

ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
COLLEGE OF DEVELOPMENT STUDIES

**THE ROLE OF LOCAL INSTITUTION IN FOREST RESOURCE MANAGEMENT:
THE CASE OF DEBRE LIBANOS MONASTERY FOREST**

26997



By Menbere Sahilu

June, 2011

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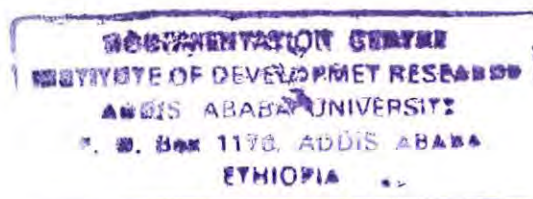
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INSTITUTE OF DEVELOPMENT STUDIES
(IDS)**

Title

***The Role of Local Institution in Forest Resource
Management/ The Case of Debre Libanos
Monastery Forest/***

By

Menbere Sahilu

DEVELOPMENT STUDIES

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Abstract

Since the forest resource of Ethiopia is under great treat. Government and non governmental organizations are trying to improve the condition. But on the ground their effort is not successful. This study concerned about the role of institution in forest management. Because currently institutions are serving as a solution for natural resource management problem in general and forest in particular .For that matter the Ethiopian Orthodox Church is playing greatest role in managing the ruminant forest resource of Ethiopia. However, this doesn't mean that the rules and regulations concerning forest management in the EOTC totally respected by the sounding communities. Rather, there is a challenge in managing the monastery forest also. In order to investigate the role of Debre Libanos Monastery in forest management different tools of data collection like: structured questioner, focus group discussion and key informant interview were held. Then the data was analyzed using SPSS program. The result indicated that Debre Libanos Monastery played the greatest role in managing its forest resources. However, the result of the study reveled that there are good and bad practices that enhance and hinder forest management by the monastery. Besides the monastery formulate rules concerning forest management and try to enforce it. Nevertheless, as the forest is a common pool resource characteristic of CPR excludability and subtractability are problems in managing the monastery forest also. On the other hand one of the attributes of the community such as user group size and hetroginty doesn't affect forest management by Debre Libanos Monastery. On the other hand dependability of the local community on forest resource is very low. It was also found that 'Gizit' is a very important religious value that plays the main role in management of the monastery forest. There fore, these church forests didn't come to exist just by mere chance. Results indicated that it is by the commitment of the church based on strong theological thoughts and a biblical basis. It was found that, most of the time, the local community respects church forests, and considers the church as a central institution. In general, from the results, it was concluded that forests conserved by EOTC and its tradition provide an opportunity to establish conservation sites for forest resources and distribution of seedlings of indigenous tree.

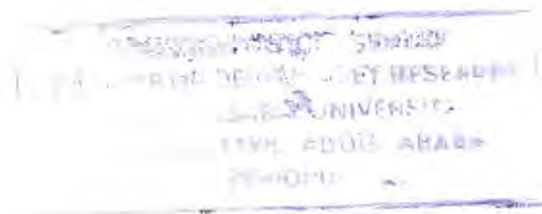


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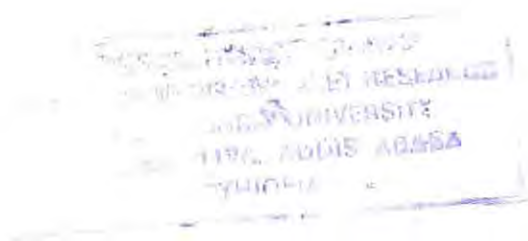
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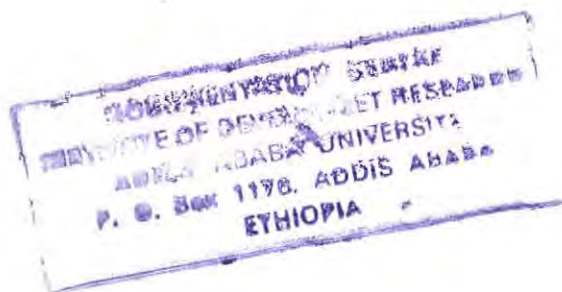


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Acronyms

CPRs =Common Pool Resources

DLWAO = Debre Libanos Woreda Agricultural Office

DLWTO =Debre Libanos Woreda Tourism Office

DLWPO= Debre Libanos Woreda Police Office

EFAP =Ethiopian Forest Action Program

EOTC=Ethiopian Orthodox Tewahido Church

FGD = Focus Group Discussion

ITTO= International Tropical Timber Organization

NSAO = North Shewa Agricultural Office

PFM = Participatory Forest Management

SFM = Sustainable Forest Management

UN = United Nation

WBISPP=Woody Biodiversity Inventory and Strategic Planning Project

Chapter One

Introduction

1.1 Background of the Study

Today's world is facing an unprecedented environmental crisis of which deforestation is a typical example. The world is losing its forests at an alarming rate. All over the globe, many people now suffer from the destructive process that deprive them of the benefits from the natural resources on which they have always sustained their livelihood (Arnold, 1992). Even though, deforestation is world wide problem, the rate of deforestation is very great for developing countries .Africa also experience the highest deforestation rate in the world. Apart from Northern Africa, East African countries show the second highest decline rates of conservation forests in the continent.

Wide spread deforestation and subsequent degradation is severely threatening the natural forest resources in Ethiopia. According to EFAP the coverage of natural forest in Ethiopia has been decreasing at alarming rate, from 40 percent of the land area (50 million hectare) just before the turn of this century to 3.6 percent by the early 1980s. By 1988 it had declined to 2.7 percent (3.2 million ha) (EFAP, 1994). The most up to date information however has been published by WBISPP in 2004. According to this source, about 4.07million hectares, which constitutes about 3.56 percent of the total land area of the country is under the cover of high forest area. It has been estimated that with the present rate of deforestation, 150,000 - 200,000 ha of high forest per year (EFAP) 1994, the remaining high forests will disappeared within few decades. This had and continuous to have series consequences on various ecosystem in the country.

The major problem that Ethiopia is facing includes conservation and sustainable utilization of the remaining natural forests, expansion of plantation forests and restoration of degraded lands (Tamrat, 1994). Given disappointing result of forest conservation policies in developing countries many scholars and practitioners have shifted their focus away from state centered policies towards solution at local level (Gipson et al., 1999).

The various ecosystem and species associated with local commons are often managed by way of local level institutions that regulate access and use right to resource in time and place (North,1990) . Traditional institution includes norms and procedures that shape people's actions (Fisher, 1993) .They consist of codes of conducts that define practices, assign roles and guide interactions. Examples of traditional institution are taboo, rituals, and other repetitive cultures. Traditional institutions, play key role in natural resource management and rural development, process at large. Many of these institutions were sustainable over periods of hundred years (Pretty, 1990).

Many policy studies concerning the relation ship between local institution and their role in forest management have indicate that poor natural resource management is attributed to large extent by state policies which are alleged to have interfered too much on local scene and undermined traditional institutions hence preventing these institution from playing their part in regulating resource use .

Even though, Ethiopia lost a considerable coverage of forest. Still the contribution of institutions is significant in preserving the ruminant's considerable area of forest of the country. Particularly considerable patches of forest still exist in some social institution like in Orthodox Church .Thus the Ethiopian Orthodox Church did a lot in protecting and preserving our forest for centuries.

Informal institutions are established on different grounds and for various reasons, such as economic reasons (i.e., groups run common economic activities such as labors sharing during harvest seasons, informal healing and hunting (Appiah –Opoku, 1999), and religious reasons (i.e., groups have common religions and beliefs such as taboos and sacredness (Bhagwat & Rutte, 2006; Alemayehu, 2007).

In Ethiopia religious rules and regulations that are evolved by church are playing great role in guiding the society how to manage natural resource in general and forest in particular. Some of the remaining forests of Ethiopia are located in monastery and church premises of the Ethiopian Orthodox Tewahido Church (EOTC) particularly in the central and northern parts of the country (Taye, 1998).

The Ethiopian Orthodox Tewahido Church has long history of planting, protecting and preserving of trees. If a traveler can see a patch of indigenous old aged trees in the

northern highlands of Ethiopia, most probably he/she can be sure that there is an Orthodox Church in the middle. This observation is not only a recent phenomenon, but goes back many years as the event of deforestation has been occurring in the area for centuries. Many travelers on their route have observed and had an impression that old aged indigenous trees were becoming confined around churches (Alemayehu, 2005).

However, now a day the communities are penetrating into the forest preserve of the church. Which indicate if the disturbance continues even the EOTC will not remain as island of forest diversity of Ethiopia (Emiru, 2002).

On the other hand, in Ethiopia there are different formal institutions that are established for management of forest in the country. But even with such constraint we failed to effectively manage our forest. Fore that matter both institutions that are concerned in forest management and the enforcements process can be accounted.

A rule serves no purpose if can not be enforced .So enforcement mechanism is an integral part of any institution. Rules are not always self enforcing, and hence their enforcement cannot be taken for granted (North, 1990).

Therefore, besides the effectiveness of formal and informal rules and regulation enforcement mechanism it is also important element which either negatively or positively affects the role of local institution in forest management .Thus these researches focus on investigating the contribution of local institution in forest management in Debre Libanos monastery forest of North Shewa Zone Oromiya Regional State.

1.2 Statement of the Problem

The long duration of human settlement capped with exploitative land use practice results in high degradation of forest resource of the northern Ethiopia. Most of the forest covered areas are cleared as a result those ruminants of forest are left behind. This is due to managing CPR is very challenging task .Hence, CPR are characterized by difficulty of excludability and subtractability in management. In Debre Libanos monastery also the areas that had been previously governed under the monastery forest and reduced form the monastery by Derg regime; and currently they are under different management regime such as government and private. Gradually those forest resources

that are under private and government lost and ruminant of tree and plantation tree of eucalyptus is left behind. Even, those areas lost their species diversity. Particularly the government forest replaced with plantation trees of exculpates. In addition, the current privately owned forest areas lost both the diversity and density of species. Therefore once the forest resource was lost returning back the diversity of species is very difficult .As Yeraswork (1995) in such devastated areas, conserving and maintaining woody diversity has been a very challenging task, and most approaches haven't brought any significant results.

The management and conservation of forests and trees in the whole landscape has been a very challenging task as none of the 'externally' designed systems, approaches and dominant conservation paradigms imported and tried halted deforestation (Dessalegn, 2001). Because most of the approaches of management and conservation the resources in the area are different with that of the monastery forest management as a result destruction of forest resource is becoming a problem for the locality.

In order to avoid such negative outcome, and in order to manage forest sustainably; communities who manage forest need institution .These are defined in the study as sets of agreed upon rules that are followed by most community members and which control accesses to and regulate competition over forest resources (Ostrom et al., 2002).

Therefore, locally developed institutions are serving as a solution for the problem of deforestation in many part of Ethiopia .According to Alan and Wood (2007) locally developed institutions that includes rules and regulation, common values and mechanism of conflict resolution is increasingly regarded as adaptive solution to resource management problem at grass root level. Since they are rooted community social capital than in external ,top - down decision making ,they are seen as being dynamic ,flexible and responsive to societal and environmental change and ,as such ,they promote sustainability. Local institutions facilitate capacity building, participatory decision making and sustainable approaches to forest conservation (Blunt and Warren, 1996).

Due to this, forest resources are reserved in some social institution like the EOTC. Because, Church is respected institution by Ethiopian society as a result people fear not to destruct the forest resource of the church .According to Alemayehu (2002) forest in

most other areas have been completely destroyed and converted in to farm lands and grazing lands over centuries .The local people perceive these forest as holy places in a religious, social and institutional sense .These forest are still sanctuaries of many plant and animal species that have almost disappeared in most part of northern Ethiopia.

The same writer emphasized that: church compounds are serving as conservation sites and hot spots of biodiversity, mainly indigenous trees and shrubs of Ethiopia, which in turn, give prestige to the religious sites (Alemayehu et al., 2005). These all are the result of the presence of strong institution. Thus the rules and regulations of EOTC are preserving resource and woody diversity of the Monastery forest.

Besides, rules and regulations serve no purpose if not enforced. There fore enforcement process which is done by the monastery is also accountable for conserving forest resource of the monastery. There are also local practices which either positively or negatively affect forest management by the monastery. Thus, these local practices also identified in this research.

Local institutions such as traditional management of forest with religions value system have been playing greatest role in management of natural resource at large. However, the recognition given to such institution is very low. But now, it is time to take the opportunity of the locally and traditionally tested conservation systems in order to maintain the endanger forest resources in Ethiopia. As most societies, in our country are bound by religious regulations, the role of church as one informal institution is significant. Therefore, the research concerned in investigating the institutional role of Orthodox Church in sustainably managing the forest resource of the country.

1.3 Objective of the Study

General Objective

The overall objective of the study is to contribute to sustainable forest management through local institutions and examine the role of local institution in forest management.



Specific Objectives

- To assess the role of local institution those are relevant for forest management in study area.
- To understand important local values, practices and indigenous knowledge that contributed for forest management Debre Libanos Monastery.
- To explain rule enforcements process of forest management in Debre Libanos Monastery.
- To find out local practices that hinder institution in forest management in Debre Libanos monastery.

1.4 Research Questions

Based on the stated objective the following research question was answered in the study.

- What is the contribution of the institutions that are concerned in Debre Libanos monastery forest management?
- What are the important local values, practices and indigenous knowledge that contributed for forest management in the area?
- How enforcement of the law for the breakers of the law in the locality is going on?
- Which practices are hindering forest management in the locality?

1.5 Significance of Study

The issue of deforestation is one of the series problems of current world .On the other hand, different researchers in the area are raising the idea of forest management with local institutions as a solution to this problem .However, more research is needed to check the validity of the idea of the contribution of local institution in forest management on local circumstance.

Hopefully, this research will fill the gap in knowledge about weather or not local institutions benefit or demerit forest management. Because, most researcher in the field

agree that there is still insufficient empirical data support the assumption that decentralization result in better or worse forest governance (Ostrom, 1999). In addition, the study can serve as stepping stone for other researchers who need to do more investigation regarding the institutional role of church in forest management. The research can also benefit development practitioners, local communities, Orthodox Church, policy makers, research institutions and others as policy relevant document and relevant reference source.

