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Oromo Indigenous Knowledge and Practices in Natural Resources Management: Land, Forest, and Water in Focus

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Abstract

This study deals with the Oromo indigenous knowledge and its implication in the practices of natural resources management, with the focus on the natural resources that have been thought as fundamental and integrals of their entire lives: land, forest, and water resources. The study was conducted among Nole, Maccaa Oromo of West Wallagga. The study of the predominant human-environment relationship, and the indigenous ecological knowledge and practices of indigenous peoples in natural resources and biodiversity conservation have enormous role in understanding the ever-growing environmental problems, and consequent social problems. Hence, in an effort to understand the cause and magnitude of environmental problems, and to establish prospective measures that would help in solving these social and environmental acute, understanding the community's worldview and integrated indigenous knowledge that they have been maintained in esteeming and managing the natural resources for healthy coexistence is important.

This study employed qualitative research methods. Data used for the study gathered through data collection instruments such as interviews, focus group discussions, non-participant observation, case study, and secondary data analysis. Both primary and secondary data sources were used to compile the data for the study.

The study reveals that the Oromo have indigenous ecological knowledge embedded in their worldview, and they have been maintained in wise management of natural resources. Thus, the Oromo worldview considers the organizations of the physical, the human, and the spiritual worlds, as organized and unified systems. The role of human, in this case is protecting and sustaining the equilibrium of the systems; and abiding the established distant and respect for every relations. The Oromo have the knowledge of laws of, and customary laws, norms, values, and the concept of *Safuu* and *Ayyaana* in their worldview, which guides their entire actions and relations in the universe. In general, these concepts are important component of the Oromo worldview. The knowledge of these concepts has been used to maintain relations between the physical, the human, and the spiritual worlds among the Oromo. They are believed to strengthen and maintained internal moral quality and unity of the Oromo.

Keywords: Worldview; Philosophy; Indigenous knowledge; Indigenous people; Natural resources

Introduction

Indigenous peoples have strong social and cultural values, ordered social control and cohesive social systems rooted in their indigenous knowledge of the universe in general, and their locals in particular. They have normative and well thought-out behavior in their relations with and adaptation to the wider ecological niche hitherto established in their worldview. They have had little or no contact with alien cultural traditions. However, I argued that the emergence of modern world systems and the impact of globalization have much contributed in reversing the long established cultural traditions and underpinned philosophical principles of lives and existence. The emergence of imperialist ideology and the emergence of colonialism and colonial domination imposed upon the indigenous peoples have contributed considerable and massive changes in indigenous people's philosophies of the worlds they have been maintained for generations. Hence, the introductions of alien culture into the cultural traditions of the indigenous peoples have changed the entire aspects of their life; even though, it is not absolute.

Different scholars commented that environmental problems are seen throughout the globe as caused by diverse human activities. Human beings culturally deal with their environments that have either positive or negative impacts upon the environmental components. Salzman et al. [1] asserts that human populations socially organized and oriented by means of particular cultures, have ongoing contact with and influence up on the land, climate, plants, animal species, and other humans in their environments and these in turn have reciprocal impacts. Hence, as Robinson [2] pointed out, culturally and socially, environmental problem represents problems of social organization, communication, and socialization. He further said that our understanding of environmental issues as primary social constructions offers insight into how these issues are created, maintained, and resolved. Community level interaction is an interesting social space from which to witness environmental understanding. Similarly, Strang [3] commented that failing to engage with local communities could carry a high social and ecological price tag. However, the roles of indigenous communities in natural resource management have owed no or little emphasis by modern conservationists and governments almost throughout the world.

Each community has its own particular orientation or adaptation to the wider environment institutionalized in the culture of the group, particularly in its technology, which includes established knowledge

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of plants and animals, weather and minerals, as well as tools and techniques of extracting food, clothing, and shelter [1]. This idea strengths and supports the importance of philosophical worldview of the community in the practices of natural resources management. As the community level interaction is the best social space from which to witness environmental problems, the study of how they view and define the cosmic order is an option-less option in an effort to revive and set the actual management strategy, and for the assessment of the cause of environmental problems. The World Bank, in his report, affirms that for indigenous peoples, management of biodiversity is not isolated, compartmentalized concept, but an integral part of their lives.

However, as revealed in different literatures, there are limitations in studies about the indigenous ecological knowledge of the indigenous peoples in the wider academic arena, and there is a limited focus on the importance of understanding the ecological knowledge of the indigenous peoples in minimizing the emerging environmental problems and subsequent social problems. Therefore, this study is aimed at assessing the wider ecological intelligence of indigenous peoples by providing few insights about the Oromo indigenous knowledge and its importance in natural resources management. It is Anthropological approach to the study of indigenous philosophies of the Oromo. The main issues addressed in this study includes: the way they perceive and view the cosmos and cosmic order; their practices in natural resources management; and how natural resources have been esteemed in their worldview for generations of intact coexistence; and how they have been maintained sustainable resource utilization and ecological harmony since time immemorial. Furthermore, documenting such invaluable knowledge of the people is important in maintaining the need to be in harmony with our environment.

