision of the law of land and biodiversity management.
- The institutions are rules of the game; these rules must be accepted by the players in the game. Therefore land and biodiversity management institutions needs further study whether or not accepted by the community in the study area because without acceptance of institution by player the game cannot be successful.

References

Abebe D. (2010). *Property Rights and Choice of Fuel Wood Sources in Rural Ethiopia.* Contributed paper prepared for presentation at the 3rd conference of African Association of Agricultural Economists (AAAE) and the 48th Agricultural Economics Association of South Africa (September 19-23: 2010).

Addisu H. (2014). *Agro-Ecological Conditions Effect on the Expression of the spatial Chickens Distribution.* Scholarly Journal of Agricultural Science Vol. 4(9), pp. 476-480, September 2014 Available online at http:// www.scholarly-journals.com/SJAS ISSN 2276-7118 © 2014 Scholarly-Journals.

Aerts R., Van Overtveld K., November E., Wassie A., Abiyu A., Demissew S., Daye D.D., Giday K., Haile M., TewoldeBerhan S., Teketay D., Teklehaimanot Z., Binggeli P., Deckers J., Friis I., Gratzer G., Hermy M., Heyn M., Honnay O., Paris M., Sterck F.J., Muys B., Bongers F. and Healey J.R. (2016). *Conservation of the Ethiopian church forests*: threats, opportunities and implications for their management. Science of the Total Environment DOI: 10.1016/j.scitotenv.2016.02.034

Aggarwal, S. and Elbow, K. (2006). The Role of Property Rights in Natural Resource Management, Good Governance and Empowerment of the Rural Poor. USAID Contract No. PCE-I-00-99- 00001-00, Task No. 13.

Alamirew, B (2011). *The impact of poverty, tenure security and risk on sustainable land management strategies in north central Ethiopia*: analysis across three Agro-ecological zones, J. Sustain. Dev. Africa, 13, 227–240

Alers M, Bovarnick A, Boyle T, Mackinnon K and Sobrevila C, (2007). Reducing threats to protected areas: Lessons from the field. A Joint UNDP and World Bank GEF Lessons Learned study. p. 84

Amare D, Mekuria W, T/wold T, Belay B, Teshome A, Yitaferu B, Tessema T and Tegegn B (2016) *Perception of local community and the willingness to pay to restore church forests*: the case of Dera district, northwestern Ethiopia. For Trees Livelihoods DOI: 10.1080/14728028.2015.1133330

Antenah. G, Melaku. B, Teshale. W/A, (2014). *Natural resource use conflict* in Bale Mountains national park south east Ethiopia.

Beeland TD. 2011. Saving Ethiopia's "church forests". The Public Library of Science Blogs Accessed June 2013. *http://blogs.plos.org/ blog/2011/02/25/church-forest/*.

Berhan G, Woldeamlak B, and Achim B (2016). *Determinants of farmers' tree planting investment decisions as a degraded landscape management strategy in the* central highlands of Ethiopia.

BERSMP (2008). *Livestock and Livestock Systems in the Bale Mountains Eco Region.* Fiona Flintan, Worku Chibsa, Dida Wako and Andrew Ridgewell. Programme Document.

Betru, N. (2003). Soil and Water Conservation Program in the Amhara National Regional State.

Bhalla (1996). "*Property Rights, Public Interest and Environment*" in Calestous Juma and J.B. Ojwang (eds.), In Land We Trust, Initiative Publishers, Nairobi, p.61.

Bromley, D.W. (1994). *Economic Dimensions of Community Based Conservation*: In Western, D., Wright, R. M. and Strum, S. C. (eds) 1994.Perspectives in Community Based Conservation. Island Press. Washington D.C.

Bruns B., Ringler, C., and Meinzen-Dick, R. (2005). Frameworks for Water Rights: an Overview of Institutional Options: IFPRI:2005. Washington DC.USA.

Central Statistics Agency [CSA]. (2013). *Population Projection of Ethiopia for All Regions* at Woreda Level from 2014-17. Central Statistical Agency. Addis Ababa, Ethiopia.

Charinet W. (2013). *Forest conservation for communities and carbon*: the economics of community forest management in the Bale Mountains Eco-Region, Ethiopia

CIRUM (Culture Identity and Resources Use Management (2012)). *Customary Law in Forest Resources Use and Management*. A Case Study among the Dzao and Thi People in North-West Vietnam.

