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ADDIS ABABA UNIVERSITY

COLLEGE OF DEVELOPMENT STUDIES

GENDER AND CLIMATE CHANGE ADAPTATION: AN ASSESSMENT OF THE DIFFERENCE IN EXPERIENCE AND ADAPTIVE CAPACITIES OF WOMEN AND MEN PASTORALISTS IN THE FIVE LOWLAND DISTRICTS OF BALE ZONE, OROMIA REGION.

A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY, CENTER FOR GENDER STUDIES, AS A PARTIAL FULFILLMENT OF THE REQUIREMENT OF A MASTER OF ARTS IN GENDER STUDIES.

By: Bezaye Negassa

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As members of the Examining Board of the final MA open defense, we certify that we have read and evaluated the Dissertation prepared by Bezaye Negassa Titled: **“GENDER AND CLIMATE CHANGE ADAPTATION: AN ASSESSMENT OF THE DIFFERENCE IN EXPERIENCE AND ADAPTIVE CAPACITIES OF WOMEN AND MEN PASTORALISTS IN THE FIVE LOWLAND DISTRICTS OF BALE ZONE, OROMIA REGION.”** and recommend that it be accepted as fulfilling the Dissertation requirement for the Degree of Gender studies.

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Declaration

I declare that this thesis is an original report of my research, has been written by me and has not been submitted for any previous degree. Due references have been provided on all supporting literatures and resources.

Name: Bezaye Negassa

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Date: _____

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Acronyms

FCCC	Framework Convention on Climate Change
FGD	Focus Group Discussion
HHs	Households
IFRI	International Forest Resource and Institution
IPCC	Intergovernmental Panel on Climate Change
KIIs	Key Informants Interview
SNNPR	Southern Nation Nationalities and Peoples Region
SPSS	Statistical Package for the Social Science
UNDP	United Nation Development Programme

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Abstract

This thesis examines the gender implications of climate change adaptation. The main objective is to understand the difference in gendered climate change perception, experience, adaptation measures, and capacities of women and men agro-pastoralists of the five Lowland Districts of Bale Zone, Ethiopia. A community-based descriptive cross-sectional study was conducted from June, 1-30, 2022. A mixed study with a quantitative household survey and an exploratory qualitative study was employed to explore the complex phenomenon and enhance triangulation. Thus, the study employed household surveys, focus group discussions, key informant interviews, and field observations. The household survey covered 170 randomly selected households. In addition, 10 Focus Group Discussions (FGDs) with 8 members each, and 15 Key Informants (KIIs) participated in the qualitative study.

In this study, 99.4% of agro-pastoralists perceived climate change in terms of reduced rainfall amount, increased temperature, drying of water sources, barren agricultural lands, short rainy season, and prolonged drought. A high rate of deforestation, fast population growth, and increased depletion of natural resources were the major factors highlighted by 78.2% of the participants as a cause of climate change. The study participants identified massive cattle deaths (40.6%), reduced crop yield, diminished animal products (40.0%), household food insecurity (10.0%), reduced crop yield (6.5%), and de-flocking of livestock (2.9%) as the consequence of climate change induced recurrent drought. Further analysis of gender and the effects of climate change revealed that in the study area, women are required to travel long hours since climate change affected resources critical for basic needs like water and firewood. In addition, the fact that women's routine and time-taking roles restricted participation in social and economic activities. Moreover, the effect of climate change shifted the traditional role boundaries of women and men agro-pastoralists. This worsened women workload despite its positive implication on changed attitude for equal distribution of labor at household level.

Despite women's contribution to agro-pastoral activities, they did not enjoy equal rights to access, control over, and decide on key agro-pastoralist resources and household income. These increased their financial dependency, which may hinder their adaptive capacity to climate change effects. Furthermore, the climate change effect is exacerbating harmful traditional practices such as early and forced marriage to secure bride prices to subsidize the rest of the family. In addition, women and girls were exposed to safety and security risks as they traveled a long distance to collect water and firewood.

This study also indicated that adaptation mechanisms employed by women and men agro-pastoralists vary. Men often actively engage in seasonal mobility and livestock diversification whereas women take on petty trade including selling charcoal, firewood, and animal products to better adapt to climate change. In this study, 52.9% and 60% of the participants witnessed that support from government and non-government institutions did not consider local coping strategies and the different or unique needs of women and men respectively. Thus, climate change adaptation measures and institutional (government and non-government) efforts should be based on the critical analysis and understanding of the intersection between climate change effects and the gender dynamics determining the experience, adaptation measures, and capacities of women and men agro-pastoralists to come up with a holistic approach for climate change adaptation.

CHAPTER ONE: INTRODUCTION

1.1. Background

Climate change is one of the most urgent and complex threats to earth's existing life and biodiversity. It refers to the development and build-up of greenhouse gasses in the earth's atmosphere causing significant and persistent change in the mean state of the climate system resulting climate variability and weather instability, melting of polar ice caps, a rise in sea and air temperature, and an increase in extreme weather events like storms, cyclones and droughts (Alston, 2014).

Undoubtedly, climate change threatens everyone and all regions and countries. However, in the context of magnitude and vulnerability therein, differences emerge along regions, gender, status, age, and location, among others. Scientific research within the field of climate change predominantly focuses on how people living in the Global South contribute the least to greenhouse gas emissions (Van Aalst, 2006) but they are most vulnerable to climate change and its consequences.

Africa is the continent with biophysical and socio-economic environments most vulnerable to the impact of climate change and weather extremes. Notably, extreme climate events such as droughts, floods and cyclones are devastating the economic, social and environmental systems of the continent because its economies relies on climate dependent sectors such as agriculture and its capacities to cope and adapt are generally limited (UNDP, 2016). Africa's average annual temperature rises by 0.7 degrees and is likely to rise an additional 3-4 degrees by 2099 (World Bank, 2013). According to the Intergovernmental Panel on Climate Change, by 2020 75 - 250 million people across sub-Saharan African could face critical water shortage, and rain-fed agriculture could contract by 50% in some African countries (IPCC, 2013).

The horn of Africa countries are most vulnerable but least prepared for the adverse global environmental change in the world because of their weak economy, climate-sensitive livelihoods, and fragile agro-ecological conditions. Severe drought continued to affect the lives of millions of people in the horn countries s such as Ethiopia, Somalia, Rwanda, Uganda and Kenya. In 2022, recurrent drought and famine have killed 2,500 people in Uganda, affected eight million people in

Ethiopia, an estimated 3.6 million livestock have died in Kenya and Ethiopia and over a million people have been displaced in Somalia and southern Ethiopia (UN OCHA, 2022)

Ethiopia is one of the most vulnerable countries to climate change. This is because the country is prone to droughts and floods and 85% of Ethiopians depend on rain-fed agriculture and pastoralism for their livelihoods. In July 2021, 5.9 million people faced acute food need, nearly half a million Ethiopians were displaced due to drought and seasonal flooding (WFP, 2021). In 2022, over 24 million people were suffering from the impacts of severe drought in Ethiopia, 11.8 million people were in need of emergency food assistance, 4.5 million livestock were dead, and estimated 705,000 children are severely malnourished due to five consecutive failed rainy seasons.

Ethiopia has low economic development, faster population growth, weak institutional structure and climate-sensitive livelihoods. Together with higher rate of deforestation, poor water resource management, poor range land management, high burden of diseases, and poor road infrastructure to drought-prone areas resulted in frequent outbursts of recurrent and persistent drought and other climate-induced shocks including flooding (World Bank, 2013).

An increasing body of research has shown that the level of impacts and coping strategies of populations depends heavily on their socioeconomic status, sociocultural norms, access to resources, poverty as well as gender. The climate-induced effects are not gender neutral, as women and children are among the highest-risk groups. The differences between women's and men's vulnerability to climate change stem from gender-based differences in time use; access to assets and credit, poor treatment by formal institutions limiting women's opportunities, access to policy discussion, and decision making, and lack of sex-disaggregated data for policy change (Karoline, 2016).

Consequently, the available studies on climate change adaptation have highlighted the need for studies that will link information and evidence of the underlying determinants of gender inequality to better understand the factors that undermine efforts in coming up with gender-responsive and transformative adaptation strategies. More so, the few available studies were based solely on quantitative analysis of household surveys without any qualitative component. The implication is that since most of the underlying determinants of gender relations cannot be quantified, the results will lack the deep and contextual information needed for the appropriate climate change adaptation

interventions. This perhaps explains why studies on the gender dimensions of climate change adaptation have not been able to sufficiently identify and address the gender relations issues impeding climate change adaptation efforts (UNDP, 2011).

Understanding the impacts of and vulnerabilities to climate change, including social relations and power structures, is important for determining which types of adaptation strategies could be useful for specific cases and particular contexts. Moreover, gender plays a key role for localized responses because men and women perceive climate change differently, climate change induced effects differently affect them and employ different adaptation measures to overcome the effects of climate change (Van Aalst, 2006).

