

INDIGENOUS KNOWLEDGE OF FOREST MANAGEMENT AMONG THE GEDEO OF SOUTHERN ETHIOPIA

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ABSTRACT This paper is concerned with indigenous knowledge of forest management among the Gedeo people of southern Ethiopia and factors that enable them to manage their tree species. Specifically, it deals with the congeniality between celebrating festivities of an individual's rite of passage and planting varieties of tree species within the framework of their livelihood strategies. Then, the paper deals with the challenges they often encounter in maintaining these cultural practices. Relevant qualitative data were obtained from both primary and secondary sources. Key Informant interview and In-depth Interview, respectively, with community elders and farming household heads and Focus Group Discussions were conducted at three *kebeles* (local level administration) of Wonago *Woreda* (district). The data were analyzed through considering the different data sources to present the study findings. The study found that Gedeo people have effectively managed their forest resources due to the supervision of indigenous *Gadaa* institutions, their effective land use and management, and their worldview and belief system towards natural resources. Above all, in Gedeo, there is often congeniality between planting trees and individuals' rites of passage. This association enabled them to continuously manage their trees and forests and make their living on them in the form of what is known as agroforestry.

KEYWORDS: Ethiopia; Forest management; Gedeo; Indigenous knowledge; Rite of passage.

INTRODUCTION

Indigenous knowledge of local environmental management has existed in various parts of the world, demonstrating the long-standing human-environment relationships. One of the environmental knowledge systems that people in a certain area have gathered is the existence of a forest-human interaction. Since the early 1990s, the United Nations (UN) has attempted to devote attention to indigenous forest knowledge by acknowledging the value of indigenous knowledge of forest management among the many peoples of the world. The United Nations (2004: 1–2) defined indigenous forest management knowledge as a cumulative body of knowledge, practice, and belief, handed down through generations by cultural transmission and evolving through adaptive processes, about the relationships of living beings (including humans) with one another and with the environment. The UN has recognized forests as one of the most significant natural resources with economic, social, and environmental purposes.

People in several parts of Africa, particularly Ethiopia, retained local expertise of managing their environment and natural resources, which was often unique to them. Forest management is one of the knowledge systems that rural communities have gathered in many

parts of Ethiopia, but it is frequently neglected by the government because it is considered a backward practice (Workneh 2001; Yeraswork 2001). On the other hand, it seems that the Ethiopian government has recently realized the necessity of tree planting and forest management. For example, in order to counteract the effects of environmental degradation and climate change, the government has been rallying residents to plant trees over the past four or so years, and it claims that so far more than 25 billion tree seedlings have been planted in the country (Odesomi 2023).

Tree planting should not be a one-time event, but rather a lifelong endeavor. In the context of today's climate change and natural resource deterioration, Gedeo's expertise of tree planting and forest management can serve as a lesson in tree planting, forest management, and how humans can use natural resources and live in a sustainable manner without destroying the environment. As it is indicated in Takele (2019), Gedeo's indigenous knowledge towards environmental management is holistic in its approach, where there are also specific and intricate activities that they perform such as proper land use, soil management, and environmental world views *vis-à-vis* livelihood strategies.

Among the several practices and worldviews, planting environmentally suitable tree species at different occasions is the concern of this paper. Thus, the primary goal of this paper is to present procedures and the various variables that permitted the Gedeo. It discusses, among other things, the relationship between preferred tree species and Gedeo's religious ceremonies, which are frequently commemorated during individuals' rites of passage. The focus of this paper is on the rites of passage of birth, marriage, and death or funeral. Questions such as, what are the major factors that enabled Gedeo people to maintain their forest resources?; how are rites of passage attributed to and contributed to maintaining Gedeo's forest resources?; how are they practiced?; and how have all of these contributed to Gedeo's indigenous knowledge of forest management? are addressed.

THE PEOPLE AND AREA

The Gedeo are one of the ethnic groups in the South Ethiopia Regional State of Ethiopia. The name Gedeo indicates both the people and the zone.⁽¹⁾ Gedeoffaa is the language they speak, which belongs to Cushitic family. Although Protestantism has become a major religion since the 1950s (Taddesse 2002), the Gedeo also believe in Magano (Gedeo's Supreme God) as part of their traditional religion. As some writers claim Gedeo's origin is not clearly known (Awoke 2007), though oral history⁽²⁾ shows, first, Magano (God) created three brothers whose names are Daraso, Urago,⁽³⁾ and Boru.⁽⁴⁾ According to informants,⁽⁵⁾ among the three, Daraso is said to have been considered a senior and the founder of the Gedeo people. Daraso had seven sons from two wives; hence, known as *torbane gosa* (the Seven Gedeo Clans): Darashsha, Doobba'a, Gorgorsha, Hembra'a, Logoda, Bakaro, and Hanuma. From these, the first three clans are considered senior (*sase baxxe* or *sase mine'e*) and came from the first wife, and Darashsha is *angafaa* (the elder). The rest of the four clans (*shole baxxe* or *shole mine'e*) belong to the junior, who came from the second wife, and the last clan, Hanuma, is considered *manicho* (the young).

Currently, the size of the Gedeo zone is 1,347 km²,⁽⁶⁾ and the population is estimated to be 879,749 (c 2010).⁽⁷⁾ It is considered one of the most densely populated zones in the region, with 699.8 people/km². In Gedeo the average landholding size per household is 0.8 ha. The zone is divided into six *woredas*⁽⁸⁾: Dilla Zuria, Wonago, Yirgacheffe, Kochere, Gedeb, and Bule. The seat of the zone is Dilla town, about 365 km away from Addis Ababa and 98 km from Wolaita Sodo, the capital of the South Ethiopia Regional State. Dilla is the commercial

center and political capital of the zone. Its population is estimated to be 81,644, of which 42,599 and 39,045 are male and female, respectively (CSA 2010).

Gedeo zone is divided into three agro-ecological zones: the midland called *dhibata* (about 71% of the total area); the highland called *subbo* (about 26%); and the lowland called *riqata* (about 3%).⁽⁹⁾ Topographically, thus, the zone is considered a plateau with an elevation ranging from 1,450 to 3,250 m above sea level. The annual average rainfall of the zone ranges between 1,400 mm and 1,700 mm, and the annual average temperature ranges between 8 and 28°C (Awoke 2007).

Wonago District (*woreda*), the specific research area, is one of the six *woredas* of the