1.6 Scope and Limitation of the Study

The study is limited to Debre Libanos Monastery Forest in Northern Shewa zone, Oromiyia Regional State with the objective of examining the institutional role of EOTC in forest management. Since forest management can be affected by different factor; the study focused of how institutions affect forest management. Besides institution is very brood term however this research concerned in assessing the role of institution (rules and regulations) in forest management. Hence, these make the finding specific to the study area.

Ethiopia is a country with rich in hosting various agro ecological zone and people who has different culture, traditions, religion, norms and values. Therefore, this research can not be inferred for all diversified societies in Ethiopia. Thus, the result of the study may be generalized specially to EOTC where by the institutional role of the church is significant in forest management .In addition, other institutions that play role in managing forest like Debre Libanos monastery forest can use the result as an input for better management of forest through out the country.

1.7 Organization of the Paper

The thesis is organized under six chapters. Whereby chapter one is the introduction part of the study that encompass background, statement of the problem, objective of the study and others. The next part; chapter two has the literature review part of the research. Chapter three has description of the study area. The forth chapter composes of the methodology part of the study. Chapter five, describe about the result and discussion part of the study .The final chapter; chapter six holds the conclusion and recommendation part of the thesis.

Chapter Two

Literature Review

2.1 The Concept and Types of Institution

The concept institution is defined by different authors differently. The term institution refers to set of rules that are commonly understood and in use, as to what is required, allowed or prohibited in a given situation (Gibson et al., 2000). This rule can be written or unwritten. They can be formal or informal. What is important in studying institution is whether the rules are in use or enforced. Institutions regulate relationship among actors in conjunction to resource. As such, they exercise enormous influence as to how, when, and by whom a resource is utilized (Gibson et al., 2000).

North (1990) described institution as humanly devised constraints/rules/ that shape and guide human interactions both formal and informal. They reduce uncertainty in every day life by providing a structure to human interaction and behavior. The same author described; institutions reflect the prevailing characteristics of the society and consequently change and evolve overtime. The agent of change, or the player, is the entrepreneur– political or economic– who focuses, according to economic theory, on potential wealth maximizations (North, 1997).

Prior theoretical knowledge of CPRs suggests that human institutions are needed to prevent a “tragedy of the commons outcome” in which individual forest users pursue their narrowly defined, short-term, self-interest, which ultimately destroys the resource. Collective-action institutions are needed to stymie this short-term self-interest. One of the central aims of forest-resource governance is, therefore, to provide the institutions needed to constrain the individual, short-term incentive to over-harvest. The traditional way of providing these institutions has been for the central government to introduce either command-and-control rules (prohibitions or quotas) or individual forest privatization. However, both of these traditional policy remedies have been largely unsuccessful, especially in developing countries, in regulating access and enforcing exclusion rights to forests (Gibson et al., 2000).

There have been critical debates on the difference between formal and informal institutions. The attribute of institution which is most commonly highlighted in the

literature: is their degree of formality. Different institutional theories including Douglas North's new institutional economics approach classify institutions according to formality, which has led to the dichotomous itemization of 'formal' and 'informal'.

On the other hand informal constraints are the norms, convention, and code of ethics that society evolves over time. These constraints are more pervasive than formal rules (North, 1990). Informal institutions are defined as arrangements or rules of behavior such as sanctions, customs, traditions, and code of conduct (Marsh, 2003). Pejovich (1999) draw attention to the evolution of informal institutions by defining them as 'carriers of history' which have passed the test of the historical time. Other authors understand informal institutions to be extensions, elaborations, or modifications of formal ones, and hence disparage them as mere appurtenances (Elnaiem, 2004).

According to this understanding, formal institutions are defined as the law sphere, [...] constitutions and regulations, [the reinforcement of which] is guaranteed by the legal system (Tridico, 2004). Formal constraints are the rules devised by human being to facilitate exchange. These include political (judicial) rules, economic rules, and contracts (Brazel, 1989). Hence, formal institutions are directly linked to political and economic structures such as governance, poverty rights, and judiciary system.

In the context of natural resource use, older literature neglected and underestimated the substance of informal institutions (Hardin, 1968), even characterizing them as chaotic and conducive to environmental degradation. In contrast, much contemporary literature applauds informal institution, particularly the body of indigenous rights and regulations, highlighting their robustness, their ability to adapt to precarious and changing microenvironments, their risk aversion, their historical rootedness within societies, and their potential to regulate natural resource use (Watson, 2001). Nevertheless, both extreme standpoints merit qualified critique.

Sibanda (1997) also claims that African philosophy on resource utilization and environmental protection is spiritually based. Major conservation efforts and the control of resource use were/are influenced by this spirituality. Religious beliefs and taboos system are at the centre of life as a whole. Africans' spiritual world-view creates respect for nature, reverence for mountains, forests, animals and rivers. Out of reverence is born conservation and from it sustainable resource utilization practices.

One can prove how nature can be respected through religion by looking at very many EOTC and monasteries in Ethiopia.

As religion is one of the strong and powerful indigenous institutions, religious perspective towards conservation, the past and present experience in the field of interest should coincide to our planning and objective settings if sustainability is to be achieved. If the EOTC is taken as an entry Point Success began there. Because it will have a cumulative knowledge of thousands of years , experiences of many people, wisdom of spirit mediums, the wise council of elders and the able leadership of religious leaders, institutions in managing and conserving resources and strong sanctions and “Gizit” for outliers (Sibanda, 1997).

Likewise, a study by Alemayehu (2002) in the northern highlands of Ethiopia found that rural communities were highly committed to managing forests in and around the Ethiopian Orthodox Churches. Such commitment came from theological and biblical thoughts that churches were holy places and houses of God, where cutting of trees is considered an immoral deed. As a result, churches have a remarkable impact in protecting the remaining patches of natural forests in northern Ethiopia. The same author also described that: however, the same community members were less interested to participate in tree plantation and other forest development initiatives of governmental and non-governmental organizations, due to the top-down nature of these initiatives. The above-mentioned cases revealed that under conditions of high acceptance of the spiritual and religious beliefs by the majority of the rural community in the area, forest loss had been prevented, which in turn contributed to communal forest occurrence and its quality. Based on their own sanctions, which were site-specific and not easily transferred to other situations; informal religious institution could be important entry points to mobilize the community and support interventions towards sustainable CPR management.

2.2 Sustainable Forest Management

Forest governance refers to the process of formulation ,articulation ,administration and implementation of policies ,legislation ,regulations ,guidelines and norms relating to ownership ,access, control ,right and responsibility and practice for sustainable management of forest at local or national level .Key principles guiding good

governance of forest includes : equity and justice ;empowerment and accountability ; transparency ; subsidiary ; sustainability (KFS, 2007). Forest governance is a critical crosscutting issue for communities living in and from forest. The need to address forest governance is this work stems from the fact that forest governance not only impact forest users' livelihoods but also the forest ecosystem .Whether forest land and resource are the property of the state of an individual or a group of individuals a combination of these stakeholders, and weather governance is actually executed, are relevant concern in this regard. The main tools of governance are institutions ,here understood as the 'rule of the game' (North ,1990 ;Ostrom et al .,1994).

Sustainable forest management is a process of managing forest to achieve one or more clearly specified objective of management with regard to production of a continuous flow of desired forest product and service with out under reduction of its inheritance values and future productivity and with out undue undesirable effect on the physical and social environment (ITTO,1998).Sustainable forest management according to the meaning to by the general assembly of UN is a dynamic and evolving concept aims to maintain and enhance the economic ,social and environmental value of all type of forest ,for the benefit of present and future generations .It characterized by seven elements ,including : extent of forest resource ; forest biological diversity ; forest health and vitality ; productive function of forest resource ; socio economic function of forests and legal policy and institutional framework (UN ,2008). Sustainable forest management is a concept which is elaborated by different scholars and institutions' differently. However, they all focus on the same issue of utilizing resource not by reducing its future productivity. In short Sustainable forest management is the forest component of sustainable development. Thus the concept of sustainable development recognizes meeting the need of current generation with out compromising the ability of future generation to meet their own needs.

Now days there have been governments and non governmental organizations are opening a number of opportunities for SFM by decentralizing authority in different part of the world.

Decentralization reforms in the last two decades have often promoted local, more democratic participation in governance. In tandem with policy advocacy and social movement they have fostered new practices of forest use, sometimes provoking social tension revolving around claim of indignities people with in the forest zone (Argwal et al., 2008) .The policy of decentralization transfer of management authority and responsibility access to forest land from government to local forest users, if the group is willing and capable of managing forest resources (Gilmore and Fisher, 1991). Decentralization as a policy instrument grew in importance as an option to improve the quality of forest management by giving more authority and control over resource control to lower level of government ,people who have more intimate knowledge of natural resource and the changing need and desire of local user groups (Banana et al.,2007).

2.3 An overview of forest Policy of Ethiopia

The planet is faced with looming environmental crisis in which 15 million hectares of forests are deforested every year. In order to tackle the problem government issues policies and laws those are important for socio-economics development and environment.

In Ethiopia there has been a considerable degradation of forest since the turn of the century. As a response different government formulated various policies and laws.

The Imperial Regime

The first elaborate and modern legislation came during Emperor Haile Selassie I in 1965 G.C. Recognized two types of Ownership: State and Private. Two types of Forest do existed-State and Protected.

Derg period

In 1980 the 'Derge' proclaimed a new law that reflects its ideology i.e. Forest and Wild Life Conservation and Development Proclamation No.192/1980. Many laws were enacted to nationalize major types of private properties. The most important ones

regarding land were Proc. No.31/1975-Public ownership of rural land proclamation and Proc. No.47/1975-Government ownership of urban lands and extra houses proclamation. Forest ownership: state ownership, ownership by peasant associations and ownership by urban dwellers' associations.

Federal Democratic Republic Ethiopia (FDRE)

The current government formulated a proclamation concerning forest .This proclamation i.e. Forestry conservation, development utilization Proc. No. 94/1994, was also the reflection of the new political ideology of the transitional government namely, the participation of the people and communities in affairs that concern them three forms of forest ownership: state, regional and private.

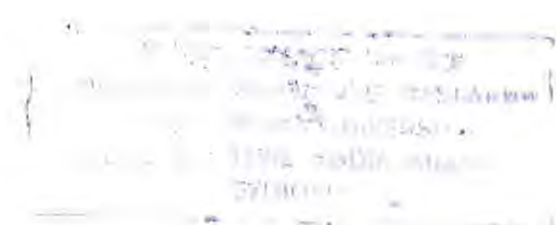
A proclamation to pronounce the coming into effect of the constitution of the Federal Democratic Republic of Ethiopia, Proclamation number 1/1995, states that:

There is no specific provision concerning forest cover in the constitution .But

Art.51 (5) which authorizes the federal government to“...*enact laws for the utilization and conservation of land and other natural resources.....*”

Art.52 (2) (d) which authorizes the regional states to “...*administer land and other natural resources in accordance with federal laws.....*”

The New Forest Policy-Forest Development, Conservation and Utilization Policy (2007) recognize state and private ownership. The Environmental policy which was issued on April 1997 has got ten sectors and 10 cross sector policies. One of the sectors is on forest, wood lands and tree resources under which the policy addresses issues such as complementary roles of communities, private entrepreneurs and the state in forestry development; integration of forestry development with land ,water, energy resources, ecosystem and genetic resources development in addition to crop and livestock production. Selection of suitable tree species for a forestation/reforestation with particular emphasis to indigenous tree species is one important statement included in the policy.



Summary of the key elements of the current strategy or programs that your government or other groups have put in place to address deforestation and forest degradation, if any:

1. Ethiopian Forestry Action Program, 1994 has studied the forest resource base, analysis of the challenges facing planners and resource managers in the forestry sector, institutional and policy issues in forestry sector development and action program for addressing the challenges and the issues.

2. Forest conservation and development proclamation no.94/1994 is a law issued to provide for the conservation, development and utilization of forest resources. Three types of forest ownerships were identified under this proclamation, and these were State Forests, Forest of Regional States and Private Forests. This proclamation is replaced by 2007 Forest proclamation.

3. Forest Policy of 2007 the overall objective of the policy is to conserve and develop forest resources properly so that there could be sustainable supply of forest products to the society and contribute to the development of the national economy. The policy in its specific objectives contains among others: encouraging public and private sectors to participate in forest development; improving productivity of forests; and also improving, replicating and distributing suitable tree species, etc.

4. Forest Proclamation of 2007 recognizes two types of ownership, i.e. Private forest and State Forest. The proclamation has got provision on the promotion of private forest development, conservation and utilization which covers the promotion of forest development, conservation, promotion of forest technology, promotion of market for forest technology, promotion of market for forest products and obligations of private forest developers.

Private individuals, associations, governmental and non governmental organizations and business organizations who want to develop forest shall have the right to obtain rural land in areas designated for forest development in accordance with regional land administration and utilization laws. Areas in productive state forests that could be developed on concession shall be identified and may be given out for man made forest

development. Any person who develops forest on his land holding or in a state forest area given to him on concession shall be given assurance to his ownership of the forest. The rights of forest owners to use forestland and to transfer their holding rights shall be exercised in accordance with rural land administration and utilization laws.

2.4 Factors Affecting Forest Management

2.4.1 Characteristics of Forest Resource: Excludability and Subtractability of Forest Resource

Forest resource share the attribute with many other resource system that make difficult their governance and management in sustainable, efficient and equitable manner (Ostrom, 1999).

Most scholars who study the institutional arrangement for natural resource governance agree that forest should be considered as CPRs since they are neither public nor private good but share the element of both .This characteristics means that forest are particularly vulnerable to degradation and over exploitation because it is difficult to exclude people from them leading to over consumption that they are 'subtractable 'resources (Winter, 1998; Ostrom et al., 2002).Forest commons are forests used in common by a large number of heterogeneous users. Essentially, they are forests for which the boundaries of the resource, the identity of the user group; and property right to benefits from the resource as well defined (Chhatre and Agrawal, 2008).

