

Assessment of Forest Management Institutions of Yabello Forest Priority Areas of Borana Zone, Southern Oromia Ethiopia

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Abstract

Original Research Article

Forest resources are often well managed by local communities either through their own initiatives using traditional institutions or being organized with assistances from development actors such as non-governmental and governmental organizations. The study aimed to assess forest management institutions practices and its challenges to forest conservation in the Yabello forest of Oromia Regional State. Secondary and primary data were collected from household survey and forest management groups. About 130 households' heads were randomly selected from three villages and used for this survey. Group discussion were also used with selected key informants and local administrators. SPSS version 24 software was used for data analyses. Results showed that informal institutions of the Oromo 'Gadaa' systems and formal institutions like SOS Sahel Ethiopia were collaborated and played to manage the Yabello forest. The results indicated that, all of the respondents agreed (100%) that there is strong traditional institution in managing natural resources and forests among the Borana community at Abbaa Warra, Abbaa Ollaa, Abbaa Ardaa, Abbaa Reeraa, Abbaa Maddaa, Abbaa Dheedaa and Raaba Gadaa level. However, there are also obstacles to the strengthening and implementing of traditional forest management practices of the study area. Hence, in order to address the forest loss situation in the Borana lowlands SOS Sahel established the modern Borana Collaborative Forest Management Project (BCFMP) towards the end of 1999/2000. Thus, the integration between the different sectors offices and the customary institution (the Gadaa) was a break through to prove the key roles of communities in the modern management of forest resources. This project has brought significant change on forest management and forest conditions in Yabello forest. Thus, SOS Sahel Ethiopia is certified for its contribution in forest management through forest guarding, seedling planting and establishing a joint forest management system by government and local communities and also for strengthening the traditional forest management of the area. However, after SOS Sahel BCFMP exit, due to lack of budget and lack of strong cooperation with forest management structures and the people living in and around the forest area, the Yabello forest is currently being degraded in a very worrying manner due to a number of factors. Therefore, all forest management structures at all level need to work in coordination regarding forest management and conservation.

Keywords: Community, 'Gadaa' system institution, forest, livelihood.

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INTRODUCTION

About 55 million ha of various kinds of dry forests exist in Ethiopia (Lemenih and Bongers, 2011). Productivity of these dry forests is generally low and intensive logging for timber and fuel wood has significantly altered their species composition toward the dominance of pioneers and shrubs. According to Wakshum *et al.*, (2018), report on the state of the world's forests about 11.9% (closed forest plus woodlands) of Ethiopia's land area is covered with forests and Global Forest Resource Assessment reported that, between 1990 and 2000, 141,000 ha of the forest of Ethiopia were lost every year, which equals an average annual deforestation rate of 0.93% (MacDicken, 2015). On the other hand,

between 2000 and 2005, the rate of deforestation increased by 10.4 to 1.03% per year (around 2,114,000 ha) of forest cover loss in the 15 years between 1990 and 2005. Thus, a number of efforts to improve dry forest management are underway, and some of these include establishment of plantations as buffer and substitute for wood supply, area enclosure to rehabilitate degraded dry forests, and introduction of participatory forest management to regulate forest access. Traditional community based forest management (TCBFM) is common in Ethiopia, and has contributed to the conservation of considerable parts of dry forests (Lemenih and Bongers, 2011). Protecting and re-establishing forests for their economic and ecosystem,

including as carbon stocks is one of the pillars of the green economy plan of the Ethiopia. However, in Ethiopia where the livelihood of 83% of the population resides in the rural area and dependent on natural resources particularly renewable natural resources, the pressure on forest resources is high. The depletion and deterioration of the forest resources, in turn, resulted in reduced agricultural productivity quality of life (Sundstrom *et al.*, 2014). As a result, a considerable decrease in forest land cover was observed by (-1919.52 ha) between 1986 to 2016 of Obda and Dharito forests of Yabello (Sisay *et al.*, 2020).

Several studies covering wider disciplines have been conducted in the area to contribute to the improved understanding of the ecological and socio-economic conditions for better management of the forest. Thus, Yabello-Arero Forest Priority Areas were established during the Derg regime to improve forest management systems and forest managements transferred from traditional ownership to government ownership. However, the destructions of natural forest surprisingly continued. As a result, Collaborative Forest Management (CFM) systems was established by SOS Sahel in 1999 as the forest management approach and methodology in Borana zone (Irwin and Mitiku, 2004). Even through, the forest management returns back to the local community the forest destruction was increasing from time to time up to day due to local community settled in and around the forest resources in order to secure the new livelihood opportunity offered by selling forest products to the urban markets. Thus, most of the studies were made in the lowlands of Borana zone and only a few studies are made in the Yabello forest to identify the

relation between livelihoods, traditional forest management practices of communities in collaboration with formal (GO and NGO) institutions and forest conditions. Furthermore, Agricultural Transformation Organization (ATO) and Borana zone technical committee currently identify and prioritize forest degradation and destruction as a key major research problems of the study area and forwards as participatory forest management performances need to studied. As a result, collaborative forest management arrangements with the local communities and improved law enforcement strategies are essential to ease the present human influence on the natural forest and enhance sustainable management. Therefore, this study aims to assess the forest management institutions and its gaps towards forest conservation of the Yabello district.

MATERIALS AND METHODOLOGY

Description of the Study Area

The study will be conducted in the Yabello district of the Borana Zone (Figure 1). The Yabello district located in the Oromia Regional State of southern Ethiopia at 570km from Addis Ababa city. Yabello district is located in between 02 °88'006"N and 038 °14'761"E geographical grids and altitude at 1631m a.s.l. The climate is generally semi-arid with annual minimum rain fall 400mm and maximum rain fall of 700mm (Coppock, 1994). The rain pattern is bimodal, with the main rain season locally "Ganna" (65%) extending from March to May and small rain season "Hagayya" from mid-September to mid-November. The annual minimum temperature is 14.5 °c and the maximum temperature is 26.3 24°c and the soil type of the study area is sandy.