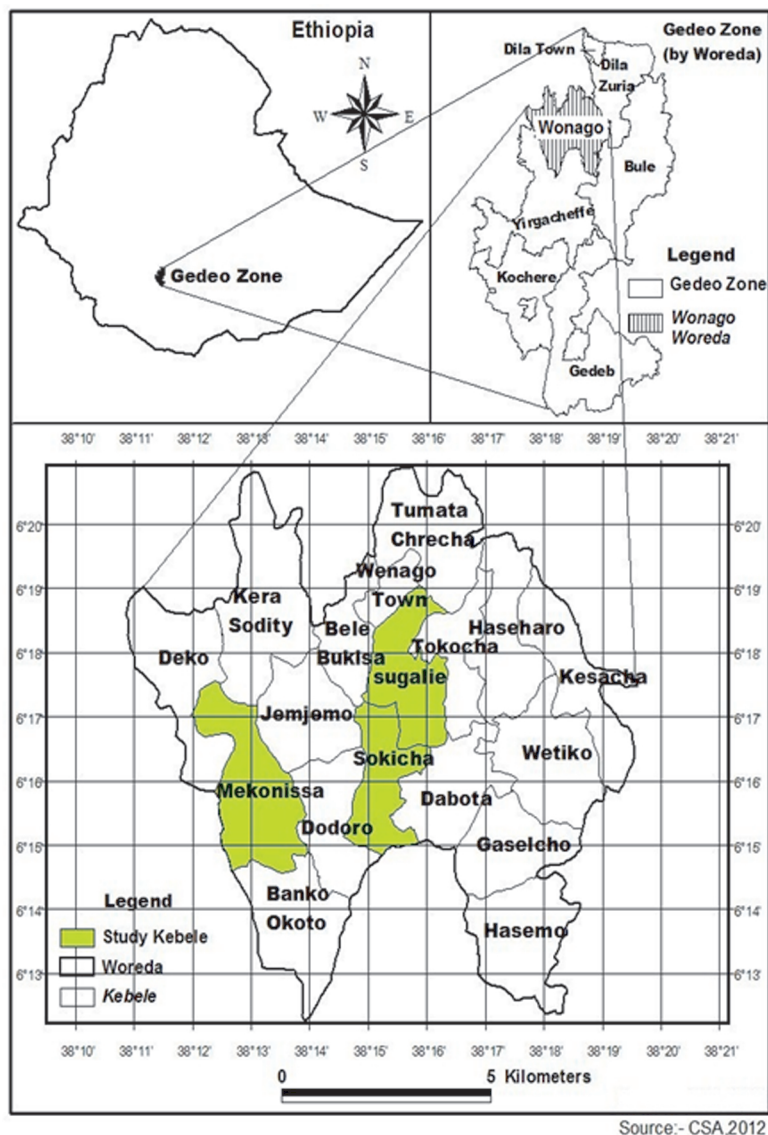


Figure 1 Map of Gedeo zone, Wonago woreda and the study kebeles

Gedeo zone (Figure 1). Its capital is also called Wonago, a town located about 378 km south of Addis Ababa. This *district* is further divided into seventeen rural and one urban *kebeles*.⁽¹⁰⁾ According to the Agricultural and Rural Development Office of Wonago *woreda*, about 83% of the agro-ecology of Wonago is midland (*dhibata*), 14% is lowland (*riqata*), and the remaining 3% is highland (*subbo*). According to information received from the *Wonago Woreda Administration* (2018), Wonago has an area of 255.16 km² and a total population of 243,978. This makes the average population density of the *woreda* 956, which makes it one of the densely populated areas in the region. Wonago is one of the prominent *woredas* of organic coffee producers in Gedeo zone.

METHODS AND DATA SOURCES

For this study, relevant qualitative data were gathered from three *kebeles*⁽¹¹⁾ of Wonago *woreda*. Key informant interview (KI), in-depth interview (II), focus group discussions (FGDs), and informal conversations with elders were the major data gathering techniques employed along with observation of the localities. Accordingly, twelve key informants were selected and interviewed (four from each) based on their knowledge of Gedeo culture, the roles they have in the communities, their age, and their power of explanation. Fifty-four informants for in-depth interviews were selected based on purposive sampling in consultation with extension workers, so that interviews were conducted across generations to collect data about indigenous knowledge, perceptions, and practices of forest management and current challenges they encounter with. Informants also explained the relationship that existed among various tree species, rites of passage, and livelihood strategies attributed to trees. Moreover, nine experts' in-depth interviews (EII)⁽¹²⁾ were conducted to understand officials' points of view on agro-ecological experiences and on existing challenges. Five FGDs were also arranged to understand group perspectives on Gedeo's indigenous knowledge and worldviews on their forest management. The data were gathered during fieldwork that took place between October 2018 and February 2019 in two phases. The first phase was from October 8 to November 14, 2018, while the second phase was from January 21 to February 26, 2019. Table 1 shows a summary of the data sources.

LITERATURE AND CONCEPTUAL ISSUES

Many scholars, particularly anthropologists, agree that the first substantial interpretation of the term rite of passage as a cultural experience of every human society was presented

Table 1 Summary of data sources

Specific Research <i>kebele</i>	Mekonisssa			Sokicha			Sugale			Total		
	M	F	T	M	F	T	M	F	T	M	F	T
II (In-depth Interview)	24	8	32	10	4	14	5	3	8	39	15	54
EII (Expert In-depth Interview)	3	1	4	3	0	3	2	0	2	8	1	9
KI (Key Informant) interview	3	1	4	2	2	4	3	1	4	9	3	12
FGD (Focus Group Discussion)		2			2			1			5	

Note: M = Male, F = Female, T = Total

in the early 20th century by anthropologist Arnold Van Gennep, who coined the phrase 'rite of passage'. Other phrases, such as "life cycle" and "life crisis", are names closely related to the concept Van Gennep provided (Howard 1986), and all are concerned with biological changes. Van Gennep saw the rite of passage as a means by which individuals could easily transfer from one social role to another without social disruption. Van Gennep also explained the rite of passage as an event consisting of three distinguishable and consecutive stages. One is separation, when the person on whom the rites center is first symbolically removed from his or her old status. The second is the transition, in which the person undergoes adjustment to the new status. The third stage is reincorporation, when the person is reincorporated into society with his or her new social status (Howard 1986). Contemporary social science scholars have accepted and followed Van Gennep's trend, at least in its characteristics.⁽¹³⁾

Helman (1990) and Moore (1992) argue that rites of passage are culturally determined, differ across societies, and are not universally similar and Moore (1992) considers celebrating important events is primarily socio-cultural or human-made that symbolizes the rite of passage. Thus, attempts to understand rites of passage have generally been socio-cultural in their interpretations, which view rites as part and parcel of the socio-cultural system rather than biological. For instance, belief systems and rites of passage have been seen as elements in a social system that affect and could be affected by other elements, such as means of obtaining livelihoods and the way in which society is aligned in groups (Durkheim 1964).

Hobel (1966) stated that the rites of passages have important locations in most societies and cannot be overlooked. They can, however, be tackled and surmounted with varied degrees of intensity, with cultural celebrities serving as show stoppers to cap off the intensity. The most important points to be addressed are: the roles of rites of passage in maintaining the forest resources; the ways they are practiced; and the purposes of the rites. Structural functionalists have tried to deal with these kinds of themes. They view rites of passage in terms of their functions or significance in the social system. For instance, according to Bronislaw Malinowski (1971) and Radcliffe-Brown (1952), each institution, relationship, rule, and norm that together constitutes a society serves a purpose, and each is indispensable for the existence of the others and of the society as a whole. In this way, each rite of passage serves the maintenance of the social and ecological systems, and vice versa.

Some structural functionalists, such as Eliade (1958), also view that rites of passage have both social-environmental and psychological significance. For instance, as Malinowski (1971) indicated, rites of passage are important in helping to maintain societies in a steady state or to preserve the status quo. Such rites relieve the stress that individuals feel during biological and social changes or when there are rearrangements in their personal lives, and at this time, rites could provide instructions and approval of the new roles that may arise through such occasions. The rite of passage is also taken as support of social stability; mainly, it provides clear instruction to all members of a given society, thus ensuring that life is continued in a normal fashion. Furthermore, the rite of passage is important because it is a way through which social and moral values are expressed and thus sanctioned as part of the ceremonies. By fostering social unity, they encourage collective actions and the mass expression of values (Boakye 2010). That is, due to the celebrations of rites, the pressure and consciousness of a shared identity enhanced through common rituals compel individuals to confirm themselves to their societies' norms, thus functioning in an orderly way (Durkheim 1964).

There is also an emphasis on society's point of view, especially on how individuals are socialized in a given society. In the process of socialization, individual members would

learn the basic socio-cultural orientation of the society—the way the society perceives its environment, that is, its world view concerned with societies' assumptions about the nature of the world (philosophy, ethics, rituals, beliefs, etc.) (Howard 1986). The central theme of Gedeo's worldview is the link between socio-cultural realities as their life experiences and the natural aspects (i.e., the biological process) and the co-existence between the two. This could be achieved through linking the natural cycles (birth, death, puberty, etc.) to that of planting and preserving tree species as their valuable life experiences and socio-cultural practices. This would force us to deliberate on the human ecology framework. It is concerned with maintaining the health of the local environment in which Gedeo people have been able to practice and the ways the environment responds to the people. The people of Gedeo associate many of their individual rites of passage with tree species, manage the tree species to the level of forest, and give health to the environment that ensures their sustainable sustenance.