Physical settings and human demography of the study area

The Oromo who constitute probably a good half of the population of Ethiopia are the single largest national group in the Horn of Africa. They are also one of the major African peoples [4]. The Oromo are an Eastern Cushitic populations living in the Horn of Africa [5]. As Fayisa [5] notes [6], it is believed that the Oromo make up about 30-40 percent of the total population of the country. The Oromo belong to the Cushitic language speaking family of peoples, who are known to have lived for thousands of years in what is today Ethiopia [4]. Geographically, the Oromo land extends from the Sudan in the West to Somalia in the East Lewis [7] and Asmarom [8] indicates its northern extreme to Rayya in Tigray. The Oromo also live in Wembera and Kemissie zones of the Amahara National Regional State, the Raayya, and Asseboo in Tigray National Regional State as well as in Northern Kenya and Somalia [9].

The present settlement distributions of the Maccaa Oromo are the wide parts of the region stretching from central Ethiopia towards the West through Sudan border. The Nole Oromo are one of the lineages of Western Maccaa Oromo of Wallagga. They have lived in West Wallagga Administrative Zone, Nole Kaba *Woreda*.

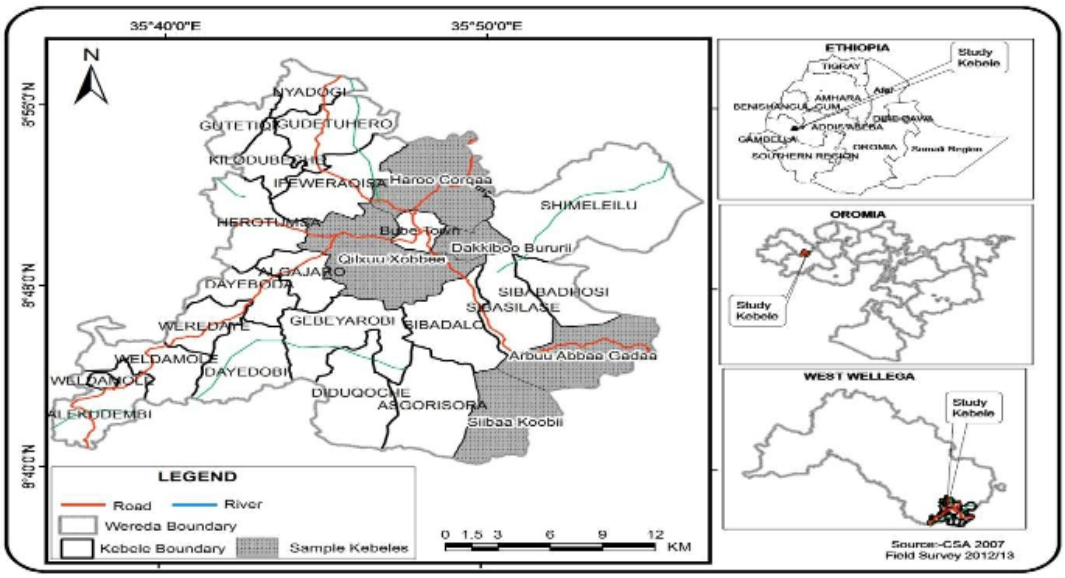
Location of Nole Kaba *Woreda*

Nole Kaba *Woreda* is located in the Southeastern part of West Wallagga administrative zone. It has common boundaries with Ilu Abba Booraa zone, and Haru, Yubdo and Lalo *Woredas* of West Wallagga. Its geographical area is 1351 km². Topographically, the *Woreda* characterized by rugged Mountains, undulating and rolling plateaus and hills. Nole Kaba *Woreda* is one of the highly populated *Woredas* of the region with 116, 764 total population, (male = 56,181 and the female = 60,583) (Map 1).

Material and Methods

This study employed qualitative research methods. Both primary and secondary data sources were used to compile the data for the study. Interviews (unstructured interviews, semi-structured [in-depth] interviews), non-participant observation, focus group discussions, case study, and document analysis (both published and unpublished) were the instruments used to obtain reliable data for the study.

[1]This map shows the Nole Kaba *Woreda* and the five sample *kebele* Administrations, involved in the study



Map 1: Location map of the study area[1].

Two forms of interviews- unstructured interviews and semi-structured [in-depth] interviews were held with different community members. Both interviews, parallel with other techniques, were conducted in February, March, April, and May 2013. Unstructured interviews were held with different individuals, who know the study area outside the local community, and with members of the local community, including individuals of different backgrounds like sex, age, social status, religious faiths, occupation, and literacy background, such as elders, youths, government officials, farmers, merchants, students, and teachers of different levels. Unstructured interviews were held in any places and time available without reservation.

In-depth interviews were held with key informants selected on purposive base by the researcher based on their prior knowledge in relation with the objective of this study. The topics raised under unstructured interviews were assessed in detailed with this method. In-depth interviews were conducted in five *Kebele* Administrations among twenty-seven *kebele* administrations of the *Woreda*, namely Haroo Corqaa, Arbuu Abbaa Gadaa, Siibaa Koobii, Daakkiboo Bururii, and Qilxuu Xobbee. The researcher on purposive base selected these areas.

In the entire field stay, twenty in-depth interviews, which took an average of one and half hour with each interviewee, were conducted. The responses of the interviewee were documented by note taking and tape-recording. This tool was used to get detailed data for the entire frame of this study, and to justify the anecdotal information encountered when unstructured interviews were conducted.

In the entire field stays, the researcher in the selected places of study area conducted non- participant observations. The non-participant observations were used to observe the environmental facts such as the natural resources composition of the area, protected shrine used as sacred sites of the Oromo of the study area. The study also employed relevant official documents, unpublished and published documents as source of data. Data from these sources, thus, were used for the entire frame of the study.