1.2. Statement of the problem

Pastoral areas in Ethiopia cover two thirds of the landmass of the country and support 12-15% (or 10- 12 million people) of the country's human population and a large number of livestock. These areas, which are commonly called as rangelands, are located in the arid and semi-arid lowland areas in Afar, Oromia, Somali, and the Southern Nations, Nationalities, and People's (SNNP) regional states. The main livelihoods of pastoralists include pastoralism, farming, and petty income-earning activities (Vision Forum, 2022).

The sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), published in 2022, clearly indicated that the Earth's climate is changing, largely because of human activity. The earth's temperature is rising and is becoming warmest in the last eight decades. Rainfall patterns are changing. Both floods and droughts are becoming more frequent, and more severe. The impacts will be felt worldwide, but nowhere more acutely than in the world's drylands. Drylands will face not only higher temperatures but also more importantly, disruptions to their hydrological cycles resulting in lower and more erratic rainfall, exacerbating already critical levels of water scarcity and fanning conflicts over water allocation (IPCC, 2022).

Pastoralists and agro-pastoralists are one of the most climate-change-vulnerable groups on the planet. Increased climate variability could decrease herd sizes as a result of increased mortality and poorer reproductive performance of the animals. This decrease in animal numbers would affect food security and would compromise the sole dependence of pastoralists on livestock and their products, as well as the additional benefits they confer. Climate change will have substantial

impacts on environmental security as well as the conflicts over livestock assets often observed in these regions are likely to escalate in the future as a result of changes in environmental conditions (Mario et al., 2016).

Climate change can result in irreparable damage to arable land, water, and biodiversity resources, with serious consequences on food production and food security, especially in most vulnerable pastoral communities that are largely dependent on livestock for their livelihood. The negative impacts of climate change include reducing the size of grazing land, and increasing competition over forage results in conflicts, loss of livelihood productivity, and household food insecurity. These factors have detrimental effects that reduce pastoralism's contribution to household income and oblige pastoralists to transition to other types of more diversified production systems to maintain livestock productivity (Keane et al., 2008).

Women experience poverty and deprivation in different ways from men and can be differentially affected by shocks. There are many disparities in men's and women's access to and control over key assets (Goh AHX, 2012). Climate shock increases the burden of work on women so that women work hard and longer in order to compensate for the resource scarcity caused by climate change (Berita, 2021) and they are confined to routine household activities which in turn restricted women's engagement in income generating activities (Lwando, 2013).

Within the broader issue of climate change, the current discourse seeks to prioritize adaptation measures in tackling the adverse effects of global warming rather than relying only on mitigation efforts. Climate change adaptation is also gendered, as women have less power to influence decisions on how to cope with and mitigate the effects of extreme weather, have fewer resources and capacity to build their own climate resilience, and are impacted differently than men even when they pursue similar adaptation strategies (Karoline, 2016).

Recognizing women's marginalization in terms of access to equal rights, opportunities, resources and assets; contributing to their vulnerability to shocks including climate related shocks, there is a considerable improvement and attention towards gender and climate change discourses. However, the growing publications on the subject matter are characterized by the dominant narrative of women as inherently vulnerable and tends to ignore the context-specific aspect of the gender and climate change adaptation linkage. Such framings become problematic as they inform and direct

adaptation strategies and interventions to include uncritical gender-sensitive language and methods without having the understanding of context-specific underlying factors and gender power imbalances. Understanding gender differentiated vulnerability to climate change and gender implication of dominant climate change adaptation strategies is critical to inform a gender responsive community-based climate change adaptation strategies and initiatives that support vulnerable communities shift from short term coping mechanisms to resilience Goh AHX, 2012).

In Ethiopia, yet, gender equality indicators are lowest despite improvements in promoting gender equality in the recent decades. Women, especially in rural areas, are still struggling to access resources without the mediation of men. These differences in access to resources and participation are essential to understand gender differences in vulnerability to climate change and capacity to adapt (UN Women, 2013).

Studies conducted on gender and climate change effects, and adaptation measures in the horn of Africa indicated the interlinkage between gender and climate change adaptation. For instance, Assefa 2016 in her study showed that the choice of adaptation measures at the household level are driven by cultural, social, financial and institutional barriers. Similarly, Henry 2014 highlighted that cultural practices, patterns of land use and natural resource use and access are factors contributing to poverty, marginalization, and the disproportionate effect of climate change. Climate change causes women and men to spend more time and labor in agricultural production because of increased crop vulnerability to weeds, pests, and water stress. Notably, women are especially affected by increased workload, as they had to find food for their families (Nelson et al., 2010), women exerted more physical labor to collect water due to drought induced shortage of water (Ashebir, 2010). During climate crisis, women are more hard-pressed to provide meals for their families results in reduction of meal intake and increased risk of malnutrition (Serna, 2011).

Even though so many studies has been conducted on the gender and climate change adaptation nexus in the horn of Africa, little has been explored in Ethiopia particularly among agropastoralists in the study areas. Moreover, some of the studies conducted so far on this particular topic were based on quantitative analysis of household surveys without any qualitative component missing a deep and contextual information needed for the appropriate climate change adaptation interventions.

Thus, this thesis was aimed to explore the difference in experiences, adaptation measures and capacities of women and men agro-pastoralists, and the gender implication of dominant climate change adaptation strategies among five lowland districts of Bale Zone, Ethiopia.

1.3. Objective of the study

1.3.1. General objective

To examine a context-specific analysis on the gender implications of climate change adaptation by assessing the difference in experiences and adaptive capacities of women and men pastoralists of East Bale lowland.

1.3.2. Specific objectives

- Explore the experiences of women and men agro-pastoralists due to climate change variability and change.
- Assess the adaptation strategies/measures of women and men pastoralists.
- Examine the gender implications of the dominant climate change adaptation strategies and initiatives

The research therefore aims to answer the following research questions:

1. Is there a difference in experiences of women and men agro-pastoralists due to climate change?
2. Is there a variation in adaptive capacities and coping mechanisms of women and men pastoralists?
3. What are the gender implications of the dominant climate change adaptation strategies and initiatives among pastoralist communities?

1.4. Scope of the study

The study covered only a few lowland districts of the Zone and only a few variables were used to explore the existing gender dynamics, particularly in the area of climate change impact, adaptation measures, and differential experience of men and women pastoralists in relation to climate change and the existing adaptation strategies.

1.5. Limitations of the study

The investigation is based on self-reported data elicited through interviews and group discussions, which could be subject to recall bias. The cross-sectional nature of the study design limits an interpretation of the clear causal relationship between gender dynamics and the impact of climate change and adaptation measures. The border conflict between Oromia and Somali regions made few kebeles accessible to collect data as scheduled. Therefore, we managed to change kebele with no security concerns and rescheduled data collection period.

1.6. Structure of the thesis

The study is organized into six chapters. The first chapter provides background, problem statement, and the significance of the study, research objectives and questions, scope of the study, limitation and structure of the study. The second chapter presents a review of the relevant literature on themes of climate change, impact of climate change and coping strategies, gender implication of climate change coping strategies and the conceptual framework with description of each variable and their relationship with the dependent variable. The third chapter is about the methods and materials and introduces the study area and period, design, study population, sample size determination and sampling technique, data collection tools and procedure, data entry and analysis, data quality assurance, ethical considerations, findings and the dissemination plan.

The fourth chapter presents the results. It presents the results in six subtitles and covers the respondent's socio-demographic characteristics, gender differentiated impact of climate change on gender dynamics (gender relation, roles and responsibilities, access to and control over resources, patterns of decision making), respondent's perception climate change, impact of climate change on pastoralist livelihoods and adaptation measures.

The fifth chapter was a discussion of the results of the study and the sixth chapter was a conclusion of the major findings in a way to address research questions and objectives respectively and recommendation.

CHAPTER TWO: LITERATURE REVIEW

2.1. Overview of climate change

The negative impacts of climate change are becoming increasingly evident today including long-term changes in average temperature and rainfall; changes in the intensity, timing, and geographic distribution of rainfall; an increase in the frequency of extreme events such as drought and flood; and sea level rise. This is bringing a detrimental effect on agricultural productivity, biodiversity and ecosystem services (Verner, 2011).

2.2. Impact of climate change and coping strategies

A study conducted in pastoralist communities living in southern Kenya showed that the communities have a low perception of the causes of climate change and do not attribute adverse climatic conditions to overutilization of natural resources, human destruction of forests, and greenhouse gasses. Climate change affected most of their livelihood including nomadism (livestock breeding system resulting in livestock depletion), food situation, cultural practices (ceremonial cycles), land use patterns (pasture management), and natural resource use and access (salt lick and water points). Continued climate-induced drought in the areas increased poverty, marginalization, and dependence on aid. In order to challenge climate change and seasonal variability, the community adapted several coping strategies to ensure survival. This includes trans-human nomadism, traditional range management practices, maintaining the local strain of livestock which can survive prolonged dry conditions, village-based micro-enterprises, livestock marketing, subsistence agriculture, engaging in formal employment and manual labor, de-flocking and keeping a manageable number of herds to availability of pastures and water and selling artifacts to tourists to boost household economies (Henri, 2014).