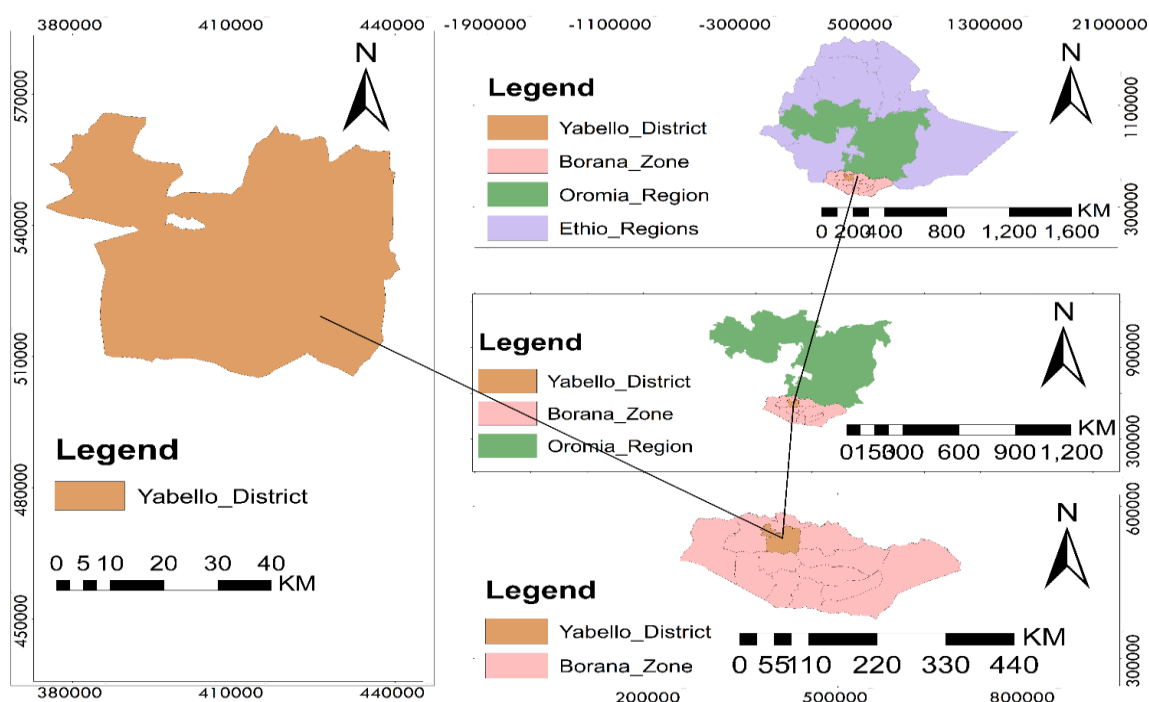


Figure 1: Description of the study area

METHODS

Selection of the study site

The study was conducted in Yabello district of the Borana Zone. Yabello District was selected purposively based on its forest priority area. Initially, a reconnaissance survey was conducted and contacts with the local leaders and development actors on forest in Yabello district was made. Based on this, Dharito, Obda and Yubdo Kebele were selected.

Sampling techniques

The sample size of the study area was determined using Kothari (2004) formula. Simple random probability sampling was used for the determined sample size. The Kothari sample size formula for determining sample size was become;

$$n = \frac{z^2 \cdot p \cdot q \cdot N}{e^2(N - 1) + z^2 \cdot p \cdot q}$$

Where; n = sample size, Z = 95% confidence limit (interval) that is 1.96 given or constant, P = 0.1 (population proportion to be included in the sample that is 10%) =it depends, q = None occurrence of event = 1-p= 1-0.1 that is (0.9), N = total number of (household) found in the study area and e= level of accuracy or sampling error (Where, $\alpha = 0.05$).

Following the formula, sample size of household head was determined for data collection. Based on their indigenous knowledge about the natural resources and use of the forest in the district, households of forest user groups near or inside the forest as well as members of the households organized by SOS Sahel Ethiopia were randomly selected. Forest management institutions and practices which have been carried out by the community in collaboration with various development actors and its gaps towards forest conservation was assessed by interviews. Furthermore, experts and key informants were also interviewed to identify existing institutions and the commonly used

forest improvement activities in the forest. Additionally, all available secondary data was collected from relevant stakeholders (MoA office, BoA office, development agents, Oromia Forest and Wildlife Enterprise) and also from available literature.

Data to be collected

Existing traditional institutions and modern forest management institutions practices commonly used for forest improvement activities in the forest and gaps of forest management institutions of the study area was collected.

Data analysis

Computer based data coding, storage and retrieve mechanisms was developed. Data was analyzed using SPSS version 24. The results were presented in percentages, graphs and mean values.

RESULTS AND DISCUSSION

Socioeconomic Profile of Sampled Respondents

Sex, Educational Level, Marital Status and Average Land Holding Size of the Respondents

The survey result showed that out of the total sampled household head about 72.3% were male headed and 27.7% were female headed (Table 1). The reason was that during the survey time it was dry period and women were busy to searched water and hay for feeding their livestock. The result was in line with the report by (Sisay, 2019) that stated more than 81.20% of male's household head were interviewed than female as women were busy to searched water and hay for feeding their livestock during the survey time during dry period. Also, the majority of the respondents educational background is non educated (78.5%). All of the respondents were living nearest to the forest area found around their villages. This, means, the majority of the respondents were living near to the forests while some of the respondents were living in the forest blocks. The result showed that the majority of the respondents (53.8%) were the forest user member group while about 46.2% of them were non forest user member.