Colding. J, and Folke. C. (2001). Social taboos: 'Invisible' systems of local resource management and biological conservation. Ecol. Appl.

Daniel R. and Simon L. (2015). *Mountain research for sustainable livelihoods in a changing world*. Afromont Mountain Research conference Addis Ababa, Ethiopia: 22- 24 June 2015.

Daniel W. (2012). *Land Rights in Ethiopia: ownership, equity, and liberty in land use rights*. Ethiopia.

Dassalegn R. (1994) *Land Tenure and Land policy in Ethiopia after the Derg*, Proceedings of the Second Workshop of the Land Project, Working paper on Ethiopian Development No. 8. The Centre for Environment and Development, University of Trondheim, Norway and Institute of Development Research, Addis Ababa University, Ethiopia.

Dereje H. (2012) *Historical Significances of Odaa with Special Reference to Walaabuu*. Department of History and Heritage Management, Faculty of Social Science, Post Box No: 395, Wollega University, Nekemte, Ethiopia

Dereje T. & Tadesse W. (2007). *Customary forest tenure in southwest Ethiopia.* Forests, Trees and Livelihoods 17: 325–338.

Dereje T. (2015) *Migration and Conservation in the Bale Mountains Ecosystem*. Frankfurt Zoological Society Floris D'Udine, Conservation Development Centre Alec Crawford, International Institute for Sustainable Development.

Desalegn *et al.,* (2005). *Indigenous systems of conflict resolution in* Oromia, Ethiopia. International workshop on 'African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa', 26-28 January 2005, Johannesburg, South Africa.

Dickinson J, Shirk J, Bonter D, Bonney R, Crain RL, Martin J, Phillips T, and Purcell K (2012). *The current state of citizen science as a tool for ecological research and public engagement.* Front Ecol Environm 10:291-297.

Donovan, R. (1994). *Forest Conservation and Management Through Local Institutions*: Case of Costa Rica: In Western, D., Wright, R.M. and Strum, S.C (eds) 1994.Perspectives In Community Based Conservation. Island Press. Washington D.C. 1994. pp. 215-233.

Dumanski, J. Gameda, S. and Dieri, C. (1998) *indicators of land quality and sustainable land management:* An Annotated Bibliography Environmentally and socially sustainable Development: rural Development.

Edwards, Sue (ed.). (2010). *Ethiopian Environment Review No. 1.* Forum for Environment, Addis Ababa.

Edwin M, Didik S, Dudung D, Satyawan S, & Bondan W. (2016). *Traditional Institution for Forest Conservation within a Changing Community:* Insights from the Case of Upland South Sumatra. International Journal of Indonesian Society And Culture http://journal.unnes.ac.id/nju/index.php/komunitas.

Elisabeth H., Jann L. and Kacana S. (2016) *Drivers of Households' Land-Use Decisions:* A Critical Review of Micro-Level Studies in Tropical Regions.

FAO. (2005). a thematic Study in the framework of the *Global Forest Resources Assessment*: In Hamilton (ed): Forest and Water.

Farm Africa, (2008). *Bale Mountains Eco-Region Sustainable Development Plan Report* on Phase I and II Planning Workshops in Goba, Bale 15-17 September 2008 (Phase I) and 25-26 November 2008 (Phase II). p. 29

FDRE (2006). Federal Negarit gazeta of federal democratic of Ethiopia. Proclamation No. 482/2006. *Access to genetic resource and community knowledge and community right proclamation*. P. 3353. 13th year No.13 Addis Ababa 27th February, 2006.

FDRE Proclamation to Provide for the Public Ownership of Rural Lands, the Preamble, Proc No.31/1975.

FDRE, (1997). Federal Rural Land Administration Proclamation No. 89/1997", Art.2 (6), Fed.Neg.Gaz, 3 rd Year No. 54.

FDRE, 2004, the federal democratic republic of Ethiopia environmental protection authority the 3rd national report on the implementation of the unccd/nap in Ethiopia Addis Ababa.

Green, S. (1991). *How many subjects does it take to do regression analysis*? Mutiviarite behavioral researches 26, 499-510.