FACTORS CONTRIBUTING FOR INDIGENOUS FOREST MANAGEMENT AMONG THE GEDEO

I. Gedeo's socioeconomic and political institutions

Informants⁽¹⁴⁾ explain that Gedeo's local governance is called *Gadaa*,⁽¹⁵⁾ and officials of this institution make decisions in a hierarchy consisting of *Abbaa Gadaa*, *Jilaba*, *Roga*, *Hayycha*, *Murana*, *Dabalcha*, and other traditional political organizations concerned with traditional leadership. *Abbaa Gadaa* is the leader of the *Gadaa* system and the general administrator of the Gedeo country, and the chairperson of the general assembly, called *Ya'a*. *Abba Gadaa*, in addition to the roles he plays in political and economic administrations, is responsible for praying in order to make the people blessed and protect them from any disaster: diseases, droughts, famine, runoff, and other adversities.⁽¹⁶⁾ *Jilaba* is the next Gedeo's *Gadaa* leader, who serves as a counselor (advisor) to *Abbaa Gadaa* in decision-making or as a judge. *Roga* is the next hierarchy, and the leader is known as *Abbaa Roga*, which is divided into three ecological administrations known as *Rogas*, and its agro-ecological division is: *Subbo Roga*, *Dhibbta Roga*, and *Riqata Roga*. This means that each division has its own *roga* and represents the social group that lives in each of the districts (McClellan 1978).⁽¹⁷⁾ *Hayycha* is the next administrative hierarchy, which is divided into two. The first is known as *Hulati Hayycha*, which is assumed to be responsible for administering the seven Gedeo clans so that each clan has its own *Hayycha*; hence, there are seven *Hayychas* of this type.⁽¹⁸⁾ The second is called *Songo*⁽¹⁹⁾ *Hayycha*, who often acts at village (*batte*) level in administration nominated by the *Roga*. It is also stated⁽²⁰⁾ that *Songo Hayycha* is recruited from village elders, and this is based on the age and knowledge they have about a given village and its inhabitants. Moreover, *Hayycha* is responsible for leading the mass belonging to their clan or their village through *Songo*, which is the gathering of the mass together with their officials according to their hierarchies to make decisions.

Dabbaalle, is a representative of a small district that assists society at the grass-roots level. According to informants,⁽²¹⁾ there could be many *Dabbaalles*, according to the number of *Songo* that a village contains. A village (under *Hayycha*) can have many *Songos* according to the area it covers and the population it contains. *Murra* is another official in Gedeo's *Gadaa* system and represents a clan or clans. He is an armed man and responsible for addressing orders of the *Hayycha* to the mass at the grass-roots level, especially in

welfare; during appointments, he introduces the appointee to the people, brings accused persons to the *Songo* (used as a court), and announces the process of the judge and its final decision to the mass people.

In Gedeo, the role of respected elders (*aradi gocho*) and their wisdom (*korte*) is very decisive in all aspects of the people.⁽²²⁾ All FGD participants agreed that elders have irreplaceable roles in the daily lives of the Gedeo people. Particularly, *Abbaa Gadaa* and his officials are fully responsible for the administration and management of the overall affairs of Gedeo. Elders also guide, supervise, and advise their members on every aspect of life. They motivate hardworking behavior, discourage laziness, and condemn theft, lying, cutting trees, and other crimes. They also protect their environment and settle both ordinary and serious conflicts at all levels.⁽²³⁾ Moreover, elders are responsible for sharing their knowledge with the young, mainly on the use and management of natural resources in general and on how to preserve forests and tree species and their importance.⁽²⁴⁾ Therefore, the Gedeo considers elders as pillars who are concerned with the well-being of the whole people and their country. They are also ritual performers where the people celebrate their rites of passage in matters of both political (transitions of age-based leadership in *Gadaa*) and social (marriage and funeral ceremonies).

As part of the Gedeo *Gadaa* institution, there are religious performers who offer blessings to the people during celebrations of the rite of passages attributed to political and social matters. These are *Wayyos* and *Waabeko*. The *Wayyos* are a particular group of people belonging to each sub-clan who are responsible for performing rituals. The *Waabeko* are considered saints serving in the daily lives of the Gedeo.⁽²⁵⁾ The people believe that the *Waabeko* have the ability to predict future events, either bad or good, and have the skill to advise the *Abba Gadaa* and the people on what to do in such cases. As informants⁽²⁶⁾ stated, *Waabeko* are also considered spirit medium persons, frequently consulted on serious issues such as people's relationships with *Magano*. In the management of the forest and tree species, all the hierarchies in the *Gadaa* system are responsible for teaching and socializing the young generation not to abuse nature in general and the forest and trees in particular.⁽²⁷⁾ Anyone who is found against nature will be accused in front of *Gadaa* officials while officials make decisions in consultation with other lower-level officials.⁽²⁸⁾ It has been said that, after the expansion of the imperial government from the center to Gedeo and the southern people in general, the local governance system became marginalized (McClellan 1986). The relationship between the formal governance system and the indigenous *Gaddaa* administration has become improved since in the early 1990s, though there have been many irregularities in the administration of the natural environment and the forest resources in particular (Takele 2019).

The Gedeo have a clearly defined perception of their territory. They perceive their territory as a symbol of their identity, which starts with a household-based neighborhood called *ollaa*,⁽²⁹⁾ which often consists of kin's or relatives (*fira*).⁽³⁰⁾ Next to *ollaa*, an area is inhabited by a social group at the sub-clan level called *gosa*.⁽³¹⁾ This can be taken as communities settled on a relatively larger territory than *ollaa*. Then, what comes is *Roga*.⁽³²⁾ The last is Gedeo's territory, called *fixxa*.⁽³³⁾ This can be understood in terms of the zonal level and the entire Gedeo territory. However, all of these territories were governed under the three divisions of *Rogas*, the three ecological zones such as *subbo* (highland), *dhibata* (midland), and *riqata* (lowland) (Dagne 2004).

II. Land use and management practices

Gedeo's economy is dependent on what is known as agroforestry, where we find crops,

fruit and cereal productions, animal rearing, and other agricultural practices mixed with different tree species. However, mainly due to land scarcity and the irregular topography of the zone, their productions are on a small plot of land, hence they are considered as small scale farmers. Among the agricultural products, coffee is their sources of cash. According to informants,⁽³⁴⁾ in agroforestry practices, tree species that support soil fertility, offer environmental stability, and increase productivity are treated in a special way. It means, therefore, that the biophysical environment is endowed with abundant fertile soils and several tree species. Most of these tree species are naturally grow or planted on different occasions, such as during the celebration of rites of passage. The trees not only support their agricultural activities, but they also serve as tools for environmental protection.⁽³⁵⁾ The forest is composed of varieties of tree species, shrubs, grasses, and herbs that have long been adapted to the agro-ecologies of the region (Getachew & Abiyot 2017).

Among others, a multi-purpose plant called *wesse* and also *enset*⁽³⁶⁾ is one of the most important plant species supporting their farming, and coffee is considered as a cash crop of the people used to substantiate their economic activities. For its agroforestry practices in general and the *enset* plant in particular, it is often said that Gedeo's farming system has the highest carrying capacity among all agricultural systems in Ethiopia (Taddesse 2002; Yoseph et al. 2020; Abiyot et al. 2022). As an informant⁽³⁷⁾ espoused, *enset* has always been part and parcel of Gedeo's life. It is not only environmentally significant, but it is also a symbol of their identity. They believe its greenness symbolizes that the future is bright with good luck. Therefore, the plant is available in all farm fields along with other tree species in order to keep the balance of their local environment. In terms of economy, it is a means of income, particularly for Gedeo women and it is the major food item used at home. Environmentally, farmers consider *enset* that it maintains the balance of local ecosystem since it holds large amount of water in its stem then releases to the surrounding plants and tree species so that supports fertility of the soil. In terms of ritual it also serves the people as a symbol of good luck and assumed it gives spiritual happiness after death.

Gedeo's environmental knowledge is not limited only to trees and forest management; they have a planned land management system (Sileshi 2016; Yoseph et al. 2020). Mainly, they practice three land management types. One, *bate'a* (foreyard) is an open place in front of their homes used for *enset* preparation, to spread out coffee grains under the sun, and to plant small size medicinal plants. Two, *Gate'a* (backyard) is a portion of land behind their homes used for cultivating vegetables such as cabbage (*shaana*), tomato (*timaatime*) and other small-size food plants. Three, *fitcha* (farmland) is the main and important part of farmers' land, near the *gate'a*, slightly far, but extended from the *gate'a* land. Farmers use *fitcha* not for growing a single crop. Rather, they plant multiple crops—perennials and annuals.⁽³⁸⁾ This land management enabled Gedeo to differentiate households' (*ollaa*) plots of land by a tree species called *lante* (*Vernonia mycrocephala*). Newly married couples separate their plots from their parents' plot by planting this tree species.

Fitcha land is used either in the form of intercropping,⁽³⁹⁾ relay cropping,⁽⁴⁰⁾ or double cropping⁽⁴¹⁾ systems. This land management system is a combination of agricultural production and forest management. Among the various *enset*-growing populations, although intercropping *enset* with crops is a common practice, the Gedeo are unique in combining *enset* with diverse multipurpose trees, shrubs, including coffee and cereal crops for their consumption at home.⁽⁴²⁾ Informants⁽⁴³⁾ also stressed that the existence of trees on farm land in particular distinguishes Gedeo's *enset*-based land use system from other social groups.