Table 1: Respondent's sex, educational level, marital status, average land holding size and role in forest

Descriptor		Dharito (N=55)		Obda (N=35)		Yubdo (N=40)		Overall (N=120)	
		N	%	N	%	N	%	N	%
House heads	Female	15	27.3	11	31.4	10	25	36	27.7
	Male	40	72.7	24	68.6	30	75	94	72.3
Educational level	College/University	0	0	0	0	2	5	2	1.5
	Illiterate	51	92.7	25	71.4	26	65	102	78.5
	Primary	4	7.3	4	11.4	10	25	18	13.8
	Secondary	0	0	6	17.1	2	5	8	6.2
Marital status	Married	55	100	34	97.1	37	92.5	126	96.9
	Widowed	0	0	1	2.9	3	7.5	4	3.1
Average land holding size	Average land holding size (ha)	1.64		1.68		1.57		1.63	
Role in forest	Forest user member	56.4		51.4		52.5		53.8	
	Non-forest user member	43.6		48.6		47.5		46.2	

Production system (occupations) of the respondents

With regards of pastoralists' livelihood, the study revealed all of the respondents (100%) were agro-pastoralists, with their main economic activity being agro-pastoralism. This showed that there is no pure pastoralist who's their livelihood depend on sole livestock rather mixed livelihood (crop and livestock

rearing). Besides their main economic activity, there were different additional activity that household participating to perform their livelihood. Thus, out of the total sampled household head around 10.5%, 65.8% and 23.7% were practicing charcoal selling, labor work and petty trade respectively (Figure 2).

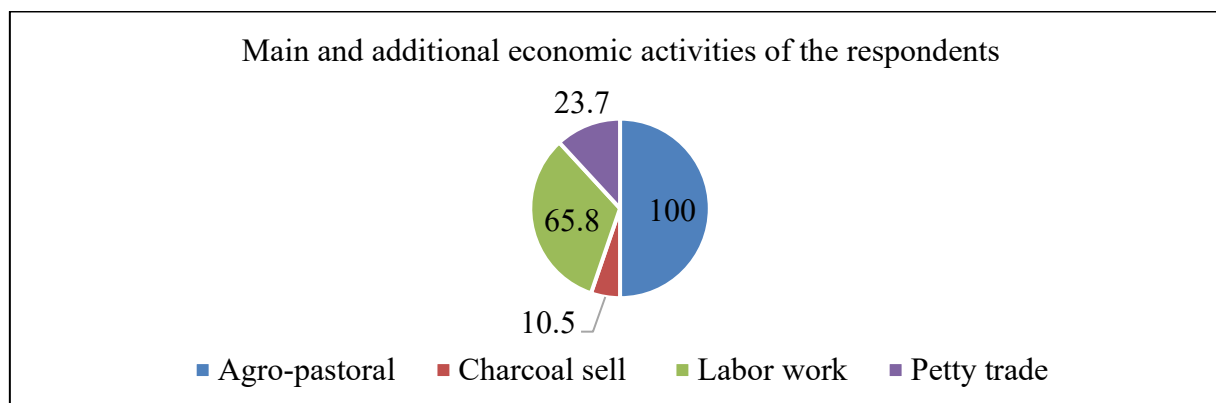


Figure 2: Respondents main and additional economic activities

Importance of Forests to Community's Livelihood

The current study revealed that, forest resources and other natural resources found near to their area are very important to the communities' livelihoods. Accordingly, the respondents revealed that communities were using the forest resources and natural resources as source of fire wood (100%), construction materials (100%), fodder (grazing land) (100%), nontimber forest

products (59.2%), income (81.5%), cultural significance (96.2%), soil and water conservation (98.5%), shade (92.3%), and food (73.1%) (Table 2). The direct benefits of forests are mainly for household consumption, such as fuelwood, edible fruits, medicinal plants and construction timber and also used as few employment opportunities or markets for forest products (Shackleton, 2004).

Table 2: Importance of forests to community's livelihood

Importance of forests	Dharito (N=55)		Obda (N=35)		Yubdo (N=40)		Overall (N=130)	
	N	%	N	%	N	%	N	%
Source of fire wood	55	100	35	100	40	100	130	100
Source of construction	55	100	35	100	40	100	130	100
Fodder (grazing land)	55	100	35	100	40	100	130	100
Source of NTFPs	32	58.2	25	71.4	20	50	77	59.2
Source of income	45	81.8	27	77.1	34	85	106	81.5
Cultural significance	53	96.4	35	100	37	92.5	125	96.2
Soil and water conservation	54	98.2	35	100	39	97.5	128	98.5
Shade	51	92.7	34	97.1	35	87.5	120	92.3
Food	35	64.8	28	80	32	82.1	95	73.1

Forest Management Institutions

The forests of Borana lowlands have traditionally been considered by the Borana as an integral part of their pastoral land, with forest management being the responsibility of the 'Borana' 'Gadaa' system with all of its structured hierarchy. However, the forests are currently gazetted as reserves, registered as National or Regional Forest Priority Areas, and the Oromia Forest and wildlife Enterprise is responsible for controlling, protecting and managing the forest resources on behalf of the Regional Government.

Traditional forest management institutions

All of the respondents agreed (100%) that there is strong traditional institution in managing natural

resources and forests among the Borana community. For this reason, when the Gada and the Borana people bless, they say 'Gadaan sadeen nagaa, Baddaan sadeen nagaa'. This means that the three Gadas are peaceful and the three Baddas are peaceful. This study was in line with the report by Bedada (2021) which stated that every community has its own traditional institution to manage and utilize the natural resources. Thus, all of the respondents (100%) stated that all forest resources such as water, medicinal plants, pasture, wild fruits, non-timber forest products like honey bee, and roots including land are used in common and managed by the traditional institutions (Table 3). Thus, traditional forest management structure in Borana was very strong and robust. The result is in line with the report of Wakshum

and Mulugeta (2018) that stated Borana society has strong traditional institutions in natural resource managements through 'Borana' 'Gadaa' system.