Helmke. G and Levitsky. S, (2003). Informal Institutions and Comparative Politics: a Research Agenda. Working Paper #307.

Hurni, H. (1996). Precious Earth. *From Soil and Water Conservation to Sustainable Land Management.*

IFPRI. (2005). Water Rights Reform: Lessons for Institutional Design: *International Food Policy Research.* USA: Washington D.C.

Ilya. S, and Michael D. (2010). Property Rights∗ Whinston †.

Johan. C, Carl. F & Thomas e. (2003). Social institutions in ecosystem management and biodiversity conservation. *Tropical Ecology* 44(1): 25-41, 2003 ISSN 0564-3295 © International Society for Tropical Ecology.

Jones J, Andriamarovololona M and Hockley N. (2008). *The importance of taboos and social norms to conservation* in Madagascar. *Conservation Biology*, 22: 976-986

Kangalawe, R., Tungaraza, F., Naimani, G., and Mlele, M. (2014) *Understanding of Traditional Knowledge and Indigenous Institutions on Sustainable Land Management* in Kilimanjaro Region, Tanzania. Open Journal of Soil Science, 4, 469-493. http://dx.doi.org/10.4236/ojss.2014.413046

Kassilly F. and Tsingalia H. (2009). *Persistence and loss of cultural values of Tiriki Sacred Groves* in Hamisi Woreda, Kenya: Implications for management (RH: Cultural Values of Tiriki Sacred Groves). *J Hum Ecol,* 27: 137-141.

Kideghesho J. (2008). Co-existence between the traditional societies and wildlife in Western Serengeti, Tanzania: Its relevance in contemporary wildlife conservation efforts. Biodiversity Conservation, 17: 1861-1881.

Kobina E. and Kofi A. (2009). Change and Continuity: *Using Indigenous Knowledge to Achieve Environmental Sustainability in Ghana.* Paper presented at the 7th International Science Conference on the Human Dimensions of Global Environmental Change held in Germany.

Larson, A., M., Deborah, B., Ganga, R. D. and Colfer, C. J.P. (2010). Forest For People: Community Forest Tenure Reforma.London , Washington DC.Earthscan. Lingard M, Raharison N, Rabakonandrianina E, Rakotoarisoa J, Elmqvist T (2003). *The role of local taboos in conservation and management of species*: The radiated tortoise in Southern Madagascar: *Conservation and Society,* 1: 223-246.

Madge, J. (1998). The Importance of People in the Management of Tropical Catchments: In Riley. A. and Susan, E.P.(eds). Catchments Sustainability and River Diversity in Asia: A Case Study from Nepal.

Melaku (2003). *Forest Property Rights, the Role of the Sates and Institutional Exigency:* The Ethiopian Experience. Doctoral Thesis, Swedish University of Agricultural Sciences, Uppsala, September 2003.

Melaku B., Yemiru T., Zerihun M, Solomon Z., Yibeltal T.,Maria B., and Habtemariam K. (2015). *The context of REDD+ in Ethiopia: Drivers, agents and institutions.* Occasional Paper 127. Bogor, Indonesia: Centre for International Forestry Research.

Melkamu B. and Shewakena A. (2010). *Facing the challenges in building Sustainable Land Administration Capacity in Ethiopia*, (FIG Congress, Facing the Challenges – Building the Capacity Sydney, p.3

Molla M. (2016). *Sustainable Land Management*. Journal of Environmental Protection, 2016, 7, 502-506 Published Online March 2016 in SciRes. http://www.scirp.org/journal/jep http://dx.doi.org/10.4236/jep.2016.74045

Mowo, J., Adimassu, Z., Masuki, K., Lyamchai, C., Tanui, J. and Catacutan, D. (2011). *The Importance of Local Traditional Institutions in the Management of Natural Resources in the Highlands of Eastern Africa.* Working Paper No 134. Nairobi: World Agro- forestry Centre. http://dx.doi.org/10.5716/WP11085.PDF

Murphree M. (1994). *The role of institutions in community-based conservation.* In Western D, Wright RM, Strum SC (eds) Natural Connections: Perspectives in Community-based Conservation, Island Press, Washington D.C. and Covelo, California, pp. 403-427.