III. Gedeo's world view and belief system towards forest

The inextricably interwoven relationship between local environmental knowledge and their practices is explained in that every member of the community is responsible for the well-being of trees and the forest. Gedeo believe that the existence of trees and forests on earth is due to the will of *Magano* (God). *Magano* created all living beings, including humans, and the forest, while the forest was created to provide life for humans. Along with this, *Magano* provided us with the knowledge and ethics of how to treat natural resources and trees. Gedeo consider nature beautiful, and *Magano*, as a supernatural power, safeguards and controls the proper functioning of the entire natural environment and our activities towards nature.⁽⁴⁴⁾

According to informants,⁽⁴⁵⁾ the Gedeo also perceives that vital natural resources such as water, land, forests, and trees are common properties of the Gedeo and of humans, so they cannot be privately owned, controlled, or sold. If this is the case, it has an adverse impact on the lives of people in general. In other words, Gedeo members know that cutting trees without the knowledge and permission of elders and without any socio-cultural reason (*gooressa*, sometimes known as *qinxaxa*) is improper and may result in quarreling with *Magano*. Their environmental ethics prohibit Gedeo members from cutting trees.⁽⁴⁶⁾ As an informant⁽⁴⁷⁾ explained, they believe that when anyone inappropriately cuts down trees, it is usually followed by rain failure, drying up of waters that make soil barren, and followed by plant and animal infertilities (known as *burra*), thus eventually endangering their lives and the fate of all creatures in Gedeo.

Study participants⁽⁴⁸⁾ indicated that trees are highly attached to individuals' lifetimes, from birth to death, particularly tree species with green leaves and relatively shallow roots, which have high value for their multiple purposes. Among the Gedeos, a person who respects, preserves, and protects trees from damage and who passes on these cultural experiences to the next generation is considered a hero. It means that every member of Gedeo plants trees in his or her rite of passage and transfers the trees and the culture to the next generation. Among others, the service trees provide as symbols in the rite of passages for Gedeo members is one of the ways that trees are attached to the survival of human beings. Although the rite of passage is linked to an individual's biological changes, such as birth, maturity, reproduction, and death, all of them are expected to bring changes in personal and social relations. For these changes in status, trees are symbols. An informant⁽⁴⁹⁾ expressed, when a baby is born, he or she is covered with an *enset* leaf; when he or she gets married, he or she is washed by its water as a ritual, and a plot of land where an *enset* plant is grown on it is given as a gift to make use of it as a means of livelihood. During death, the deceased person lied in the leaves of the *enset*. The Gedeo do not have time when they are separated from *enset* plant. On the other hand, *enset* is also supported by other tree species.

In relation to the environmental wellbeing, next to *Magano* as a supreme being, there are also gods or spirits that are believed to be important in people's daily lives. Among others, spirits of different plant lives such as *iwaana*, *chebeqo*, and *arsichcho* are those mediating the Gedeo and *Magano*.⁽⁵⁰⁾ These mediums and spirits function for the safety of the forests, trees, and the environment in general. Thus, in most parts of the Gedeo zone and Wonago *woreda*, there are trees and forests that are sacred and receive special protection. The sacredness of the trees and forests is observed in the special protection that each member provides to them, mainly due to the association the trees and forests have with a deity called *arsichcho* (meaning plant life). An informant⁽⁵¹⁾ stated that from his father, he has inherited 0.5 ha of land. When his father passed away in 2012, he was buried in this forest land. After his death, his spirit often comes home and advises the family to protect the

trees from any threat and to pray to *Magano*. They believe that this is because the forest is the source of their lives.

In order to work with the spirits of plant life, there are many ritual ceremonies that the people celebrate directly or indirectly related to natural resources. Informants⁽⁵²⁾ mentioned that *qeexala* is one of the prominent annual based religious practices of the thanksgiving event and serves as an instrument to mediate between *Magano* and the people. It is considered a very useful event in the overall lives of the Gedeo and for the well-being of trees, forests, and other natural resources. They celebrate *qeexala* every October through singing, dancing, and praying, lasting for four or five days. The main purpose is to express thanks to *Magano* and the spirits for the protection and good fortune in the past and to bless the Gedeo country for the future. Moreover, the ritual is seen as an important event to keep evil forces away from the surroundings. In this ceremony, it is expected that all members participate, irrespective of their ages and sexes.

Xaro is another ritual ceremony that the people perform to express their respect to *Magano* for a good harvest, family welfare, and wealth. In this event, households offer sacrifices to *Magano* in the form of food—their yield during the harvesting season—and express their wish for a prosperous life in the future. The ritual ceremonies are the basis for performing different rites of passage, as they are indicators of healthy relationships between Gedeo people and the biophysical environment.

In addition, the management of trees and forests is often associated with the belief system and the values and norms the Gedeo maintained. According to informants,⁽⁵³⁾ the greenness of their areas is a symbol of the physical and spiritual wealth of society as a whole. For instance, aged and evergreen trees are considered beautiful creatures of *Magano* under which various ceremonies and events, such as the elders' assemblies, *ya'a*, *wedhimalcho*, *songo*, and other events, take place.

CONGENIALITY BETWEEN RITE OF PASSAGE CELEBRATIONS AND PLANT SPECIES

Gedeo's indigenous knowledge systems of environmental management did not escape challenges that changed their environment-related perceptions and practices. For example, the introduction of a new governance structure in the area, as well as improper interventions into their practices, urban development and expansion, climate change impacts, increases in the cost of living, and so on, are regarded as big challenges to the people. Despite the challenges, there are environmental practices that are considered to have relatively solid collective knowledge of their environmental management maintained by the people. Among others, maintained by the Gedeo is the congeniality between the rite of passage and planting tree species that align with the passages and that supports the well-being of local environment.

The congeniality between cultural practices (rituals to celebrate rites of passage) and dealing with tree species (forest management) is a two-way interaction (Fekadu 2020). On the one hand, for the environmental wellbeing, the Gedeo perform ritual ceremonies pertaining to individuals' rites of passage. On the other hand, forest and tree management have a great deal of importance for the natural environment. Then, the importance that forests have in the rite of passage of individuals as members of the Gedeo country is immense. In the following session, four notable rites that are directly or indirectly associated with tree species, such as birth, marriage, and death rites, are taken into consideration. However, this does not mean that only these three rites of passage are related to tree species; rather, it is possible to say that for the Gedeo, most of the social,

economic, and political activities are in consideration of trees, forests, and their immediate environment.

(1) Prenatal: with respect to the expected newly born child, Gedeo celebrates various types of ritual ceremonies. They believe that the life cycle of humans begins with conception or during pregnancy, which enables them to give due attention to a pregnant woman. During the nine month period (beginning from conception to birth), there are a lot of preparations they make in order to welcome the new baby. For instance, family members and relatives, together with neighbors, prepare various food items from their immediate environment. For instance, from *enset*, they prepare what is known as *waasa*.⁽⁵⁴⁾ They also prepare other forest products that they collect from their immediate forest area to store in the house. Pregnancy period is viewed as dreadful and feared because they view that the fetus may not properly develop or may not be delivered in a normal condition if Gedeo members abuse nature, which could result in adverse conditions that may occur on the members, mainly on the newly born babies. Thus, there are other ritual activities that they perform for the wellbeing of the pregnant mother. Also, the pregnancy period is accompanied by land preparation by neighbors, on which the father of the baby would plant trees at birth, depending on the sex of the newly born child.

(2) Birth: The Gedeo give considerable attention to a newly born baby, and they perceive birth as a time of freedom for the family and their relatives from both the mother's and father's sides. This is mainly because, as informants⁽⁵⁵⁾ espoused, they assume that at delivery the possible risk to the mother and the baby is resolved, thus birth is an event of freedom for both the mother and the baby. Therefore, it is considered one of the most important phases in Gedeo's individual rite of passages. It is often followed by two major ritual ceremonies, such as *cichaa* and *shuta haxaa*.