According to the study conducted in Tanzania, most pastoralists perceived the worsening trends of climate in their district and they agreed that there has been an increase in temperature and unpredictable rainfall. Decreased pasture resources directly associated with climate stress led to milk reduction that directly affected pastoralists' livelihoods. If innovative and adaptive measures are not taken, climate variations will continue to stress pastoral communities to the highest and they are likely to suffer the consequences more than other land users in the country (IPCC, 2017).

A study conducted in Borena Ethiopia on climate change among pastoralists' livelihoods showed that feed shortage, water shortage, reduced productivity, decreased mature weight, and/or longer time to reach mature weight were among the four major effects of climate change on livestock production. The study also revealed that goats and camels are less affected by climate change whereas cattle and sheep are more susceptible to climate-induced effects. Extended search for better pastures in more distant and less affected locations, conservation of feed, out-migration of some household members to earn additional income, destocking, clearance of undesirable plants to make use of the grazing lands, intensification of livestock production, and undertaking supplementary. Additionally, income-generating activities such as petty trade of charcoal production, kiosks, and migration to nearby urban areas in search of paid work) are among the historical coping strategies employed by the pastoralists to minimize the climate change-induced effects (Zelalem et al., 2009).

Another study conducted in Borena on the perception of climate change and its impact by smallholders in pastoral and pastoral systems indicated that most of the study participants perceived climatic change and its negative impact on agriculture and considered climate change as a striking risk to their future livelihoods and economic development. A study revealed that age, education level, livestock holding, access to climate information, and extension services significantly contributed to their perception of climate change, its impacts, and adaptation processes (Debela et al., 2015).

2.3. Gender implication of climate change coping strategies

The rural poor, especially women, experience poverty and deprivation in different ways from men and can be differentially affected by shocks (IPCC, 2017). Women usually have fewer assets and rights than men, and are more vulnerable to loss of these assets and rights. A long-term change in average climate conditions, changes in climate variability patterns, or extreme weather events such as droughts, floods, or hurricanes may affect men and women differently in terms of their assets and adaptation decisions or strategies (IFRI, 2011).

Another study conducted in Kenya highlighted that men were more affected in the sphere of remunerated work, while most women were affected primarily in the 'sphere of the home', affecting their ability to feed their families. Reduction of meal intake by individuals especially amongst women, thus increasing their risk of health problems as well as that of children and

lactating mothers. During times of climate stress, women in particular are more hard-pressed to provide meals for their families since they are primarily responsible for household food security and men turn to other means of earning income by collecting and selling bush products like gum and resin or by cutting trees for firewood and charcoal. The hard manual work results in weakness because of low quantities of food intake in the pursuit of alternative livelihood options (Serna, 2011).

A study conducted in Niger highlighted that women's ownership of livestock during times of drought varies. Some women's control over livestock assets increased during repeated droughts because they were able to invoke a cultural norm that made men responsible for household food security and as a result, men had to sell their livestock before women. Nevertheless, others were at risk of losing access to natural capital in the form of rangelands for livestock grazing (Kristjanson et al., 2010).

Results of the study done in Tanzania revealed that increased climate variability causes women and men to spend more time and labor (human capital) in agricultural production, but women are especially affected. Change of cropping practices towards more drought-tolerant crops, with mixed outcomes for women's and men's labor and income. Both women and men spent more time planting and diversifying their crops, but women's workload increased, as they had to find food for their families despite the fact that they do not benefit from the profits. The shift in cropping practices entailed costs and risks because these varieties were more vulnerable to weeds, pests, and water stress, and less productive than longer duration varieties. In the meantime, women and men earned income from different types of crops, but weeding work increased for women in some instances (Nelson et al., 2010).

A study conducted in Ethiopia depicted that women were perceived to be more severely affected than men due to water collection burden, time spent increased, and more physical labor exerted due to drought-induced shortage of water and food insecurity. Moreover, climate-induced decrease in agricultural production causes increased deforestation for income generation in communities and women have to travel further in search for fuel wood (Asheber, 2010).

The findings of study conducted in Raya Azebo and Kobo districts suggested that cultural, social, financial and institutional barriers drive gender-based differences in the choice of adaptation measures at the household level. On-farm adaptation measures, such as mobility, cropping time

adjustment, crop diversification, planting cash crops, soil conservation, storage of grains, social networking (borrowing money and grains), and sending our children to relatives were reported as important adaptation measures, especially by male household heads. Moreover, the gendered role has a paramount effect on adaptation strategies for example, extension services include training, technical support on farmland management, and the provision of farming inputs and livestock health services related to on-farm adaptation. However, since agriculture extension workers often contact male farmers, the majority of women do not link extension services with their adaptation measures. Training for women focuses on their reproductive and community roles (child nutrition, sanitation and hygiene, family planning and compost and biogas), not on developing their farming skill, which reinforces local gendered norms and the division of labor (Assefa et al., 2016).

2.4. Conceptual Framework

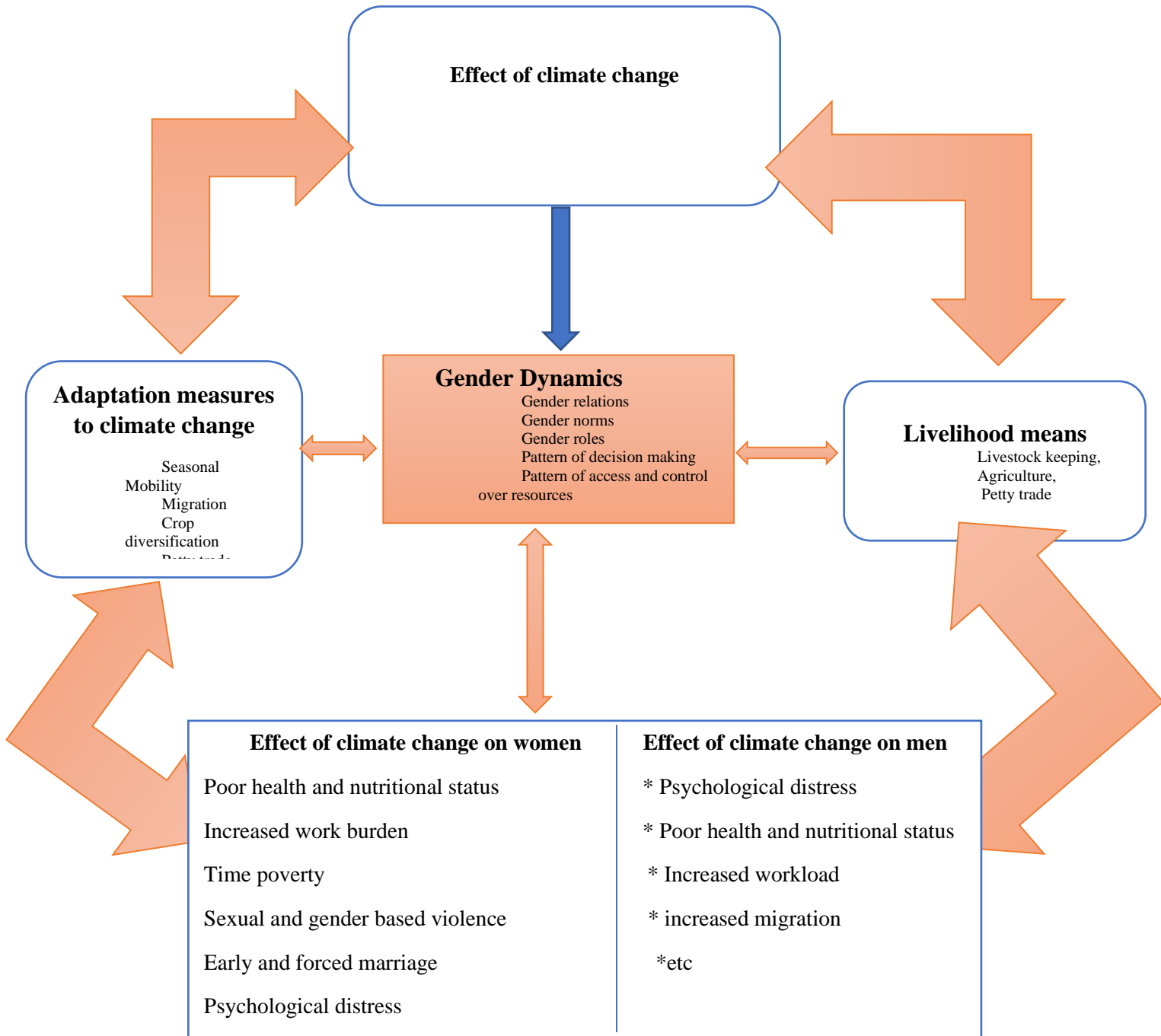


Figure 1: A conceptual framework of gender differentiated effects of climate change and adaptation strategies by pastoralists in the East Bale Zone (adapted and modified from N.S. Sangotegbe et al: (2014))

Description of Conceptual Framework

Figure 1 above presents the conceptual framework that shows the intricate linkage of gender, climate change, and adaptive capacity and/or measures. Studies conducted in pastoralist and agro-pastoralist communities indicated that, climate change resulted unpredictable rainfall pattern and temperature which is manifested by decreasing trend in annual and seasonal rainfall, increase flooding, increase hotness of the environment and prolonged cold season causing adverse impacts on crop and livestock production (Abraham, & Mekuy, 2022). Studies have also indicated that climate change has impacted agro-pastoralists means of livelihood by increasing death of livestock, loss of crop, livestock diseases/pests, severe and sudden dryness of pasture/grasses, and dryness of water pounds (Godson-Ibeji. et al., 2022).