Namaalwa J. (2008). *When do property rights matter for sustainable forest management? A case of the UFRIC sites in Uganda*. IFRI Working Paper No. W08I. International Forestry Resources and Institutions Program.

Nganje M. (2009). *Harnessing Traditional Ecological Knowledge for the Conservation of Forests and biodiversity*. XIII World Forestry Congress, Buenos Aires, Argentina, 18 23 0ctober 2009.

North D. (1990). *Institutions, Institutional Change and Economic Performance*, Cambridge University Press, Cambridge, UK.

Nune S., Soromessa T. & Teketay D. (2016). *Institutional Arrangements and Management of Environmental Resources in Ethiopia*. Addis Ababa, Ethiopia.

Oladunni S, Tertsea E, Abiodun A, Emeka, E and Akinwumi, A (2012). The Role of Traditional Laws and Taboos in Wildlife Conservation in the Oban Hill Sector of Cross River National Park (CRNP), Nigeria. J Hum Ecol, 39(3): 209-219

Osei-Tutu, P., Pregernig, M. & Pokorny, B. (2015). *Interactions between formal and informal institutions in community, private and state forest* contexts in Ghana. Forest Policy and Economics, 54, pp.26–35.

Pelesikoti N. *et al.,* (2003). *Environmental Management Plan for Fanga'uta Lagoon System.* Department of Environment. Government of Tonga. Nuku'alofa. Tonga.

Posner R, and Rasmusen E. (1999). Creating and enforcing norms, with special reference to sanctions. Inter. Rev. Law Econ., 19:369-382.

Primmer E.; Schleyer, C.; Bela, G.; Bouwma, I.; Görg, C.; Keune, H.; Mortelmans, D. and H. Saarikoski (2014): *Institutional Analysis*. In: Potschin, M. and K. Jax (eds): OpenNESS Reference Book. EC FP7 Grant Agreement no. 308428. Available via: www.openness-project.eu/library/referencebook.

Rees, W.E. (1990). *The ecology of sustainable development.* The Ecologist. Vol.20(1).18-23.

Schachenmann P. (2006). *Spiritual values in Madagascar*: The starting point for endogenous conservation initiatives. Mountain Research and Development,26: 323-327.

Shimelles et al, (2009). *Effects of land tenure and property rights on agricultural productivity* in Ethiopia, Namibia and Bangladesh, University of Helsinki Department of Economics and Management Discussion Papers No.33, Helsinki.

Singh C. (2010). International Journal of Biodiversity and Conservation Vol. 2(8). Available online http://www.academicjournals.org/ijbc.

Singh K. (1994). *Managing common pool resources*. Principles and case studies. Oxford University Press, Delhi.

Stig Enemark (2005). *The land management paradigm for institutional development*. Expert group meeting on incorporating sustainable development objectives into ICT enabled land administration systems. Centre for spatial data infrastructures and land administration, university of Melbourne, Australia. Vice-president of FIG Department of Development and Planning Aalborg University, Denmark

Tadesse W. and Masresha F. (2007). *Ecological, Social,Legal and Economic Dimensions of Recent Land use/Land cover Changes*: Forests of Sheka :Overview and Synthesis: In Masresha Fetene (ed). : Melka Mahiber, Addis Ababa, Ethiopia .

Tefera M. (2006). *Frontier Community Valuation For Forest Patches*: The Case of WondoWosha Subcatchment, Southernnations, Nationalities and Peoples' Region, Ethiopia.. Hawassa University, Wondo Genet College of Forestry and Natural Resources. *Ethiopian Journal of Natural Resources.2006. 8 (2): 281-293.*

Temesgen G. (2015). *Threats of Bale Mountains National Park and solutions, Ethiopia*: Center for Environmental Science, College of Natural Sciences, Addis Ababa University, Ethiopia.

Tomoya M. and Francis M. (2013). *Rural-rural Migration and Land Conflicts*: Implications on Agricultural Productivity in Uganda.

Wakijira, D, Fischer, a. & Pinard, m. *in press*. *Governance change and institutional adaptation*: a case study from Harenna forest, Ethiopia. *Environmental Management*.

Watson E. (2001). *Inter institutional alliances and conflicts in natural resources management:* Preliminary research findings from Borana, Oromia region, Ethiopia. Marena research project, working paper No. 4.