Results and Discussion

Ecological knowledge of the Oromo

For the Oromo, natural environment is part of their existence and chained to entire aspects of their life. In their relations with the natural environment, they pay special emphasis and care for their environment as partner of their lives. The findings reveal that this ecological intimacy helps the people in two ways. First, they have positively rewarded from their natural environments in entire aspects of their lives, including bounty harvest and healthy environment for the lives of human beings and their livestock; and secondly, the natural resources are conserved for sustainable utilizations. As Tesema [10] pointed out through the application of their indigenous agricultural knowledge and practices, the Macca Oromo have been able to obtain surplus harvest and maintain harmonious and balanced relationship between crop cultivation, livestock raising, plant life and the environment.

The data obtained through interviews with key informants of the study area reveal that the Oromo had been allowed to use wisely all the natural resources by the creator God. In proper utilization of the resources they had given, the Oromo have developed the knowledge for the rule of relationships to all natural resources. This knowledge is embedded in *seera uumaa* (the laws of God), and *seera duudhaa* (customary law). Both laws entail the laws of relationships between the Oromo and their natural resources. Both laws maintain the guiding principles of an individual behavior in a community. They are laws of 'Do' and 'Don't Do'. In Both laws, land (Earth) is considered as one of the valuable resources of this people. They regulate the use of land, the values, and land management system. This knowledge is thus, maintained in their indigenous religion, *Waaqeffannaa*. The Oromo of the study area have the knowledge of the concept of and the laws that regulate their relations to the resources.

Asafa [11] asserts that the Oromo society, like any other society, has been conscious of its cultural identity, its relation to nature, and the existence of a powerful force that regulates the connection between nature and society. The Oromo knowledge of society and the world can be classified into two: cultural and customary knowledge (*Beekumsa aadaa*) and knowledge of laws (*Beekumsa seeraa)*. The knowledge of law is further subdivided into *Seeraa* (the laws of God) and *Seera Namaa* (the laws of human beings). The laws of God are immutable, and the laws of human beings can change through consensus and democratic means. Every person is expected to learn and recognize *Seeraa* and *Seera aadaa* in case, if someone violates the laws of society or the laws of God, there are Oromo experts who can be referred to adjuration. These experts study and know the organizing principles of the Oromo worldview that reflects Oromo cultural memory and identity both temporally and religiously (2010). This idea reveals that the Oromo people's ecological knowledge is inherent of their worldview and regulated through the knowledge of *seeraa* [laws], and is common to all members of the society as a value guiding their relationship and behavior are part of their worldviews.

The place of land (Mother Earth) in the Oromo worldview: knowledge and value in perspective

The Oromo call their land "*Dachee Haadha Margoo*", loosely translated into English as "Mother Earth". Land is symbolized with mother. They articulate the value of land in their language by saying '*Baattoo*', loosely translated into English to mean 'Carrier'. They used to employ this term to show the holistic values of Mother Earth in their entire lives. The Oromo use this term in their daily speeches and on different rituals, oaths, and curses. The all-embracing characteristics of the Mother Earth among the Oromo, according to the data obtained through in-depth interview with one of key informants in the study area is summarized as follows:-

The Mother Earth, in Oromo wisdom is valued and respected. This is because, Mother Earth is believed to be the wife of in that is our Father and Earth is our Mother. We live on, she feeds her children as mother does for her children; we all die and lay down in; not only human beings, also plant species and animal species all laid down in when they die. On the other hand, which parts of our lives are out of the sight of Mother Earth? She is really the mother of all - embracing mother! (Sanbata Lamu, February 7, 2013).

Santos [12], asserts that for the indigenous peoples, land is life; it not only provides for the physical needs of indigenous peoples. Moreover, it also provides a line of continuity from the past to the present. Thus, according to Moshoeshoe II [13] land has mixed cultural and social meanings in addition to its role as habitat and as a source of resources for production activities for the indigenous peoples of Africa.

In support of the above idea, Alao [14] asserts that land is undoubtedly the most important natural resource in Africa. Its importance transcends economics into a breadth of social, spiritual, and political significance. Among other things, it is considered as a place of birth; the place where the ancestors laid to rest; the place, which the creator has designated to pass down to successive generations; and

the final resting place for every child born on its surface.

Because of the value attached to Earth, in their perception, they have established respectful relations with Mother Earth. According the finding, the common praise for Mother Earth among the Oromo presented as follows:-

Dachee haadha margoo,

Sirra qonnee, sirraa nyaanna;

Sirra horre, sirra yaafna;

Humna nuu kenni;

Horii nuu bulchi;

Sirra yaana, sirra galla,

Boolla huratu nuu duuchi.

Translated in English:

O Earth! the mother,

On you we plough, you feed us,

We reproduce on you,

Give us power and energy!

Protect our livestock!

We wonder on you,

May you plug up your hole, and protect us!

In their religious practices, they have seasonal rituals and prayers for Mother Earth. These prayers and rituals performed for the good of their life and livestock, and thus, for soil productivity. These prayers to the Mother Earth conducted whenever the Nole Oromo gathered for religious rituals, meetings, worshiping, and negotiations. As Derman and Sjaastad [15] asserts, land resource is not merely an asset, sources of income, and commodities, but represents repositories of ancestral spirits, site for sacred rituals and historical landmark that ties the individual to a particular location.