The traditional institutions for managing Borana's forest, grassland, and water resources have a hierarchy based on their own cultural rules of governance. 'Abbaa Warra': is the leader of a family and control natural resources and participate in forest management and conservation at family level. 'Abbaa Ollaa': is the leader of many families and manage natural resources and forest at the neighbor level. 'Abbaa Ardaa': is the leader of many neighbors and manage resources at 'Ardaa' level. All forests, pasture and water are the resources managed traditionally by the communities. 'Abbaa Reeraa': is the leader of many Ardaas and manage resources at 'Reera' level. 'Abbaa Maddaa': is the leader of many Abbaa Reeraa and manage resources at 'Maddaa' level. It seems like Kebele administration. 'Abbaa Dheedaa': is the leader of many Abbaa Reeraa and elders controlling grazing (resources) like a pasture in overall Borana. 'Dheeda Booranaa' is subdivided according to agroecology. According to the current government administration, it may include different districts. There are five 'Dheeda' namely; Malbe, Wayama, Gomole, Dire and Golbo. 'Raaba Gadaa': is higher courts and 'Gadaa' ruling assigned for resource governance and conflict resolution in Borana Zone. At all hierarchy level the responsibility of managing natural resources is amemeber of community at large.

The study also alike with the finding of (Derera, 2015) which stated that besides, natural resource management the Borana Oromo has unique administrative and social units at different levels ranging from the lowest social unit Olla (neighbor) to the highest Pan Borana Assembly (Gumi Gayo) to manage the natural resource and rangeland. By-laws are revised and formulated every eight years during 'Gadaa' assembly. Thus, the formulation and announcement of customary laws are performed according to the principles and regulations of the Gada system as reported by (Helland, 1997). Through this hierarchy, different traditional forest management practices such as controlled grazing (browsing), fire protection and reducing expansion of settlements in the forest area are practiced (Table 3). The forest areas and forest resources in the Borana zone are governed traditionally as communal resource management. Traditional institutions govern these resources and decide institutionally how best they could be utilized in equity. For instance, epiphytes which are growing on *J. procera* and other old tree species is named by 'Borana' people as 'Areeda jaarsaa' mean that elders' hair and the old tree of this species is also believed to represent elder of the people. This is an indicator of how Borana people conserves traditionally forest resources. Thus, the indigenous forest management practice of Borana people was good. Accordingly, about 26.9%, 53.1% and 13.1% the respondents stated that the indigenous forest management was good, moderate and poor respectively (Table 3).

Table 3: Traditionally managed resources and management practices and the status of traditional forest management of the study area

Descriptor		Dharito (N=55)		Obda (N=35)		Yubdo (N=40)		Overall (N=130)	
		N	%	N	%	N	%	N	%
Traditionally managed resources are	Land	55	100	35	100	40	100	130	100
	Forest and NTFPs	50	90.9	28	80	35	87.5	113	87
	Water	45	81.8	35	100	40	100	120	92.3
	Pasture	55	100	35	100	40	100	130	100
Traditional management practices of NRs	Control grazing	51	92.7	34	97.1	33	82.5	118	90.8
	Fire protection	49	89.1	27	77.1	28	70	104	80
	Reduce expansion of settlements in forest area	51	92.7	24	68.6	29	72.5	104	80
Status of traditional forest management	Good	17	30.9	9	25.7	9	22.5	35	26.9
	Moderate	32	58.2	22	62.9	15	37.5	69	53.1
	Poor	3	5.5	3	8.6	11	27.5	17	13.1

The main challenges faced in implementing effective traditional forest management practices

Borana society value forest resources particularly some tree species for spiritual purposes. However, demand for fuel wood, population growth and drought, weekend traditional institutions and policy enforcement are the major causes for the degradation of the forests in the study area by 100%, 97.7% and 97.7% respectively (Table 4). Resettlement, urbanization, conflict over forest resource uses, forest grazing, bush

encroachment, farmland expansion, is also some of the causes for the deteriorating of the forest conditions in the study area. These conditions are the obstacles to the strengthening and implementing of traditional forest management practices of the study area. The result was similar to the study by Bedada (2021) reported that lack of consideration of the role of traditional institutions in natural resource management has led to unsustainable natural resource management.

Table 4: Main challenges faced in implementing effective traditional forest management practices

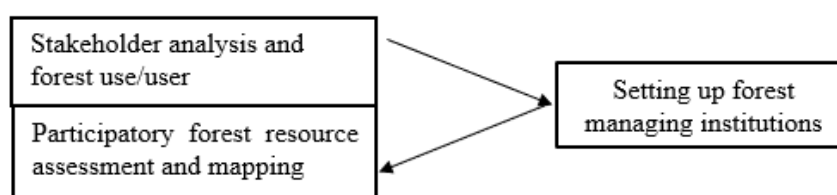
Main challenges	Dharito (N=55)		Obda (N=35)		Yubdo (N=40)		Overall (N=130)	
	N	%	N	%	N	%	N	%
Demand for fuel wood and charcoal production	55	100	35	100	40	100	130	100
Population growth	53	96.4	35	100	39	97.5	127	97.7
Drought	53	96.4	34	97.1	40	100	127	97.7
Weekend traditional institutions	53	96.4	34	97.1	40	100	127	97.7
Resettlement	50	90.9	31	88.6	34	85	115	88.5
Forest grazing	47	85.5	30	85.7	31	77.5	108	83.1
Urbanization	41	74.5	28	80	36	90	105	80.8
Conflict over forest resource uses	31	56.4	20	57.1	25	62.5	76	58.5
Expansion of farmland	21	38.2	19	54.3	31	77.5	71	54.6
Bush encroachments	2	3.6	1	2.9	3	7.5	6	4.6

