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## FACTORS AFFECTING PASTORAL SUSTAINABLE LIVELIHOOD: THE CASE OF BORANA, SOUTHERN ETHIOPIA

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### ABSTRACT

The purpose of this study is borana pastoralist livelihood basically driven by natural and human-made stun. In this way, it is critical to evaluate the variables affecting the borena livelihood collectively, and give Approach suggestion for concerned government and worldwide organizations. The main objective of study is to assess the factors affecting the sustainable livelihood of borana pastoralists. This study especially focuses on drought, bush encroachment, resource base shrinkage, customary institution, and development intervention policy. The qualitative survey research design has been used. The purposive sampling technique was employed to select the sample from a population. A primary source of data has been used, data were gathered through semi-structured interviews and focus group discussions, and the collected data were analyzed through the descriptive method. This study found that recurrent drought, expansion in bush encroachment, resource base shrinkage, erosion in a customary institution and current state development intervention policy has negatively affected the sustainable livelihood of the borana pastoralist. This ponder is noteworthy for policymakers; specialists, and academicians. Pastoralist, livelihood is profoundly touchy to diverse variables. The specialists require data on the components influencing their feasible livelihood to apply adapting components that will make their livelihood sustainable. Other analysts may utilize this ponder as a reference and it too encompasses a commitment to the source of information on the region of pastoralist sustainable livelihoods. The borana pastoralists are found in both Kenya and Ethiopia. Since of time and budget impediments, this ponder was limited to as it were the borana pastoralists of Ethiopia.

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## INTRODUCTION

The manifestation of livelihood degradation among Borana pastoral explained by a few different governments and the international agency is stated as follows. According to GDPPC (2010), 60% of the Borana population is "food insecure" and the highest proportion in the pure pastoralist area. Similarly, According to CARE and FAO (2010), out of 1.29 million people in the Borana zone at least 412, 000 are receiving some kind of food assistance including aid provided under the production safety net. Borana is among the pastoral community in the country which occupies an area covered some 95,000Km<sup>3</sup> of southern Ethiopia (Yigezu, 1993). Borana pastoralists have a traditional institution for resource management and the ability to adopt harsh and fragile ecology which helped them to maintain the productivity of their livestock and sustain their livelihood for a long period. Ethiopia is ranked in the top five countries in the world where pastoralism is practiced as a system of production and means of attaining livelihood. In the country, pastoral people are estimated to be 10 to 15 percent of the total population which comprises 29 ethnic groups.

They inhabit 61 percent of the country's landmass (PFE, 2008). With an estimated 41 million cattle, 26 million sheep, 23 million goats, and 2 million camels. Ethiopia has Africa's largest livestock which is largely concentrated in pastoralist areas (ACDI / VOCA, 2007). Pastoralism is an effective and efficient way to utilize virtually inaccessible remote resources. However, national agriculture policies have laid less emphasis on pastoralists and intended to apply what so-called "New paradigm" sedentary agriculture In Africa, an estimated 25 million peoples in the sub-Sahara region derive their livelihood directly from pastoralism (Swallow, 1994). At least 40% of African's landmass is dedicated to pastoralism, with significant variation among countries (UNIRIN, 2007). According to FAO (2001), the continent has 235 million cattle, 472 million goats, 21 million pigs, and 1.3 billion poultry, all valued at \$65 billion. Pastoral are traditional producers who have developed the ability to sustain livelihood in ecologically harsh and fragile environments due to topsoil and erratic climate condition (Marton and Meadows, 2000). In the recent decade, however, it has been observed that pastoralism is in continuous decline because of threats posed by natural and man-made factors. According to emerging literature on Borena's sustainable livelihood, many factors are affecting their sustainable

livelihood. According to (Tilahun and Barre (1993),- Borena Pastoralist was suffering from humanitarian problems due to recurrent drought that reduces herd volume, and the man-made problem like resources base degradation as a result of periodic conflict aggravated by the absence of Good Governance in the country. Bush encroachment, Population pressure, weakening customary arrangements for resource management were among important factors hampering the sustainable livelihood of Borena pastoralists (Skinner, 2010). Government formalization of ethnic boundaries between Somali and Borana resulted in Borena range land shrinkage that consequently affects the sustainable livelihood of Borana pastoralists (Bassi, 1997). As of this emerging literature, there is no consensus in their finding on factors affecting the sustainable livelihood of Borana pastoralists. This study intended to assess those factors contributing to the decline of sustainable livelihoods of Borana pastoralists over the past year.

Assets are the major building block for the livelihood of a given community. Human, natural physical, financial and social are its major elements. To attain a sustainable livelihood, effective and efficient utilization of these resources per their importance is founded to be essential. However, over the past two decades, the Borana pastoralist has been exposed to both man-made and natural disasters causing a decline in their assets base. The consequences jeopardize the sustainability of the Borana pastoral livelihood. Because of destruction in their livelihood, they have been unable to shake off the severe hardship that now has strengthen them ( Kamara, swallow, and Kirk,2004). The crippling effect of the livelihood has had aggravated as the Borana depleted their livestock, the only source of income-generating and consequently the resilience capacity of the Borana started to deteriorate rapidly than before. In the past, many researchers were conducted on the factors affecting the sustainable livelihood of Borana pastoralists. Some studies are directly related to this issue. For instance, according to, FAO (2001), drought in Borana regular affect rangeland and contribution to a high death rate for livestock and poverty for the pastoralist. Likewise, explore that Borana livelihoods are at risk as the traditional safety net weakens by climates related factors. The recurring drought which causes the shortage of pasture, water and decline in the yield of livestock production is the main constraint responsible for Borana food insecurity. Previous studies have taken only a very limited geographical coverage and failed to sufficiently explanatory for the sustainable livelihood of the Borana community. Thus, this study intended to assess the factors collectively challenging the pastoral sustainable livelihood over the past two decades with special focuses on Borana pastoralists of the Oromia region. The general objective of the study is to assess the effect of factors affecting the sustainable livelihood of Borana pastoralists. Borana pastoralist is also among the pastoralist deeply exposed to this prone. Therefore, the policymakers require information on these factors affecting Borena's sustainable livelihoods to design appropriate intervention programs to reverse the situation. Moreover, to make this study more manageable and detail, study focused on three districts of the Borana zone. Namely: Dhas, Miyo, and Dillo districts.