A very useful way of charactering forest resource as a type of resource is based on excludability and subtractability criteria. Excludability refers to the cost of preventing others from gaining access to the resource. Subtractability on the other hand refers to weather the use of resource by on individual reduces the amount and availability to others (PFM, 2007). On the other hand forests as common pool resource are subtractable in consumption. Common pool good are also subtractability in consumption (like private goods), which means they can be depleted .With out institutional mechanism that a dress excludability and subtractability then ,common pool resource are essentially open access resource available to any one very difficult to protect and very easy to deplete (Mc Keen ,1996).

Both excludability and subtractability are in turn influenced by other variables, including size of the resource, clarity of boundaries and the technology used to remove resource (Ostrom, 1990).

2.4.2 Attribute of the Community: Size and Heterogeneity of the User Groups

The major attribute of the community related to forest management are heterogeneity, size and dependency on forest resources. These all are the attribute of the community which either positively or negatively affect the possibility of success of management of forest. There are different arguments about size and heterogeneity as they influence the likelihood of the success of self-organization for managing forest resource.

Useful variables to analyze actors' behavior in collaborative arrangements usually involve their level of dependence on resource and also the level of knowledge available, as these have bearing on the incentive to manage the resource. Such variables as the size of the community, the extent to which the community is homogeneous, proximity to the resource, perception of risk, and prior experience in collective action are crucial elements that directly affect success (PFM, 2007).

According to Hardin (1982) one of the problems of focusing on size of group as a key factor is that many variables change as group size increases. There are two groups of arguments: one group is pro of small size and others favor large size of user group as a precondition of the success of organization in forest management.

Some theories also argue that size of the group is negatively related to solving collective action problems in general (Buchanan and Tullock, 1962). Moreover, scholars who studied many user group governed forestry institutions in the field have concluded that success will more likely to happen in smaller groups (Cernea, 1984). Thus, these all scholars assert small size as important or bring successes for the user's organization which manages the resource.

In contrast, others argue that large size user group as an important factor or input that enhances the success of that organization. Argwal (1998) has found that smaller forest user groups are less able to undertake the level of monitoring needed to protect forest resource than moderately sized groups. Similarly, other studies assert that large size add additional input to forest management (Isaac et al 1997). If the cost of a forest, say

a sanctioning system remain relatively constant as group size increases, then increasing the number of participants brings additional resource that could be drawn up on to provide the benefit enjoyed by all.

2.4.3 Rule Formation and Rule Enforcement

Many studies advocate that users must participate in formulating rules concerning forest management. They assert that participation of users enhance success in managing forest resource. Successful institutions depend on the ability of users to devise rules for access to and maintenance of a common pool resource (Stern et al, 2002). Repeated studies in different parts of the world have shown that when the users of a common-pool resource organize themselves to devise and enforce some of their own basic rules, they tend to manage local resources more efficiently than when rules are externally imposed on them (Tang 1992; Wade 1994; Baland and Platteau 1996). Research done concerning the participation of user group in rule making also strengthened these points which is users must participate in rule making processes. Accordingly, when the users themselves have a role in making rules ,or at least consider the rules to be legitimate ,they are frequently willing to engage themselves in monitoring and sanctioning of uses consider illegal , even of public property (Ostrom and Negendra , 2006).

Researchers are considering enforcement as integral part of rule formulation, as the key elements that played in management of natural resource under institutions. Hence with out enforcement rules do not have any purpose .According to North (1990) a rule serve no purpose if can not be enforced .So enforcements mechanism is an integral part of any institution. Rules are not always self enforcing, and hence their enforcement can not be taken for guarantee.

From the 1980s onwards, an increasing number of scholars and practitioners have come to the conclusion that a lack of appropriate and enforced formal or informal institutions that determine who enjoys which use and access rights to particular forest resources can be another underlying cause of forest depletion and loss (Agrawal, 1995). Even scholars of commons recognize the importance of different causal processes at play, they often focus on local enforcement as one of the more important features of sustainable forest governance (Agrawal and Chhatre , 2006).On the other hand research

also indicated that this highest possibility of degradation can be moderated by strong enforcement (Chhatre and Agrawal, 2008).

2.5 Conceptual Framework of the Study

According to the “Institutional Analysis and Development” framework (Kiser & Ostrom, 1982; Ostrom & Gardner *et al.*, 1994; Ostrom & Burger *et al.*, 1999; Koontz, 2003; Ostrom 2004), decisions to deplete or destroy a forest are produced in a social sphere where individuals interact over processes and impacts, called the ‘action arena’. The decision making processes within the action arena are influenced by three groups of exogenous variables, namely a) the attributes of the natural resources (forest in our case), b) the attributes of the community (the forest users), and c) the institutions.

Ostrom (2005) have established framework for institutional analysis development framework (IAD) in order to analyze institution arrangements in a conceptualized and systematic way. The IAD framework can be applied at any levels: what is a whole system at one level is a part of a system at another level. Consequently, the framework allows the analysis of institutions at different levels according to which a whole system at one level can be a part of a system at another level (Ostrom, 2005).

External factor

External factor that are the provision of the action arena in the IAD is consist of biophysical and material conditions, attribute of the community and rule-in- use.

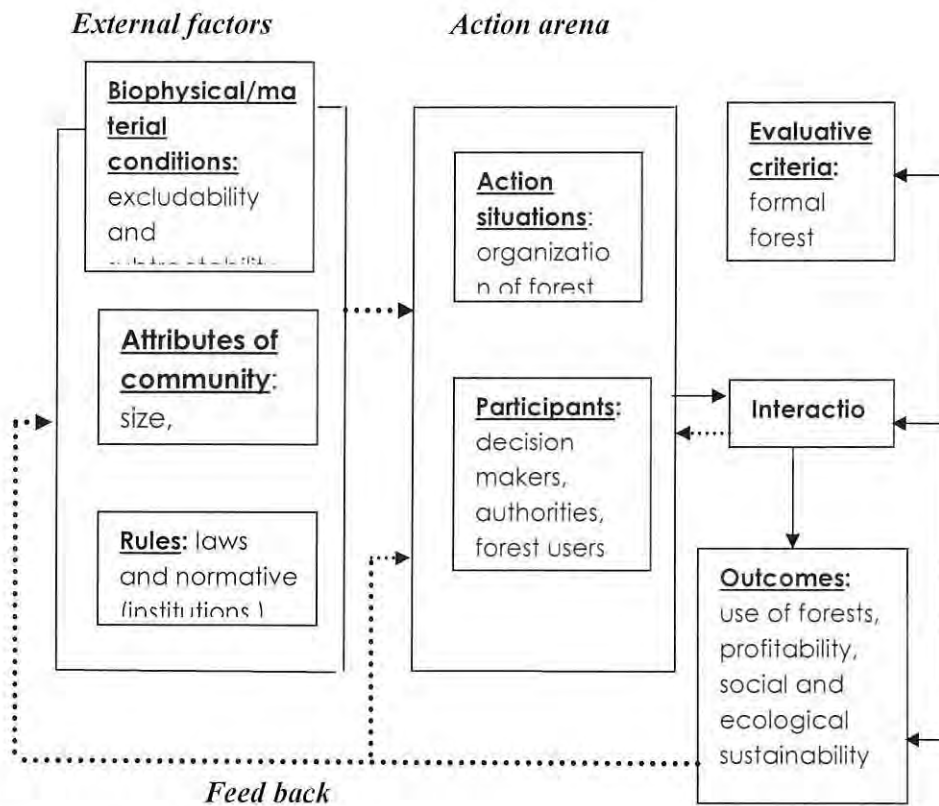
1. The Biophysical Environment: Characteristics of forest resource

Characteristics of forest resource system fall under a broad set of biophysical variables. They are set of boundary conditions with in which humanly devised rules of the game must be situated .Some of the most commonly cited resource characteristics relevant to effective governance of forest common are size of the resource system, its boundary, whether the resource is mobile ,the extent to which resource unit can be stored ,rate of predictability of flow of benefit from the resource system ,and ease of monitoring resource conditions especially excludability and subtractability (Argwal, 2007).The physical conditions set the stage for the community attributes.

II. Socioeconomic Conditions: Attribute of the Community

Attribute of the community are important factor affecting the composition of action arena. When resource users from common pool resource share a common set of value and work together with one another in complex set of arrangements ,the probably of developing adequate rules and norms to govern the resources are much greater (Ostrom , 2006).

Figure 1: A framework work for institutional analysis development (IAD)



Source: Ostrom, 2005.

Under this heading we examine how actors relate within and between clusters of other actors. We consider the historical background, culture, religion, values, beliefs, knowledge, skills, health conditions, poverty level, and other socioeconomic characteristics of the groups defined as the main actors. If groups of actors share a history of mutually beneficial interactions, chances are that trust has developed in their

relationship and this sense of mutual reciprocity will, in all likelihood, facilitate solutions (Anderson, 2006).

III. Rules-in-use of the Local Institutional Arrangements

The rules-in-use refer to the norms that are actually respected by the actors participating in an action situation. These are the most important independent variables in an institutional analysis because these rules influence the incentives that each actor faces and thus ultimately help determine behavior (for more on how rules-in-use relate to incentives, Gibson et al., 2005; Ostrom, 2005). The focus on the rules-in-use requires the institutional analyst to rely on first-hand field observations rather than on secondary data about formal rules. It is what is actually acted upon that counts when documenting rules-in-use, not just what is written (the rules-in-form). One of the central questions that the analyst should ask here is whether the observed rules-in-use are likely to solve the previously identified social dilemmas related to forest governance.

The Action Arena: The Playing Ground

According to Anderson (2006), the very first step in an institutional analysis is to establish the boundaries of the analysis: to delineate the action arena. To identify the factors that influence the variation in local government success in a country's forestry sector, the action arena may be defined as the forestry sector, or even the forestry sector in a particular part of the country or level of governance

Action arena consists of two halves: the participants and the action situation.

The Actors: Participants

Once the general arena is defined, it is necessary to identify the main actors. Outcomes in a decentralized forest-governance regime depend on the behavior of several actors. Those most important to consider depend on the particular institutional design of each country's forestry policy, and may include any combination of private landholders, rural community groups, forest-user groups, NGOs, externally funded project representatives, municipal governments, central-government agents, private forestry

firms, and others. Participants can be individuals, unions or corporations. The number of participants and the position they hold depending on the action arena (Anderson, 2006).

According to Ostrom (2006) in the IAD framework, 'actors' is applied for individual, social group, or organizational bodies, which possess a stake in one particular issue (e.g. use of a certain forest resource). They influence a specific state of affair or process. The term 'action' refers to those human behaviors to which the acting of individual attaches a subjective and instrumental meaning.

Action Situation: a Place in which Actors Interact

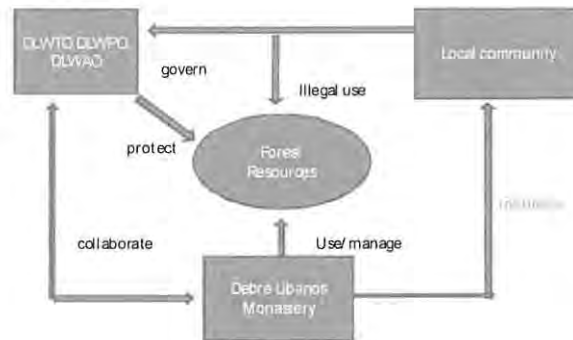
According to Anderson (2006), the action situation refers to the specific type of interaction that these actors engage in to arrive at such a decision. Action situation consist of the aspect of institutional arrangement of forest tenure and the allocation of tenure right. What action situations do actors in the decentralized regime participate in? The different groups interact to produce the collective goods and services that make up forest governance. Central government representatives may, for example, decide to devolve responsibilities to municipal governments, as they are believed to perform these responsibilities more efficiently. Another example of an action situation is the possible conflicts that may arise between different forest-user groups with unclear boundaries, or forest property rights. The behavior of each of the actors in these action situations can be explained in terms of a set of contextual factors that the IAD framework breaks up into three main categories: 1) physical conditions, 2) community attributes, and 3) local institutional arrangements.

The core analytical unit of institutional analysis is an 'action arena' in which participants (e.g. individuals, families, firms, voluntary associations, governmental units) interact in a structure of incentives generated by the characteristics of the goods involved, the rule in use, and the attribute of the community (Ostrom, 2006).

The ultimate level of specificity applied to the analysis is depending on the researcher's objectives. For that matter, the action arena of this study is a local level analysis on Debre Libanos Monastery Forest resource. The actors who are involved either in managing or in influencing management of the monastery forest includes: Debre

Libanos monastery, local community and local formal government representatives (DLWTO, DLWPA, DLWAO, and DLWP).

Figure 2: Action Arena for Debre Libanos Monastery forest



Source: Field survey, 2011

Interactions

Interactions related to the action arena produce outcomes. Interactions are restricted by external factors and case specific features of the action arena. On the other hand, realized interactions in turn affect the structure and content of action arena as well as the positions of the participants (Torniainen, 2009).

Outcomes

Outcomes that are produced through interactions in the action arena are essential source of institutional change. Outcomes considered favorable create commitment to the rules-in use while rules producing results that are considered unwanted or unfair become subject of change by the participants. However, this is possible only if there are available information and mechanisms for feedback. Outcomes of the selected institutional settings are contemplated and reflected to the formal goals of the forest policy, which works as the evaluative criteria, in the discussion part (Torniainen, 2009).

Feedback

Correct information about the causalities of the external factors, the action arena and the outcomes held by the decision-makers is a necessity for the efficient improvement of institutions. Provided the correct information, the feedback, which results from the outcomes, may eventually affect and change the external factors that constrain the action arena (Torniainen, 2009).