The conceptual framework shows, while climate change affects everyone, it does not affect everyone similarly and equally. Women's and men's roles, access to and control over resources, pattern of decision-making and social norms defining gender relation determine the climate change effects and experiences of women and men agro-pastoralists (Nuhu and Matsui, 2022). Several academic literature has shown that men and women are differently affected by climate change. Climate impacts are affecting the roles of women and men. For example, many men are migrating from rural to urban areas to find employment, leaving women behind in charge of land and the household but not necessarily with the respective legal rights or social authority to do so. Additionally, the fact that women are overrepresented amongst the world's poorest people, makes them the worst affected by climate change, reducing their possibilities to protect themselves and their families against the negative consequences of climate change (Anne Bonewit, Rosamund Shreeves, 2015).

Moreover, Social and cultural norms influence women's vulnerability to climate change due to the gendered division of labor, mobility restriction, roles in the household and participation in political and economic decision making (Un Women, 2022). For instance, climate change effects disproportionately affect women and girls and their ability to perform their everyday tasks since tasks of collecting firewood and water, which traditionally fall to women and girls, are heavily affected by adverse climate change impacts, which force women and girls to travel further from their homes to complete the tasks and provide for their families. In turn, the longer journeys increase their workload, increase their exposure to gender-based violence and decrease their physical/mental health. Furthermore, Country reports on gender dimension of climate change

impact has indicated that Child marriage, which is considered an act of gender-based violence, has been observed as a means of coping in the event of disaster experienced due to climate-change (Anne Bonewit, Rosamund Shreeves, 2015) .

The framework also shows the gender dynamics has an effect on the livelihood means of women and men agro-pastoralists and vice versa. Climate change can potentially widen existing gender gaps mainly due to women's limited access, control, and ownership over resources, participation in decision making, and freedom of choice that are determined by the overarching gender dynamics. Exposure to climate change can affect the resources that are most important for livelihood security and household's subsistence of agro-pastoralist communities. In this regard, the conceptual framework indicated that means of livelihood whether it's farming, livestock rearing, or petty trade, work generally has a gender dimension, and this influences the effect of climate change on women and men agro-pastoralists, as well as their adaptive capacity and/or measure. At the same time a changing climate can require women and men to take on different roles and responsibilities; and adaptation interventions can do the same. Coping strategies that used to help communities manage an already unpredictable climate can create Changes in livelihoods and create new spaces for women and men to engage differently, which in turn shifts the gender dynamics (Care, 2022).

In this conceptual framework, climate change and locally customized adaptation measures have an enormous effect on women's physical, social and psychological health and wellbeing. Several studies have shown that women's contribution to the household increases during drought times. During drought, women engage in multiple livelihood activities, which includes traveling longer to fetch water, and increased burden of productive and reproductive chores. Women also seek alternative livelihood means (selling firewood and charcoal) which finally result in poor health, lower nutritional status and decline in resistance to diseases (Asheber, 2010). It also further expose women to sexual harassment, increased psychological distress and time poverty to engage in social aspects of living.

The existing gender dynamics has an influence on the predominantly implemented adaptation measures and the adaptive capacity of women and men agro pastoralists. In the meantime, adaptation measures either positively or negatively influence gender dynamics. To minimize the climate change induced effect, pastoralist communities employ historical adaptation strategies

including extended seasonal mobility for better pasture in more distant and less affected locations, breeding more drought resistant species of goats and camels, undertaking supplementary income-generating activities such as petty trade of charcoal and firewood, destocking, and migration to nearby urban areas for labor work. On the other hand, the predominantly implemented adaptation strategies further exacerbates the climate change induced effects. Example production of charcoal and firewood causes deforestation and increases carbon release which in turns contribute to increased atmospheric temperature and diminished ground water sources. Furthermore, seasonal mobility intensifies psychological distress due to separation of family and increased risk of sexual harassment and violence (Zelalem Y. et al, 2009).

CHAPTER THREE: METHOD AND MATERIALS

3.1. Study area and period

This survey was conducted from June 1-30/2022 at five Woredas of Bale Zone namely; Sewena, Lega Hida, Rayitu, Dawe kachen and Gura Damole Districts. In these Districts, there are 316,368 populations with 66,954 households. East Bale Zone is located in the Southeast Oromia region and is administratively divided into seven districts and one town administration. Its administrative centre is Ginnir which is 140KM far from Robe and 570KM far from Addis Ababa. The total population of the Zone is approximately 1.2 million. Out of seven districts, five are lowland districts with 80% pastoralist and 20% agro-pastoralist communities. The districts receive bimodal type of rainfall pattern i.e. long rainy Belg and short Meher seasons.

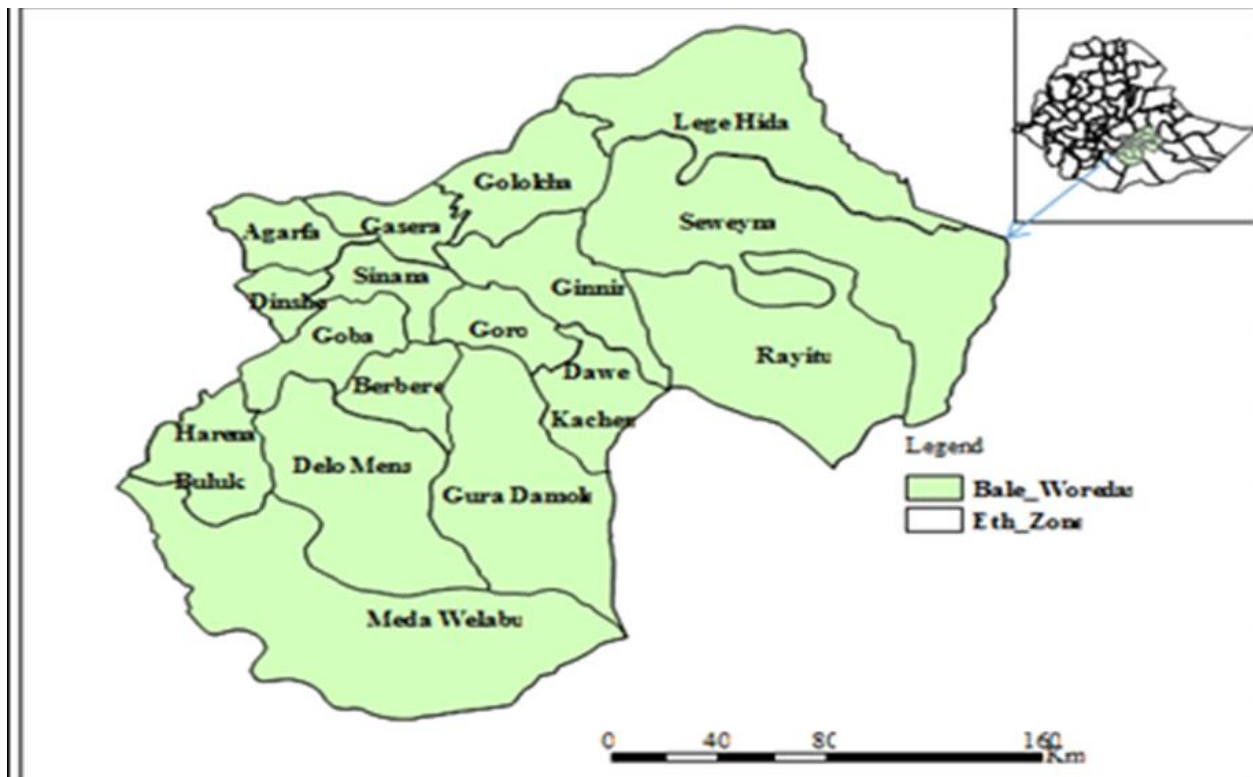


Figure 1: Administrative Map of East and Bale Zone, Oromia Region, January 2023

3.2. Study design

A cross-sectional study was employed for quantitative survey and an exploratory qualitative study design was used for triangulation with quantitative findings.

3.3. Description of the study population

A total of 66,954 households in the selected districts were the source population. Hundred seventy HHs randomly selected were the study population for quantitative surveys. In the selected households, women from one household was interviewed followed by men from the subsequent household to balance gender. For qualitative study, 95 respondents (men and women) were involved; 80 members in 10 group discussions and 15 key informants at five districts of Bale zone.