### Objectives

1. Assess the challenge of ecology by analyzing the effect of recurrent drought and bush encroachment on the livelihood of Borana pastoral society.
2. Examine the effect of resource base shrinkages induced by territorial loss on the livelihood of Borana pastoralists.
3. Investigate the effect of erosion in traditional institutions of settlement and natural resource management on the livelihood of Borana pastoralists.
4. Assess the effect of the state policy approach on the livelihood of the Borana pastoral community.

**Research Question:** In the process of this study, the following research question will be answered:

- How ecological factors have any effect on the livelihood of Borana pastoralists?

- Why the resource base shrinkages affect the livelihood of Borana pastoral society ?
3. The weakening of the traditional institution of natural resource and settlement management affect the livelihood of Borana ?
  4. How current state policy towards pastoralists appropriate for the improvement of Borana pastoral livelihood ?

## REVIEW OF RELATED LITERATURE

### Conceptual Literature Review

**Definition of Pastoralist and Pastoralism:** Pastoralists were defined differently by different people and scholars. Different usage arises between countries and regions and the acceptability of the words differs from place to place. Even the term "Pastoralist" itself defines absolute definition, however, various definitions are given by different scholars and institutions. A simple interpretation of pastoralism lives by keeping the flock of sheep or cattle (Oxford English Dictionary 1983). Pastoralism, defined as the use of extensive grazing on rangeland for livestock production, is one of the most important production systems in the world's dry lands (FAO 2008,). Pastoralism often refers to extensive husbandry of herds of different species (cattle, sheep, goats, camels, and equines) requiring periodic migration to access pasture (WISP 2008). Pastoralism is a system of extensive livestock herding in which livestock track the seasonal fluctuation in natural forage availability (PFE 2008). Pastoralism is also defining as a mode of production where livestock make up 50% or more of the economic portfolio of a smallholder (Sandford, 1983). But a commonly used definition in the literature is that pastoralist households are those in which at least 50% of the household's gross revenue (including income and consumption) comes from livestock or livestock-related activities (Swift, 1998). Another definition that focuses less on economic criteria and emphasizes that "Pastoralist" often describes an entire ethnic group, irrespective of whether all members keep livestock or not (Baxter, 1994). According to Hogg (1997), pastoralism and farming do not represent glacial opposite but rather ideal types of economic activity along with a continuum of economic activities from "pure" pastoralism to farming; most so-called "pastoral" societies pursue multi-resource economies in which the balance between pastoral and non-pastoral activities is constantly changing in response to changing circumstances. In this view, pastoralism is not a way of life but a set of specialized economic activities be alone or in combination with other economic activities and techniques at different times and places.

**Nomadic Pastoralism:** The dictionary definition of a nomad is "one of a race or tribe which move about from place to place to find pasture; hence, one who lives a wandering life" (Oxford English Dictionary, 1983). But roaming pastoralism may be a shape of pastoralism where animals are crowded to discover new pastures on which to touch taking after a sporadic design of development. The grouped animals incorporate cattle, sheep, goats, reindeer, horses, jackasses, camel, or blends of species. Nomadic pastoralism is commonly practiced in a region with little arable land. Usually, they found in the developing world, mostly they reside in central Asia and the Sahel region of West Africa (FAO, 2008)

**Transhumance :** Transhumance alludes to "the regular relocation of animals to reasonable brushing ground (Colin's English Lexicon), as a rule taking after very exact courses that are rehashed each year. Vertical transhumance in the mountain region denotes movement between higher pasture in summer and lower valley in winter, as it were the herders' travel, with the individuals essential to tend them. In differentiate, level transhumance is more vulnerable to being disturbed by climatic, financial, or political alter. Transhumance developed on every inhabited continent. Although there are substantial cultural and technological variations, underlying practices for taking advantage of remote seasonal are similar (WISP 2007). Transhumance helped avoid overgrazing, occurring in the low lands, also help keep mountain pasture open. Distinctive sorts of or reasons

for transhumance can be found, counting development towards asset (water, grass & salt) development absent from hazard (regular illnesses or flooding), and development for financial motives (such as to seek milk and livestock market (FAO, 2008).

**Agro-Pastoralism:** Agro-Pastoralism, describes the co-existence of agriculture and grazing activities, although they may be different degree of integration of these activities, with a specific consequence for land use. An economic definition is that agro-pastoralism derived more than 50% of household gross revenue from farming and 10-50% from livestock (Baster and Swift, 1994).

**Characteristics of Pastoralism and Pastoralists:** The characteristics of pastoralism are unique to the cultures. Nomadic cultures are nomadic precisely because they are pastoral while establishing farming communities are stationary because they have developed a system to keep their animals healthy in captivity. In the Ethiopian context, there is evident danger in characterizing pastoralism as a uniform mode of production and economic system, for it is plain that different pastoral groups are pursuing different variants of the system and engaged to different degrees. Borana pastoralism is fundamentally different from Somali pastoralism. This difference is not only due to their different environments and cultures, but also their different combination of stock, territorial and social organization, and orientation to the market. Relative to Somali, Borana tends to be more culturally conservative and less commercially oriented. However, while Borana and Somali may differ in the way they organize themselves and manage their stock, the same is true of different groups of Somali itself and other pastoralists (Hogg, 1997). Nevertheless, despite this variety in the forms of pastoralism, there are certain common characteristics of pastoral society in Ethiopia, which does give the use of the term some meaning. The common threads which unite these societies are stronger than their differences (ibid).