Cichaa: immediately after delivery, a ritual known as *cichaa* is celebrated, especially following the separation of the umbilical cord from the mother's womb. *Cichaa* serves as a symbol that a woman gave birth to a baby. For this event, on both sides of the house, the father plants seven pieces of *enset* of similar sizes plus an indigenous tree called *gorbe* (*Albizia gummifera*) if the baby is a boy. Or the father plants four *enset* pieces plus a tree called *mokkensa* (*Croton macrostachyus*) on both sides of the house if it is a baby girl.⁽⁵⁶⁾ The difference in the type and number of trees is to show the sexes of the babies so that, by looking at the planted trees (either *gorbe* or *mokkensa* and the number of *enset*), every member of the community can easily understand the sex of the baby born.⁽⁵⁷⁾ For Gedeo, *gorbe* is one of the favored tree species: one, it is a strong tree type compared with others; two, it gives shed for other tree species and does not affect fertility of the soils, so farming is good in the presence of *gorbe*. At its old age, this tree species also serves as a shed for the people and is also used for construction as well as other ritual ceremonies that take place under it. Thus, it symbolizes Gedeo's male characteristics and his future activities and responsibilities. The seven *enset* plants are attributed to the representation of the seven Gedeo clans.⁽⁵⁸⁾ For the female character, *mokkensa* is one of the soft tree species but has greater medicinal value, which makes it favored by the people. Thus, they believe that this tree symbolizes the female, and Gedeo's women are considered smooth in their behavior, and they are considered medicines for their household members and even for the rest of the community because mainly they are responsible at home and take care of their families.⁽⁵⁹⁾ The four *enset* plants symbolize Daraso's⁽⁶⁰⁾ first wife, often called *Sase Baxxe* (senior), plus her three sons, who came to establish the first three clans of Gedeo, to show that *enset* plant is the base for their livelihoods, so that as the number of household members increases, they also increase the number of *enset* plants they previously had in the assumption that the newly born baby and the trees grow together so that the baby may not encounter food

problems in the future. An informant⁽⁶¹⁾ who presents his experience said that,

I have four children, three males (28, 31, and 32 years old) and a female (26 years old). When they were born, the family celebrated *cichaa*. On these occasions, as a father, I have planted all the necessary plants: three *gorbe* trees (when the male children were born) and a *mokkensa* tree (when the female child was born), and in all cases, I have planted the respective number of *enset*. This is according to Gedeo's culture. This is because we would like to acknowledge our ancestors, who preserved Gedeo's environment, and to avert the risks of starvation at any time in the future. The major importance of celebrating these rituals is to please ancestral spirits and to teach the young generation about environmental wellbeing by planting trees.

Immediately after *cichaa*, there is a ritual ceremony they celebrate, and *molcho sirissa* is the next one. This is an event of burying the umbilical cord and placenta inside their homes using what is called *hacho*, made from *enset*, mainly to welcome and bless the new baby. With the feast, this ritual ceremony continues for three consecutive days, and participants in this ceremony wish the baby a pleasant and lucky future.⁽⁶²⁾ Soon after *Molcho Sirissa*, another ritual ceremony called *Quntaare* is being celebrated by preparing different cultural foods where a group of women composed of relatives (*firaa*) and women from neighbors (*ollaa*) get together and serve their guests. After this, they give the remaining crumbs of food to the mother in the childbed to eat. Sharing the food with the mother is to show that neighbors and society members are responsible for contributing to the proper growth of the newly born baby. It is indicated that *Quntaare* ends with blessing the mother and wishing her to recover from the pain that she felt during labor.⁽⁶³⁾ Then, the birth celebration culminates with the most important ritual ceremony the Gedeo often celebrates, called *shuta haaxaa*.

Shuta haaxaa (hair shaving): two or three weeks after a baby was born, family members, neighbors, and relatives would celebrate what is called a *shuta haaxa* (hair shaving ceremony). It is a ritual ceremony in which they bless the baby. In this ceremony, first the father of the baby stays and stands outside on the right side of a house, and then he blesses the baby by saying, "*ankebelto nophili goodhe gey Magano*," which literally means, "my baby, I wish *Magano* to be with you; I wish you healthy growth and maturity." Having said these statements, he shaves the hair of the baby with a traditional shaving instrument, the *haado*. Finally, he collects the shaved hair, puts it in a material container, and hangs it on a coffee tree called *Shutaa* Coffee, which he planted earlier during pregnancy for this ritual ceremony. In Gedeo, coffee is produced for cash and serves as one of the income sources for most households. Therefore, this coffee tree is the property of the baby, and he or she is going to use the product in the future. It should be noted that every member of Gedeo has a *shutaa* coffee. An informant⁽⁶⁴⁾ stated that, *Shuta Haaxaa* enabled every Gedeo member to have his or her own coffee tree. Having a coffee tree of *Shuta haaxaa* in Gedeo has cumulative positive effects. For instance, it locates Gedeo one of the leading coffee producers and resulted in creating a relatively pleasant environment in the area. Through this ritual, the Gedeo also teaches the youth a commitment to treat the trees. A young boy or girl learns to treat his or her *Shuta Haaxaa* tree, pay attention to his or her environment, and use natural resources without harm. The fact that *enset* plant, coffee tree, *gorbe* (for males), and *mokkensa* (for females) are often planted adjacent to each other as all of them support one another. *Enset* gives shade and water for the coffee; it also gives water for *gorbe* and *mokkensa*. *Gorbe* and *mokkensa* provide sheds for coffee and *enset* plants, while *Gorbe* still provides soil fertility for the others.

(3) Marriage: Among various societies, the rite of marriage often begins with betrothal

ceremonies that require different formalities of transfer (for instance, planting trees on his plot of land) and exchange of goods.⁽⁶⁵⁾ Likewise, the Gedeo believe that marriage is not only an individual contract but also a social union of different clans that creates kinship, or *firaa*, as an institution. In Gedeo, marriage within the clan and between relatives is prohibited.⁽⁶⁶⁾ Marriage is arranged in various ways but should be approved by the elders who represent the community. According to informants,⁽⁶⁷⁾ the formal marriage type is *kadhaa*, meaning through begging the bride's family, whereas the informal types of marriage are *hawadie*, based on the choice of the partners; *boota*, through abduction; *dhaala*, inheriting the widow; and *kinticho*, when a man widower acquires the sister of his former wife upon the death of his wife. Except for the first two, the rest are rarely practiced in contemporary society.⁽⁶⁸⁾ In order to celebrate marriage-related rituals, it is linked with tree species. Here, only *kadhaa* marriage is presented, as it is given high value among the Gedeo. Marriage based on *kadhaa* is celebrated through different ritual ceremonies, and the most common ones are *ansho* and *gichaa*.

Ansho: informants⁽⁶⁹⁾ narrate that the *ansho* ritual ceremony is related to the importance of the *enset* plant in the process of marriage arrangement. A young man who planned to marry a girl in consultation with his father or a nearby male family member sends elders to the girl's parents, of which his father is a member, in order to take part in the *kadhaa* (begging) process of the girl's parents. In this process, the father of the male candidate takes some sets of *enset* leaves with him and puts the leaves in the compound of the house of the girl's family to secure permission to get into the proposed girl's house. Among the Gedeo *enset* is green, which is considered a symbol of hope and good luck in one's life. After they secured permission to enter the house, they started the *kadhaa* (begging) for the girl's family and her relatives, who gathered in the house in order to allow or reject the proposed marriage of their daughter. One of the critical questions often asked by the family of the girl is whether the male candidate has a positive attitude towards planting trees, preserving the existing ones, and generally his behavior towards nature, which should be explained by the groom's family. If the answer of the girl's family is positive towards the proposed marriage, the father of the groom should prepare *enset* to be planted plus a land locally called *ansho*, which has some favored tree species on it that would be sources of livelihood for the new couples. To prepare this space with the trees and *enset*, take a minimum of one year. Three days after the engagement of the new couples, the mother of the groom leads the bride to a forest land with *enset* and other tree species and then washes the bride's body with water called *hachcho* extracted from a particular *enset* plant. This is *ansho* ceremony. An informant⁽⁷⁰⁾ explains about the *ansho* ceremony; and states that,

I have an *ansho* land, which has several *enset* on it. My husband's family, particularly my mother-in-law, gave it to me upon our marriage in 2015. Up on our marriage ceremony, my husband took me to his facility's house, and following this, my mother-in-law took me to this plot, found at the back of the house, *gate'a*, and washed by body with *hachcho* water, extracted from *enset*. On this occasion, I was very pleased and felt accepted by my husband's clan and relatives. The *ansho* land and *enset* are my livelihood sources. At the beginning, it had a small number of *enset* plants, but later, together with my husband, I planted several *enset* and other tree species that were companions to the *enset* plant.