Chapter Three

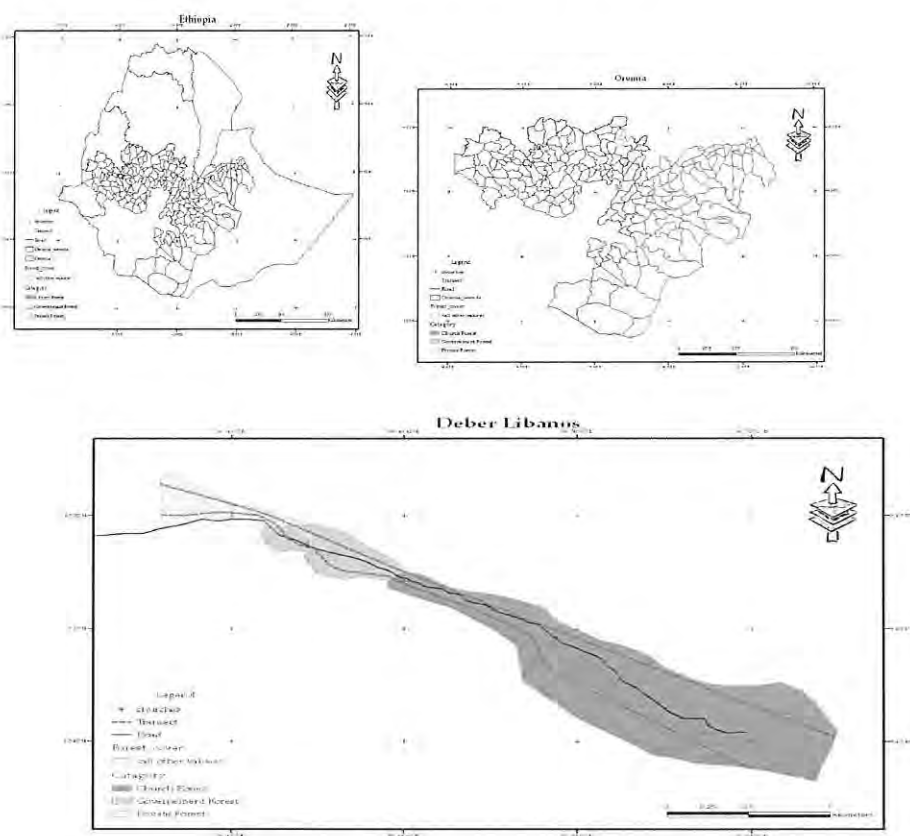
Description of the Study Area

3.1 Description of Study Area

Location

The study, Debre Libanos Monastery, is located at 104 km North West of Addis Ababa in the North Shewa Zone of Oromia regional State. It is located at 2400 m altitude whilst the rim of the valley rises to over 2560 m. Its geographical location is $09^{\circ}41' N$, $38^{\circ}51' E$. The total forest covered area of the Debre Libanos monastery forest is 5680 hectare .

Figure 3 : Map of the Ethiopia ,Oromia and Study area



Source: Ethiopian Mapping Agency, 2011

The monastery is situated at the edge of the highland plateau on the flat ground below the first escarpment of the Jama gorge. The sides of the gorge descend in a series of parallel escarpments towards the river. The forest at Debre Libanos Monastery is one of the few remaining dry afro-montane forest (NSAO, 2000).

Climate

The mean annual rainfall is 1200 mm, and there are five rainy months, May-September, with a peak in July. Mean annual temperature 23°C. Mean length of dry season(s) is 4 months (NSAO, 2000).

Diversity of Species

A variety and diversified species of plants are found in Debre Libanos Monastery forest. These are nearly about 55. (See the table in the appendix)

Population

The total population of Debre Libanos wereda is about 44,776; of these 13,054 living in urban areas and other in rural areas of the wereda.

At present there are 700 registered monks besides many hermits who reside in the monastery in addition to approx. 4000 permanently settled pilgrims. Debre Libanos Monastery is the only monastery where all subjects of church education are taught. Every year around 2000 students receive religious education at the monastery (NSAO, 2000).

The monastery also gives services for many daily visitors estimated to be around 3000 per day who mostly come to visit the springs to obtain holy water. Thus, this ever-expanding human population is exerting tremendous pressure on the forest. The monastery forest is also used as the grazing area for cattle belonging to the monks and this has put another pressure on the forest. The expansion of the area occupied by modern graves has further reduced the undisturbed forest area (NSAO, 2000).

3.2 History of Debre Libanos Monastery

Debre Libanos monastery was founded by Saint Teklehaimanot when during the reign of Yekunno Amlak in 1270. It was known as Debre Asbo for about 160 years and,

then Emperor Zar'aYaqob changed its name to the present name of Debre Libanos in 1434. The monastery was destroyed by the Muslim army of Mohammed Gagn in 1532. According to informants the monastery also ravaged and destroyed during the battle between Christians ruled by Gelawdewos and the same Muslim army in 1559. The present church was built by Emperor Haile Sillasse in 1960.

According to the written source of the monastery the land coverage of the monastery now is around 5680 hectare .But it was much larger than this or up to the area called Chagall to river Agat .But, the nationalization of land by Derge's government reduced the land holding of the church to the place called from Amanuel to river Agat.

Chapter Four

Research Methodology

This chapter presents study design, data sources, sampling method, and sample size determination, and method of data analysis of the study.

4.1 Study design

The study primarily focused on the Debre Libanos wereda. Debre Libanos wereda has about 12 kebeles one among them is Addis Alem kebele where the study is held. However, the monastery is exclusive of kebele administration. Addis Alem kebele is under government administration on which the local community surrounding Debre Libanos monastery is found.

In order to undertake the study Debre Libanos wereda was purposefully selected due to the presence of considerable forest coverage of the monastery. Then, Addis Alem wereda is selected because it is very adjacent to the monastery forest. In the selected kebeles, household survey was undertaken. Further more, to identify the sample households random sampling procedure was employed. In all selected households, population listing was held. After listing the households, random sampling was used to select the sample respondents.

The key informant interview was conducted with the concerned individuals. The selected key informants were wereda's tourism office experts, land administration and members of monastery administration committee.

4.2 Sample and sampling procedure

Study the whole population is difficult by considering shortage of time, resource and different cost of the research. Due to this, sampling is important. In order to get representative sample, choosing appropriate sampling techniques is crucial. For that matter, I used stratified simple random sampling. So that, those method of selection enabled me to get representative sample of the whole population.

Then the sample was taken from each group such as user group of the monastery forest, local population, students or 'yekolo temari'. From each stratum 10 % of the total population is randomly selected. The monastery has 805 monks or formal members of population ; local community has 602 households and 800 students of the monastery or 'Yekolo Temari' ; 10 percent of the total households are taken as a representative of the whole household and involved in the study . Thus the sample frame or total number of household is 2207 and 130 household which are about 10 % of the total household. However, due to shortage of time and money I selected 109 household as representative of the whole household total population.

4.3 Type of Data and Data Source

Both primary and secondary sources of data were used for this study. Primary data was collected through household survey, focus group discussion and key informant. Secondary sources include published and unpublished materials i.e. books, journals, reports, maps etc. The eligible people for the study were the members of the community are head of the house hold. From the total sampled house hold of respondents (109) house hold data was collected using structured questionnaire .In addition one groups of FGD from Debre Libanos Wereda officials and monastery administrators were formed. The number FGD participants were six.

Focus groups are a form of group interviewing but it is important to distinguish between the two. Group interviewing involves interviewing a number of people at the same time, the emphasis being on questions and responses between the researcher and participants. Focus groups however rely on interaction within the group based on topics that are supplied by the researcher (Morgan, 1997).

Key informant interviews are qualitative in-depth interviews with people who know what is going on in the community. The purpose of key informant interviews is to collect information from people including community leaders, monastery administrators, priests, or residents who have first hand knowledge about the forest. These community experts with their particular knowledge and understanding can provide insight on the nature of problems and give recommendations for solutions.

Key informant interviews provide qualitative information that can be narrated and cross checked with quantitative data, a method called “triangulation”.

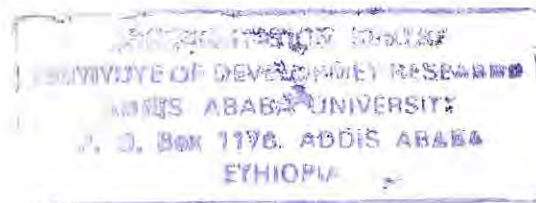
4.4 Data Collection Instrument

Focus group discussion, key informant interview and household data collection through structured questionnaire were the main tools in order to collect data from the locality. Secondary sources include published and unpublished materials i.e. books, journals, reports, maps etc. Moreover, secondary source of data which express about the socio –economic characteristics of the society was also used.

4.5 Methods of Data Analysis

The research is done by collecting data with primary and secondary source of data. The collected data was analyzed by using different means of data analysis .For data that are collected using structured questionnaire the software statistical package for social sciences (SPSS 19 .0) was used .Using SPSS data’s were analyzed using frequencies and percentage by drawing pie charts, bar graphs and histograms. Then after each graphs descriptive techniques and verbal explanation followed .In order to analyze qualitatively collected data verbal descriptive techniques are also used.

Then, the significant contribution of church for preserving Debre Libanos Monastery forest was analyzed.



Chapter Five

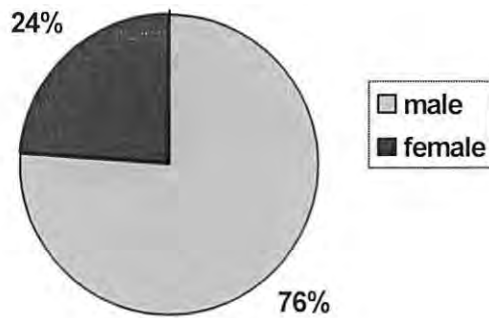
Result and Discussion

5.1 Sampled Household Characteristics

5.1.1 Demographic Characteristics

Total respondents are 109 households from them most of the respondents are male (76%). Further more, from the total sampled household respondent 55% are married, 24.9 % unmarried, 13.8% widowed and 1.8 % are divorced.

Figure 4: Household head of the family



Source: Field data, 2011

The age structures of the sampled household head indicate 61.5% of the respondents are between 20-50 years old as well 38.5% of the respondents are above 50 years old. There is a considerable younger and productive force in the locality. But the number of unproductive and older age population is also significant. According to the input from focus group discussion, there is much number of older age population in the locality because it is the older age group of people who want to devote their life for spiritual purpose.

Table 1: Age of the household head

Respondents Age in year	Frequency	Percentage
20-25	9	8.3
26-30	9	8.3
31-35	7	6.4
36-40	22	20.2
41-45	12	11.0
46-50	8	7.3
Above 50	42	38.5
Total	109	100

Source: field survey, 2011

The ethnic background of the sampled household survey shows that 81.5%, 15.1% and 3.4 % as Amhara, Oromo and Tigre respectively. According to the input from discussion with key informants the reason behind the above reality is that the settlement in Debre Libanos monastery is evolved due to religious reason. For that matter, it is the immigrant from Amhara region that historically founded the area.

As the settlement is evolved because of religious and spiritual reason, 100 percent of the sampled households are followers of EOTC.

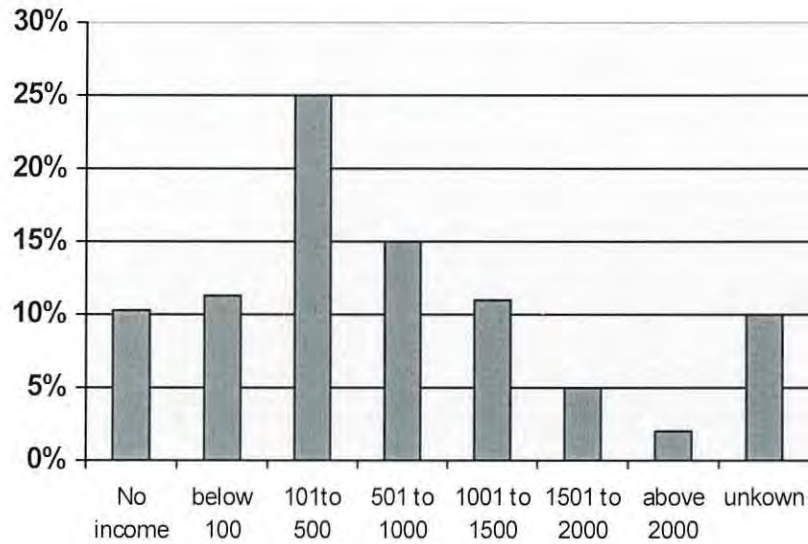
5.1.2 Socio-economic Structure

5.1.2.1 Income of the household

Figure 5 shows the trend of house hold income in the study area. Income of the household shows that nearly half of the respondents are getting relatively low income means less than 500 birr per month. Out of this group of people about 22% of them are getting no income and below 100 birr. In addition, 25% are getting between 100 and 500 birr. The null income groups of the sampled households (10 %) who do not have a fixed amount of monthly or yearly obtained income rather they occasionally get some amount of income. From this we can conclude that most of the local communities are getting insufficient income for life. On the other hand, those who doesn't get fixed

amount of income (10%) are mainly rely on agriculture whose income difficult to explain in terms of money.

Figure 5: Income of the household head



Source: Field data, 2011

5.1.2.2. Source of Livelihood of Sampled Household

There are diversified source of income for livelihood option of the local community in Debre Libanos monastery. Like other rural part of Ethiopia, most of the local community use diversified subsistence livelihood option for survival. Subsistence farming is the dominant occupation or source of livelihood practiced by majority (40.3%) in the area. Subsistence farming is production agriculture crop and animals for daily consumption or production. In subsistence farming production is hand to mouth.



Table 2: Occupation of the household head

Occupation	Frequency	Percent
Priest	7	6.4
Deacon	1	0.9
Monastery's Servant	34	31.2
Guard	3	2.8
Civil servant	15	13.8
Farmer	43	40.3
Trader	5	4.6
Total	109	100

Source: Field data, 2011

As the locality is a spiritual place, the second dominant occupation of sampled household (31.2%) are servants of the monastery. Therefore, for these groups of individuals the monastery provides daily food and monthly salary. Each individual obtain different amount of income in accordance to his/her services to the monastery .In addition the monastery also give them shelter.

5.2 History of Debre Libanos Monastery Forest

5.2.1 Historical Trend of Forest Cover

The forest resource of Ethiopia is highly degraded and reduced in coverage. Even though, degradation of forest resource is a reality in every part of the country the Northern part of the country is highly threatened by the problem .In contrast, Debre Libanos Monastery forest is showing progress interns its forest coverage. For these, different reasons can be counted: the positive attitude (good practice) of the monastery community, the religious value of the church which is known as Gizit and strict protection by church's guard was indicated in the study as a reason behind increase in its coverage. The cumulative effects of all the above experiences of people in and around Debre Libanos Monastery resulted in an increase on forest coverage of the monastery.