**Dependence on Livestock:** The first and the most basic characteristic is their orientation towards livestock. Livestock is both the backbone of their economics and a cultural value in their own right. While their degree of dependence on livestock may vary, all of them perceive themselves as livestock people. To this extent, pastoralism is both mode of perception as well as a mode of production (Helland 2000).

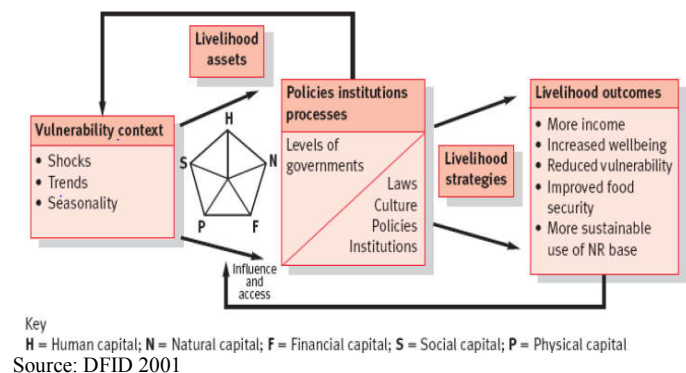
**Geographical Location:** A second important characteristic of pastoral areas is their geographical and relative isolation. Distinctive pastoral bunches within the Horn of Africa are found adjoining to each other and in most cases in fringe zones of their individual nations. For occurrence, in Ethiopia, most of the pastoral lands are found within the low-lying fringe area encompassing the highland communities, bordering other pastoral bunch in neighboring nations. The area includes Borana lowland, where SORDU has been operating since 1988, Ogaden lowland, where SERP has been launched in the 1970s and afar valley where ARDO has been operated. These areas, historically, have formed the borderlands and frontier of the Ethiopian state. Many pastoralist societies were incorporated into the Ethiopia polity in the last 100 years. The relationship between pastoralists and the Ethiopian center has therefore often been ambivalent at best and at worst openly hostile (Hogg, 1997).

**Change and Adaptation:** The pastoral production system is not a static economic activity but an activity that dynamically adjusts itself to changes in an ecological environment that are driven by both internal and external forces. The natural environment in East Africa is a varied one, with variation in altitude, rainfall patterns in dry and wet seasons, river systems, soil types, and vegetation cover. This shifted design has in fundamental ways influenced the conveyance of settlements and populace developments, and the dissemination of beneficial exercises such as development and brushing. The human responses to this variation have been to develop adaptive patterns that have been flexible enough to cope with the variation and to minimize risk (Manger, 2000)

**Pastoral livelihood:** Livelihood as a framework to understand poverty and food security concerning climate change and variability and man-made calamities emerged in the late 1990s and at the beginning of the 21st century, being initiated by many scholars (Scoones, 1999). A livelihood is characterized as the capabilities, resources, and exercises required for a implies of living; a vocation is economical when it can adapt with, and recuperate from, push and upset, maintain or enhance its capabilities and assets, and provide sustainable livelihoods opportunities for the next generation (Kappel and Pedersen, et al, 2010). Pastoral jobs within the Sahel verifiably were supported by frameworks of arranged get to water and field that did not dole out elite rights, and by complementary courses of action between pastoralists and agriculturalists (Brooks, 2006). Many of the inhabitants of the arid and semi-arid rangelands of sub-Saharan Africa gain their livelihoods from pastoral activities, using common property rangeland and water resources that are highly sensitive to climate variability to raise their livestock. They live under highly variable climatic conditions, with their herds subject to large variations in feed and water availability. Managing these strong fluctuations in pastoral livelihoods is the main development challenge facing agencies seeking to support pastoral development initiatives and pastoralist themselves (Barton et al., 2001).

**Sustainable livelihoods Framework:** The Sustainable livelihood framework is a tool for development work to understand, analyses, and describe the main factors that are affecting the livelihoods of poor people. According to DFID (2001), the sustainable framework model is a model that makes it easier to understand the different components and their interrelatedness.

#### The Sustainable Livelihoods model



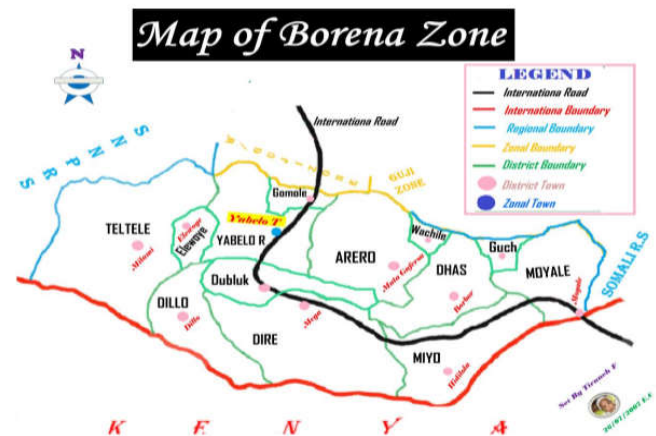
According to DFID, this Model explains sustainable livelihood as a net outcome of many factors. These factors are the external environment which includes shock, trend, and seasonality. A shock is related to natural disasters, a trend that is related to technological and population trends. The seasonality-related flexible situation is impossible to predict easily. All of these factors will affect the assets that people have and thereby the sustainability of their livelihoods. The sustainable livelihood framework is built on the belief that people need assets to achieve a positive livelihood outcome. People have different kinds of assets that they combine, to help them achieve the livelihoods that they seek. Human capital is one of these assets and refers to the skills, knowledge, ability to labor, and good health that enable people to achieve their desired livelihoods. Human capital is essential to use the other kinds of capital that exist. Social capital refers to the social resources that people can get help from to achieve their livelihoods. This could be through networking, membership of formalized groups, or mere trust between people that make them help each other. Natural capital is to be understood in a very broad manner since it both covers tangible factors, like natural resources such as trees, land, etc., and more intangible products such as the atmosphere and biodiversity. Physical capital describes the basic infrastructure and producer goods that are needed to support the livelihoods that people seek. Financial capital is the financial resources that people can use to achieve the livelihoods that they are striving for.