3.4. Sample size determination and sampling procedure

3.4.1. Sample size determination

For the household survey, sample households were selected from five lowland districts of Bale zone to participate in the study. Sample size was calculated using the single population proportion formula (Cochran's formula) by using proportion of perception of climate change (p) = 50% because there was no evidence on the topic so far, assuming 95% level of confidence and 5% margin of error.

$$N = \frac{(z\alpha)^2 pq}{d^2}$$

Where:

N = is the expected sample size

Z = 1.96,

P = Perception of climate change and climate change adaptation strategies = 50% (0.5)

Q = 1 – p which is = 0.5

d = margin of error (5%) = 0.05 So, $(1.96)^2 \times 0.5 \times (1-0.5) / (0.05)^2 = 384$;

The following sample adjustment formula is again used to determine the final sample size desired. Because the target population is widely scattered and time-consuming:

$$Nf = \frac{ni}{1 + \frac{ni}{N}} = \frac{384}{1 + 384/300} = 170$$

Where: Nf = desired final sample size, ni = The calculated assuming the sample size and N=the size of the target population (300)

3.4.2. Sampling procedure

Quantitative study: There are 316,368 populations with estimated average 65,910 HHs at five selected woredas of Bale Zone. First, Bale zone is stratified to five Woredas based on scope of the response. However, the population of each woreda was geographically diverse. Therefore, simple random sampling within each region or stratum would have been impractical and expensive. To concentrate resources in fewer places, a single stage cluster sampling process was performed within each stratum. A random sample of clusters from the population is obtained and all members of the selected clusters are included in the resulting sample. Then numbers of study HHs for each stratum were allocated proportionally and 170 samples were selected by stratified cluster sampling technique.

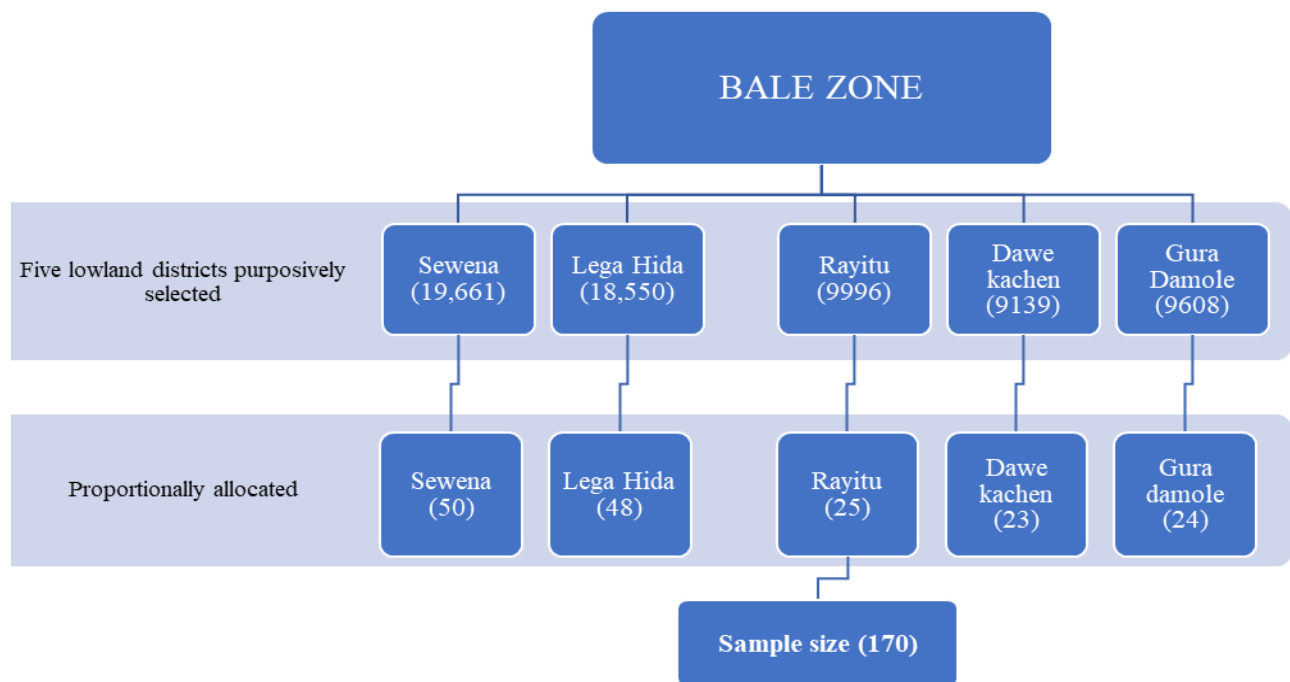


Figure 2: Schematic description of Sampling techniques, Bale Zone, June 2022

For the qualitative study: 80 respondents were involved through 10 FGDs involving eight participants each along with 15 KII participants at five districts covered by the study.

Table 1: Distribution of study participants in qualitative and quantitative survey, June 2022

District/ Woreda	FGD	No. of participants	KII	No. of participants

Sewena	Female FGD Male FGD	16	§ From government structures § From district Level Women Affair office From non-government actors /NGO & private sector)	§ 2 (1 F & 1 M) § 1(F)
Lega Hida	Female FGD Male FGD	16	§ From government structures § From district Level Women Affair office From non-government actors /NGO & private sector)	§ 2 (1 F & 1 M) § 1(F)
Rayitu	Female FGD Male FGD	16	§ From government structures § From district Level Women Affair office From non-government actors /NGO & private sector)	§ 2 (1 F & 1M) § 1(F) § 1(M)
Dawe kachen	Female FGD Male FGD	16	§ From government structures § From district Level Women Affair office From non-government actors /NGO & private sector)	§ 2 (1 F & 1 M)
Gura Damole	Female FGD Male FGD	16	§ From government structures § From district Level Women Affair office From non-government actors /NGO & private sector)	§ 2 (1 F & 1 M) § 1(F) § 1(M)

3.5. Data collection tools and procedures

3.5.1. Data collection tool

For quantitative household survey: data was collected using a semi-structured interview guided questionnaire on different aspects of climate change related to gender dynamics, experience, adaptation measures and capacities of women and men agro-pastoralists in the study areas.

For qualitative assessment: the primary qualitative information was collected using the Focus Group Discussion (FGD) guide and KII questions on the gender-related division of labor, patterns of decision-making, access to and control over resources, perception of climate change and its impact, and major adaptation strategies at household, community, and institutional levels. Additionally, observation checklist was used during transect walk to look for environmental condition, water sources and livestock physical condition.

3.5.2. Data collection procedure

The quantitative survey questionnaire was adopted from published literature and modified into a local context. The questionnaire was developed in the English version and translated into the local

language (Afan Oromo) and it has five sections. The first section was socio-demographic characteristics of participants, the second section was gender roles and responsibilities, third section was gender relation, access to resource and decision making pattern, fourth section was a perception of climate change and its impacts and the fifth section was climate change adaptation measures of the study participants. An FGD and KII guides were adopted from previous studies and contextualized in a way that fits for purpose. Experienced data collectors were recruited and one day training was provided on basic gender concepts, the data collection instruments and interview technique. Six (three-female) data collectors were deployed and collected data. The principal investigator was engaged in qualitative data collection and monitored the entire data collection process.

3.6. Data entry and analysis

After data collection, each questionnaire was checked for completeness, edited and was analyzed by using SPSS version 20 statistical software. Summary tables, figures, and charts were used for describing data. The result of the study was analyzed by using descriptive statistics such as frequency distribution and percentage. On the other hand, qualitative data obtained by FGDs and KIIs was transcribed into a word-by-word written record from field-based notes using the standard rules of transcription. The responses were coded across different categories of respondents and groups to grasp the main issues, the transcripts were closely read and coded to identify the passages that are related and relevant to the specific objectives of the study. The main themes were identified and the categories were brought together and rearranged under those major themes that can describe the topic being studied.

3.7. Data quality assurance

Quality of data ensured by selection of experienced enumerators provided training to enhance understanding of enumerators on questionnaire, supervision and coordination of data collection process. Furthermore, every day after data collection, questionnaires were reviewed and checked for completeness by the supervisors, each questionnaire was checked for completeness and was correctly entered into the computer SPSS software version 20.

3.8. Ethical consideration

Ethical clearance was secured from Addis Ababa University, Faculty of Development Studies and permission was obtained from the respective District's administration offices to access the sampled kebeles. Verbal informed consent was obtained from each respondent who were unable to read and write after explaining the purpose of the study. Written consent form was also used to obtain consent from participants who were able to read and write. Participants were assured that participation was voluntary. Participants were also informed of the possibility of opting out at any time if they felt like doing so. The information they provided was kept completely anonymous and confidential. For confidentiality, the name of the participants was not typed on the questionnaire.

3.9. Dissemination of findings

The findings of this study will be submitted to Addis Ababa University, Faculty of Development studies and will be accessible for all who want to use it. Furthermore, the manuscript will be prepared and efforts will be made to publish this thesis in national and international journals.