Modern forest management institutions organized by SOS Sahel Ethiopia

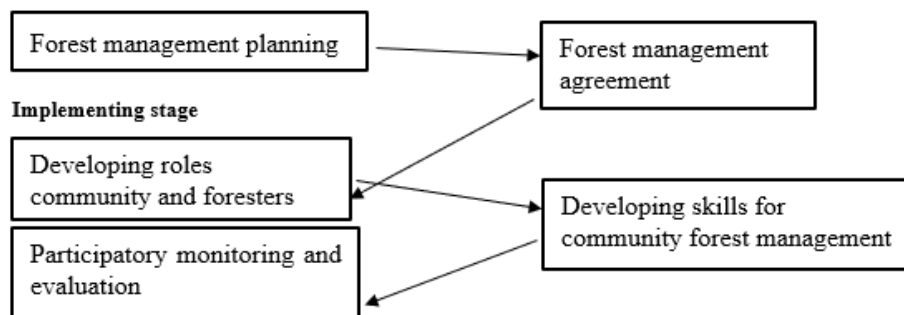
The focus group discussions and key interview analysis indicated that the government structures and NGOs at the time were working to combat forest resource destruction along traditional forest management and development lines. Likewise, efforts were made to increase public awareness of forest conservation, the promotion of forest protection, using guards to prevent local people from destroying forests. However, they have not been able to control Ethiopia's forests from being destroyed at alarming rates (Irwin and Mitiku, 2004). Hence, in order to address the forest loss situation in the Borana lowlands, SOS Sahel established the Borana BCFMP towards the end of 1999/2000 (Irwin and Mitiku, 2004). According to the key informants and respondent's, local communities, government agencies and NGOs are involved in developing and implementing SOS Sahel BCFMP plans. Investigating, assessing, analyzing and developing the necessary understandings of the causes behind forest destruction in Borana was the first task completed by SOS Sahel's BCFMP. The results

of their initial work, reveals forest destruction and natural resource degradation to be complex processes, which are influenced by the influence of political change on forest resources, the impact of economic livelihood factors, and the social conditions of local management. All these factors are linked to unsustainable local resource exploitation, and are the major influences on forest destruction. Furthermore, the key informs results indicated that, increasing human population and urban settlement pressure has negatively impacted on forest resources mainly on *Juniperus procera* products which are harvested for construction purposes because of its inherent property to resist termites. Such evidence leads to the conclusion of the need to recognize traditional and/or establish new community based forest management systems and structures. Hence, forest management institutions or BCFMP supported by SOS Sahel Ethiopia in Borana forest priority areas is established as shown in (Figure 3).

Investigation stage



Negotiation stage

**Figure 3: Key elements in refined PFM approach model**

The project's principal aim is to establish management systems over which local people or institutions have control and by which natural resources can be used sustainably by local communities. Over the last two decades, SOS Sahel Ethiopia of Borana Collaborative Forest Management Project has been working with the Borana to tackle poverty through sustainable natural resource management, and natural resources-based enterprise development. Thus, BCFMP is one of such efforts that has succeeded in putting the community at the center of natural resources management particularly forests in the areas. This has become SOS Sahel Ethiopia with BCFMP/PFM as a catalytic; transform where the 'Gadaa' actively engaged. The three phases of developing a PFM plan is, the investigation, negotiation, and implementation phases exercised to protect the forest resources and the rangeland (Figures 3 and 4).

Roles of modern management institutions

1). 'Uummata' (Pastoral Community)

These are wider Borana people from which members of forest management groups selected at PA.

2). '*Jaarsa Madda Finna Baddaa*' (J.M.F.B.): is Madda Forest Management Body managing at PA level. These are elders managing forest at PA levels like guarding, fire protection, controlled settlements, controlled grazing, control logging, and collection other live and dead trees. They were organized elders from wide pastoral communities of Yubdo, Obda and Dharito PA.

3). '*Jaarsa Ejja Finna Baddaa*' (J.F.E.B.): is Forest Block Management Body where elders are managing forest at forest block level and in this particular forest, there are three blocks namely Yubdo, Obda, Dharito. They were organized from elders at PA levels. Many Maddas (source of communities) have organized into J.F.E.B. They are also patrolling the delineated forest from destruction and smaller in number than management groups number.

4). '*Jaarsa Aanaa Finna Baddaa*' (J.A.F.B.) (District CFM Working Group): Combination of government and elders at district. These elders are organized from J.F.E. B., experts, administrators, and polices at the district level. They are controlling forest through the enforcement of customs, rules, and laws of institutions and the state. They can apply sanction individuals violating rules at this level. The sanction is 5 animals per individual. If the individuals are beyond their control, they report individuals to the highest court at zone level (G. J.F.B) for sanction.

5). '*Gadaa Jaarsa Finna Baddaa*' (G.J.F.B.) (Zonal CFM Assembly): Higher court of elders where elders are organized from J.A.F.B. at zone level and this institution is the final decision of sanction that violates the rules below institutions. Note that each member in the numbers 1 through 5 has decreased up as shown in (Figure 4) from the community to G.J.F.B. at the zone level.