Ansho, in its literal meaning, is a farmland that will be awarded to newlywed couples but managed by the bride. This justifies that the bride was formally incorporated into the clan and the household of the groom. *Enset* is one of the most respected plant species; thus, the process of washing the bride with a *hachcho* leaf means giving respect to the bride and,

on behalf of the household, expressing the wish that the future of the couple will be as green as *enset* leaf. Moreover, culturally among the Gedeo *enset* is women's property, and they prepare every type of food from it, thus showing the *enset* farm is the bride's major livelihood source. The groom gradually enters the *enset* farm after he starts planting other tree species important for soil fertility and the environment in general.

Gichaa (gift): informants⁽⁷¹⁾ also explained about *gichaa*, which is a kind of gift that is related to marriage intended to show that marriage is a highly respected institution among the Gedeo. Immediately after the wedding ceremony, relatives and families of the bride and bridegroom arrange a ritual ceremony in which the couples receive a grant, called *gichaa*, so as to enable them to generate their livelihoods and subsist themselves and to make the new couples independent of their parents with regard to income. In most cases, *gichaa* is the duty of the bridegroom's family. According to informants,⁽⁷²⁾ there are two major types of *gichaas*. The first is an empty plot of land to enable the bridegroom to plant or grow *baaboo* (favored plants species) such as *enset* and coffee tree and to produce some annual crops on the land. The second is a land with some tree species, especially coffee trees and *enset*. In addition, there will be *gichaa* in kind or in cash that other kin members outside the nuclear family collect in order to support the newly married couples. The major intention of the first *gichaa* type is to provide the couples with permanent sources of livelihoods, whereas the second type is for immediate use of the resources.

(4) Death and Funeral: In Gedeo, the moment of death and the funeral ceremony of the dead are considered significant rites of passage.⁽⁷³⁾ On the one hand, among the Gedeo, death is viewed as the termination of the biological function of a person. On the other hand, they believe that there is life after death.⁽⁷⁴⁾ Therefore, the dead person is not totally departed from his or her family or society at large. Here, the spirit of the dead person is very important to communicate with the rest of his or her family after death. For this reason, the Gedeo give attention and care to the dead and often bury them just near their homes in the forest. Tree species in the forest are sacred and protected not only by *Gadaa* leaders and society; they are also protected by ancestral and plant spirits.⁽⁷⁵⁾ In addition, there are ritual ceremonies celebrated for the death of a person.

Weldhimaalchoo is a ritual ceremony that the Gedeo perform when an elderly, brave, famous, or man or woman who has accomplished community-based services passes away. On the death of this kind of person, community and clan members are told to be gathered under the shade of a big, aged, and known tree so as to celebrate *Weldhimaalcho* at a funeral ceremony.⁽⁷⁶⁾ For this, tree species such as *dhadhetto* (*Millettia ferruginea*), *weddessa* (*Cordia africana*), *qilxa* (*Ficus sycomorus*), and *ode'e* (Fig tree, *Ficus sur*) are among the favored trees.⁽⁷⁷⁾ This is to celebrate the deceased person, who is comparable to big trees. Among the Gedeo, big and favored trees are considered sources of life, soil fertility, and shade for humans and other shorter tree species, etc. During the funeral ceremony, the gathered members mourn, cry, and chant under big trees. It symbolizes that the deceased person was a strong and hard worker, full of wisdom, wealthy, important to the lives of the rest of the people, etc. This ritual ceremony could continue for three to seven days, according to the level of wealth the person accumulated. Therefore, *weldhimaalchoo* enables society and clan members to know about the history, brevity, profession, wisdom, clan, and level of importance of the deceased person so that they encourage the youth to be like this person.⁽⁷⁸⁾ Besides, the people learn to respect big trees as the deceased person is respected. A month after mourning, family members plant indigenous tree species to substitute for trees that were cut down with the consent of *Gadaa* officials for the funeral ceremony of the deceased.

In addition to the above rites, there are various ways in which trees and forests came to

be part of Gedeo's lives. For example, in the political administrations of the *Gadaa* system, when a young Gedeo is transferred from the *lubaa* stage⁽⁷⁹⁾ to that of the *yubaa*,⁽⁸⁰⁾ there is a socio-cultural experience of what is known as *waddessa woxxeca*, a rite of passage that is celebrated by the *yubaa* group by cutting a tree species called *waddessaa* (*Cordia Africana*) and preparing a stick from it that serves as a symbol of the change of status and a symbol that a person takes over an administrative responsibility. When a person changes from *lubaa* to *yubaa* status, there is also a change in the status of his wife. On this occasion, the wife of the new *yubaa* celebrates a tradition known as *qajumaa* by cutting the leaves of *wesse* and *mokkensa* so as to show women's attachment to these plants. She enjoys the celebration with her friends, neighbors, and relatives. The same is true for the changes in the other transitional age sets from one stage to the next.⁽⁸¹⁾ However, to cut a certain tree species, it needs a serious consultation with *Gadaa* officials at different levels, a high-level decision, and only if there is a convincing reason to cut. After cutting trees, there is also a strong culture of substituting them.

MAJOR CHALLENGES OF GEDEO'S INDIGENOUS KNOWLEDGE OF FOREST MANAGEMENT

Despite Gedeo's rich indigenous knowledge of forest management, there are currently several challenges that they are facing. Informants⁽⁸²⁾ confirm that due to several challenges, they noticed a declining trend in their knowledge of forest management. For this, they mentioned different factors. According to elders,⁽⁸³⁾ the introduction of a modern formal governance system in Gedeo and the inappropriate interventions into their local administration have been among the factors that, through time, discouraged them from practicing their Indigenous knowledge of forest management. Intervention into people's lives started in the late 1890s during the reign of Emperor Menelik, when the Gedeo were incorporated into the central government. Since then, the government from the center has started influencing the Gedeo *Gadaa*, not to properly functioning and led to the deterioration of indigenous knowledge of environmental management, agricultural practices of agroforestry and the ritual performances related to them (McClellan 1986).

An informant⁽⁸⁴⁾ claims that the formal governance system had no place for their indigenous knowledge systems of forest and tree management. It is added that formal governance system that existed until today suppressed Gedeo's world view and ethical principles towards their forest.⁽⁸⁵⁾ This has been because policy makers often do not understand that their *Gadaa* institution and its governance have the power to enforce environmental ethics and codes of conduct on society and to protect the natural resources and prohibit activities that adversely affect them. Among others, particularly since the 1950s and 1960s and throughout the 1980s, in order to boost coffee production for export, the central government used a spray intended to increase the size of coffee seedlings. This, unfortunately devastated Gedeo's environment rather than improving coffee production.

In the 1990s and so, the central government and regional administration insisted that for farming practices, the Gedeo should use chemical fertilizer to increase productivity of coffee and other crops.⁽⁸⁶⁾ Informants⁽⁸⁷⁾ claim that these impositions have never been successful and did not bring any positive change in Gedeo's environmental conservation practices, as the Gedeo have their own environmental conservation knowledge. This was because, government's intervention had no place for Gedeo's indigenous knowledge of the forest and the other plant species such as *enset*, which is the source of their staple food. Government intervention in the 1950s and throughout 1980s also did not consider the

other food crops that grow under the trees. Therefore, it can be claimed that disregarding companion tree species and crops means disregarding peoples' indigenous ecological knowledge and their ways of lives in general (Takele 2019).

Furthermore, since 2010, the government has been introducing and expanding small and medium-scale industries in nearby towns such as Dila, Wonago, and Yirgachefe, intended to create job opportunities for the young population. For their inputs, these industries depend on the locally available natural resources. Of these industries, the introduction of logging industries in the towns threatened Gedeo's sacred tree species, as there are witnesses that theft is being introduced and increasing through time in the area, where individuals often come during the night and cut trees to sell them in the towns.⁽⁸⁸⁾

The introduction of a formal governance system was followed by the introduction of new religions in the locality (Orthodox Christianity in the late 1890s and Protestantism in the 1950s) (see Tadesse 2002; Paulos 2005; Asebe 2007). This in turn discouraged the various ritual ceremonies attributed to rites of passage and mediums of spirits. Study participants⁽⁸⁹⁾ indicated that in this study, Gedeo people were introduced to new religious practices and new environmental worldviews, and their ritual performances towards nature were discouraged. An informant⁽⁹⁰⁾ perceived, for example, that previously there have been ritual celebrations affiliated with forests and other local methods of environmental management. These religions discouraged the rituals and their festivities from being performed, considering them idolatry, which is not ordered by God. However, in recent times, they have started reinstating their gratitude by offering rituals to *Magano*, which is perceived important to the environmental wellbeing.