Watson E. (2003). *Examining the potential of indigenous institutions for development*: a perspective from Borana, Ethiopia. *Development and Change* 34: 287–309

World Bank. (2008). *Watershed Management Approaches, Policies, And Operations*: In Salah, D., Christopher, W., Gretel G., Erika, S. and Julienne, R. (eds). Lessons For Scaling Up: Paper No.11: May 2008, The World Bank, Washington, Dc.

Yeraswork A. (2000). Twenty Years to Nowhere: *Property Rights, Land Management, and Conservation in Ethiopia.* The Red Sea Publishers, Inc: Lawrenceville, NJ. USA. and Asmera, Eritrea.

Yigremew A. (2002), *Review of Landholding Systems and Policies in Ethiopia under the Different Regimes*, Addis Ababa, Ethiopian Economic Association/Ethiopian Economic Policy Research Institute p.56.

Yimer T., Ledin S., & Abdelkadi A. (2006). Soil organic carbon and total nitrogen stocks as affected by topographic aspect and vegetation in the Bale Mountains, Ethiopia. Geoderma, 135, 335-344.

Zewdie J. (2007). *The Impact of Cultural Changes on the People of Sheka and their Traditional Resources Management Practices:* The Case of Four Kebelles in Masha Woreda:In Masresha Fetene(ed).The Forests of Sheka: Multidisciplinary Case Studies on Impacts of Land Use Land cover changes. *South West Ethiopia. Melka Mahiber, Addis Ababa, Ethiopia.*

Appendix

Appendix I: Household Survey Questionnaire for the Institutional Study

Part I. Demographic and socio-economic characteristics

Date: _____Time of the day: _____, Got PFM Name _____
Interviewee name: _____ Gender of respondent _____
Zone_____ Woreda _____ Kebele-_____Village/Go't _____
Location: Agro-ecological zone: Dega ☐ Woyina'dega ☐ Kolla ☐
Educational level? Illiterate ☐ litrate (Read and write) ☐ 3 grade ☐
High school complete ☐ College/TVT ☐ graduate ☐

1. Household characteristics:

Characteristics		
1. Age of Household head		
2. Sex of household head		
3. Marital status (1=married, 0=unmarried)		
4. No. of wife (if polygamous)		
5. No. of household members	Males_____	Females_____

Part Two: Resource assets, amount and holding arrangement

2) ***Land***

a) Please indicate the amount of land (local measurement) that you own and have rented in/out

Category	**Total under farm**	**Owned**	**Rented in**	**Rented Out**
1. Crop land				
2. Grazing land				
3. Forest land				
4. Homestead				
5. Coffee trees/land				
7. Others, specify				

b) Land source and size

Source	**size**	**Rematrk**
Inherited from family		
Allocated by government		
Bought		
rented/leased		
Others (specify		

c) Livestock

What is the number of animals your household possesses?

Type of animal	Number
1. Cattle	
2. Goats	
3. Sheep	
4. Donkeys	
5. Mules	
6. Chicken	
7. Horses	
8. Bee hives	
9. Others, specify:	

Part Three: Land holding arrangement

3) Do you have certificate (official document) for the land you hold?

1 Yes ___ 2) No ___

4) If yes, who issued the certificate (official document)?

a. Kebele
b. Woreda administration,
c. Village land committee;
d. Don't remember

5) If you don't have a certificate, why not?

a) It is under process;
b) It is because of dispute over the land.
c) No land certificate was issued in the area
d) Don't know
e) Other _____

6) Fill in the following table with your land rights and obligations

	Use Rights	Management Obligations
1.		
2.		
3.		
4.		
5.		
6.		

7) Do you have any official document for the land you rented from another person?

Yes _____ NO. _____

8) If yes, who issued the certificate for the land you rented from another person?

1. Kebele 2. Woreda administration 3. Village land committee 4) Others _____

9) Does the certificate hold your wife's name as well? Yes _____ NO. _____

10) If not, why not? _____

_____

11) What is/are the rights of your wife(vs) over the land the family holds?

_____

12) Do you think official approval by the Kebele or the woreda is important for the land you rented in or rented out? Yes _____ No._____

13) If yes, why do you think so? _____

_____

14) Do you know your land use/holding rights and obligations (that came along with your land certificate)? Yes/No

15) Do you think the current land holding rules/administration protect your rights fully? Yes _____ 2) No _____

16) How confident are you that your land use rights would be respected?