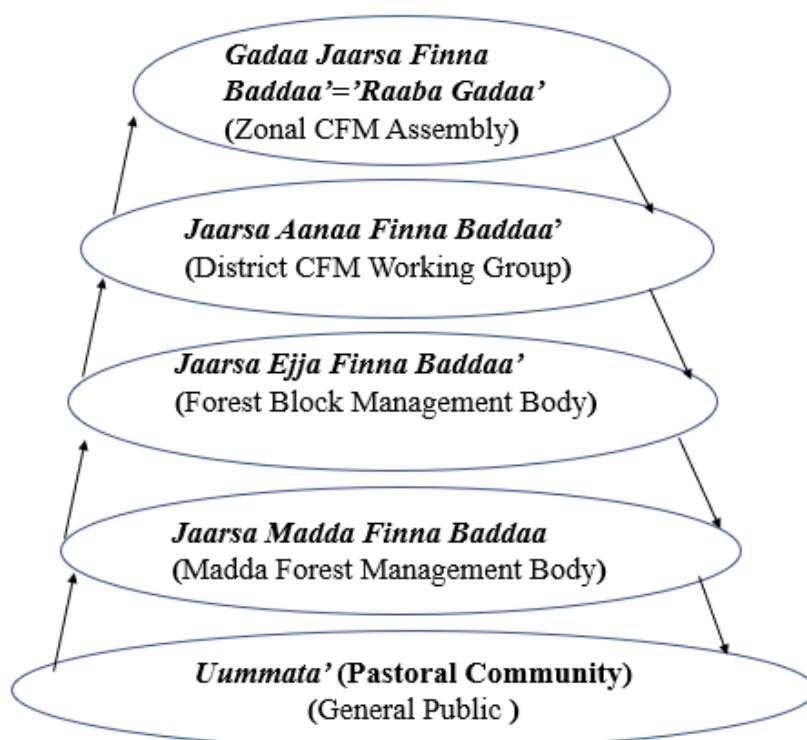


Figure 4: Participatory Forest management working group structure

Through the forest management institutions, the integration between the different sectors offices and the Gadaa was a break through to prove the key roles of communities in the management of forest resources. The multiple use of the forest was fully recognized by the community which resulted in improved ownership and sustainability of the interventions. Borana Collaborative Forest Management Project was successful in working very closely with the rural communities in all forest adjacent areas through the smallest units the 'Ollaa' and 'Maddaa'. Thus, the Gadaa institution mainly played a vital role in the negotiation of rights in resource governance and use.

Modern forest management practices and responsibility of forest user group member

Although the activities done by the forest users group members is not enough to conserve the forest, their role in implementing forest management plan into practice was described below. Silvicultural forest management (pruning, thinning) and planting tree seedlings in degraded natural forests was done. The forest user group members also protecting forests from unsustainable use by reducing and protecting illegal trees cutting through forest monitoring and evaluation, forest guarding, exposing those illegally cut trees and punish them that assurer's legal utilization of forest products, avoiding fire and overgrazing, fencing and forest boundary mapping. Moreover, awareness creation was given for the local community not to cut trees illegally and use it sustainably. However, some of the forest user members and forest committee have failed to fulfill their expected role in educating the community and setting an exemplary work in forest management and conservation. The study from the respondents (100%) and key informants also revealed that there are a number of activities performed by community based forest monitoring systems emerging from PFM experiences. Among those activities, monitoring of farmland in the forest, forest boundary monitoring, regular patrolling by the forest management group members, either written or verbal reporting, regeneration counting to develop data concerning seedling regeneration from year to year is also being carried out. Moreover, regular district level PFM working group meetings to bring key government and community PFM actors together to discuss issues arising and resolve problems have also emerged as a useful monitoring and evaluation mechanism. According to the respondents and the discussion held with key informants, SOS Sahel BCFMP has brought significant change on forest management and forest conditions in Yabello forest. The results agreed with the study of (Wakshum and Mulugeta, 2018) that stated activities performed by community-based forest monitoring systems emerging from PFM experiences has a significant change in Arero forest. Thus, SOS Sahel BCFMP is certified by government for its contribution in forest management through forest guarding, seedling planting and making forest management system joint by government and local communities and also for

strengthening the traditional forest management of the area.

However, the study revealed that there are a remains challenge that was not addressed and needs the joint efforts of all stakeholders that are working for sustainable management and utilization of natural resources. Accordingly, increasing of enclosures expansion of farmland, conflicts within and between institutions organized by SOS Sahel of BCFMP were issues of concern. Even if it is managed by 'Gadaa' systems some cause of the conflicts were on position leading each institution, hiring of guards for protection of the forest and other forest resource benefits.

The forest management institutions practices after SOS Sahel Ethiopia

After the exit of SOS Sahel BCFMP the management of this forest is handed over where all the government bodies and forest management structures of the zone, district, village (Kebele), security forces and members of forest associations are present. However, the current forest management system is under questionable under Oromia Forest and Wildlife Enterprise (OFWE) and Environmental Protection, Forestry and Climate Change Authority institutions. Thus, the current forest of forest resources of the study area was decreasing at an increasing rate and the study revealed that, about 20.8%, 67.7% and 11.5% of the respondents replied that the current forest management practices in protecting and sustaining forest resources of the study area are not effective, somewhat effective and very effective respectively. This is due to a limited resources, knowledge, and skills to accomplish diversification of the forest management which account about 83.8% of the respondents. The majority of the respondent (61.5%) also stated that there is a limited forest management technologies and access to extension service in the study area. This has led to a decrease in forest coverage and diversity of the study forest.

Oromia Forest and Wildlife Enterprise (OFWE) on forest management practices of the study area.

The Oromia Forest and Wildlife Enterprise (OFWE) in Borana is also responsible for the management of resources in the region, including the Borana National Park. OFWE's mission is to sustainably manage forest and wildlife resources through community participation, which includes activities like conservation and development. The Borana branch specifically handles the management of areas like Borana National Park, which is known for its savannah habitat and diverse wildlife. The study indicated that Oromia Forest and Wildlife Enterprise delineated and map the forest boundary of the study area and also provide advice to protect forests from illegal cuttings. Although OFWE provides some livelihood support for the poor low-income people living near and around the forests not to cut trees illegally, about 76.9% of the respondents believed that they do not play a significant role in forest

management and conservation. Thus, OFWE mostly focus on wildlife conservation than forest management and conservation as of the Yabello area. Due to less attention from OFWE on natural forest management and conservation, forests of the study area was exposed for degradation and deforestation. Hence, about 51.5% of the respondents living in and around the forest's areas were not familiar with the work done by OFWE. The OFWE gains autonomy/self-administration through benefits from the forest or plantations. Thus, since the Yabello forests are natural forests, the attention they pay to conserving these forests is very minimal as their primary focus is the Wildlife Sanctuary.