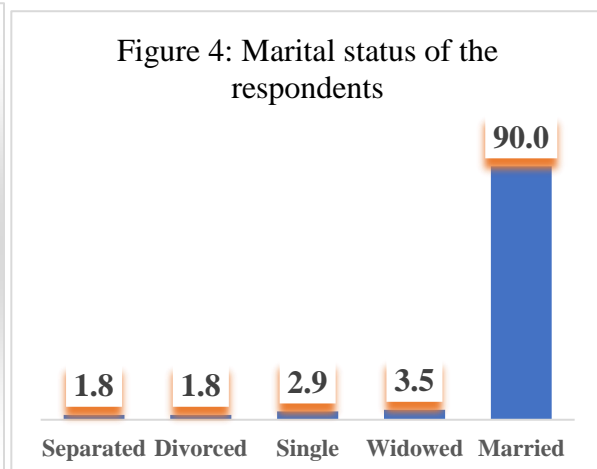
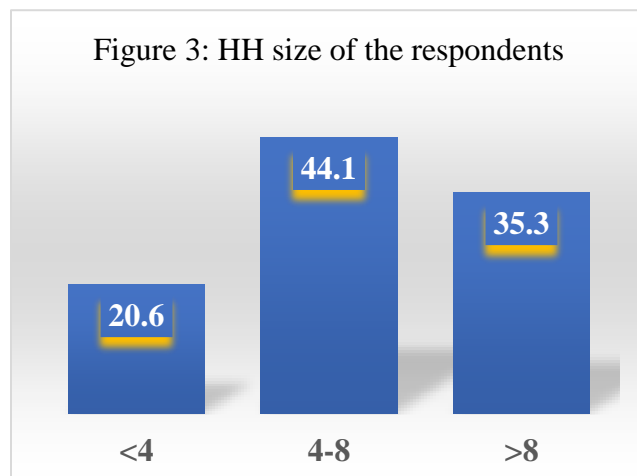
CHAPTER FOUR: RESULTS

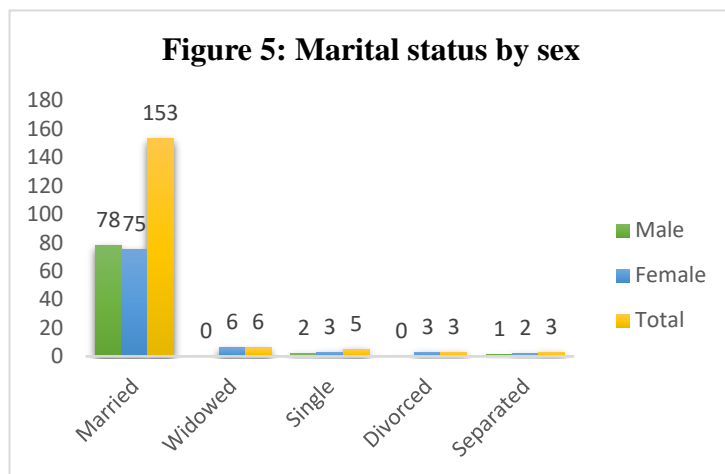
4.1. Introduction

In this thesis, a household survey was conducted to extract information about the experience of women and men agro pastoralists due to effects of climate change in relation to gender dynamics that include gender relations, division of labor, decision-making pattern, and access to and control over key agro pastoralist resources. Moreover, the study was also focused on the perception about climate change and its impacts on social, economic, and political aspects of the community, local climate change adaptation measures, and the effects of the already implemented adaptation strategies on different groups of the community. The qualitative data was gathered by FGDs and KIIs with men and women to explore their lived experiences related to gender dynamics and climate-induced impacts and to further substantiate the quantitative findings.

4.2. Sociodemographic characteristics of the respondents

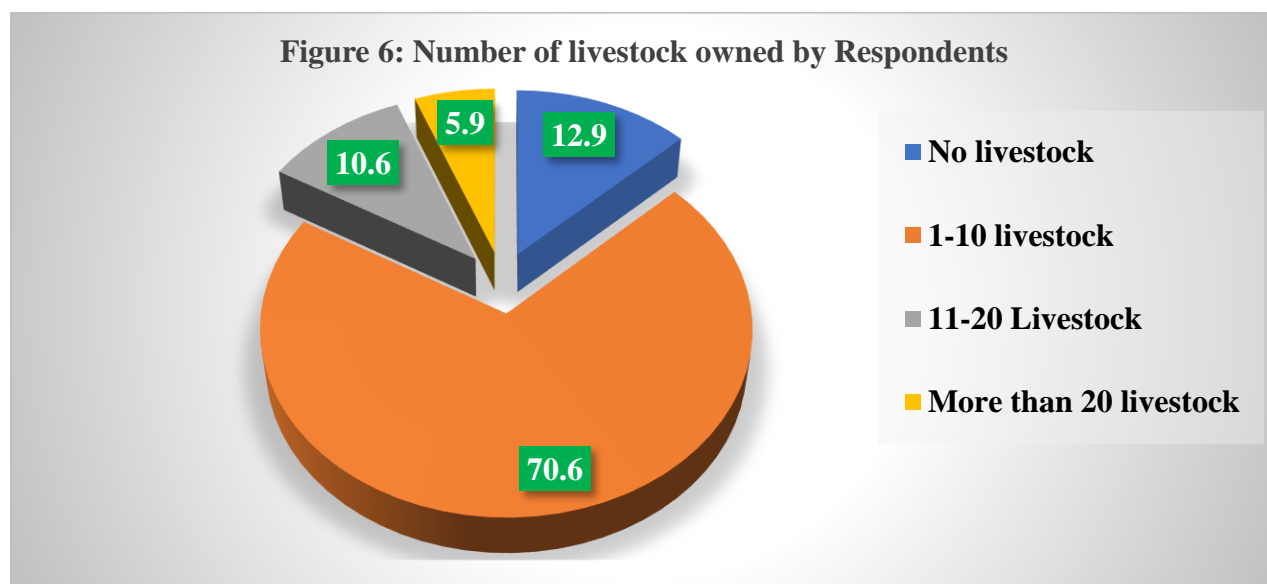
Hundred seventy households participated in the survey and all of them provided complete information making the response rate 100 percent. Regarding sociodemographic characteristics of the respondents, 89 (52.4%) of the respondents were female and 81 (47.6%) of them were male. Fourteen (8.2%) were under 20 years, 61 (35.9%) were in the age range of 21-30 years, 42 (24.7%) were in the age range of 31-40 years, 19 (11.2%) were in the age range of 41-50 years and the remaining 34 (20.0%) of the respondents were above 50 years of age. More than half, 89 (52.4%) of the respondents were unable to read and write, whereas 71 (41.8%) completed primary education, and eight (4.7%) completed secondary education. For household size and marital status (figure 3 and 4).





This study also assessed the income sources of the surveyed respondents. Accordingly, 22 (12.9%) had no income source and were entirely dependent on relief support. Among respondents who had no income and were dependent on relief support, 77.3% (41.2% female) were married, and five (22.7%) were female-headed

households. Seventy (41.2%) of the respondent's means of livelihood is rearing animals, 43 (25.3%) of them depend on both rearing animals and agriculture, 26(15.3%) and 9(5.3%) of them depend on agriculture and petty trade respectively. For number of livestock owned by HHs (Figure 6)



4.3. Respondent's perception of climate change

The results of this study showed that 99.4 percent of the respondents perceive that the climate is changing. Of which 49.1% of the respondents recognize all the climate change variability indicators, whereas 11.8% perceive increase in average temperature, 17.8% perceive shortage/absence of rainfall and the remaining 21.3% perceive drying of water sources, barren agricultural lands, short rainy season and prolonged drought as an indicator of climate change.

FGD Participants of this study expressed their understanding and perception about drought in terms of its impact on the natural environment and livelihoods. According to the focus group discussants, drought has given rise to shortage and variability of rainfall, increased temperature, depletion of forests and vegetation cover in their surroundings. They also added that rivers, brooks, and streams have dried up because of severe drought. Information obtained from key informants also concurs exactly with that of the focus groups. Furthermore, both the focus groups and the key informants reiterated that drought has been occurring almost every year over the last seven years. Illustrative quotations highlighting the perception of participants from various groups are highlighted below:

During FGD with female groups, most of the participants expressed their perception and observation by saying “...*Frequent drought caused reducing water for humans and animals, depletion of trees and bushes which has led to the removal of topsoil by wind, shortage of food and fodder. It also exacerbated the already very warm temperature in our area and made it unbearable. ...*” (Female FGD participants’, Rayitu, June 2022)

Increasing pasture scarcity for livestock because of climate change was more underlined by male FGD participants as “.... *In the past, we used to have plenty of pastures for our camels, goats and sheep. We had enough grazing land in the past but in recent times there is nothing on the ground and we have to migrate to search for adequate pasture...*” (Male FGD participants, Rayitu district, June, 2022).