There is also a claim⁽⁹¹⁾ that Gedeo's indigenous environmental management practices have not been recognized and incorporated into modern educational policies and curricula. As a result, they witnessed that the new generations do not give much attention to forest conservation practices and to the knowledge system, which could in turn threaten their environmental wellbeing. According to an informant,⁽⁹²⁾ through time, the new generations have been influenced to downplay the ritual practices and their environmental knowledge system, which their entire lives are dependent on. As study participants⁽⁹³⁾ stated, against Gedeo's environmental ethics, nowadays there are people who come to their sacred forest areas during the night to cut down trees for sale in the nearby towns. It shows, the new generation is neglecting *Magano's* orders, their environmental ethics, ancestral orders, and the medium of spirits they have been living with.⁽⁹⁴⁾

Along with the above challenges, informants⁽⁹⁵⁾ also compare the current population density with the past. They noticed that there is a big challenge of population pressure on their local environment and natural resources, coupled with the limited amount of land. This situation exacerbated the subsistence nature of their economy, which led them to poverty, which in turn challenged the sustainability of their indigenous knowledge of forest management and contributed to its decline (Takele 2019; Fekadu 2020). According to an informant,⁽⁹⁶⁾ deforestation, which has become common in their surroundings, is the cumulative effect of the above problems that deprive natural resources and are affecting traditional symbols of the Gedeo. Moreover, it is claimed that due to land scarcity, many of the celebrations related to the rite of passage are declining and also not taking place in some instances. For example, a plot of land given to newly married couples is now being vanished, which in turn affected the culture of planting new tree species as a rite of passage.⁽⁹⁷⁾

SUMMARY AND CONCLUDING REMARKS

Forests are valuable resources not only for their economic benefits, but also for mitigating climate change-related issues such as resource depletion and poverty. Gedeo's economic and cultural traditions are inextricably linked to the health of their natural environment. For several generations, the Gedeo have passed down forest management practices. They not only plant and domesticate trees, but they also correctly manage them to avoid environmental problems. The preservation of their natural environment is an integral element of their culture and way of life, beginning with the management of diverse tree species suitable for their agro-ecologies and useful for their livelihoods.

A variety of factors have been influencing Gedeo's forest resource management. Among these are indigenous institutional arrangements, such as Gedeo's *Gadaa* and its leadership, which endorsed environmental accountability; people's systematic land use management, which promoted the agroforestry strategy; and Gedeo's belief system and the people's world view toward the environment. These factors inspired people to plant trees on many occasions throughout their lives.

One of the ways Gedeo people manage and conserve their tree species is through the congeniality of rites of passage and planting different tree species. These enabled them to manage diverse plant species they were in favor of and suitable for the celebration of an individual's rites of passage, particularly at birth, marriage, death, and funeral. This teaches us that planting trees should be a lifetime commitment, not a one-time event, and that it is a process that will continue as long as humans live on Earth. Gedeo's forest management is the best example of how to live without harming natural resources. The Gedeo have continued to plant trees and maintain those that already exist.

Gedeo's knowledge of forest management, on the other hand, has been constantly challenged and endangered. Among these issues, inappropriate interference and pressure from official governmental and non-governmental entities weakened the *Gadaa* institution, its leadership, knowledge systems, and world views associated with forests and other natural resources. There is also a growth in the area's population, which exacerbates land scarcity and endangered tree planting and management. These are accompanied by a lack of policy-related recommendations on how to maintain and utilize indigenous knowledge of forest management while alleviating poverty so that the next generation can appropriately use them. The difficulties can be overcome with appropriate and meaningful policy involvement.

Learning from Gedeo's indigenous knowledge of forest management can improve understanding of local conditions and provide a fruitful foundation for interventions and activities meant to address rural societies as a solution to the current climate change and resource degradation.

NOTES

- (1) This name indicates an administrative unit below Regional State. Several zones form a Regional State. Gedeo is one of the zones of the Southern Ethiopia Regional State, which is a newly established Regional State (in August 2023), split from the Southern Nations, Nationalities, and Peoples' Regional State. Other zones that form the South Ethiopia Regional State are Wolaita, Gamo, Gofa, South Omo and Konso. There are also districts that have become part of this Regional State. These are, Derashe, Amaro, Burji, Ale and Basketo.
- (2) Key Informant: KI1 (74, M); KI2 (80, M); KI6 (66, M); KI10 (72, M). In this paper, informants' profiles are indicated by age and sex.

- (3) Urago was one of the brothers of Daraso and the founding father of Guji, Oromo, and an immediate neighbor to the Gedeo in all directions except in the north, where they were bordered by the Sidama. The Guji are one of the branches of the Oromo and live in today's Borana zone of the Oromiya Region.
- (4) Boru was the forefather of today's Borana people. Borana is one of the major Oromo divisions living in the semi-arid lands of southern Ethiopia and northern Kenya. One of the Cushitic families connects their identity with their *gadaa* center, Encyclopaedia Aethiopica (2003).
- (5) KI1 (74, M); KI3 (62, M); KI5 (64, M); KI9 (60, M)
- (6) Gedeo Zone Agriculture and Rural Development Office (2007) Report.
- (7) The number of population of the zone has been increasing through time. For instance, the number of population of the Zone in 1994 was 564, 073 (282, 595 men and 281, 478 women) with density of 500 persons used to live in a square kilometer (CSA 1996). This population was increased to 879, 749 in 2007 (CSA 2010) and projected to be 1,165, 356 in 2019 (CSA 2013).
- (8) An administrative unit below a zone and larger than a *kebele*. Regional states are divided into various zonal administrations. A zone is subdivided into *woredas* (*districts*), and *woredas* are in turn subdivided into *kebeles*, then *kebeles* are subdivided into several gott, which is the lowest administrative unit functioning in Ethiopia.
- (9) Gedeo Zone Agriculture and Rural Development Office (2007) Report.
- (10) Tumata cherecha, Sugale, Kara soditti, Deko, Wetiqo, Hassie haro, Bele buqisa, Kelecha, Teqicha, Sokicha, Debo ta'a, Gelelcho, Halemo, Boqo hoketu, Dederero, Jemjemo, and Mekonisa. Wenago town is the administrative seat of the *woreda*.
- (11) Level of political administration between *woreda* (district) and gott (village level administration). The three *kebeles* are Mekonissa, Sokicha, and Sugalie.
- (12) These were agricultural extension workers and officials in Wonago *woreda*. They were selected based on their expertise and willingness to explain the questions they were asked.
- (13) New Encyclopedia Britannica (2009). Online, <http://www.britannica.com/rite-of-passage>., August 28, 2019.
- (14) KI2 (74, M); KI3 (62, F); and KI12 (66, M)
- (15) This is Gedeo's social, political, religious, and economic system, in which the responsibilities of administering these systems have been transmitted in an orderly way cyclically from one generation to the next.
- (16) II12 (83, M); II21 (62, F); II40 (71, M); II49 (60, F)
- (17) It is said that Gedeo's division based on *roga* worked before Gedeo's incorporation into the Ethiopian central government in the last decades of the 19th century.
- (18) KI4 (66, M); KI5 (64, M); KI8 (68, F)
- (19) Songo is an open, grassy knoll under a big tree. It serves as a multipurpose institution under which Gadaa's general assembly, called *Ya'a*, gathers and makes decisions on socioeconomic and political issues. It serves as an open office for elders at all levels of administration and socializes the youth; people perform rituals under it; it is a place where the Gedeo gather information.
- (20) KI10 (72, M)
- (21) KI11 (72, M); II19 (44, M); II31 (39, M); II32 (77, M)
- (22) FGDs (1,5)
- (23) FGDs (1, 4, 5)
- (24) KI2 (80, M); KI5 (64, M); KI11 (72, M)
- (25) KI7 (64, F); KI8 (68, F)
- (26) KI1 (74, M); KI7 (64, F); KI9 (60, F)
- (27) KI3 (62, F); KI6 (66, M)
- (28) FGDs (3, 4)