About 60.5 % of household survey showed that there has been increased in total area coverage of the Monastery forest. In contrast, 90.2% of the sampled household response indicated that the community or government forest in the area are degraded or decreased in coverage. One reason for decreasing the areal coverage government or community of forest is because of about 66 % of the sampled households are depending directly or indirectly on government or community forest for source of fuel

Table 3: The change in total area coverage of the monastery and other forest over the past years

View of respondents'	Monastery Forest		Other Forest	
	Frequency	Percent	Frequency	Percent
Decreasing	22	20.2	99	90.2
Increasing	66	60.5	0	0
no change	21	19.3	10	9.8
Total	109	100	109	100

Source: Field survey, 2011

According to the key informants the increase of the monastery forest is mainly for plantation trees like eucalyptus. Plantation tree has increased over time. But for indigenous trees like 'Weyra' (*Olea europea sspcuspidata*) and 'Tid' (*Podocarpus falcatus* (*Afrocarpus falcatus*)) there is no big change.

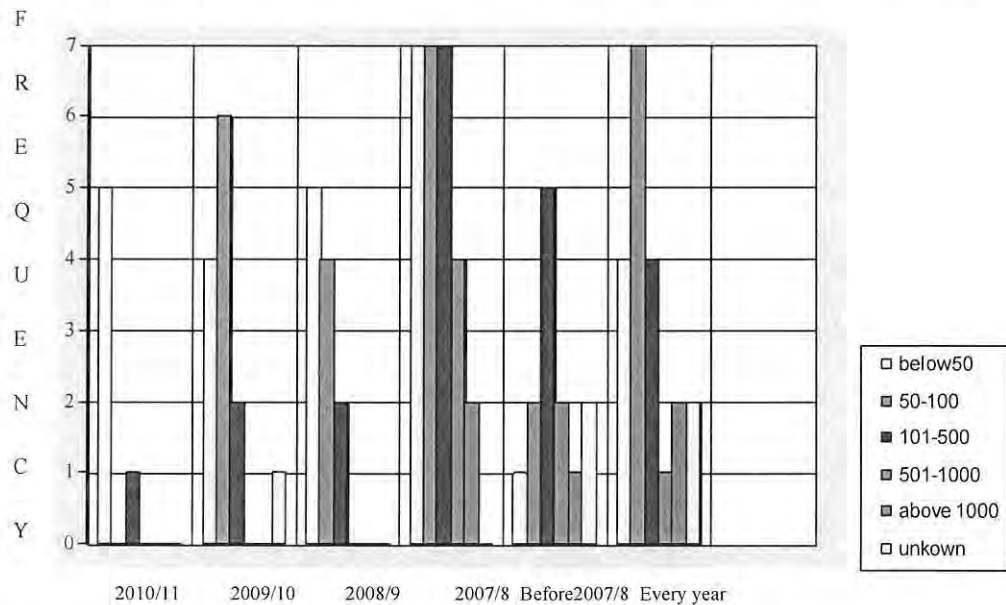
4.2.2 Attitude of local community towards planting tree

The response of house hold survey indicated that 91.7% of the household head has positive attitude towards planting trees. According to key informants trends of planting trees in the study area is very high in 2000 it could be because of the propagation of two trees for the second Ethiopian millennium.

According to the response of key informant interview, the great initiation of the monastery is the main reason behind the good practice of the local community towards planting trees. Thus, the monastery for its formal member, who live and supported by the monastery , provide a fixed amount of land (4m*4m) for each individual to plant

tree over it annually. Therefore, through the initiation of the monastery formal members are able to plant tree annually in that specified land. This is the reason why most respondent answered they are plant trees and has positive attitude towards planting tree every year since 2007/2008.

Figure 6: The specific number of tree the household planted in the specific year



Source: Field data, 2011

In deed the sampled house hold survey also further strengthened the positive attitude of the household in planting tree. When we see the specific number of tree where the sampled household planted, the majority (60.5%) of the respondents has the experience of planting more than 50 trees in the past four years (2007/8 2010). Only the rest (31.2%) have planted less than 50 seedlings of tree. But the local communities experience the least in terms of planting tree in these year (2010/11). The reason behind these figure according to the FGD is because the data is collected at the beginning of the year. According to the result most people including formal members of the monastery do have experience of planting tree at summer season of most part of Ethiopia (June, July, and August). That is why there was least practice of planting tree in this year (2010/11). But this research focuses on the local practice those planting trees from the year 2007/2008 onwards.

Table 4: The respondent's major energy source for cooking

Source of energy	Frequency	Percent
Wood	34	31.2
Charcoal	4	3.7
Kerosene	15	13.8
Electricity	6	5.5
wood and charcoal	10	9.2
charcoal and kerosene	2	1.8
wood and kerosene	21	19.3
wood, charcoals and kerosene	17	15.6
Total	109	100

Source: Field survey data, 2011

About 44.3 % of the sampled household use source of energy such as: wood and charcoal that are directly related with forest as a main hold .That is the source of charcoal is also from trees mainly in the government or community forest .Thus, both fuel wood and charcoal are obtained from trees in the forest .In addition 36.7 % of the sampled household also utilize combinations of the above fuel energy source with kerosene. In other words this group of respondents uses fuel wood and charcoal as well as kerosene as a source of fuel wood. Even though, their exact consumption is not known they rely on forest. Generally, 80.1% of the surveyed household either totally or partially relied on fuel wood as a source of energy, even though the clear consumption percentage of kerosene is not specifically known. Therefore, only 19.3 % of the sampled household are not depending on forest as source of energy .Which indicates these percent of the total household either totally consume energy source out off forest or not dependent of forest resource. That means only this small percent of the sampled household use kerosene and electricity as energy source for daily consumption.

Table 5: The source of fuel wood for sampled house hold

<i>Place Where they obtained energy</i>	<i>Frequency</i>	<i>Percent</i>
<i>Market</i>	<i>60</i>	<i>55</i>
<i>Church forest</i>	<i>21</i>	<i>19.3</i>
<i>government forest</i>	<i>18</i>	<i>17.4</i>
<i>Total</i>	<i>99</i>	<i>91.7</i>

Source: Field data, 2011

Nevertheless, as we observe in the table about 55% of respondents obtain their fuel wood from market .Besides, 17.4% are also getting from government forest .So, for the above two figure or 74.3 % of sampled household either directly or indirectly they are utilizing fuel wood of government forest. Because, as key informants responded the main source of fuel wood for the market is also obtained from the government forest in distant areas .For that matter, these people collect the fuel wood and sold it to the near by town around the monastery. As a result this is the main reason behind the decline of forest coverage of government forest in many part of Ethiopia in general and for the locality in particular.

5.3. Major Attribute of forest Resource

5.3.1. Excludability and Subtractability of Forest Resource

Forest is part of common pool resource characterized by difficulty of excludability and Subtractability. Excludability refers to the cost of difficulty to exclude others from the use of or access to resource (Mc Keen, 1996). In line with the above two attributes of forest resource, the study area Debre Libanos Monastery forest is also faced the problem of excludability and subtractability.

Naturally forest are characterized by difficulty of exclusion .It is one of the major attribute of forest as a natural resource. Even if, the monastery is trying to protect the

forest, similar to other management regimes of forest resources the monastery also threaten by the problem of difficulty of excludability of local community from using it. That means though the monastery tried to do its best in order to exclude people from not using forest resource still there is violation of the rules and regulation of the monastery concerning forest management. The sampled house hold survey reveals that still there is violation of rules concerning monastery forest management (table 6).

Table 6: Violation of rules concerning the monastery forest managements

<i>Forest rules are violated</i>	<i>Frequency</i>	<i>Percent</i>
<i>Yes</i>	<i>69</i>	<i>63.3</i>
<i>No</i>	<i>40</i>	<i>36.7</i>
<i>Total</i>	<i>109</i>	<i>100</i>

Source: Field data, 2011

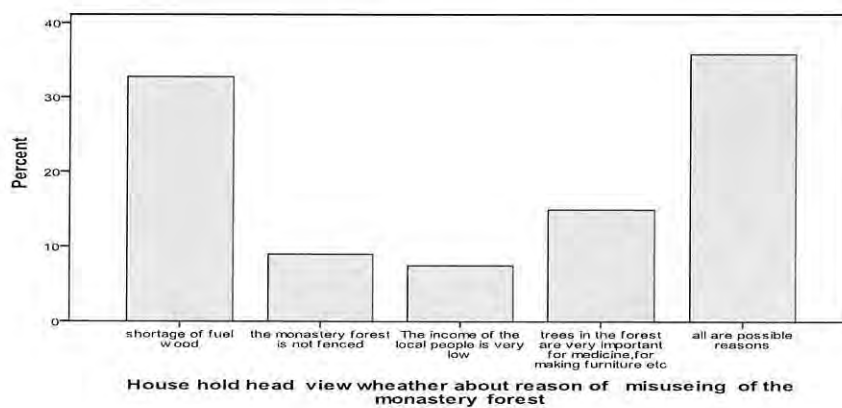
The response of sampled household, illustrate that almost two-third of respondent assert that there is violation of rules and regulation regarding forest management .In contrast, one-third of the respondent disagree with such view.

According to the sampled household survey 65.2 % of violation of rules and regulation concerning monastery forest management is by people who live around the monastery that means up to 5 km radius from the monastery. Besides, for the cause why these people are frequently violating rules and regulation concerning forest management the key informant interview indicated; it is due to conflict between the monastery and the local communities. Because the monastery argues that: this is a spiritual place therefore, every thing that disturbs the holiness of the place should be avoided .As a result; the monastery is asking the regional government in order to provide compensation land in other part of the region. Nevertheless, the local communities do not want to leave the area .So, as revenge the local communities are distracting the monastery forest, even they are devastating the newly planted seedlings from the monastery forest. In fact the general reason why people in the locality are frequently violating rules and regulation for monastery forest management; as the house hold survey proves (34%) is due to shortage of fuel wood in the locality.

The next larger groups (23.8 %) that violate the rules and regulation of the monastery forest are group of people who live with in the monastery. These are the members of monastery community but are not formally recognized user group .Hence ,the formal members are eight hundred five (805), they protect the monastery forest and has use right over the monastery forest also .However, there are additional members of the monastery community and they are students, who locally named as ‘yekolo temari’. These students of the monastery neither do not have income nor get cooked food from the monastery .Thus; they frequently misuse the monastery forest for source of fuel wood.

In general, for both group of people who frequently violate rules and regulation concerning monastery forest management reasons are indicated in sampled household survey. Based on the response of the sampled households there are different reasons for violation of rules and regulation of the monastery concerning monastery forest management (figure 7).

Figure 7: Reasons for misusing of the monastery forest



Source: Field data, 2011

The response of the household survey illustrates that among the specific reasons for misusing of the monastery forest management, the lion share (34%) as indicated is because of shortage of fuel wood in the area. Out of the total respondents 15% assert that the cause for violation of rules for monastery management is due to importance of diversified indigenous plants for medicine, for making furniture, etc in the monastery forest.

On the other hand, 36.0% of the household survey proved all listed reasons are possible answers. This indicates that there is not a single reason but all are interlinked and one affects the other. That means, one person may violate rules and regulations for managing the monastery forest for fuel wood, medicine, for making furniture, because of insufficient income and lack of boundaries or fences. In turn having, low income also raised the interest of the people to look for forest resources in order to support their livelihood.

But some studies consider lack of fence or boundaries as a reason that encourages people to use the monastery forest illegally. In other words, it creates open access for entering to forest resources. However, the sampled household survey of this study doesn't infer it as a basic reason. As observed, lack of boundary is the second least (5.5%) reason in terms of concern by sampled household responses. Therefore, demarcation or fencing by itself doesn't totally exclude communities from using forest.

In fact, the monastery forest coverage is very large, 5680 hectares, and encircled by people who live in and around the monastery. For better protection of the monastery forest, a number of guards are involved, but still nothing prevents difficulty of excludability from happening. This is mainly due to; strict protection by itself could not exclude everybody from using forest.

The discussion also revealed that the problem of difficulty of excludability is much greater for plantation trees of the monastery. The religious value 'Gizit' is an effective means of preserving indigenous trees of the monastery. However, the monastery couldn't exclude the local community from using its plantation. On one hand, it is the plantation which is located closer to the local community or highly encircled by those who mainly violate the monastery rule of forest management.

In line with this, forests as common pool resources are subtractable in consumption. Common pool goods are also subtractable in consumption (like private goods), which means they can be depleted. Without institutional mechanisms that address excludability and subtractability, then, common pool resources are essentially open access resources available to anyone, very difficult to protect and very easy to deplete (Mc Keen, 1996).

For that matter, indigenous trees in the monastery forest like 'Agam' and 'Girar' are decreasing in coverage; as the monastery is using them as source of fuel wood for cooking. According to the key informant interview it is a surprising to hear that the Monastery use daily 40 head load of Agam and Girar for baking food for 805 user groups who live within the Monastery. Roughly is about 14,600 head load consumption of such trees per year which seems below the regeneration capacity of such trees per year. Because, with in the monastery forest there are more cleared areas that previously covered with such species.

Since the monastery utilizes mainly two species for daily cooking of its formal members, as a result its forest resource is depleted. Further more the value of the monastery forest is also declined in turn subtracted. Because, as the key informants described utilization of those species is beyond the regeneration capacity of those species.

5.3.2 Size and Boundary of the Forest

Size of forest resource is important factor which affect the likelihood of managing the forest resource effectively. Many researchers who studied about forest as a natural resource favor medium sized forest as best .Because, they assert that it is the medium sized forest resource that is suitable for organizing user groups and delimiting the boundary of forest resource.