The findings reveal that for the Oromo, the Mother Earth has [2]*safuu*, and respect next to God. As other natural resources of the study area, the society have relations with Mother Earth, and expresses their relations through the value attached to each landscape, and the general praise and values of the Mother Earth as the whole. The findings further reveal that the Mother Earth is the precious and highly valued natural resource, with her all-accommodating role. In their daily communication and conversation with each other, the Oromo of the study area, for example two individuals for their agreement in the absence of the third party, swear saying ' *fi lafa fuulduratti* ! (In the presence of God and [Mother] Earth). This implies that Mother Earth has ears and eyes to see and hear the agreement between individuals, as does.

The relationships between forest and humans among the oromo

The findings reveal that forest resources are source of shelters, source of food for humans and animals, source of traditional medicine, and source of firewood. For the Oromo, forest resources have socio-cultural and ecological values. The socio-cultural importance of forest resources are manifested in their daily shores, and facilitate their socio-cultural and spiritual life, including cultural material objects and related significance. Hence, these cultural material objects are the manifesto of Oromo cultural property and identity. The majority of material objects used for house construction and clothing, traditional farming objects, household furniture's, which could be traced to the Oromo cultural knowledge, are products of forest resources.

Moreover, some plant species have symbolic values. The symbolic value of the forest resource, for the Oromo, reveal in their indigenous religious philosophy, and in the Oromo concept and philosophy of development. Accordingly, some plant species have direct linkage to the Oromo indigenous religion [*Waaqeffannaa*], used as places of worship.

As shown in the above Table 1, these plant species and shrubs are typical examples of forest resources that have religious values in the Oromo indigenous religion [*Waaqeffannaa*].

In addition, forest resources distinctively used as identity marker for the Oromo. The findings show that the name of the natural forests and other natural resources of the Oromo embraced the name of descent groups and renowned personalities of the Oromo clan. The forest resources found almost in entire areas of the Nole Oromo named after the name of Oromo descents and heroes, and these forests are considered as the living survival of their identity and culture. The best examples of such forests among Oromo of the study area, to mention two largest natural forests [called Jorgo and Alaku Dambi natural forests] are named after the renowned personalities of their descent, namely Jorgo Dagago and Alaku Dambi of Nole sub-family.

Moreover, the findings show that forest resources are source of traditional medicine for both human and livestock. According to the definition given by the World Health Organization, traditional medicine can be summarized as the sum total of all the knowledge, beliefs, and practices that are used in diagnosis, prevention, and elimination of physical, mental, or social imbalance. According to findings, the greenness of forest symbolizes development and productivity. It relies exclusively on practical experiences and observation handed down from generation to generation. It is a product of social institutions and

S. No	Plant Species		Habitat
	Local Name	Scientific Name	
1	*Hoomii*	*Prunus Africana*	Tree
2	*Birbirsa*	*Podocarpus falcatus*	Tree
3	*Ulaagaa*	*Ehretica cymosa*	Tree
4	*Somboo*	*Ekebergia capensis*	Tree
5	*Eebicha*	*Vernonia amygdalina*	Shrub
6	*Bakkannisa*	*Croton macrostachyus*	Tree
7	*Raamsoo*	*Cassia petersiana*	Shrub
8	*Ulmaayii*	*Clausena anisata*	Shrub
9	*Urgeessaa*	*Premna schimperi*	Shrub
10	*Alaltuu*	*Salix subserrata*	Shrub
11	*Qilxuu*	*Ficus vasta*	Tree
12	*Laaftoo*	*Acacia abyssinica*	Tree
13	*Dhummuuggaa*	*Justicia schimperiana*	Shrub
14	Ce'ii	*Celtis Africana*	Tree
15	*Coqorsa*	*Cynodon dactylon*	Herb
16	*Kusaayee*	*Lippie javanica*	Herb

Table 1: Some plant species of religious values among the Nole Oromo.

[2]***Safuu***:- law of prohibition, a moral category based on Oromo notions of distance and respect for all things and rituals. Some plant species used to conduct religious prayers under its shade, others used for religious rituals as a symbol or other related practices as dictated in their indigenous religion (Table 1).

cultural traditions, which have evolved over many centuries to enhance health (WHO).

The socio-cultural and economic values of water resource in the oromo worldview

The finding shows that among the Oromo of the study area, the characters of water are compared with God, in the sense that both have characteristics hidden from human beings. The saying '*Iccitiin a fi bishaanii hin beekamu*' is common among the Nole Oromo. This is to mean that the mystery of God and water is unknown. It is because of the fact that the character of water is intangible and mysterious like that of God. In their indigenous religion, they believe that God is mysterious, and it is beyond their capacity to understand the works of God.

The value of water, among the Nole Oromo, revealed in their blessings, seasonal celebrations, and religious rituals. Water uses as a symbol of wealth, health, growth, and prosperity in all these social phenomena. For example, in their blessings, the elders hold the fresh grass ([3]*coqorsa*), and say, '*jiidhaa*, *jiidhatti hafaa*', which means May you be fresh and prosperous throughout your life. Implicit in this blessing is that wishing individuals to become wealthy and prosperous throughout their lives. Thus, in their blessings they said, "*Garba ta'aa*, *bal'adhaa*". This is wishing individuals to multiply and becoming large in their lineage like ocean. Moreover, water among the Nole Oromo, used as a symbol and resource to be exploited in their socio-cultural and spiritual lives.