During male FGD, one of the participants said “.... *In the past, the dry season was short and we used to get enough rainfall for our agro-pastoralist activities. Agriculture was also one of our means of living in the past. Now we can’t even think of farming as an option because we haven’t seen rain for the past three years. The dry season is becoming much more prolonged than what we have experienced before ...*” (Male FGD participants’, Lega Hida district, June 2022)

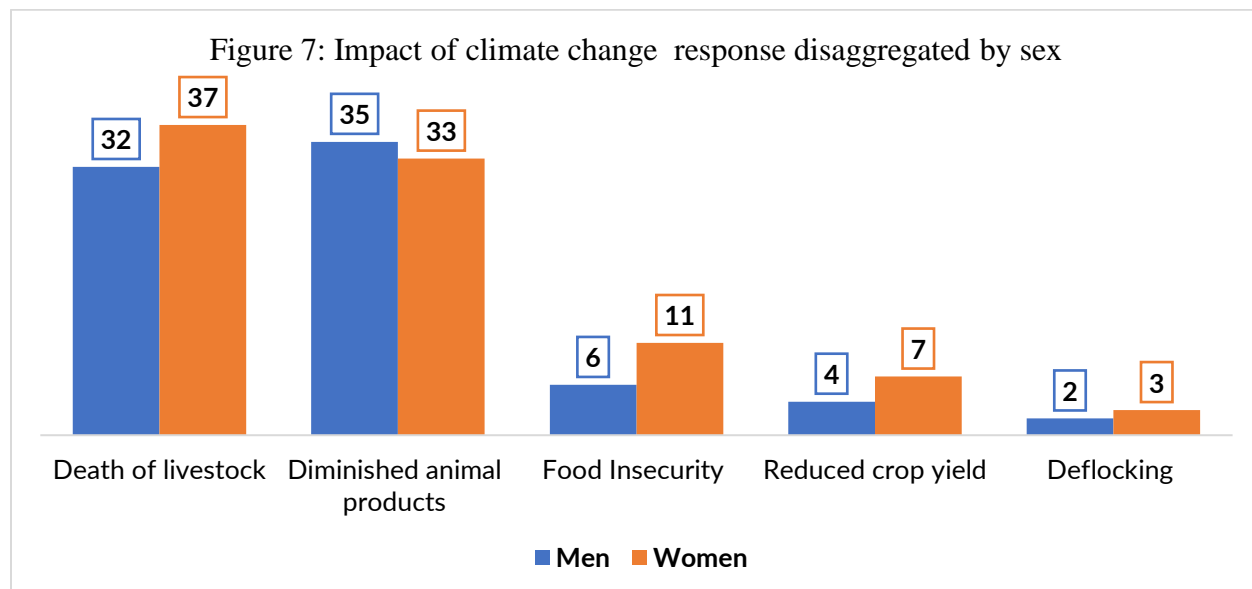
While the respondents gave virtually unanimous responses on their perception of drought impact, they reflected different opinions about possible causes of drought. Most men FGD participants put forth what they thought were causes of drought while women were mostly silent on the issue. Deforestation, absence of hills/mountains and population growth were mentioned as being the major causes of drought by male FGD participants and KII participants.

There were also FGD participants who attributed the drought incidence to God’s wrath because of human sins. This idea was encountered in all of the FGDs. For instance female FGD participants said that; “...*this drought is mainly a result of our ‘sin’ which Allah has inflicted on us. using their own words, they said “Hongee kan nutti fide ‘zulmi’ dha.” (It is our sin that has brought hunger upon us) ...*” (Female FGD participant, Dawe kachen district, June, 2022)

Participants' response on the cause of the current drought further indicated drought because of climate change. Highlighting the historical background of the area, one of the participants from Male FGD said that “...*In the past, our area was covered by forest, bushes and wild animals. Our elders told us there was even a lion in this area. But due to population growth, increases of human settlements and cutting of trees for timber production, now there are more houses than trees ...*” (Male FGD participants, Lege Hida district, June, 2022).

4.4. The Impact of Climate Change on Pastoralist Livelihood

As the survey participants of the study revealed, the recurrent drought periods caused the death of animals, reduced crop yield and diminished animal products (40.0%), massive cattle deaths (40.6%), household food insecurity (10.0%), reduced crop yield (6.5%) and de-flocking of livestock (2.9%) which leads to serious socio-economic impacts (Figure 7).



Drought has not only affected the natural environment but has also debilitated the livelihoods of the local community. According to KII participants, the livelihood of the majority of the households in the study districts is already on a knife edge as a result of livestock death due to a

lack of fodder and Crop failure due to the absence of rainfall. A KII participant from the disaster risk management office said “...*Drought has rendered any effort to grow crops futile. Crop failure has become a typical result of drought in recent years...*” (Female KII participant from Disaster Risk Management office, Sewena, June, 2022)

The FGD participants of the study stipulated that they couldn't even sell their remaining livestock with fair price due to their poor physical condition. The majority of the FGD participants from both female and male groups raises this idea. The following quotation from one of the Male FGD participants is exemplary “...*Our elders told us that they haven't seen a camel fail down and die due to drought before. This is a typical indication of the severity of the current drought. We can't even sell our cattle at a fair price to buy better resistant species like goats because they are physically deteriorated and no one would want to buy them. We also have to take them a long distance to the market and we end up losing them on the road...*” (Male FGD participant Lega-Hida district, June, 2022)

The responses of FGD participants further indicated that cattle are more affected by the prolonged and severe drought since they had to travel longer distances than usual in search of water points and pastures. Most of the FGD participants said that “...*due to the drought we have lost most of our cattle and substituted the survivors with goats because they are more resilient...*” (Male FGD participants from Dawe Kachen district, June 2022)

Moreover, the FGD participants indicated that due to the prolonged drought and the associated death of livestock, there has been a considerable decline in the availability of animal products such as milk, meat, etc. Explaining the adverse effect of the drought on the availability of animal products, most of the female FGD participants said that “...*In the past, the majority of households in our area owned a large number of livestock. We used to fulfil most of the necessary inputs for household food consumption from animal products that we directly use and sell to buy other ingredients. But, now we have lost most of our cattle and are left with few goats. Since the drought is recurrent, we are now on the verge of selling the remaining goats and buying food items to sustain our children ...*” (Female FGD participant, Lega Hida, June 2022)

Female FGD participants further expressed the impact of climate change concerning their day-to-day responsibility in preparing food, feeding their families and sending their children to school.

Most of the female FGD participants expressed their grievances, especially since they are the ones who are expected to bring food to the table daily. They further said that males could not handle such pressure of not providing for children and decide to migrate not to see their children crying. The majority of female FGD participants as emphasizes this idea; *“... we can't get milk for household consumption or sale like we used to in the past. If it were not for the school feeding program our children might not get food even once a day. The drought affected our livelihood very severely. Before the drought, we used to sell goats, sheep and chicken and use the money for household needs, but now all has become luxury. We don't know what to do anymore, we are left with responsibilities to feed our children and the entire family without the means to do so...”* (Female FGD participants, Gura Damole, district, June 2022)

Female FGD participants have also associated the impact of climate change with the deterioration of their health and the increase of diseases that they haven't seen or heard of before. During the FGD conducted with female groups, one of the participants said *“... In the past, we used to have enough honey, butter, milk, egg etc. for both our consumption and selling. Due to the current drought, we are exposed to food scarcity. It's hard to eat even once a day, let alone to eat food with nutritious value. Because of lack of food, we are observing diseases that we haven't heard their name before. For example, Respiratory diseases are increasing as never before in our area. Only a few have relatives/family support, but most of us couldn't afford to travel to hospitals for medical care...”* (Female FGD participant, Lega-Hida, June, 2022)

The KII participant from government structure emphasized a similar description. *“...The drought incidence has caused shortage of staple food items thereby leading to rising prices which in turn led to food insecurity and malnutrition in the area...”* (Female KII participant, from Women and social affairs office, June, 2022).

Information was collected by observation during the transect walk where critical environmental observation was done by giving special emphasis on the composition and physical condition of livestock species in the pastoral herds, water sources, and agricultural lands. The effect of climate change on the environment was remarkable. In many of the cases, the rangeland was turned to bare land and termite mound with dried twigs, shrubs and encroachment of unpalatable bushes. Ponds dried out fast, streams and rivers disappeared and boreholes dried out. One participant in the women's focus group discussion described it as

Shortage of water is critical due to the absence of rain in the last four years. Even if it rains, it is unreliable, erratic, falls for a shorter period, and has lower intensity. Hence, ponds, and rivers do not fill to their capacity and dry out fast. (Female FGD participant, Gura Damole district, June, 2022).



Picture 1: Diminished Pond at Sewena District



Picture 2: Dried Pond at Lega Hida District

I also observed a reduced livestock size, especially cattle with extremely deteriorated physical conditions. At Jara torbi kebele of Rayitu district, I saw a striking scene in which a cow was severely wasted and could not stand by itself. An owner of the cow made a bed-like structure to support it to stand because drought-affected cattle die shortly once they fall on the ground.



Picture 3 and 4: Cows with deteriorated physical condition, Rayitu District, East Bale Zone, June 2022



Picture 5: Women and children around the only pond near to dry, Sewena, June 2022

As climate variability and change exacerbate the scarcity of natural resources including critical shortage of water and shrinking of grazing land, pastoralists were forced to migrate in search of water and pasture for domestic and livestock consumption. Historically, the localized and seasonal intercommunal disputes between Oromo and Somali clans had been common due to shared boundaries and competition over scarce natural resources such as pasture and water points during dry seasons of the year. Nonetheless, five years ago, the conflict became widespread and flooded with multiple actors including regional administrators, security forces, and localized ethnic-based militia involved when clashes along the regional boundary spiralled into mass killings, destruction of materials and massive displacement of people from both sides.