Transforming structure and process includes the institutions, organizations, and policies that frame the livelihoods of the poor, and they are found on all levels – from the household to the international level. These processes and structures determine the access that people have to different kinds of assets, and therefore the importance cannot be overemphasized. Examples of processes are international agreements, ownership rights, and laws to secure the rights of the individuals, whereas structures might be the existence of ministries, banks that give credit to the farmers, or self-help groups in the local community. Livelihood strategies are the way that people act to achieve their desired livelihood. The access that people have to different kinds of assets affects the strategies that they employ, and the structures and processes in a given society also create possibilities and constraints on the strategies that people can use. Finally, Livelihood outcomes are the achievements of people's livelihood strategies. However, outcomes are to be described by the local people themselves, since these include much more than income. For outsiders, it can be difficult to understand what people are seeking and why because this is often influenced by culture, local norms, and values (DFID, 2001). For pastoralist communities, five livelihood assets can be identified: 1. Human: education, health, nutrition 2. Natural: grazing land, water sources 3. Financial: livestock, credit 4. Social: livestock, community social support 5. Physical: livestock herd, infrastructure. To attain positive livelihood outcomes pastoralists rely on specific strategies to manage their livestock effectively. Their livelihoods strategies have evolved over centuries in response to the local environment and the hot and dry climate in which they live, with low and erratic rainfall typical of the arid and semi-arid lands (ASAL).

**Empirical Literature Review:** The empirical evidence on factors affecting the sustainable livelihood of pastoralists is diverse and the seriousness of one factor over another varies from place to place. Therefore, this study tried to explain some empirical evidence on factors affecting the sustainable livelihood of pastoralists in the Ethiopian context. Sabine Homann (2004), in the study on indigenous knowledge of Borana pastoralists in natural resource management, identifies that Borana pastoralists were in a favorable position to develop a complex range management system. The concentrated sources of permanent water and sufficient productive pastures in the periphery fostered the regular coordination of herd movements. The mobile range use pattern sustained precise arrangements for temporary range utilization and maintenance between pastoral groups and among households. They further generated specialized knowledge and working relationships, forming the backbone of natural resource management and sustainable livelihoods for the pastoralists. The evidence presented in the study shows that nowadays the rangeland utilization is characterized by the expansion of permanent grazing land and uncontrolled encampments. Key grazing areas are being converted to crop cultivation. This leads to reduced mobility of herds as the principal land use strategy and is linked to reduced variability of stocking densities which causes over-grazing. Simone Rettberg (2005), in his study on Afar pastoralists, identify that pastoralist were put at risk because of fundamental discursive differences between the state and pastoralists in risk management strategies. The state's discursive risk construction of "pastoral backwardness" in cultural and economic terms legitimizes authoritarian interventions that intend to transform mobile pastoralists into sedentarized and urbanized agro-pastoralists and wage-laborers. The general failure of governmental interventions for disaster prevention and poverty reduction can be attributed to a lack of understanding of the current risk scenario complexity, especially its political dimension, and the socio-spatial differentiation of risks that Afar pastoralists face in their everyday life. Skinner (2010), identify that the livelihood of the Borana is affected by factors such as recurrent drought, high temperature, low rainfall and bush encroachment, interethnic conflict, deforestation, shrinkages of rangelands, expansion of farmlands, privatization of communal resources, and dwindling of social supporting systems. Furthermore, the indigenous adaptation mechanisms used by the pastoralists become effective that make these situations worst.

### 3. Research Design and Methodology

**Description of study area:** This study was undertaken in pastoral districts of borana zone, more focus on Moyale, Dhas and Dillo districts of the Borana zone of Oromia Regional State. The pastoral rangeland of borana is found in the southern part of Ethiopia, lying between 3036" 600 38" N and 36043" - 410 40" E geographical grids in the Southern part of the Regional State of Oromia, it has a spatial area of 69,373.3 km<sup>2</sup> (about 7.6-12.3% and 19.5% of the total land area of Ethiopia and Oromia, respectively (ORDPEDB, 2000). Borana zone is one of the zones of Oromia Regional State, located at about 570 kilo meters south of Finfinne on the way to Kenya. According to Borana Zone Report Monitoring and Evaluation Office (BZRMEO, 2021), Borana zone covers total land area of 63,939 km square with the total population of 1,626,930 (male 821,733 and female 805,197). Pastoralist in zone had total 2,238,304 cattle, 1,348,336 sheep, 2,195,665 goats and 343,188 camels (BZLRDO, 2021).



Source BZ LRDO, 2021)

The Zone is dominated by semi-arid climate. The area has a bi-modal type of rainfall regime ranging on average from 400 mm in the South to 600 mm in the North annually. About 59% of the precipitation occurs from March to May and 27% from September to November. A "dry" year is the one in which annual rainfall is less than 75% of average and this may occur every five years (Baker, 1989) but nowadays this may occur more frequently. The hottest months are December, January, February and March. Several water wells locally called "Ellas" are available in the area (BZRMEO, 2021).

**Research design, data source and collection:** The qualitative survey research design was used. The purposive sampling technique was employed to select sample from population. A primary source of data has been used. A semi-structured interview was conducted with ninety pastoral households who depend on livestock as their main source of income, and Focus Group Discussion (FGD) was held with five knowledgeable elders. Both interview and focused group discussion has been conducted in the local language (Afaan Oromo) to make it easier and clear for participants.