Likewise, FAO (2003) asserts that the concept of water resources is multidimensional. It is not limited only to its physical measure (hydrological and hydro-geological), the flows, and stocks, but encompasses other more qualitative, environmental, and socio-economic dimensions.

Fresh and natural spring water (*hora*) is found in the *Woreda*. According to the data, the natural spring water, *hora* Dardaraa, is historical natural spring found in the *Woreda*. They believe that this water is bestowed with medicine, which helps to heal livestock ailments and makes them strong and productive. They also used this water to treat humans infected with rabies. Persons beaten by mad dog go to this *hora* and swim in the water without taking off the clothes he/she was wearing when beaten, and thus, drink the *hora*. It is believed that the *hora* kills the rabies virus in the body and the victim will be healed from the disease. It is also believed that this particular *hora* heals patients suffering from bacterial caused diseases and physical deterioration. A *hora* is natural spring water to which people bring their cattle. They themselves also drink from it. In addition, they use the *hora* water for rituals of purifications [16].

It is believed that the cattle drink the *hora* to be healthy, strengthen them for plough, and to become fertile and productive. Hence, the community utilized their indigenous knowledge to protect the *hora* for sustainable utilization. The surrounding forests of this particular *hora* have been protected to preserve the *hora*. As reflected in their knowledge, forests have the protection impacts for both underground water and soil erosion, in which water, forest, and land dynamic management have practiced.

The other fresh water found in the *Woreda*, known for its medicinal importance and spiritual value among the *Qaalluu* of [4]*Dilaa Koobii Warqee* is *Laga* Luugoo (Lugo River). According to informants, the community believes that this River is spiritual, used to cure all types of human illnesses. The [5]*Qaalluu* prescribes the use and administration of this water. The adjacent sites of this River also used as a sacred site for the religious rituals of their indigenous religion.

Rationale of natural resources utilization and the practices of dynamic management

For the Oromo, management of natural resources has dynamic relationship. In their worldview, land had created not bare, but with other constituents of natural resources, including forest and water. Hence, in the Oromo wisdom, the practice of land conservation is dynamic, which include conservation of forest and water. As UNEP [17] asserts that intimately tied to indigenous knowledge of land management practices was the management of forests. Using indigenous knowledge, expertise, and taboos all the communities practiced forest management. Spiritual, medicinal, and ecological importance of forest resources, have an immense role in preservation of forest resources. For instance, in some indigenous African communities, thus, there were tree and plant species that were considered sacred, or totems, or were associated with some bad omens. UNEP [17] further asserts that in various countries many of the communities maintained shrines and protected forests, which were used as places of worship and other rituals. In addition, certain trees were considered sacred or totems, so they are protected.

The findings reveal that the knowledge of wise utilization and conservation of land resource among the Nole Oromo is revealed in their rationale of land uses and land allocation for specific specialized purposes. The Nole Oromo allocate land resource based on its importance in socio-cultural and economic lives of the people, and for sustainable utilization and conservation. Based on this, the Nole Oromo generally put their lands into six categories. These are land under cultivation, sacred sites, forestland, homestead, grazing land, and burial land. Through the application of indigenous knowledge of landscape classification, the Nole Oromo properly utilize the resource and at the same time conserve them.

The Nole Oromo have been practicing indigenous agricultural methods, such as minimum tillage, shifting cultivation, inter-cropping, and horizontal plough in land conservation for sustainable utilization and bounty harvest. Homestead, thus, systematically allotted based on their suitability for human settlement and livestock, composition of resources, which ease the lives of human beings and livestock's.

Tesema [10], in his discussion about Maccaa Oromo and their relation to land resource asserts that the Maccaa Oromo in Wallagga, traditionally classified their land into four categories, which includes forest land covered with trees and shrubs; land under cultivation uses to producing coffee, grain and root crops; land for thatch used to cover houses; and land for grazing. However, in the case of Nole Oromo, the data show that sacred sites and the land for burial purpose are also significantly included in their classification of land resource classification. Based on the findings the detailed discussion of each classification is presented as follows.

Land under cultivation: This portion of land is identified and selected based on the soil type suitable for cultivations and its land feature. Among the Nole Oromo the identification of soil type for cultivation for specific type of crop and its productivity are guided by the indigenous knowledge they have acquired through life long

[3]*Coqorsa* :- (*Cynodon dactylon*), drenched and green grass used in different rituals as a symbol of prosperity, fruitful, and growth

[4]An indigenous *Qaalluu* of the Oromo of the study area and the neighboring *Woredas* used to mediate between and human beings since time immemorial

[5]The Oromo religious leader, spiritual leader, ritual expert in *Waaqeffannaa*

experiences. Each type of crop is selective of the soil type and fertility. System of plough is the other practices, which needs a thorough knowledge of land resource usage to sustain its fertility and protect the land from erosion. Some trees have been preserved on the land under cultivation for different purposes.

According to findings, trees on a land under cultivation are conserved for two major purposes. Firstly, they protect the land from erosion. Some tree species planted or protected on the land under cultivation for their conservation impacts of the land under cultivation. The upper part of the soil, according to the informant, is fertile and suitable for better harvest. If eroded, the farmers lost the golden part of this soil, important for good harvest. The second reason is that there are tree species that are protected on the land under cultivation. These tree species are those, which have religious values in the indigenous religion of the Oromo, such as *Hoomii* (*Prunus Africana*), *Birbirsa* (*Podocarpus falcatus*), and *Qilxuu* (*Ficus vasta*).