Environmental Protection, Forestry and Climate Change Authority

All of the respondents (100%) stated that Environmental Protection, Forestry and Climate Change Authority is working to strengthen and coordinate the natural resource management, conservation, and utilization systems that contribute to sustainable development. It aims to enhance the capacity and coordination of public and private institutions that implement green and climate-resilient economic activities, and to ensure that conservation projects in the region are implemented in a way that causes no harm to the ecological system level and are integrated with a green economy framework. Therefore, to reduce the forest destruction and improve forest management system of the study area the Environmental Protection, Forestry and Climate Change Authority office at zonal level delineate the forest map along district level and revise the PFM. Hence, Obda, Yubdo, Dharito, Areri, Cholkasa, Kukuba and Harwayu are among the newly delineated forest areas of Yabello forests. They are also playing an important role in planting trees, providing awareness and occasionally conducting monitoring and evaluation activities in the area where PFM has been revised and established. Despite budget constraints, the forest protection works in Borana Zone, particularly in Yabello, is being carried out today by Environmental Protection, Forestry and Climate Change Authority office. However due to lack of budget and lack of strong cooperation with forest management structures (forest user group, forest committees) and the people living in and around the forest area, the Yabello forest is currently being degraded in a very worrying manner due to a number of factors. Reducing emissions from deforestation and forest degradation (REDD+) project was also planting trees in districts like Yabello, Gomole, Teltale and Dire of Borana Zone besides the livelihood

support they provide for the low-income peoples mostly depend on forest and forest product. Even though activities they are undertaking for forest management is not enough, there is NGO called CARITAS who provide a livelihood support for those depends on forest and forest product.

The main challenges faced in implementing effective modern (current) forest management practices of the study area

In reality, forest resources are degraded not only by human activities but also due to other natural factors too. However, in this study human activities were taken into consideration as the main challenges of implementing effective forest management practices. Thus, the study by Solomon (2016) was showed that susceptibility to forest degradation is understood that the forest resources can be influenced or degraded by human activities. Accordingly, the main challenges of implementing effective forest management practices were identified. Thus, demand for fuel wood and charcoal production, lack of enforcement of regulations, population growth (resettlement & urbanization), weakness of traditional institutions and policy enforcement, drought, lack of resources (budget, logistics, equipment), conflicting land-use interests and over forest resource uses, lack of awareness about sustainable practices, forest grazing, lack of coordination among the bodies working on the forest, conflicts within and between institutions, expansion of farmland, corruptions among some forest members and committees and increasing of enclosures (evolving trend of privatization of ranches) were identified as the main challenges of the current forest management practices of the study area. The finding was similar to a study reported that wood extraction/forest conversion (demand for fuel wood and charcoal production) and infrastructural and settlement expansion were identified as direct causes of forest cover change and land use land cover change and the leading challenges of implementing effective forest management practices (Sisay, 2019). The result showed that among the identified challenges of the current forest management practices demand for fuel wood and charcoal production (100%), lack of enforcement of regulations (99.2%), population growth (resettlement & urbanization) (97.7%), weakness of traditional institutions and policy enforcement (97.7%) and drought (97.7%) were the leading main challenges of implementing effective forest management practices (Table 5).

Table 5: The main challenges faced in implementing current forest management practices of the study area

Main challenges	Dharito (N=55)		Obda (N=35)		Yubdo (N=40)		Overall (N=130)	
	N	%	N	%	N	%	N	%
Demand for fuel wood and charcoal production	55	100	35	100	40	100	130	100
Lack of enforcement of regulations	54	98.2	35	100	40	100	129	99.2
Population growth (resettlement & urbanization)	53	96.4	35	100	39	97.5	127	97.7

Main challenges	Dharito (N=55)		Obda (N=35)		Yubdo (N=40)		Overall (N=130)	
Weekend traditional institutions and policy enforcement	53	96.4	34	97.1	40	100	127	97.7
Drought	53	96.4	34	97.1	40	100	127	97.7
The need for forests from communities	53	96.4	34	97.1	39	97.5	126	96.9
Lack of resources (e.g., budget, logistics, equipment)	54	98.2	29	82.9	39	97.5	122	93.8
Conflicting land-use interests and over forest resource uses	48	87.3	32	91.4	35	87.5	115	88.5
Lack of awareness about sustainable practices	49	89.1	30	85.7	34	85	113	86.9
Forest grazing	47	85.5	30	85.7	31	77.5	108	83.1
Lack of coordination among the bodies working on the forest	47	85.5	30	85.7	31	77.5	108	83.1
Expansion of farmland	30	54.5	28	80	30	75	88	67.7
Conflicts within and between institutions	31	56.4	18	51.4	26	65	75	57.7
Corruptions	20	36.4	17	48.6	17	42.5	54	41.5
Increasing of enclosures (evolving trend of privatization of ranches)	20	36.4	13	37.1	17	42.5	50	38.5