**Sample Population and sampling Techniques:** Based on the traditional knowledge of geographical weather division, the zonal districts are categorized into thirteen semi-arid (Gammoojji) districts. Among thirteen semi-arid districts, three were selected use purposive sampling techniques. It was selected as the study area because it is districts where most pure pastoralist resides. Furthermore, a semi-structured interview was undertaken with thirty householders from each district. To increase the quality and sweetness of the study, Focus Group Discussion (FGD) was held with five selected knowledgeable elders. Thus, the data collected are believed to be representative of all thirteen districts due to their similarities of activity (pastoralism).

**Method of data analysis:** The data was analyzed qualitatively through descriptive methods. Simple statistical has been used to

analyze data obtained through semi-structured interview and data obtained through Focus Group Discussion (FGD) have been interpreted through the qualitative description. Researchers interpret the data as they read, re-read the data, categorize and code the data. And inductively develop a thematic analysis.

## RESULT AND DISCUSSION

**Respondents profile:** The population for this research consists of households and knowledgeable elders from the Moyale, Dhas, and Dilloo district of Borana Zone. The total sample size of 95 were selected through the purposive sampling technique. The respondent includes both male and female. All respondents are above forty years old which help to gain information from twenty years back.

According to the table above (4.1), 69% of the respondents are male and 31% are female. Of all respondents, 42% were between 40 to 55 years old, 28% were between the age of 56 to 66, 20% were between the age of 67 to 78, 7% between the age of 79 to 89, and 3% were above 90 years old.

**Frequency and Extent of Drought Occurrence:** Drought is a major ecological upset and pressure. It was draining the sustainable livelihood of the Borana household as was acknowledged by focus group discussion. It was among the factor affecting the main asset base of Borana pastoral households. Accordingly, the drought occurrence and its extent were at continuous increase since the last five "Gadaa" cycles. The extent and frequency of drought Occurrence with the "Gadaa" timeline were indicated in the table below starting from the recent half of Gada Boru Guyo to Gada Kura Jarso.

**Table 4.1. Respondent's profile**

Specification	Particulars	Frequency	Percentage
Gender	Male	65	69
	Female	30	31
Age	40- 55	40	42
	56- 66	27	28
	67- 78	19	20
	79- 89	6	7
	>90	3	3

Source: Survey result, March 2021

**Table 4.2. The extent and frequency of drought Occurrence concerning GADA Timeline**

Gadaa Period	Year	Frequency of drought	The local name of drought	Areas coverage
GuyoBoru 1985-1993	1989-93	2	"OolaaDergiinkaate"	Widespread
BoruMadha 1993-2001	1995-2000	3	"OolaaBubbee, OolaaTiitteGurrachaa, &Oolaawaraanaa"	Widespread
LibanJaldesa2001-2009	2005-08	3	"Oolaa loon Fa'aan"	Widespread
GuyoGoba 2009-2017	2009- 2017	3	"Oolaa Loon Awwaalan"	Widespread
Kura Jarso 2018- Present	2018	1	"Oolaa Loon awwaalan"	Widespread

Source: Survey Result, March 2021

**Table 4.3. Effect of Drought on livelihood of the respondent**

Severity	Frequency	Percentage
High	88	93
Medium	5	5
Low	2	2
Predictability	Frequency	Percentage
Yes	0	0
No	95	100

Source: Survey result, March, 2021

Table (4.2) reveals that the occurrence of the drought was increasing in frequencies and widely spreading in Borana land. Accordingly, in the last three years of Gada Boru Guyo two widely spreading severe droughts strike the Borena community. These droughts are locally known by the name "Oolaa Dergiin kaate" literally drought occurred at the end of the Derg regime. These droughts almost last for two "Gana and Hagaya" which means there was no rain for two consecutive years in the area. Likewise, during the time of Gada Boru Madha, three ruthless and extensively spreading droughts knock

Borana land. Firstly, "Oolaa Bubbee" took place from 1994-1996. It was named "Oolaa Bubbe" because of unexpected wind occurrence during this time rather than rainfall that was expected. Secondly, "OolaaTiitte Gurraacha", a mean drought of black-housefly which arise between (1997- 1998) .it was named after black-housefly that had appeared on the deceased of animals died because of drought-driven problem. Lastly, "Oolaa Waraana" signifies the drought of war begins in 1999 and ended in 2000. This drought was named from a clash between Borana and Somali that was happening within this drought period. In the time of Gada Liban Jaldesa 2005-2008, the borana pastoralists have experienced three widely distributing harsh droughts. This means according to the trend of the local rainy season's categorization, there was no rainfall for three consecutive Hagaya and Ganna in the Borana plateau. The droughts were commonly known as "Oolaa Loon Fa'aan", literally the drought in which cattle were loaded up to the automobile. At the time, Yabelo was relatively better; the remaining cattle were carried there by truck. Because of this, the droughts were locally known as "Oolaa Loon Fa'aan." In the first- half cycle of Gada Guyo Goba, two severe droughts partly happened in Borana land; these were in between (2009-2017). This means according to the trend of local rainy season's identification there was no rainfall for three Hagaya and Gana. It was named Oolaa Loon Awwaalan because; the dead body of animals wipe out because of droughts was purchased and buried by NGOs involving in the area during the time. In Gadaa kura Jarso one very severe drought was occurred. The cause was absence of Ganna and shortage Hagaya at rain season, called Oola loon Awwaalan. The respondents claim that at least they lost over 50% of their livestock in each above mention drought period. The last drought which strikes in 2018 claimed a huge loss of livestock particularly, in the selected study site.