The others are those, which have ecological impacts on the area, like *Mukarba* (*Albizia gumifera* or *Albizia schimperiana*) and tree species, which are important in increasing the soil fertility, and those that protect the underground water, and those that keep the land humidity. These ideas imply that the Oromo of the study area have the knowledge of the dynamic relations of land and tree, in which land under cultivation is protected from erosion and through which the soil fertility is enhanced for sustainable tillage and good harvest.

Among the Oromo, in their rationale for agricultural land usage two types of knowledge are detected. The first one is their knowledge of allocating the specific land for cultivation, and the second is that their knowledge of sustainable utilization. Such indigenous knowledge and practices used in conservation of other natural resources like plant species and underground water.

Other scholars, thus, substantiate this knowledge of the Oromo people in general and the Maccaa Oromo in particular. Gobena [18] in his studies about 'protecting the environmental resources of Oromia', points out, "It has been agriculture where trees are preserved not only for their shade or majestic look, but for their conservation impacts on their environments". Implicit in this idea is that the Oromo people have been practicing agriculture with the help of their indigenous knowledge that helps to protect their environment. The fertility and productivity of this land is protected through the application of their indigenous agricultural methods like shifting cultivation, crop rotation, inter-cropping, minimum tillage and cattle kraal shifting.

Sacred land [sites]: The sacred sites are used for various religious rituals of the Oromo indigenous religion. These sacred sites are protected from human interferences and disturbances for any other purposes. The sacred sites of natural environments, according to the data obtained from the study area are land features like mountain (*Tulluu*), fields (*Dirree*), forested land, and water bodies like river (*Laga*), ford (*malkaa*).

The other scholar who wrote about Tullu Wallel was Ernesto Cerulli, cited in Bartels [16]. He said, "Tullu Wallel is the holy mountain to the Oromo of Wallagga. It is there that they perform their clan's sacrifice to God/sky; it is there that the elders hold their meetings; it is there that, according to traditional records, the second home land of the Oromo is to be found." The Jorgo natural forest has been protected and is conserved by the Nole and other clans like Sayo, through the application of their indigenous knowledge and practices.

Forest land: According to the data obtained from the study area, forestland is a land covered by natural forests and plantation forests composition. The community has been protecting the lands under forest coverage from human disturbances and interferences as partners of their lives, using their traditional sanction. It has been protected because of its multiple socio-cultural and ecological significances. Hence, forest, land, and water resources have dynamic relationships and the rationale behind allocation of land for different purposes are based on predominant forest composition and the feature of landscapes, which are not suitable for cultivation such as hill, valley, protected shrines, Riverbanks, residences of wild animals, and other social services. Forests, either natural or plantation, are part of natural environment and they have social, cultural and ecological importance for the people of the study area.

The data obtained from the study area reveal that some largest natural forests of the community are known for their repository impacts of their identity, since they bear the name of the renowned personality of their ancestors. The typical examples of such natural forests among the Nole Oromo are Alaku Dambi and Jorgo natural forests. Both natural forests called after the name of their renowned ancestors Alaku Dambi and Jorgo Dagago. Currently, in the area, both natural forests have constituted the largest portion of natural forest coverage of western Ethiopia.

The other reason for allocating forestland among the Nole Oromo is that in their worldview natural forest composes various plant species, which have medicinal, religious, and ecological importance. For these reasons, such landscapes, covered by natural forests have delimited and protected from destruction. Moreover, the ecological value of natural forest among the Nole Oromo includes such values as source of rain, suitable climate, and ecological balance. Generally, socio-cultural and ecological values the community attaches to forest resources led them to identify such landscapes from other areas, and designate it as a repository of natural forests.

Moreover, the data reveal that four areas of knowledge are very important among the community in allocating specific landscape as forestland, and traditionally not allowed to cutoff the trees from such areas. The first one is forests that have the role of blowing against wind: forests, or plant species, which have the impact of protecting wind from settlement areas or home, and cattle kraals (*mataa qilleensaa)*. The second area of their knowledge is forests found at upper stream and riverbanks, which protect the water sources from drying out (*mataa bishaanii)*). The third one is forests and plant species used as shade for their livestock during the dry seasons (*gaaddisa loonii)*. Finally, forest used as a home for wild animals *(bakka jireenya bineensaa)*.

Land for grazing: It is a land covered with various types of grass, used for livestock grazing, used for thatch and *coqorsa* grass used in religious rituals, prayers, and blessings. Livestock are integrals of their life; they are supporting the people with their power in the agricultural practices, their manure helps in soil fertility, they are sold to assist the household economy, their meat, milk, and butter are integrals of Oromo social life and economy. Bartels [16], observed the relation the Maccaa Oromo have with their cattle. He said that the cattle are the life of the people. Indeed, such integrals of the people need portions of the land for their food provisions. The portions of land allocated for this purpose have known as grazing land (*lafa dheedinsaa*) among the Oromo of the study area.

Burial sites: The data obtained from the study area through in-depth interview with the local elders indicates that burial sites are historical and memorial places for the clan of the deceased to remember

the individual of their clan. These places are also part of clan land. The community believes that for the deceased this land is the resting place and their *Ayyana* resided around. The value and the assumptions the community attached to this land serves to protect and conserve this land and the vegetation covers. It is believed that an individual possesses *Ayyaana* (spirit) when alive; and when the person dies, this *Ayyana* (spirit) remains on his grave. Because the *Ayyaana* respected and valued the graveyards respected and protected for generations. This portion of the land is detached from cultivation, grazing, and other social uses. Some plant species planted on graves to mark the place where a particular individual buried and for the protection of the grave from being disturbed.