Communities' Suggestion for Future Legal Forest Management and Conservation

The result showed that the respondent pointed out that, in order for forests to be properly maintained and protected, it is not necessary to leave the entire task of forest conservation and protection solely to the members of forest associations, forest committees and the people living in the forest area. Therefore, the existing forest conservation and protection laws need to be reviewed and established in a way that the people, elders and the government can work in coordination. Accordingly, the role of the Raba Gada is very crucial to strengthen the traditional forest conservation practices of Borana. In addition, government structures at the zone, district and village level including security forces, forest association member, forest committees and the local communities must work in coordination. Thus, it is important to identify appropriate tree species for use and restrict the cutting of trees without permission. Furthermore, those who illegally cut down forests for various purposes and discourage others from enforcing forest laws should be held accountable. It is also necessary to assign a sufficient number of forest guards with adequate salaries until the forest management and conservation is strengthened. Hence, strong frequent monitoring and evaluation, and patrolling around forest boundary and transect walk in the forest to check the forest status is required. Likewise, government and the non government organizations working on forest management and conservation should provide livelihood support budgets to poor people, especially women living in and around the forests, so that they do not cut down trees illegally for firewood and charcoal. Besides this, to ease burden from existing natural forests it is very important to raise and provide different trees species seedlings for plantation. Providing materials for silvicultural management of forests is also among the most important points raised by the respondents. It is also advisable if the government establish more members of

forest users (PFMs) who can conserve forests and provide awareness creation on forest conservation and its use together with the entire community living in and around the forests.

Mapping the forest boundary for all forest sites not only by satellite & GIS map, but also by the locally known reference point with participation of elders and community is very important. Therefore, even if the government cannot conserve the forests alone, it should seek out NGOs like SOS Sahel Ethiopia to conserve the forests well and work with them. Finally, government officials ask the local community to collect different revenue for various reasons that the poor people are enforced to cut trees illegally to pay for the government and they wish as the government leave them alone as much as possible. Therefore, if governments reduce such things low-income people couldn't enforced to cut trees as well and it should get attentions.

CONCLUSION

The results indicated that forests of the Borana lowlands have traditionally been considered by the Borana as an integral part of their pastoral land, with forest management being the responsibility of the 'Borana' 'Gadaa' system with all of its structured hierarchy. The traditional institutions for managing Borana's grassland, forest, and water resources were at Abbaa Warra, Abbaa Ollaa, Abbaa Ardaa, Abbaa Reeraa, Abbaa Maddaa, Abbaa Dheedaa and *Raaba Gadaa level*. However, demand for fuel wood, population growth and drought, weekend traditional institutions and policy enforcement are the leading major causes for the degradation of the forests in the study area. Hence, in order to address the forest loss situation in the Borana lowlands SOS Sahel established the Borana Collaborative Forest Management Project towards the end of 1999/2000. In this case, local communities, government agencies and NGOs are involved in

developing and implementing forest management plans. Thus, through the forest management institutions the integration between the different sectors offices and the customary institution (the Gadaa) was a break through to prove the key roles of communities in the management of forest resources. Community based forest monitoring systems emerging from PFM experiences were monitoring of farmland in the forest; forest mapping, forest boundary monitoring and guarding, silvicultural forest management (pruning, thinning), planting tree seedlings, regular patrolling by the forest management group members and avoid illegal cuttings, awareness creation, avoid fire and over grazing and either written or verbal reporting. This project has brought significant change than before on forest management and forest conditions in Yabello forest. Thus, SOS Sahel Ethiopia of BCFMP was certified by government for its contribution in forest management through forest guarding, seedling planting and making forest management system joint by government and local communities and also for strengthening the traditional forest management of the area. However, there are a remains challenge that was not addressed and that needs the joint efforts of all stakeholders that are working for sustainable management and utilization of natural resources, forest and rangeland.

After SOS Sahel Ethiopia of BCFMP both OFWE and Environmental Protection, Forestry and Climate Change Authority delineate the forest map along district level and revise the PFM. They also provide some livelihood support for the poor low-income people, trees seedling, awareness and occasionally conducting monitoring and evaluation activities in the area where PFM has been revised and established. However, due to lack of budget and lack of strong cooperation with forest management structures (forest user group, forest committees) and the people living in and around the forest area, the Yabello forest is currently being destructed in a very worrying manner due to a number of factors. Thus, demand for fuel wood and charcoal production, lack of enforcement of regulations, population growth (resettlement & urbanization), weekend traditional institutions and policy enforcement, drought, the need for forests from communities, lack of resources (budget, logistics, equipment), conflicting land-use interests and over forest resource uses, lack of awareness about sustainable practices, forest grazing, lack of coordination among the bodies working on the forest, conflicts within and between institutions, expansion of farmland, corruptions among some forest members and committees and increasing of enclosures (evolving trend of privatization of ranches) were identified as the main challenges of the current forest management practices of the study area.

Recommendation

In order for forests to be properly maintained and protected, the existing forest conservation and protection laws need to be reviewed and established in a

way that the local people, elders, Raba Gada and government structures at the zone, district and village level including security forces, members of forest members, forest committees and the local communities work in coordination. Therefore, as Yabello forest is one of the Regional Forest Priority Areas under Oromia Regional Forest and Wildlife Enterprise now a day to be conserved and it could also be considered as resources for livelihoods of communities, climate change mitigation and habitat for wildlife the following recommendations are made to meet these requirements:

- ✓ All forest management structures at all level including security forces, members of forest members, forest committees and the local communities and Raba Gada need to be work in coordination
- ✓ Creating awareness for communities on forest conservation and utilization
- ✓ Control bush encroachment on grazing land so that pressure of grazing in the forest can be reduced
- ✓ Extension program including forest management (tree planting) should be extended so as to reduce pressure on forest resources
- ✓ Selective logging from the forest should be minimized and if possible, stopped
- ✓ Livestock husbandry (a common practice in the forest) should be reduced so that regeneration of the species in the forest can be improved
- ✓ Improved management interventions for sustainability of forest resources will improve contribution of livelihoods in the future
- ✓ Eventually, to conserve the forest resources and improve the socio-economic benefits, the dynamics of forest conditions in Yabello forest needs detail studies in the future

Conflict of Interests

The authors have not declared any conflict of interests.

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