**The Effect of Drought on livelihood:** FGD with elders evidenced that, the effect of drought was a consequential process. The decline in the amount of rainfall resulted in the decline of vegetation; the decline of vegetation resulted in feed resource decline from pasture land. The decline in feed resources resulted in the death of livestock. Therefore, the sustainable livelihood of the Borana community was affected as they were dependent on livestock. According to the respondent, the increase in the frequency of drought occurrence and

increase in coverage area affected by drought aggravated the effect of succeeding drought because of the small-time gap to recover from the preceding drought. In other words, the compounding effects speed up the susceptibility of their livelihood to the drought-prone. Previously, during the drought period, Borana pastoralist moves to dry land region which is better off and serve as escaping spot for a host of herd population. However, at present, all these had been changed where all Borana land hosts the incidence of drought at once. Thus, it gives no time to bounce back of pasture, animals, and humans. Therefore, the drought survival opportunity begins to decline which later adversely affects the sustainable livelihood of the whole pastoral community. According to this table (4.3), 93% of respondent claimed their livelihood was highly affected by drought, 5% of the respondents also claim the effects of drought on their livelihood was medium while 2 % argues the drought have minimum effects on their livelihood. 100% of respondents have not predicted the occurrence of drought. Generally, the increased severity and unpredictability of drought is the most threatening issue that the respondent stresses about drought. This was because the chain of multiple effects stirring as result may damage the sustainability of their livelihood simultaneously.

**Increase in Bush-encroachment:** The effect of ecological change in the Borana pastoralist system is also manifested in the rampant growth of thorny bush plant species which is mentioned by the respondent from all survey location. FGD participants explained that venomous plant species such as “Waanga, Saphansa, Jirimee, Fulleessa, and Sigirso” were among the major factor affecting the growth of nutritious grass species. These plants mostly generate hot air which destroys the growth of grasses. It also prevents the transfer of grass seed from place to place by blocking the wind from blowing on grass which distresses the duplication of grass in the rangeland. Among which Fulleesa and Angulle host insect-like ants that mainly affect the reproduction and growth of grasses, mostly “Halaloo” and “Alchiisoo.”

**Table 3.4. Expansion of Bush in respondent area**

Expansion of bushes	Frequency	Percentage
Very High	85	90
High	9	9
Medium	1	1
Low	0	0

Source: Survey result, March, 2021

The table above exhibited that 90% of respondent argues that the expansion of the bush in their area is very high, 9% of respondents also argued that the expansion of the bush in the area is high and 1% affirmed that the expansion of the bush in the area is medium. As it was affirmed by FGD, the increases in these kinds of plant species across Borana land are typical causes for rangeland productivity degradation as the composition of land covered by thorny bushes increases at the expense of postural grasses. The decline in rangeland inversely affects the productivity of livestock unconstructively; the only source of livelihood in the zonal and which in turn devastates the livelihood of the entire society. Conventionally, Boranapastoralists burn bush once or twice in one “Gadaa” cycle or depend on the frequency growth of such kind of plant on the rangeland. The burning of the bush not only controls the expansion of bush on the rangeland but also it is a way of checking the multiplication of host (ticks and flea) on the rangeland which damages the health of livestock. Discussion with FGD elders traces that the reason for the bush expansion was a ban on bush burning by the government. The policy which prohibits bush burning was implemented by the Derg regime at first; it was also highly put on effect by the current EPRDF/prosperity regime. This traditional controlling mechanism prohibition currently resulted in the expansion of unwanted bushes and their host.

**Decline in Resource base and its Elements:** The major resource base element identified for this study and later affirmed by FGD participants has included rangeland and its products, water source, and source of mineral supplement. As the Borana pastoralist livelihood is highly attached to their resource base, the decline in any

of it highly devastates the sustainable livelihood of the Borana pastoral household. The response of the respondent was explained under the following sub-title.

**Rangeland and Its products:** Rangeland which Borana pastoralists considered as their major physical assets including with it products such as tree and pasture resources is a base for livestock production and livestock-based livelihood. Interview with the respondents elucidated that the south-eastern part of Borana rangeland served as the bedrock for mobile herd from all corner of Borana land. Moreover, it allows temporal and spatial flexibility between dry and wet seasons grazing systems for various mixes of herds. In addition, these parts of the rangeland were among the suitable grazing unit in the Borana land both in terms of quality of pasture resource and its cover. The grasses which grew on these parts of the rangeland such as “Alchiiso and Mata-gudeesa” were among the grasses that Borana mostly like to feed their cattle. Feeding cattle this type of grass has a positive effect on milk production, reproduction, and growth of their animals. This was demonstrated explicitly in the Borana cattle song (Faarulooni) which says “*Alchiisoo wayaama dheedee gabbatee daaheen o kolee guute*” literally, means, eating “Alchiiso” grass of wayaama will increase weight gained and provide more milk the south-eastern rangeland (Mata Wayaama) was also exclusively important for Borana pastoralists. This was because of the presence of “Tulaa” such as “Goofaand Leyi”. Traditional wells (eela) like, “Girriba and Cilaaqo”, which is situated at the center – the heart of this rangeland. The existences of such “Tulaa” in these areas make people utilize the far pasture in the rangeland surrounding there. The traditional large framed cattle (Qoortii) was originated from this plain and they were highly adaptive to this area's climate condition than other (Baddaa). “Qoortii” type was among the most productive kind of cattle both in terms of milk and meat provision kept by Borena pastoralists.