Land for settlement (homestead): It is a land allocated for settlement for both human and animal population. It is the highly valued place, selected based on thorough ecological knowledge, in which the area is bestowed with all constituents for the better and healthy lives of the people and their livestock. Settlement areas are respected places of the natural environment because of their socio-cultural and ecological importance. There is a common saying among the Oromo "*Lafa manaa fi nama garaatu nama dhiba*", loosely translated into English to mean, 'it is difficult to get true friend for a person, and suitable land for homestead.' The sayings reveal that there are strong and mysterious relations between humans and homestead among the Oromo.

Among the Maccaa Oromo of the study area, there are scattered homesteads, arranged patrilineally and patrilocally; each with reserved land for cultivation of crops used for household consumption, known as *lafa qe'ee* (homestead) and *lafa boroo* (land near to the compound of the home). These categories of land portion mainly based on their proximity to the home and the types of grains cultivated. Both lands are fertile; however, *lafa qe'ee* is more fertile than *lafa boroo,* and uses for different purposes. The main land portion in this category is land of libation (*lafa dhibaayyuu*). A land portion of homestead serves as ritual site for the members of the family. *Lafa qe'ee* has home trees planted for fence and shade as well as wind blockings.

In sum, the above discussions about the three natural resources (land, forest, and water), were used to look into the relations of the Oromo with these natural resources as revealed in their worldview, and the value of land, forest, and water resources that the Oromo have been maintained in their relations, and used in management.

The Oromo Philosophy of Cosmic Order: Dynamic Approach

In the Oromo worldview, is the creator of all things (*uumaa*), including natural resources and human beings. Hence, He gave them the laws of order and harmonious co-existence between, human beings and the natural environment. The findings, thus, reveal that *safuu* and *ayyaana* are important concepts of their worldview about cosmic order. In sum, the findings reveal that in the Oromo worldview there is strong dynamic relationship between the physical, the spiritual, and the human worlds.

The findings show that there are dynamic relationships between the Oromo and the land, the forest, and the water resources. Their relations with each resource are organized around the socio-cultural, economic, and ecological values attached to these resources. For instance, land (Mother Earth) has symbolic values, symbolized as the wife of [6]Waaqa and the mother of all living things. The socio-cultural values of land include identity, social bond, and holdings. The Mother Earth, in the Oromo wisdom is highly valued and respected. This is because Mother Earth believed as the wife of, in which is the Father and the Earth the Mother. Land bears the identity of a group or an individual owner. Among the Nole Oromo, land ownership has been possible only through clan membership. The land is where their dead are buried, and where the spirit of the ancestors laid down. Generally, among the Oromo, the land has all-encompassing values, including socio-cultural, spiritual, and emotional elements.

Based on the finding of the study, the Oromo philosophy of cosmic order, which maintains their indigenous ecological knowledge, presented as follows (Figure 1).

The other important thing in the relationship between land and humans among the Oromo is that the land is valued and respected above all, next to. Land has *safuu*, and the laws that govern the behavior of the community in their relations to land. Similarly, the arrow between forest resource and the humans in the above Figure 1 shows the general socio-cultural, ecological, and other related values of forest resources, and the value attached to it. As indicated in the diagram, the forest resources have medicinal, religious, symbolic, identity, and ecological values among the Oromo. The water resources, thus, have medicinal, religious, symbolic, and other socio-economic values in their socio-cultural lives. Their knowledge of the values of each resource in their socio-cultural lives, and associated deference in their worldview guides the dynamic relationships between the Oromo and these resources.

The above Figure 1 shows that the land is at the bottom and is the base for other creations. Human beings have the middle position, in their relations to all the three resources and. The is above all and believed to cause all lives.

Therefore, in utilizing these resources, human beings should respect, the omnipotent, which is above all, and causes every existence. The above diagram, thus, shows that the Oromo have strong bond with all the three resources, and moreover, these resources are associated with the psychological, emotional as well as with the identity of the Oromo. Loss of a single resource would have distorted the entire aspects of the society. In other words, it is a loss of indigenous knowledge associated to each, the values, *safuu*, laws, and other internal moral quality associated with it. Their relations to these resources, whether negative

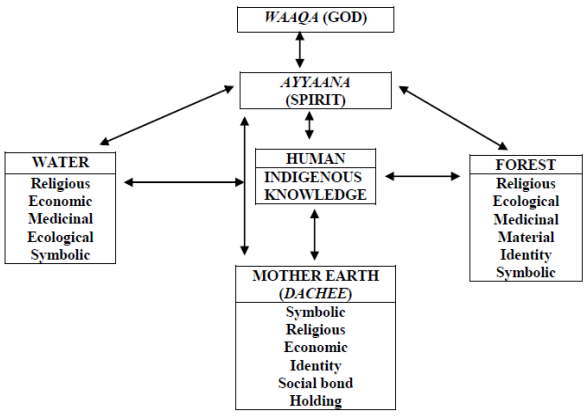


Figure 1: The Oromo philosophy of the organization of the spiritual, the physical, and the human worlds, and foundations of dynamism.