(a) very confident
(b) confident
(c) not confident
(d) not sure

17) If you feel confident that your land use rights would be respected, give reason?

(a) Because I have a certificate
(b) I can bring my case to court and get justice
(c) There is compensation rules working well
(d) Local norms would help to protect my rights
(e) others (specify) _____

18) Reasons why you feel your land use rights might not be respected?

(a) corruption among land committee
(b) changes in policies and laws

(c) the land certificate might be cancelled

(d) others (specify) _____

19) Have you lost your holding for any reason? Yes____ No _____

20) For how long can you lease your land at any one time?

a) Three years, b) Five years, c) over ten years , d) no time limit

21) Do you support the time limit given in the law for renting your land?

a) Yes _____ b) No _____

22) How? Is it because it is difficult to leave your land for long?

a) Yes _____ b) No _____

23) Do you think changes (e.g. changes in the rules, committee, etc) are required in order to improve access to land? Yes/No

24) If yes, which of the following should apply?

a) Right to sell land
b) Rights to rent/lease for indefinite time
c) To inherit to off-springs engaged in other works
d) Other (specify)

25) If yes, what was the reason?

(a) land exposed to damage due to lack of proper care

(b) Leaving the land uncultivated beyond the time limit given

(c) Public use (Such as road construction, City expansion, etc.)

(d) Given to an investor

(e) others (specify) _____

26) What changes do you want to see in the land administration rules?

a) Land renting time should be limitless

b) Land should be allowed to be sold and purchased

c) All land based conflicts should be dealt with at Kebele level

d) Election of land administration committee should be more transparent

e) All land disputes should be investigated in Woreda level

f) Land should be registered only in the name of the husband

g) Other _____

27) It is assumed that there are conflicts over land. The most common conflicts are among

(a) Family members

(b) Bordering farmers

(c) Land committee and farmers

(d) Woreda administrators and farmers

(e) Wives in polygamous marriage

(f) Children in polygamous marriage

(e) Others (specify) _____

28) What do you think are the major causes of conflicts over land?

(a) Corruption and nepotism by land committee

(b) Inheritance

(c) Dispute over land share b/n father and son

(d) Rental and share cropping

(e) Boundary

(f) Rights claim

(g) Scarcity of land resources and competition

(h) Unlawful eviction

(i) I don't know

29) What is/are the main mechanism/s used to solve land disputes in the area?

(a) Shimgilina

(b) Social court

(c) Regular judicial system

(d) Individual discussions

(e) others (specify) _____

30) Have you ever been in land related dispute?

Yes/No

31) If your answer is yes, how was it solved?

A) Shimgilina C) Regular judicial system

B) Social court E) others (specify)

C) Individual discussions

32) Which dispute resolution mechanism(s) do you think is/are more effective and efficient?

A) Shimgilina C) Regular judicial system

B) Social court E) others (specify)

C) Individual discussions

33) If you are not satisfied with the current dispute resolution mechanism, what changes do you think should be introduced into the system?

a) changes in rules /regulations of the process

b) changes of land committee

c) others (specify)

34) How do you rate the level of land dispute in your area in the past five years?

A. Increasing from time to time

B. Decreasing from time to time

C. No change

D. Don't know

35) Did you receive any compensation for the land you lost? 1) Yes___, 2) No ____

36) If you did, in what form did you receive the compensation?

1) In kind (equivalent size of land in other area) _____

2) In cash (monetary terms) _____

3) Other forms, specify_____

37) Was the compensation you were given satisfactory?

1) Yes, satisfactory 3) Not satisfactory 3) Don't know, 4) other ____

38) Where do you normally graze your animals?

39) Are there communal lands in the area? 1) Yes_____ , 2) No _____

40) If yes, how is it managed and used?

41) Were you or people from your locality formally consulted on the allocation of the land to investors before it was given? 1. Yes, 2. No 3. I don't know

42) What changes do you observe to the environment of your locality (soil, forest, wildlife) as a result of the change of policy or government?