- (29) This is at the neighborhood level or smaller village level. Often, it is organized based on kinship (*firaa*) or non-kinship but settled near each other.
- (30) KI1 (74, M); KI9 (60, F)
- (31) *Baxxe* level or *kebele* level: consists of several smaller villages with a relatively smaller number of clans than *roga*.
- (32) *Roga* level or *woreda* level: the three *rogas*: *dhibbata*, *subbo*, and *riqata*. This level comprises several *baxxes* with a relatively larger number of clans than the *baxxe*.
- (33) *Fixxa* level or zonal level: consists of the seven Gedeo clans and occupies the whole territory.
- (34) EII2 (31, F); EII4 (40, M); EII6 (34, M)
- (35) For example, among the most favored ones are: *Welenaa* tree (*Erythrina brucei*); *Dhadhetto* tree (*Milletia ferruginea*); *Weddessa* (*Cordia africana*); *Qilxaa* (*Ficus sycomorus*); *Ode'e* (Fig tree/*Ficus sur*).
- (36) Many researchers characterize *ensete* plant as “false banana,” considering it a banana family but without fruit. Botanically, it is named as *Ensete ventricosum* (*MUSACEAE*). As Yemataw et al. (2018) indicate, scientifically *ensete* plant is categorized into herbaceous family and thus not a woody tree. The study community calls it *wesse*, which can be translated as *takil*, a plant with a long fleshy stem. The word *takil* is, literally translated as plant. The study people do not explain that whether *ensete* is herbaceous or woody species. In this paper local name, classification and perception of the Gedeo about this plant are considered. The plant is also of central cultural importance: newborns, newlywed couples, and the dying are all laid on beds of *ensete* leaves.
- (37) II10 (63, F)
- (38) II14 (50, M); II21 (62, F); all FGD participants also agreed on the land management practices raised in this paragraph.
- (39) Intercropping is the system in which crops are planted together in alleys between trees and usually perform multiple functions. According to the farmers, this practice, in addition to its economic or food production, is important, especially for soil improvement and protection, thereby improving water retention. Here, good management of trees and crops is needed to maximize the production and positive effects of trees and to minimize negative competitive effects between trees and crops. Most farmers understand that when crops are carefully selected, other agronomic benefits are also achieved. Intercropping plants that are prone to tipping over in the wind or heavy rain may be given structural support by their companion crop. Delicate or light-sensitive plants may be given shade or protection, or otherwise wasted space can be utilized.
- (40) This is a form of multiple cropping where the second crop is started amidst the first crop before the first has been harvested. Here, farmers plant two types of crops on the same plot of land at different times. This system is important, particularly where trees are abundant, and it is practical in the two ecological zones. For instance, a farmer may plant (reproduce) *enset* found at different growing levels or stages, and these *enset* crops (of different growing stages) mature or ripen at different times and are ready to be processed and consumed.
- (41) This is generally when the second crop is planted after the first has been harvested. Here, there are still trees of different lengths. This is very similar to what is known as crop rotation, though not the same, where dissimilar types of crops grow in a series in the same area in sequential seasons. It is practiced in some areas of the midland ecological zone where perennial plants are common. In this case, in addition to the presence of trees, usually a crop that leaches the soil of one kind of nutrient is followed by a dissimilar crop that returns that nutrient to the soil or draws a different ratio of nutrients. For example, sweet potatoes are followed by beans or barley after a while. By rotating their crops, Gedeo farmers can keep their land under continuous production without the need to let it go uncultivated, avoiding the need for artificial fertilizers. Farmers' view is that this has various benefits: to balance the fertility demands of the crops, to

avoid excessive depletion of soil nutrients, and to improve soil structure.

- (42) II23 (54, M); II34 (52, F). It is unique because, the Gedeo use a small plot of land to plant or allow planting several tree species, coffee tree, *enset* and cereal crops under them. The cereal crops are often for home consumption. In many instances, societies in this region combine coffee trees and *enset*, which often exclude the multipurpose tree species and cereal crops. In the surrounding communities it is uncommon to observe cereal crops grow under multipurpose trees and *enset* plant. Common to all, the fermented flesh of *enset* plant is a staple food of the people including in Gedeo. Growing year-round, perfectly adapted to its native environment, and producing a large volume of biomass, *enset* as a food staple can support human populations five times as dense as those depending on cereal crops like wheat or the Ethiopian *teff*. The *enset*-eating Gedeo people have thus escaped from famines at different times; thus, *enset* is often considered a “tree against hunger” (Eyasu 1992: 16).
- (43) EII3 (26, M); EII5 (23, M)
- (44) II12 (83, M)
- (45) II28 (60, M); II40 (71, M); II48 (51, F)
- (46) II1 (38, F); II25 (39, M); II41 (58, M)
- (47) II9 (52, M)
- (48) KI1 (74, M); KI3 (62, F); FGDs (1–5)
- (49) II5 (73, F)
- (50) II35 (88, M); II36 (61, M)
- (51) II7 (42, M)
- (52) KI11 (72, M); KI12 (66, M)
- (53) II3 (50, M); II33 (46, M)
- (54) This is a pounded *enset* and a traditionally prepared food item, important to make bread and in other ways. It is very common, particularly in the southern parts of the country, where people are densely settled.
- (55) II15 (46, F); II36 (61, M)
- (56) KI 7 (64, F); II20 (52, M); II38 (44, F)
- (57) Among the Gedeo, *enset* is one of the respected plant species used as sources of livelihoods. Most elders indicated that it is seven *enset* plants, just to remember the sons of Daraso, who established the seven Gedeo clans. The four *enset* plants that symbolizing the baby girl are to indicate Gedeo’s three clans and their mother.
- (58) II14 (61, M); II46 (77, M); II49 (60, F)
- (59) II8 (34, F); II29 (46, F); II43 (61, F)
- (60) The founding father of Gedeo, Daraso, had seven sons from two wives; hence, they are known as the Seven Gedeo Clans (*torbane gosa*). These seven clans are organized into two, and the first three clans are considered senior (*sase baxxe* or *sase minee*) and came from the first wife, whereas the last four clans (*shole baxxe* or *shole mine’e*) belong to the junior and came from the second wife.
- (61) II11 (71, M)
- (62) II16 (60, M); II18 (34, f); II 52 (70, M)
- (63) II29; (46, F) II48 (51, F) II53 (24, F)
- (64) II2 (54, M)
- (65) The New Encyclopedia Britannica, p. 804.
- (66) KI2 (80, M); KI9 (60, F)
- (67) II6 (36, M); II37 (29, M); II50 (42, M)
- (68) II2 (54, M); II39 (33, M); II42 (54, M)
- (69) II17 (73, M); II22 (76, M); II45 (70, M)
- (70) II53 (24, F)

- (71) II24 (40, M); II44 (39, M); II47 (40, M)
- (72) II30 (40, M); II36 (61, M)
- (73) The New Encyclopedia Britannica, p. 806.
- (74) KI1 (74, M); KI6 (66, M); KI11 (72, M)
- (75) KI2 (80, M)
- (76) II26 (32, M); II40 (71, M); II51 (33, M)
- (77) KI10 (72, M)
- (78) II13 (26, M); II27 (24, M); II54 (19, M)
- (79) This is the body of political administrative status of a male individual between 32 and 40 years old who is in power and administers the people.
- (80) This stage is the next administrative status of male individuals after *lubaa*, between 40 and 48 years of age, who serve their respective people, serve as advisors to the *lubaa*, and have the role of teaching the *raabaa*—a status given to a group of individuals between 24 and 32.
- (81) For instance, from *raabaa* (age, 24–32) to *lubaa* (age, 32–40) and from *yubaa* (age, 40–48) to *guduroo* (age, 48–54)
- (82) II5 (73, F); II34 (52, F); II47 (40, M)
- (83) KI2 (80, M); KI11 (72, M)
- (84) KI10 (72, M)
- (85) II11 (71, M)
- (86) EII1 (38, F); EII8 (45, M)
- (87) II28 (60, M); EII7 (51, M); EII9 (49, M)
- (88) EII4 (40, M); EII9 (49, M); II28 (60, M)
- (89) II12 (83, M); II35 (88, M); II46 (77, M); all FGD participants
- (90) II9 (52, M)
- (91) EII1 (38, F); EII8 (45, M); II47 (40, M)
- (92) II12 (83, M)
- (93) KI1 (74, M); KI6 (66, M); II9 (52, M); KI4 (66, M)
- (94) II35 (88, M)
- (95) KI1 (74, M); KI6 (66, M); II9 (52, M)
- (96) EII7 (51, M)
- (97) II46 (77, M)

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