The respondents in the selected location of the moyale, Dhas, and Dillo districts pointed out that this huge grazing land had to experience a continuous reduction in its size starting from the Halesilase regime to the present. The continuous regional boundary demarcation by the government since the empire regime to present along this side was the main cause of territorial shrinkage and hence the reason for rangeland degradation. According to FGD held with a group of elders, the primary factors for rangeland deprivation along this side was a complex and flexible border demarcation that favored Garri –Somali territorial expansion since the Empire regime to present. Along this side of Borana rangeland, border re-demarcation was carried out five times: Two times by Empire regime, one by Derg regime and the last two by current EPRDF regime. All demarcation does not consider the importance of rangeland for Borana pastoralists. Particularly the last two which politically driven was commenced by the current regime in the name of Somali –Oromia boundary re-demarcation assigned a large portion of Borana rangeland to Somali including the 2 crucial deep-water well or “Tulaa” of Borana called “Goofa, and Leyi.” Therefore, the decline of rangeland and its product resulted in a consequential effect that devastated the sustainability of the entire population. The sudden effect was overgrazing and pressure on the remaining part of rangeland which in previously used by home-herd (loon warraa). The rapid and repeated using of remain portion of the rangeland also results in soil erosion, which affects the re-growth of plant and grass species in the area. The pressurized land then started to offer a pasture at a decline rate which results in a reduction in the productivity of livestock. Lastly, during the period of drought, the issue of drought survival becomes difficult because there is only a limited option of rangeland used for mobility. All this progress weakens the sustainable livelihood of the entire community and forces them to internalize the externality.

**Indigenous water source (Tulaa) or Deep-Water well:** Among Borena pastoralists, being the most crucial physical asset, water is one means of securing a livelihood. In addition, it also serves as a base for the establishment of a management entity for other elements of livelihood such as pasture, herd mobility, and social network for mutual help. The essentiality of water is demonstrated through the

high value that society ascribes to it even in everyday conversation. For instance, what we commonly find in Borena pastoralists swear the name of their resource base saying “Marraa – Bisaan” literally “Water and Pasture”

The importance of deep-water well (Tulaa) for Borena pastoralists was unique among all other kinds of water sources such as ponds and shallow wells. The respondents and FGD participants traced two major importance of “Tulaa” (deep-water well) for Borena pastoralists. It was mainly used for the productivity and health improvement of their animals, and its existence at the center of the southeastern part of Borana rangeland also helps people to graze the associate pasture. According to the respondents from Mataa Arba, Gooray, Raaroo, and Tile Maddo locations, the milk productivity of cattle drinking Tulaa water is higher than that of cattle drinking other kinds of water. The animal drinking this water also free from intestinal worms (*Raammo*) which affect their health and later deduced its productivity. The calves of cattle drinking Tulaa water immediately reach at reproductive stage than the calves drinking other kinds of water. Because of its better healthiness and internal strength, the cow reared around deep-water well can live long and give fifteen to twenty calves in its life span. Additionally, animals drinking this kind of water usually resist and withstand recurrent drought shock despite weight loss and in its body. The cattle settled around the Tulaa can graze the interior far part of rangeland surrounding even in time of drought when scarcity of water exists. The interior part of the rangeland mainly consists of “Alchiisoo and ciraa” grasses, the most important kind of grass for improving the output of the cattle in the area such as milk, butter, and meat. In the course of territorial demarcation undertaken by the current regime, the two major “Tulaa, Goofa and leyi”, and some other traditional water source supply popularly known as “Adaadii” such as “El-Nyaapho, Girribbaa ,Cilaaqoo,” and others in the rangeland shifted to Region five. These later check the deployment of Tulaa by Borana pastoralists. Thus, the decline in Tulaa water consequently results in a chain of multiple effects on the sustainable livelihood of Borena household which are demonstrated through the inability of the animal to withstand drought, the presence of “*Luuxaa* and *Awwaarsaa*” kind of disease which make animal tiny and hairy and reduce their output, the lagging behind of the reproduction (fertility) stage of heifers and another effect on the cattle, resulted in negative effect the on Borana sustainable livelihood.

**Mineral soil (Aya):** “Aya” soil (salty) is one of the animal feed resources widely known in the Borena. The concentration of this soil is varied from region to region across the Borena rangeland. The southeastern part of the rangeland is widely known for its best Aya among Borena rangeland. According to FGD, this soil is an easily accessible mineral. Because its deposit is vastly distributed in all Borena rangeland as compared to its substitute (mineral salt). According to the respondent, the rationale behind feeding livestock “Aya” soil is the provision of high milk and butter. Improvement in health condition and body strength of livestock, development of inability to resist diseases such as “*Luuxaa* and *Awwaarsaa*” by cattle. Moreover, animal feeding “Aya” soil frequently develops the capacity of resisting the frequent drought shock, then other kinds of animal. Cattle feeding this soil, highly improve their meat yield than other cattle, and the hide and skin animal feeding “Aya” soil are more valuable than other animals in the local market. In addition, the heifer feeding “Aya” soil rapidly reaches the reproductive stage. These heifers mostly give calves between three to four years of birth. However, recent regional border change by the government, principally assigned the eastern part of Borana rangeland to region five. After demarcation, most of the “Aya” deposit areas were transferred to Somali region territory. The exploitation of “Aya” in this area by Borana herders was later restricted. This was because the area is settled by competing Somali clans. For instance, crucial “Aya” deposit areas such as “AyaAdheeta, Simpiraallee, Cari-iluu,” and other areas are unable to utilize by Borana herders. The result affects both production and reproduction of the animal negatively. Specifically, the health conditions of animals lacking “Aya” started to deteriorate. This consequence reduces the milk and meat products of

such animals. During the drought period, the probability of drought survival by such livestock becomes difficult. Therefore, these compound outcomes negatively affect the sustainable livelihood of the entire community-dwelling around.