The monastery forest is not exactly known because different source estimate the areal coverage of monastery forest in different figure. According to the written source of the monastery the land coverage of the monastery now is around 5680 hectare .That means, the size of the monastery forest is large but the boundaries are not fenced. According to the result of focus group discussion it is not the size of the monastery forest which brought the difficulty in managing the monastery forest. They indicated that lack of clear demarcation and fences on the forest resource of the monastery, as reasons behind such problem (misusing the monastery forest). For that matter, fencing and marking of the monastery forest is part and parcel of the solution of misusing of the monastery forest.

5.4 Major Attribute of the Community

5.4.1 Heterogeneity, User Group Size and Dependency on the Forest

The major attribute of the community related to forest management are heterogeneity, size and dependency on forest resources. These all are the attribute of the community which either positively or negatively affect the possibility of success of self organization of user group in order to manage forest resources.

Groups can vary along a diversity of dimensions including their cultural backgrounds, interest and endowments (Balnd and Platteau, 1996). According to Ostrom (2005) values and behavior accepted by the society in question, the common understanding that the potential participant share, or do not share, about the structure of the action arena, as well as the size and composition of the community are all important factors. The research tests some of attribute of the user groups. These are religious background, income, ethnicity, age, etc.

Religiously, all the user groups are followers of Christian or Ethiopian Orthodox religion. Therefore, they are homogenous in terms of religion.

In terms of property also no one in the user groups of the monastery forest is allowed to have his/her own property. The user groups are people who formally recognized members of the monastery get almost equal amount of income. Thus, when everybody came to the monastery, it is expected that he/she should come there by abandoning of his secular life of that person. Therefore, if he/she has her/his property will be confiscated by the Monastery. So, there is no much variation in the amount of income obtained by user group. Therefore they are homogeneous in terms of wealth. They all live together; eat together and work together in order to protect the Monastery forest in a sustainable way.

In contrast, there is an ethnic difference in the user group. However, in the religions institution like Debre Libanos Monastery such data about ethnicity can not be obtained since the members do not want to exaggerate such differences as a considerable one.

According to Ostrom (1999) When the interest of user different achieving a self governing solution is particularly challenging. The result of focus group discussion

however illustrate, heterogeneity specially having different religions, different educational background, difference in culture, age is not a problem in management of Debre Libanos Monastery forest. Because, people of the monastery are brothers and sisters in God and there is no difference so they always work together peacefully as well they all stand together in order to protect the Monastery forest.

Many scholars who study the role of institution in forest management outlined size of user groups as an important factor that affect the successes of organization for forest management .However, still non of them made clear demarcation what is small or large size should hold .

Studies give emphasis for size as an important factor which affects the likelihoods of successes of organization .According to Chamber (1974) and Hardin (1982) one of the problem of focusing on size of group as a key factor is that many variable change as group size increases.

Even though, there is no fixed number that smaller or larger group must hold, Debre Libanos monastery Forest user groups must belong to larger size user groups. Because the number of these formal members of the monastery who has the right to use the monastery forest is more than eight hundred, actually this is large size. Nevertheless, this large number is not a problem for managing the monastery forest rather it is serving as another input for different activities done by the monastery regarding forest management.

Since monitoring of the monastery forest is done by the monastery itself, having larger group size is important for facilitating monitoring activity of the monastery. Therefore, as the members of user group increases there is a possibility of increasing the number of guards who protect the monastery forest which in turn is additional input for better management of the monastery forest.

Similar study done assert that large size add additional input to forest management (Isaac et al., 1997) , If the cost of a forest, say a sanctioning system remain relatively constant as group size increases, then increasing the number of participants brings additional resource that could be drawn up on to provide the benefit enjoyed by all.

In Debre Libanos monastery, however, having large size is not a problem or it doesn't negatively affect coordination level of the monastery forest management. According to the result of focus group discussion this is mainly due to here members of the user groups are spiritually tightened together for one objective. So, they consider managing forest as one of their spiritual duty.

People in Debre Libanos monastery are not really dependent on forest resource of the monastery. Since the monastery does not allow either the communities monastery or the local communities to use forest.

With such imposition of restriction no one is allowed to use the monastery forest except the monastery. Thus, through restricting the use right of any one, the church is able to preserve the forest. In addition, the forest of the monastery is highly protected by the guards. In order to protect the forest more than twenty guards are involved and they protect it in different shifts of day and night. They are not protecting the whole forest in the same emphasis. More emphasis is given for protecting indigenous trees and the forest area which is encircled by local community.

Table 7: Right to harvest, manage and decide over the monastery forest

<i>View of respondents' about their right in the monastery forest to harvest, manage and decide</i>	<i>Frequency</i>	<i>Percent</i>
<i>Allowed</i>	<i>6</i>	<i>5</i>
<i>Not allowed</i>	<i>103</i>	<i>95</i>
<i>Total</i>	<i>109</i>	<i>100</i>

Source: Field data, 2011

According to the sampled house hold survey 95 % of the respondent assured that they do not have the right to harvest, manage and decide over the monastery forest. The house hold survey indicated that from the total respondent only (5%) has the right to harvest, manage and decide over the monastery forest. Thus only the user groups, who are formal members of the monastery community, are directly dependent on the

monastery forest. It seems 5% of the response may belong to user groups of the respondent household who has the right to harvest, manage and decide over the monastery forest. Because, these people obtain their daily food from the monastery which is prepared by fuel wood, it is found in the monastery forest. Therefore it is only the monastery that uses fuel wood from its forest in order to cook the food for those formal members of the monastery.

5.5 Formation of Rule and Rule enforcement

5.5.1 The Process of Rule Formation

The monastery has rules and regulations for forest management even though they are not found in written and organized form.

According to the household survey 93.6% of the respondents illustrated that rules and regulation for administering the Monastery is formulated by communities of the monastery. The communities of the monastery includes; the monastery administrator (Tsebate), the twelve administrative committee of the monastery, formal members of the monastery and student in the monastery. From this we can conclude that rules and regulations for administering the monastery forest are formulated by the Monastery itself. Like wise , studies have shown that when the users of a common-pool resource organize themselves to devise and enforce some of their own basic rules, they tend to manage local resources more efficiently than when rules are externally imposed on them (Baland and Platteau , 1996).

Study done concerning the participation of user group in rule making also strengthened these points which is users must participate in rule making processes. Accordingly, when the users themselves have a role in making rules ,or at least consider the rules to be legitimate ,they are frequently willing to engage themselves in monitoring and sanctioning of uses consider illegal , even of public property (Ostrom and Negendra , 2006).

When we see the level of interest of local community participation in formulating rules and regulation concerning the monastery forest management, most local community as illustrate in sampled household survey has the interest to participate. The result of house hold survey indicated that (93.6 %) of sampled house hold head has interest to

participate in formulating rules for administering the monastery forest. On the other hand, when we see the real experiences of household participation in formulating rules only 46.8 % of sampled household have got real experience on formulating rules concerning monastery forest administration.

From the response of sampled house hold view, we can conclude that even though the local community has high interest to involve in formulating rules for administering the monastery forest their real experience is insignificant .Only, those respondents who are the members of monastery community are really participating in the process of rule making. They are involved because, are part and parcel of monastery communities, who also involve in protecting the monastery forest and planning trees. So, these people are real stake holders of the monastery forest.

However, a considerable number of the local people lacked the access to participate in formulating rules and regulation regarding the monastery forest management and administration. That is why only 3 percent of the respondents assumed the local communities as a responsible body to formulate the monastery forest. For that matter, most studies agree that positive outcomes in decentralized environmental governance are unlikely in the absence of popular participation in local decision making (Blair, 2000). There fore, there is no popular participation in drafting rules and regulation concerning Debre Libanos monastery forest management. This seems the reason why local and communities often not respecting rules and regulation of the monastery concerning forest management.

Most scholars of commons recognize the importance of different causal processes at play; they often focus on local enforcement as one of the most important features of sustainable forest governance (Agrawal and Chhatre, 2006). Besides, rules and regulations for forest management enforcement mechanism is very crucial element that affect the process of sustainable forest management .That means, for sustainable management of forest , the rules and regulations for managing forest resource must be properly enforced .

Table 8: Who took measure on those who violate rules and regulation concerning monastery forest management

<i>who took measure</i>	<i>Frequency</i>	<i>Percent</i>
<i>Monastery administration</i>	102	94.2
<i>Local government</i>	4	3
<i>Local community</i>	3	2.8
<i>Total</i>	109	100

Source: Field data, 2011

Accordingly, the response of sampled household survey illustrates that; 94.2 %, penalty for breakers of rules and regulation concerning monastery forest management is undertaken by monastery administration. In addition there are times where local government are also panelizing breaks of rules (3%). Since the question of who is doing enforcement measure can either positively or negatively affect the sustainability of forest management, knowing who is doing the enforcement is very critical. While rule enforcement does appear to be a necessary condition for the establishment and sustainability of effective forest condition, a various debate exists concerning who should do the enforcing (Igoe, 2004). Thus penalties imposed on the breakers of the rule have been delivered by different stake holders. Among them the lion share of enforcement for the breakers of the rule according to the house hold survey is by the monastery of DLM forest management.

The type of penalty imposed on those who violate the rules of the monastery and captured while cutting the monastery forest are various. These penalties range from fine payment to imprisonments by local government.

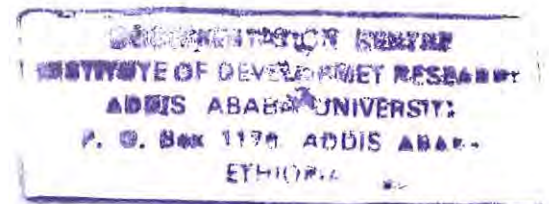


Table 9: Type of Penalty Imposed on the Breakers of the Rule

<i>Type of penalty imposed</i>	<i>Frequency</i>	<i>Percent</i>
<i>Fine imposed by monastery administration</i>	<i>26</i>	<i>23.8</i>
<i>'Gizit' by priest of the monastery</i>	<i>41</i>	<i>39.4</i>
<i>Social discrimination by local community</i>	<i>2</i>	<i>1.8</i>
<i>All are responsible to impose penalty</i>	<i>26</i>	<i>24</i>
<i>Total</i>	<i>109</i>	<i>100</i>

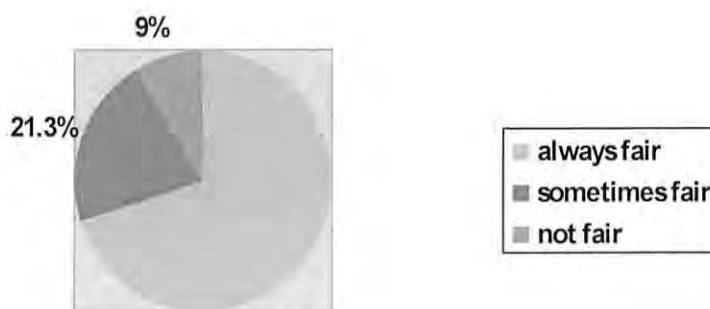
Source: Field data, 2011

The above table indicates that Gizit is the major type of enforcements that account 39.4% of enforcement measure on the monastery forest management .In addition to Gizit the monastery also impose fine which account the second dominant measure 23 .8% of the penalties .Thus, the monastery as a religious institution either impose the religious sanction Gizit or impose fine payment; both account 63.2 % of the rule enforcement by the monastery. Since, the issue concerning forest very crucial issue under FDRE government rules and regulation, the local government is also passing a serious measure on breakers of rules concerning forest management. But, the monastery refers the case to the local government whenever the issue is beyond their capacity.

In addition, the view of house hold concerning fairness of the type of measure taken by the monastery indicate that it ranges form always fair, sometimes not fair, is always not fair 69.7% , 21.3% and 9% respectively.

The pie chart (figure 8) shown below indicates that most of the time (69.7 %) response of the house holds survey the monastery took fair measure on those who violet rules concerning monastery forest administration. Therefore, the monastery primary imposes 'Gizit' on local community by the objective of not touching monastery forest. However, if someone is not able to be bind by 'Gizit' a remarkably fair measure delivered on him/ her.

Figure 8: Fairness of measures taken by the monastery on those who violate the rule concerning forest management



Source: Field data, 2011

Due to all the above reason, different researchers now a day are considering the important of rule enforcement. Even as scholars of commons agree, fair local enforcement is one among the main element which brings sustainability in management of forest resources. There fore, fair enforcement is the major reason behind better forest management of Debre Libanos Monastery.

Compliance to rules is also found to be extremely important for effective functioning of an institution. Forest protection and enforcement of rules are considered key factors in the improvement of forest condition (Yadav et al., 2003).

5.5.2. The Contribution of Local Values and Practices

A person that cuts a tree or even a dead branches of tree for personal use would be presented to the church scholars and asked to repent and be committed not to repeat the mistake a gain .If the personal tail to admit his /her mistake again, he /she would be alienated from the church community and would not be entitled to service from the church this sanction is known as' Gizit' .Hence, the orthodox Christians fear' Gizit', they do not dare cut trees in church forest (Alemayehu, 2002). However, in the study area' Gizit' is like forbidding individuals not even to touch the monastery forest for the first time. In addition if the person violates and cut trees he /she also alienated from the

church community through 'Gizit'. Hence, 'Gizit' in the study area is both the rule that forbid not cutting tree and the measure imposed on those who cut trees.

Figure 9: Picture of Debre Libanos Monastery Forest



Source: Field survey, 2011

Therefore it is through religious value 'Gizit', strict protection and good practice of the local community (planting tree every year) that the above forest is able to be preserved in the monastery forest. According to the result of FGD one of the important local values and practices in Debre Libanos monastery forest management is the religious practice known as 'Gizit'. Thus, it is the only religious value that has been played greater role in management and preservation of the Debre Libanos monastery forest.

Besides 'Gizit', as the church is an institution found in the world also follow difference means of protecting its forest. One among the others is following strict management approach. In line with this, the church also follow strict control of her forest through gun and bullet. For that matter guards are involved in protecting the monastery forest.

According to Alemayehu (2002) since church and their forest resource are found in the world where there are different attitude and perspective of people, they also use guard and civil law to protect their forest resource. So, if individuals are not able to be bounded by religious sanction 'Gizit' by the church also bring breakers of the law to the court. This is the reason why that nearly 3% of house hold survey respondent

assumption of local government is responsible for rule enforcement concerning the monastery forest managements.