No	Changes you observed	Rank (1= biggest , 2=bigger, 3= medium, 4= loss to 5= minimum change)			
		Imperial (1930-1973)	Derg(1974-1990)	FDRE(1991-2005)	FDRE(2006-16)
1	Decline in forest/vegetation				

	cover of the area				
2	Decline in availability of forest products such as firewood for local people				
3	Decline in availability of communal grazing lands				
4	Decline in availability of water for animals and people				
5	Loss of biodiversity (native plants, spices, wild animals)				
6	Decline in soil fertility				
7	Increase in fire incidence				
8	Increased drought or flooding				
9	Increased animal and/or crop diseases				
10	Other please specify				

43) What do you think are the reasons for such changes or environmental (quality) decline?

_____

44) Are there commonly used grazing, forest, etc lands/natural resource in the area?

Yes _____ b) _____

45) If yes, who manages the common resources, such as grazing, forest or other lands?

a) Kebele administration
b) Elected committee
c) Elders
d) No one in particular
e) Others
f) I don't know

46) Are there rules that govern common resources?

Yes _____ b) _____

47) If yes, describe some of the rules you remember?

_____
_____
_____
_____

48) What are the major challenges/problems facing common resources such us grazing lands, forests or woodlots, waster points, etc.

a) Lack of rules and organizations governing such resources
b) Unregulated use (open access) (no rules)
c) No respect for the rules

d) I don't know

Part four: Questions for (married) women

49) Do you have landholding right? Yes _____ No. _____

50) If yes, indicate any one of the following:

(a) I have land holding certificate jointly with my husband

(b) I have holding rights separate from my husband

(c) I have lost my holding rights upon divorce

(d) I have got the land through inheritance

(e) I have got land through gift

51) Do you think you have equal control with your husband over your family's land?

Yes _____ No. _____

52) Can you sell and use the money gained from selling produces?

Yes _____ No. _____

53) If No, why not? _____

_____

54) Have you observed that divorced husbands lose the rights over land than divorced women in your locality? Yes _____ No. _____

55) Are there women in your area members of the land administration committees?

Yes _____ No. _____

56) Do you actively participate in community elders land dispute resolution sessions?

Yes _____ No _____

57) Do you think women in your locality have equal use rights with their husbands?

Yes _____ No _____

58) Do you know any women who is a member of land administration committee?

Yes _____ No _____

59) Do you control the income gained from selling crop production of your family?

Yes _____ No _____

60) Whenever you face land dispute whom do you like to resolve your problem?

A. Government Court

B. Shimagilies

C. Women's affairs bureau

D. Kebele social court

E. Don't know

No	Changes you observed	Rank (1= biggest , 2=bigger, 3= medium, 4= loss to 5= minimum change)			
		Imperial (1930-1973)	Derg(1974-1990)	FDRE(1991-2005)	FDRE(2006-16)
1	Participation of local community on forest management				
2	Role of customary (Gadda) institutions on NRM				
3	Enforcement capacity of state forest protection rule/law				
4	Conservation status of natural forest				
5	Management of communal range land				
6	State of wild life and biodiversity				

61. What changes do you observe to the environment of your locality in natural resource management?

62. How you get income for your livelihood in your of resource management system?

No	**Land and NRs management and local use**	**State/ BMNP/**	**Regional government (Oromia)**	**PFM/ RED+**	**PRM /Koree**
1	income from cropping				
2	income from livestock				
3	income from alternative green income sources and NTFP businesses				
4	Total income from land & NRs use				
6	different income sources				
6	Rate environmental condition (rank 1-5)				
7	local HHs right to access and use land (rank 1-5)				
8					

Biographical sketch

The author was born in Gombora woreda South Ethiopia in 1989 G.C. He attended his elementary education at Bole-Wabeto and Bobicho primary and secondary school and high school and preparatory at Wachamo secondary and complementary school. Then he joined Hawassa University Wondo Genet College of Forestry and Natural Resources in 2009 and graduated with B.Sc. in ***Natural Resource Economics and Policy*** in 2011. He had worked in Gombora woreda of Agriculture and Rural Development for nine months as expert of Rural job opportunity creation and about one year in Samara University as assistant lecturer. Soon after, he joined Hawassa University Wondo Genet College of Forestry and Natural Resources in 2014 to pursue his M.Sc. degree in ***Natural Resource Economics and Policy.***