**Declining in the capacity of a customary institution:** The Borena pastoralists have developed the customary institution for settlement and natural resource management; it is one of their social assets. This management system enforces the optimization of rangeland resource and also safeguard and maintain utilization of resource in the Borana rangeland. Furthermore, this institution has the responsibility of settling restrictions, rules, and regulations. Thus, effective and efficient management of resource and settlement patterns is a core method of insuring livelihood sustainability in the Borena pastoralist system. The Borena settlement is scattered in nature, distance from one village is far from another village with approximately 10km from each other. The rationale behind such kind of settlement traced by FGD elders is for effective utilization of grazing units existing in between the village. This has a significant contribution to the productivity of their livestock for enhancing their livelihood. The settlement surrounding the grazing unit is managed by grazing counsel ( Jarsa Dheeda). According to the grazing council, each settlement has its grazing head (matatikaa) and no settlement was allowed to settle in between to intervene in the system. But, the respondents highly stress that currently, this system is assembled into a rigid administrative unit called Kebele. Implicitly this means the task of controlling inappropriate settlement and grazing pattern which ought to be led by grazing counsel now given to young local level state officials who have little knowledge on how to handle it. The disturbance in natural resource management by bureaucratic kebele leaders affects the effective and efficient utilization of pasture resources. This consequence depleted the livestock production and later on interrupted the sustainable livelihood of pastoral households. Failure of such customary management resulted in an appropriate settlement in the center of the grazing unit. This affects the systematic utilization of pasture in the area. Consequently, competition for pasture by different settlements resulted from overgrazing and the disappearance of grass before the end of the dry period. As the situation continues, the outcome resulted in a severe livelihood problem.

**Effect of state policy on the livelihood:** The current régime had designed and implemented many development intervention policies. This pastoralist development strategy by the government is greatly oriented in sedentarization of pastoralists, developing a watershed in pastoralist areas, and construction of permanent water source in the previous seasonal grazing zone. The sedentarization policy mostly favored the expansion of farming. The settlement arrangement program embarked on by the current government was among a method of settling pastoralists. According to FGD, this intervention has resulted in negative consequence on their livelihood. It mainly controls mobility which is means of survival in such a harsh and fragile environment. The effect of a decline in mobility reduces the productivity of livestock. Then the defected livestock production inversely upset the sustainable livelihood of the community. The construction of a permanent water source is one of the development interventions in the Borana rangeland. The aim of this was to utilize the untouched part of Borena rangeland. Conversely, the construction of a permanent water source in such an area of rangeland adversely affects the sustainable livelihood of Borena as was affirmed by FGD. For instance, the construction of Dam in the Melbanaa, Bokkoola, and Ilaamu locations are highly affect the management system of resource in the nearby territory. At first, the existence of a dam in the area encourages permanent settlement. This then cut the seasonal mobility system, the system that society used in sustaining their livelihood in arid environments. The erosion in the mobility system in turn affects the productivity of their livestock negatively. At the present, Watershed development (Misooma suululaa) was highly undertaken in Borana. This had a lot of adverse effect on the livelihood of the pastoral household, as it was explained by FGD. For example, in the development of watersheds, productive people have highly participated. The work on the shed also had a long duration of

time. Therefore, this diverts the human capital (labor) of pastoral households mainly to work in the watershed development. Hence, many pastoralist activities which require adult labor such as taking cattle to dry-herd pasture (Foora), collecting water from singing well, fetching grass for calves from distance place, and watering cattle at long-distance water point is not easy to be engaged by child labor. The watershed development was a copy of development intervention from the highland.

The importance of watershed development for highlanders is not always important for lowlanders. This was because of environmental and socio-cultural differences between the inhabitants (population). According to FGD, in the implementation of such a project, the local people were not consulted. These adversely affect the sustainable livelihood of their people. For instance, most of the development interventions have lack pre-research and assessment, which is a re-implementation of similar projects of highlanders oriented to lowlanders as modeling from each other. This was highly threatening the sustainable livelihood of the Borana household.

## CONCLUSION

The study found that Borana pastoral livelihoods are under severe threats from recurrent droughts. Over the years, Borana has developed mechanisms to cope with these droughts. Unfortunately, these strategies are no longer adequate as the droughts have increased in frequency, severity, unpredictability, and magnitude. The study shows that the sustainable livelihood of Borana pastoralists is undermining by an expansion of bush in rangeland. Traditionally, Borana pastoralists have bush controlling mechanisms. These mechanisms are no longer in use as the restricting policies are put on effect by the government. This study identifies that shrinkage in resource base induced by border change is defectively affecting the sustainable livelihood of Borana pastoralists. The continuous irregular border demarcation between Oromia and Somali regional state that does not include the importance of rangeland resource and its product for sustainable livelihood of Borana pastoralist negatively affect their livelihood. The study also identifies the declining capacity of the customary institution; unconstructively affecting the sustainable livelihood of Borana pastoralists. This is because the authority of customary institutions for natural resource and settlement management is distorted to formal government institutions at the kebele/PA level. Lastly, the study found that current state policy is harmfully affecting the sustainable livelihood of Borana pastoralists. Particularly inappropriate development intervention that undermines local knowledge and the socio-cultural difference between agriculturist and pastoralist negatively affects the sustainable livelihood of Borana pastoralist.

## RECOMMENDATION

A comprehensive drought contingency plan must be developed to reduce susceptibility in the area and further strengthening the adaptive capacities of Borana pastoralists by strengthening early warning systems and make them user-friendly and useful by incorporating indigenous knowledge systems. Socio-economic incentives for public participation in bush control methods should be encouraged through Institutionalizing and Subsidization of labor-intensive bush clearing measures. Further, it is important to reutilize fire as a rangeland management mechanism. The border demarcation should take into consideration the importance of rangeland for pastoralist social-economical life. Thus, access to the previous Borana rangeland which was now demarcated to the Somali regional state should be restored. The weakened customary institutions, which match with the pastoralist way of life, should be enabled rather than rigid kebele administration. The development intervention should be based on pre-assessed and researched in terms of its social-economic compatibility with the pastoralist way of life before its implementation.

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