The monastery leaders use 'Gizit' especially in order to protect indigenous trees species like 'Woyera', 'Tid' and others. The society, in 'Gizit' told even not to touch the leaves of such indigenous trees by the priest. The religious justification for not to cut these indigenous trees is the trees are like umbrellas for the sprit of saints in the monastery.

5.5.3 Local Practices that Hinder Forest Management at Debre Libanos Monastery

According to the result of FGD and HHS the local practices that hinder forest management in Debre Libanos Monastery are grave and cutting of tree for daily cooking.

The area is highly needed for grave which happened daily. Even there is the day when more than 20 people are buried in the monastery. The people who wanted to grave in the monastery are not only local communities (or who live in the near town) but also from all over the country. Because religiously people believed that if their dead body buried in DLM they will get salivation. However, digging much land for grave caused drying of root of trees and degrading of forest land.

Figure 10: Graves in Debre Libanos Monastery forest



Source: Field survey, 2011

Secondly the monastery community have been using particularly two indigenous species for daily cooking food ('Agam' and 'Girar') .Because they believe that the smoke is like cure to the sin of human being in addition to that of shortage of fuel energy . So if they stop or replace using those species it will cause trouble to the area in particular and to the country in general.

Therefore economically the forest are being utilizes mainly for fuel wood consumption and construction of home for user groups. Other study indicate management forest for single product will affect the forest's ability to provide other service or products, so trade- offs have to be made (ITTO, 1998). This is mainly because managing the forest for fuel wood and house making may affect the value of forest for other purpose (i.e. habitat of wild life). According to the research result of (Chhatre and Agrawal, 2008) they found that the probability of degradation increase with increases proportion of fire wood needs supplied from a forest.

Since the monastery utilizes its forest of these two species for daily consumption without considering their regeneration capacity of such species. As a result, there is an over use of such species by cutting forty head lodes per day. Annually they use about forty thousand and six hundred (14600) head load of trees in the monastery forest per year.

5.6 Institutions and Sustainable Forest Resource Management

The term institution is conceptualized by different authors in different ways. Most definitions, however, translate the term by referring to structures, mechanisms and processes as well as rules and norms that govern human behaviors and social order (North, 1990).

5.6.1 Informal Institution and Sustainable Resource Management

The past attempts by donors and governments to import practices, rules and values of sustainable CPR management from one environmental and cultural context to another had limited success. This had turned the attention of the development agencies to the importance of the already existing informal institutions within the 'target environment' (Watson, 2003).

Studies done in sub Saharan Africa revealed that informal institutions have contributed to sustainable CPR management by creating a suitable environment for joint decision making, enabling exclusion making, enabling exclusion at low cost for CPR users and using locally agreed sanction. The concerned local level informal institution in management of Debre Libanos forest is ‘Debre Libanos Monastery Administration’.

Thus, the monastery play the major role regarding managing, protecting, formulating rule and enforcing the rules for monastery forest management. According to the result of respondent of the household survey illustrated that monastery’s role in planting, protecting and administering forest , in percent are 87.2, 79.8, and 81.7 respectively. In fact the result of household survey also indicates that it is the monastery that play greatest role in managing the forest resource of Debre Libanos monastery. From the sampled house hold survey also we can conclude that it is the informal institution; the church that is playing the major role in planting, protecting and administering the monastery forest.

Moreover, as informal institutions are embedded in communal structure, they allow the incorporation of the community mechanisms and knowledge about the sustainable management and utilization of CPRs in to the CPRs management (Zealelem, 2005).

Likewise, a study by Alemayehu (2002) in the northern highlands of Ethiopia found that rural communities were highly committed to managing forests in and around the Ethiopian Orthodox Churches. Such commitment came from theological and biblical thoughts that churches were holy places and houses of God, where cutting of trees is considered an immoral deed. As a result, churches have a remarkable impact in protecting the remaining patches of natural forests in northern Ethiopia.

Besides, the local communities are also taking part in planting, protecting and administering the monastery forest as we observed sampled house hold survey. The sampled house hold survey illustrates that, 8.3% as both the local and monastery community as responsible to protect and control protecting and administering the monastery forest. In addition 7% of respondent also are tracing the local community as responsible for protecting and controlling the monastery forest. However, currently it seems the local community not cooperating with the Churches. Since, the local

communities and the monastery are under conflict, the former are not highly engaged in administrating the monastery forest. .

However, now a day the communities are penetrating into the forest preserve of the church. Which indicate if the disturbance continues even the EOTC will not remain as island of forest diversity of Ethiopia. Because of these church forests, however, are threatened due to disturbances such as cutting, grazing (mainly cows and goats), droughts, and fires occur at increasing intensity and frequency (Emiru, 2002).

There fore, it is only the monastery that still preserved its forest resource and protected it. On the other hand the local community's role is currently reserved due to the breaking of conflict between the monastery and the local community.

5.6.2 Formal institutions

On the other hand the role of formal institution is very little in management, protection and administration of Debre Libanos Monastery forest. 93.4 % of the house holds survey illustrated that there is no other organization that is engaged in management of the monastery besides the monastery. That indicates only the monastery is responsible for managing, protecting and planting its forest and enforcement for breakers of rule. The government is not significantly able to coordinates with the church regarding management of forest.

In addition, the result of house hold survey also indicated that among the roles of formal institution in planting, protecting and managing the monastery forest contribution of government in managing the monastery forest is the least.

Though ,there is no organization which permanently engaged in management of the monastery forest, but sometimes local government provide seedling to the monastery .In addition there was also times at which some non governmental organizations also involved in management of the monastery forest . For that matter, the response collected from household about whether there is coordination among the organization who work in the monastery revealed that most household asserted the absence of coordination.

Thus, we can conclude that the role of local government in managing the monastery forest very insignificant .So that government has to cooperate with the monastery in order to manage the monastery forest in a better way .Even government must facilitate training and technical support about forest management for the monastery .

5.7 The Sustainability of Forest management in Debre Libanos Monastery forest

Sustainable forest management is the process of managing forest to achieve one or more clearly specified objective of management with regard to the production of a continuous flow of desired forest product and services without under reduction of its inherent values and future productivity and without undue undesirable effect on the physical and social environment (ITTO, 1998).

Since, most of the elements of sustainability under the meaning of sustainable forest management are implementing by monastery forest (according to the meaning UN, 2007). We can conclude that the forest is managed in a sustainable manner except for the two species that are utilized daily.

Besides, other activities done by the monastery concerning forest management enforcement of the rule is also important role mainly done by the monastery. As other studies reveal who did the enforcement is very crucial for sustainable management of monastery forest.

Study by other researcher revealed also that these highest possibilities of degradation can be moderated by strong enforcement (Chhatre and Agrawal, 2008). On the other hand, some researcher assert that without involving local forest users in protected area activities , including monitoring and enforcement ,is impossible to sustain valuable forested land (Stevens ,1997 ;Wells and Brandon ,1992).

When we compare management of forest under the church and the government regime it is incomparable. Because, the conditions of government forests, which are found in the study area, worsened but the condition of church forest is improved. As we proved in the sampled house hold survey 90% of the respondent assert that the condition of the church forest is improved. In contrast 93% of surveyed house hold respondent indicate the condition of government forest is worsening. There is also highest deforestation over government forest. Due to this, at present time only ruminant of

forest are left behind the previously forest cover areas. Moreover, even most of the ruminant forests under government managed forest are plantation of eucalyptus tree.

Even though, the monastery able to managed its forest land in a better way there is still problems under the monastery forest also. From the total sampled house hold respondent the majority (62.4%) assume the monastery does not managed its forest resource with full potential.

These sampled house hold surveyed responds also indicate the reason for not managing the monastery forest with full potential. From the total respondents 22% of them assert lack of modern technology as a main reason for under management of the monastery forest

In fact the sampled household survey revealed, that lack of modern technology that includes the shortage of modern seedling, planting, protecting technologies and coordination are the main reasons for not fully managed its forest with full capacity. Other researchers also agree that; one of the most universally accepted finding is that successful decentralized governance of natural resources relies on technical capacity of local unit to which governance responsibilities have been devolved (Kaimowitz et al., 1998).



Chapter Six

Conclusion and Recommendation

6.1 Conclusion

The role of local institution in Debre Libanos Monastery forest management studied in the paper. Like other studies I also find a positive relationship between strong local institution and better forest conditions. This result fit well with existing theory and research (Gibson et al, 2000).

For its increase the positive attitude of the monastery community is accounted. As the study by Alemayehu Wassie (2005) indicated that the positive attitude to the resources protected by the church and the acceptance of the church tradition is thus an opportunity for forest conservation. Therefore, the isolated remnant forests of churches, with their higher woody diversity are a potential for in situ and ex situ conservation sites.

In addition, the religious value Gizit is serving as an effective means of protecting the monastery forest. Besides, the monastery is also protecting the forest with its guards. But the forest resource of the monastery is highly challenged and there is misuse of the monastery forest by people who live in and around the monastery. These church forests, however, are threatened by cause disturbances, such as cutting, grazing mainly cows and goats, drought and fire occur at increasing intensity and frequency. Ex closures promote restitution (Emiru Birehane, 2002).

Besides, the monastery's approach of strict management of the forest forbid over utilization of the forest. However, utilization of two species of the forest Agam and Acacia for daily fuel wood forest result in destruction of such species of the forest.

Heterogeneity and group size are not the problems in management of the monastery forest. Since, people in Debre Libanos monastery stood for common objectives. They assume themselves as brothers and sisters in God. So this attribute does not prevent their level of cooperation. Thus, even though people who from diversified background are living in the monastery, it does not affect their level of cooperation in order to manage the forest in a better way.

In general, the local people of the Debre Libanos Monastery are not dependent on the forest resource of the monastery. That is why the monastery forest is showing progress over time while the condition of the government forest worsened over time.

The monastery as an institution is playing the greatest role in administering, planting and protecting the forest. Thus, it is the informal institution which plays the major role in managing Debre Libanos Monastery forest. In fact, the formal governmental organizations role is limited to providing seedlings and enforcing rules in the courts.

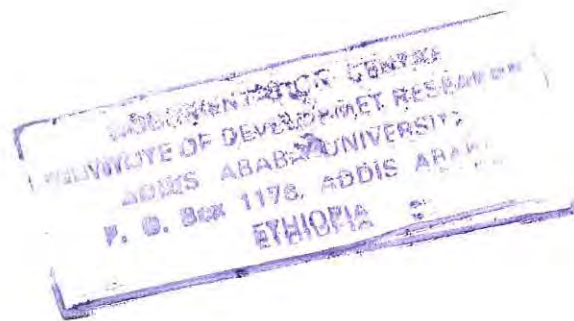
There fore, the major contribution of this study is to show how strong informal institutions are contributing for management of forest in Ethiopia. So, strengthening the capacity of such institution is considered as important in order to manage the forest resource of the country in sustainable manner.

6.2. Recommendation

Based on the findings of the study it is useful to suggest the following points as recommendation.

- Recognizing the role of local institutions in forest management is very crucial in order to protect forests sustainably.
- Building the capacity of informal institutions such as church enables its role in forest management sustainable.
- Training church scholars about scientific way of preserving forest and reproducing new seedlings of the tree.
- Providing new technology that enable sustainably in forest management of the monastery.
- Enhancing the awareness of the local community in order to involve in administering, protecting, planting, etc of the monastery forest is very important.
- Attention should be given to religious values like ‘Gizit’ as important religious values that enable forest management practical.
- Government policies have to provide essential coordination and cooperation with the church in order to manage forest sustainably.

- Government have to share the traditional churches knowledge , practice and value as an essential lesson for forest management as well integrated it with modern thinking of forest management.
- The church area must be well demarked and fenced in order to stop further encroachment by the local community.



References

- Agrawal, A. 1995. "Population Pressure = Forest Degradation: An Over Simplest Equation?" *Unasyuva*
- Agrawal, A. 1998. Group size and successful, collective action; a case study of forest management institution in the Indian Himalayas . In : Gibson, C-, McKeen, M. and Ostrom, E (eds) forest resource and institution. Forests Trees and people program, Working paper 3. FAO, Rome , Italy.
- Agrawal, A. 1999. 'Greener pastures: politics, markets and community among a migrant pastoral people', Durham, NC: Duke University Press
- Agrawal, A. and Chhatre, A. 2006. Explaining success on the commons: Community forest governance in the India Himalaya *World Dev.* 34 : 149-165
- Agrawal, 2008. Local Institution and Climate Adaption. Social Development Notes, community Driven Development
- Agrawal, A., Chhatre, A. and R. Hardin. 2008. "Changing Governance of the World's Forests." *Science*
- Alan B.Dixon and Adrain P. Wood, (2007). Local Institutions for Wetland Management in Ethiopia: Sustainable and State Intervention
- Alemayehu, W. 2002. Opportunities, constraints and prospects of Ethiopian Orthodox Tewahido Churches in conserving forest resources: The case of churches in South Gonder, Northern MSc thesis. University of Agricultural Sciences. Sweden.
- Alemayehu Wassie, Demel Teketay and N. Powel. (2005): Church forests in North Gonder Administration zone, Northern Ethiopia forests, Trees and Livelihood
- Alemayehu, W. 2007. Ethiopian church forests: Opportunities and challenges for restoration. Ph.D. dissertation, Wageningen University, the Netherlands.
- Andersson, K. P., C.C. Gibson, and F. E. Lehoucq. 2004. "The Politics of Decentralized Natural Resource Governance." *PS: Political Science and Politics*
- Andersson, K. 2006. Understanding decentralized forest governance: an application of the institutional analysis and development framework. *Sustainability: Science, Practice, & Policy* 2(1):25–35.
- <http://sspp.proquest.com/archives/vol2iss1/0507-010.andersson.html>.