[6]*Waaqa* :- God, the sky as we see

or positive, reciprocated by, through rain, good harvest, well-being of human beings and their livestock, or natural disasters. For instance, the positive rewards of for the good did of the members of the community are rain, bounty harvest, well-being of humans and livestock. Contrary to this, the negative rewards for wrong doings are manifested in the absence of rain, low harvest, disease outbreak, famine, and drought. Because of these facts, the community acts in accordance with the laws, norms, values, and *safuu* to maintain harmonious and balanced relations with the natural resources. Generally, the Oromo knowledge of cosmic order, and the values of each resource are important in natural resource management. The Oromo worldview about the organization of the physical, spiritual, and the human world, as revealed in the above diagram has great importance in creating environmental harmony, and in maintaining balanced coexistence between the physical, spiritual, and the human worlds.

Implication of the Oromo Indigenous Knowledge and the Oromo Worldview in Natural Resources Management

The Oromo use four concepts to explain the organization and interconnection of human, spiritual, and physical world. These four concepts are [7]*Ayyaana* (spirit), [8]*Uumaa* (creator), [9]*Uumama* (nature), and *Safuu* (moral and ethical order). *Ayyaana* maintains the connection between the creator and the created [11]. Similarly, Gemetchu [19] asserts that these four concepts are elements of the Oromo worldview." Gemetchu [19] further explains the four concepts:-

The core meaning of ayyaana refers to that by and through which God (Uumaa) creates anything and everything. Ayyaana is in fact both that which causes something to come into being and becomes that which it has caused." Saffuu is a moral category, based on Oromo notions of distance and respect for all things. The concept of saffuu is not merely an abstract category: it constitutes the ethical basis upon which all human action should be founded. Uumama refers to the entire physical world and the living things and divine beings contained within it, animal, vegetable, mineral and spiritual.

He argued that these four concepts constitute the basis of the Oromo worldview, and they should be seen as interlinked and interconnected aspects of a whole. The Oromo worldview embeds indigenous knowledge in entire aspects of their lives, in which every things have values and respects called *safuu*, and the super natural spirit called *ayyaana*, through which every creatures related to their creator, and believed that through which creator controls His entire creatures. In their view about this mystical bond between the creator and the creatures, humans, among the Oromo are responsible to act in accordance with the awareness and through reverence to the natural law.

They have maintained *Safuu* through their knowledge of the concept of laws (natural laws and customary laws), and abides by it. *Safuu* entails the values of everything, and determine the standards of behavior. The *ayyaana* (spirit), as shown in the above diagram, positioned above all creations next to God, in their knowledge about cosmic order [20].

Therefore, among the Oromo, the natural resources are viewed as a part of life and the knowledge of conserving the natural resource is embedded in these four concepts. The land has its own *Safuu*, the forest and tree have their own *Safuu* and the water, spring; shrines have their own *Safuu* and deserve management in the Oromo cosmological wisdom.

The main findings of the fieldwork conducted in the study area show that land, forest, and water resources have socio-cultural, ecological, and economic values in the life of the community. The data reveal that the values attached to these resources are important in the practices of conservation. The findings also show that the Nole Oromo has the knowledge of the dynamic relationships between the three resources, which is important in natural resources conservation [21]. The findings reveal that according to the Oromo worldview, there are strong relations between the physical, the spiritual, and the human world. In their worldview, *Waaqa* is the creator of all things (*uumaa*), including natural resources and human beings. Hence, He gave them the laws of order and harmonious co-existence between *Waaqa*, human beings and the natural environment.

The findings, thus, reveal that *safuu* and *ayyaana* are important concepts of their knowledge about cosmic order. In their indigenous knowledge, everything has *safuu* and *ayyaana*, and humans are responsible to act based on this knowledge. The *ayyaana* (spirit) is Supernatural cause, and believed as resides in everything, and determines the relationship between *uumaa* (creator) and *uumama* (creation). Generally, among the Nole Oromo, associations between *Waaqa* , the natural resources, and the humans have been maintained through their indigenous knowledge of the concept of *Waaqa*, *ayyaana*, *safuu*, and *seera*. Moreover, for the Oromo, natural resources are curator of their indigenous knowledge and practices in their socio-cultural lives.

Conclusions

According to the Oromo worldview, the physical, the human and the spiritual worlds are interconnected phenomena. These different worlds have maintained balanced relations, which forms the cosmos. In their knowledge about this cosmic order, the Oromo have different indigenous knowledge, which regulates their relations with the other world. This knowledge includes the knowledge of the concept of *Uumaa*, *Uumama*, *Ayyaana*, and *Safuu*. These four concepts are believed to regulate and maintain their relations with the worlds in cosmic order. In their knowledge the Oromo are aware of the values of natural resources, and have normative practices and relations to each resource to sustain the balanced coexistence. They are aware of their action in their relation to natural resources and God, weather their action is positive or negative.

The study reveals that the Oromo have indigenous knowledge, which is part of their worldview in their relations to natural resources, and have maintained relations with their environment for generations. They have indigenous knowledge and practices of natural resources management, and relations with land, forest, and water resources that encompasses the entire aspects of their life. These natural resources (land, forest, and water) form the skeleton around which environmental knowledge of the Oromo organized. Above all, these resources are the reservoir of their comprehensive ecological knowledge, and the repository for the cultural traditions and identity of the Oromo.

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[7]*Ayyaana*:- Spirit/ personal quality/ in-born gift

[8]Uumaa:- Creator, God

[9]Uumama:- Nature, creation

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