- Appiah-Opoku, S. and Hyma, B., 1999. Indigenous institutions and resource management in Ghana. *Indigenous Knowledge and Development Monitor*, nov.1999.
- Arnold, J.M.E (1992) *Community Forestry : ten years review*. User group based forest Management program note. 32pp FAO Publication. Rome.
- Ashwini Chhatre and Arun Agrawal (2008) *Forest commons and local enforcement*
- Baland, J.P. and J.M. Platteau (1996), *Halting Degradation of Natural Resources: Is There a Role for Rural Communities?* Oxford: Clarendon Press.
- Banana, A. Y., and W. Gombya-Ssembajjwe. 2000. *Successful Forest Management: The Importance of Security of Tenure and Rule Enforcement in Ugandan Forests*. In *People and Forests: Communities, Institutions, and Governance*, ed. Clark C. Gibson, Margaret A. McKean, and Elinor Ostrom, Cambridge, Mass.: MIT Press
- Banana, A., N. Vogt, J. Bahati, and W. Gombya-Ssembajjwe. 2007. "Decentralized Governance and Ecological Health: Why Local Institutions Fail to Moderate Deforestation in Mpigi District of Uganda." *Scientific Research and Essay*
- Barzel, Y. (1989) *Economic Analysis of Property Rights*. Cambridge: Cambridge University Press.
- Bhagwat, S. and C. Rutte. 2006. Sacred groves: Potential for biodiversity management. *Frontiers In Ecology and the Environment* 10: 519-552.
- Black, M. 1962. *Models and Metaphors*. Cornell University Press, Ithaca.
- Blair (2000) participations and accountability at the periphery democratic local governance in six countries – world D2V- 28(1): 21-39
- Blunt, P. and Warren, D.M. (1996) *Indigenous Organization and Development*. ITDG publishing, London.
- Dessaiegn Rahmato, 2001. *ENVIRONMENTAL CHANGE AND STATE POLICY IN ETHIOPIA: Lessons from Past Experience*. Forum for Social studies, Addis Ababa.
- EFAP, 1994. *Ethiopian Forestry Action Program*, EFAP. Addis Ababa. Sayer, J.A. Harcourt, C.S. and Collins, N. M. (editor).1992.
- Elnaiem, B. (2004). *The impact of social institutions on the role of women: Insights from a rural area in North-Sudan*.

- Emiru Birhane. (2002). Actual and Potential Contribution of enclosures to enhance biodiversity in dry lands of Eastern Tigray, with particular emphasis on woody plants. MSc thesis Swedish University of Agricultural Science
- Gibson C. Williams, J. and Ostrom, E. 2005. Local Enforcement and Better Forest, World Development
- Gibson, C.C., E. Ostrom and M.A. McKean. 2000. Forests, people, and governance: some initial theoretical lessons. Pp. 227-242, in People McKean, eds.). MIT Press, Cambridge, USA.
- Hardin, G. 1968. "The Tragedy of the Commons." *Science* 162: 1243–8.
- Hardin, R. (1982). collective action Johns Hopkins University press, Baltimore, MD
- IITO. (1998). Criteria indicator of for sustainable management of natural tropical forest.
- Kaimowitz D. Angelsen A. (1998). Economic Models of Tropical Deforestation: A Review center Int. for Res Bogor, Indonesia)
- Kitessa Hundura ,(2005). Traditional Forest Management Practice in Jimma Zone KFS, 2007 Forest Law Enforcement and Governance in Kenya
- Marsh, R. (2003): Working with local institutions to support sustainable livelihoods, FAO, Rome
- McKean, M.A. 1992. Success on the commons: A comparative examination of institution for common property resource management. *J. Theor. Ploit.* 4(3):247/82
- North, D.1990 .Institution, Institutional Change and Economic performance. Cambridge University press Cambridge
- Ostrom, E. 1990. Governing the commons: The evolution of institutions for collective action. Cambridge: Cambridge University Press.
- Ostrom, E. 1999. Self governance and Forest Resource. CIFOR occasional paper no.20 (February) Bogor, Indonesia. Centre for International Forestry Research (CIFOR)
- Ostrom, E. 1992a. Crafting institutions for self governing irrigation systems. ICS Press, San Francisco, USA
- Ostrom .E .and R. Gardner (1994) Rules, Game, and Common Pool Resource .Ann Arbor: University of Michigan Press.

- Ostrom, E. C. Gibson, S. Shivakumar and K. Andersson. 2002. Aid. Incentives and Sustainability: Institutional analysis of international development corporation SIDA studies in evaluation no.02/01. Swedish International Development Cooperation Agency(SIDA), Stockholm, Sweden.
- Ostrom, E. and H. Nagendra. 2006. Insights on Linking Forests, Trees, and People from the Air, on the Ground, and in the Laboratory. PNAS 103(51): 19224-31.
- Sibanda, B. 1997. Governance and the environment: The role of African religion in sustainable Utilization of natural resources in Zimbabwe. Forests-Trees-and-People- Newsletter (FAO) (Sweden). (Sep1997). (No. 34) Pp. 27-31.
- Stern, P., T. Dietz, N. Dolšak, E. Ostrom and S. Stonich. 2002. Knowledge and question after 15 years of research. In: *The drama of the commons* (ed. National Resource Council). Washington, DC: National Academy Press.
- Stevens, S (1997). New alliances for conservation In s-stevens (Ed) . Conservation through cultural (PP.33-62). Washington, DC , Island press.
- Tamrat Bekele, (1994) ;Studies on Remnant Afromontane Forest on the Central Plateau of Shewa, Ethiopia ; 1994 ACTA UNIVERSITATIS UPSALIENSIS UPPSALA
- Taye Bekele , (1998) Biodiversity conservation: experience of the Ethiopian Orthodox Tewahido Church, In MSc in Forestry Graduates Magazine, 1994-1998.
- Tatu Tornainen, (2009) Institutions and forest tenure in the Russian forest policy Faculty of Forest Sciences ,University of Joensuu Academic dissertation, Finnish Society of Forest Science
- Wade, R. 1994. Village republics: economic conditions for collective action in South India. ICS Press, Oakland, CA.
- Watson, E. (2001): Inter institutional alliances and conflicts in natural resource management. Preliminary research findings from Borena Oromia Region, Ethiopia. Rep .Working Paper 4, Marena Research Project, Cambridge.
- Watson, E. (2003) Examining the potential of indigenous instructions for development perspective from Borena, Ethiopia. Development and change 34(2) ,
- WBISPP. 2004. Woody Biodiversity Inventory of Scientific Plan Project, Addis Ababa, Ethiopia
- World Bank, 1992. *World Development Report*. New York: Oxford University Press.

Yeraswork Admassie, 1995. Twenty Years to Nowhere: Property Rights, Land Management and Conservation in Ethiopia. PhD. Dissertation, Uppsala: Uppsala University.

Zealelem T. and N. Leader William. 2005. Indigenous common property resource Management in the central highlands of Ethiopia. *Human Ecology* 33(4): 539 ~ 563

Appendices

Table 10: condition of church forest

Condition	Frequency	Percent
No change	9	9.6
Improved	100	90.4
Worsened	0	0
Total	109	100

Source: Field Survey, 2011

Table 11: House hold head attitude towards planting tree

Do you like planting tree?	Frequency	Percent
Yes	100	91.7
No	9	8.3
Total	109	100

Source: Field Survey, 2011

Table 12: Interest to participate in rule formulation

House hold interest to participate in rule formation	Frequency	Percent
Interested	102	93.6
Not interested	7	6.4
Total	109	100.0

Source: Field Survey, 2011

Table 13: Frequently violate the rules and regulation of the monastery forest

Who frequently violate rules	Frequency	Percent
Those who live in the monastery.	26	23.8
Those who live around the monastery (up to 5km)	71	65.2
Those who live far away of the monastery(5-10km)	8	7.3
Those who come to visit the monastery	4	3.7
Total	109	100

Source: field survey, 2011

Table 14: House holds head view about participant in formulation of rule

Rule have been formulated by	Frequency	Percentage
community of the monastery	102	93.5
local government	3	2.8
monastery community and local government	1	0.9
community of the monastery and local community	3	2.8

Source: Field Survey, 2011

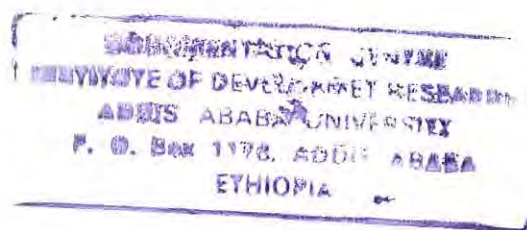


Table 15: House holds head response about the level of local community participation in management of the forest

Response on level of participation	Frequency	Percent
Satisfactory	20	18.3
Unsatisfactory	56	51.4
Sufficient	33	30.3

Source: Field Survey, 2011

Table 16: The presence of coordination of organization that work in the monastery

Is there coordination among organizations who work in the monastery	Frequency	Percent
Yes, there is coordination	43	40.3
No , there is no coordination	56	59.7
Total	109	100

Source: Field Survey, 2011

Table 17: Condition of the Government forest

Condition	Frequency	Percent
Not changed	8	6.6%
Improved	0	0
Worsened	101	93.4 %
Total	109	100

Source: Field Survey, 2011

Table 18: Diversity of species in Debre Libanos

No	Family Name	Botany Name	Local Name
1	Fabaceae	<i>Acacia abyssinica</i>	Laaftoo
2	Apocyanaceae	<i>Acokanthera schimperi</i>	Qaraaruu
3	Asteraceae	<i>Artemisia sp.</i>	Lamee
4	Liliaceae	<i>Asparagus asiaticus</i>	Sariitii
5	Melanthaceae	<i>Bersama abyssinica</i>	Lolchiisaa
6	Simaroubaceae	<i>Brucea antidysenterica</i>	Qumanyoo
7	Papilionaceae	<i>Calpurnia subdecandra (L. Herit)</i>	Cheekaa
8	Capparidaceae	<i>Capparis tomentosa</i>	Arangaba
9	Apocyanaceae	<i>Carissa spinarum (c. edulis)</i>	Agamsa
10	Menispermaceae	<i>Cissapelos pareira L.</i>	Hidda
11	Boraginaceae	<i>Cordia Africana</i>	Waddesa
12	Euphorbiaceae	<i>Croton macrostachyus</i>	Bakkanisa
13	Euphorbiaceae	<i>Cultia abyssinica jaub & spach</i>	Gogaa
14	Sapindaceae	<i>Dodonea Viscosa (L. Jacq)</i>	Ittacha
15	Sterculiaceae	<i>Dombeya torrid</i>	Daanisa
16	Flacourtiaceae	<i>Dovyalis abyssinica</i>	Koshommii
17	Asteraceae	<i>Enchinops longisetas</i>	Kosoruu
18	Ebenaceae	<i>Euclea racemosa (subsp. schimperi)</i>	Mi'essaa
19	Euphorbiaceae	<i>Euphorbia abyssinica</i>	Adaamii
20	Moraceae	<i>Ficus sur (F. capensis)</i>	Harbuu
21	Moraceae	<i>Ficus vasts (Farsk. var)</i>	Qilxuu
22	Rubiaceae	<i>Galiniera coffeoides Del.</i>	Xalacha
23	Tiliaceae	<i>Grewia ferruginea</i>	Dhokonuu

24	Acanthaceae	<i>Hypoestes triflora</i>	Dergu
25	Oleaceae	<i>Jasminum sp.</i>	Hidda garee
26	Cupressaceae	<i>Juniperus procera</i>	Gaatiraa
27	Acanthaceae	<i>Justicia schimperiana</i> (<i>Adhatoda schimperiana</i>)	Dhumugaa
28	Crassulaceae	<i>Kalanchoe marnorota</i>	Bokollu
29	Crassulaceae	<i>Kalanchoe spp.</i>	Bosoqqee
30	Asteraceae	<i>Laggera crispata</i> (Vahl.) <i>Hepper & Wood</i>	Fugaa
31	Verbenaceae	<i>Lantana trifolia</i>	Kaskase
32	Verbenaceae	<i>Lantana trifolia</i> (L.	Kusa'ee
33	Myrsinaceae	<i>Maesa lanceolata</i>	Abbayyii
34	Celastraceae	<i>Maytenus senegalensis</i>	Kombolcha
35	Asteraceae	<i>Mermis L.</i>	Boora
36	Myrsinaceae	<i>Myrsine Africana</i>	Qacama
37	Lamiaceae	<i>Ocimum lamifolium</i>	Damakesse
38	Oleaceae	<i>Olea europaea</i>	Ejersa
39	Santalaceae	<i>Osyris Compressa</i> (<i>Hochst. ex/A. Rich</i>)	Waatoo
40	Lamiaceae	<i>Otostegia fruticosa</i> (Forssk.) <i>Schweinf. Ex Penzing</i>	Gulantaa
41	Phytolacaceae	<i>Phytolacca dodecandra</i> (L.Herit	Handode
42	Podocarpaceae	<i>Podocarpus falcatus</i>	Birbirsaa
43	Polygalaceae	<i>Polygala abyssinica</i> Fres. <i>Odolif</i>	Lishaa
44	Santalaceae	<i>Pouteria adolfifriederidi</i> (<i>Aningera</i>)	Kararoo
45	Verbenaceae	<i>Premna resinosa</i>	Urgesaa
46	Anacardiaceae	<i>Rhus glutinosa</i>	Xaaxessaa

47	Anacardiaceae	<i>Rhus natalensis</i>	Liqimee
48	Anacardiaceae	<i>Rhus retinorrhoea</i>	Dabelucha
49	Rosaceae	<i>Rosa abyssinica</i>	Goraa
50	Polygonaceae	<i>Rumex</i>	Shultii
51	Polygonaceae	<i>Rumex nervosud(vohl</i>	Dhangago
52	Salicaceae	<i>Salix mucronata(s.subserrata</i>	Barodo
53	Fabaceae	<i>Senna alixandrina(cassia alexandirina</i>	Muka arba
54	Fabaceae	<i>Sesbania sesban</i>	Inchine
55	Asteraceae	<i>Vernonia amygdolia</i>	Ibicha
56	Loranthaceae	<i>Viscum nervosum(Hochs.Ex.A.Rich</i>	Misirichi

Source : field Survey , 2011

Table 19: Potential of the monastery managing the monastery forest

It has potential	Frequ	Percent
Yes	41	37.6
No	68	62.4
Total	109	100

Source: Field Survey, 2011