In the last three years, following the reconciliation between these two tribes, religious leaders and elders from both sides regularly interact, and there has been no major incident between two tribes. However, the economic and social ties between the two clans have not been as harmonious as they were in the past.

“... It is not uncommon to experience disputes between these tribes over water points and grazing lands during the dry seasons of the year. But the dispute is often resolved through traditional conflict resolution techniques with no or minimum casualties and material loss ...” Men FGD Participants from Lega Hida district.

The focused group participants from Dawe kachen district illustrated that “... *historically, Oromo and Somali tribes had a relatively friendly relationship, people used to travel along the border without fear and feeling of safety issues, share religious pilgrimage centers, celebrate cultural festivals together, buy and sell goods and livestock to each other. In the meantime, it is not uncommon to experience disputes between these tribes over water points and grazing lands during the dry seasons of the year ...*”

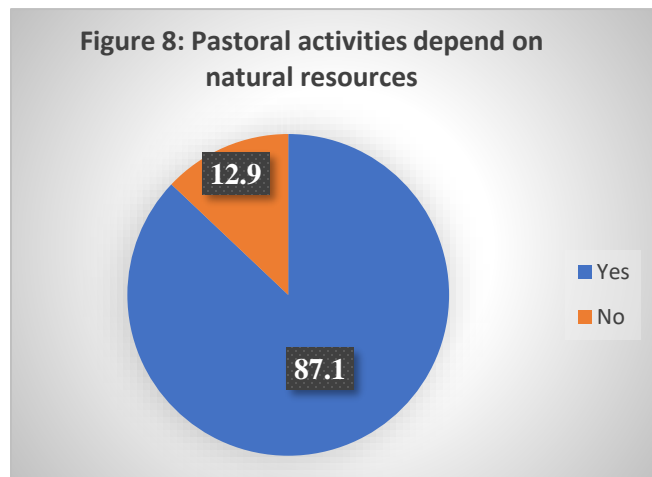
4.5. The gender dimension of climate change impact on women and men agro-pastoralists

4.5.1. Gender role and the effect of climate change

In the present study, the principal pastoralist activity is herding livestock such as cattle, goats, sheep, and camels (78.2%) followed by beekeeping and selling animal products (16.5%) and the rest (2.4%) depending on selling petty trade (selling charcoal, firewood and animal products). The respondents also highlighted that most pastoral activities rely on natural resources including forest, grazing land and water (Figure 8).

Herding livestock and beekeeping were the major pastoralist activities dominated by male in the study area. 75% and 85.7% of women reported that they did not engage in herding livestock and beekeeping respectively. Likewise, 70.4% of the male respondents reported that females dominate petty trade including selling charcoal, firewood, and animal products. Regarding the involvement of women in petty trade, participants from all women FGD groups affirmed that it is a recent development. Accordingly, the study participants claimed that, except for casual selling of animal products, petty trade in the form of buying and reselling small consumer products like sugar, oil, charcoal and firewood was not a common practice among pastoralist women. Respondents of the women FGD groups said “...*due to the drought we are forced to engage in buying and reselling of small consumer items that we usually borrow from wholesalers. It might take us the whole day to finish reselling the items and we would not get back until we do because we have to return the borrowed amount and buy food items with the profit for our families...*” (Women FGD participants, Dawe Kachen district, June 2022).

In this study, the majority of respondents (87.1%) witnessed the difference in roles and responsibilities of women, men, girls, and boys in the household and wider community. Only 22



(12.9%) of the respondents disagreed about existing differences in roles and responsibilities. The study showed that a large proportion of female respondents perceived differential roles and responsibilities among household members (52.7%) and their roles affected social and economic aspects of humanity (63.5%) (Table 2).

Table 2: Distribution of response roles and responsibilities by gender, East Bale Zone, August 2022

Variable	Yes	Men	Women
<i>Presence of differences in roles and responsibilities among women, girls, men, boys</i>	148	70 (47.3%)	78(52.7%)
<i>Roles are more routinely performed, and time taking compared to your partner</i>	115	42 (36.5%)	73(63.5%)
<i>Role restricts from participating in different social, economic, and political activities</i>	89	30(33.7%)	59(66.3%)
<i>Role affects personal development, empowerment, independence, and confidence</i>	86	26(30.2%)	60(69.8%)

In the present study, 115(67.6%) of the respondents reported that roles are routine and time taking when compared with their partners. The majority (63.5%) of respondents who reported that their role in the household and community is routine and time taking were women. *As women FGD participant from Lega Hida district highlighted, while both women and men are involved in agricultural and livestock production, women and girls have additional reproductive and caring tasks that make their working day longer (16 hours on average) compared to men's and boy's, who are rarely involved in such activities.*

The FGD and KII participants in the five districts of study areas highlighted that women, girls, men and boys are traditionally assigned to different roles and responsibilities at the household and community level. Women and girls are mostly confined to routine household chores and responsible for cooking, fetching water, cleaning, looking after children, collecting firewood, twigs, leaves and animal dung, and tending to livestock. In pastoralist communities, women and

girls are additionally responsible for activities that are strictly expected of men elsewhere, such as the construction of traditional tukul houses and furnishing the house.

Due to prolonged drought women and girls were forced to travel far away from their homes to collect water and firewood apart from doing routine household chores. This worsened women's time poverty and put extra burdens on them. The FGD participants explained that, before the drought, they used to access water and firewood nearby. As one women FGD participant said *"...previously it would not take me more than 30 minutes to fetch water because we had water sources close to our village, but now I have to travel more than 4 hours to access water sources..."* (Female FGD participant, Gura Damole, June 2022)

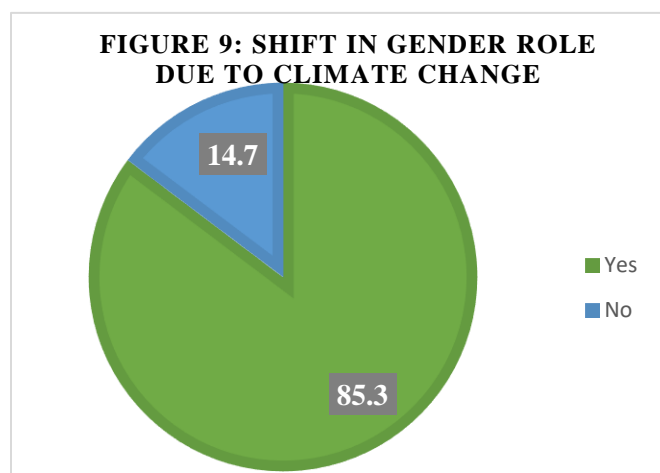
Another participant of the female FGD indicated how increasing inaccessibility of water sources exposed women to health and safety risks by saying *"...we have to get up so early in the morning (most of the time around 4:00 AM) to fetch water and collect firewood. We worry for our safety to travel at dark but we do that to save time to get back early for our children and for the rest of household chores that await us. We risk being attacked by wild animals when we travel in the dark but we can't manage to do otherwise with childrens waiting for us hungry and crying..."* (Female FGD participant, Dawe Kachen, June, 2022)

Similar idea was emphasized by female FGD participants from Rayitu district who said; *"...On average, we travel for six to eight hours in double trips to fetch water for our family. During this time, we get very tired because we do not have any food to consume. We go out empty stomach. We also worry about our children whom we leave at home. Also, after we come back home after such a tiresome journey, we start carrying out household chores such as cooking. More specifically, it is too difficult for pregnant and lactating women..."* (Female FGD participants, Rayitu district, June, 2022)

Female FGD participants have also explained their burden in terms of health impact by saying *"...because all the local water sources have dried up due to drought, we have to travel far away from home to collect water carrying a 20-litre Jericane. Many of us have suffered health problems such as back pain as a result..."* (Female FGD participants, Sewena, June 2022)

As indicated in table 2, in most households, women, girls, men and boys share household chores inequitably. In this study, more than half (52.4%) of the respondents (66.3% of women) highlighted that their roles and responsibilities in the household and community restricted them from participating in different social and economic activities and 50.6% of the respondents (69.8% of females) said that their roles and responsibilities affected their personal development, empowerment, independence and confidence.

Similarly, a KII participant from the women and social affairs office said; “... Women shoulder greater responsibility and burden of household chores which reduces their ability to engage in diversified livelihood activities. The dominantly accepted gender roles & norms in our community are limiting women’s ability in accessing economic activities affecting their adaptive capacity to climate change impacts. (KII respondent, Rayitu district, June 2022)



The study showed that a change in gender roles due to climate change induced impacts as women assumed more roles such as taking care of cattle, going to markets usually far from their village to sell goats and buy food items which were traditionally assumed as male responsibilities, while males migrated to nearby towns to seek wage labor. During the female FGD one of the participants said,

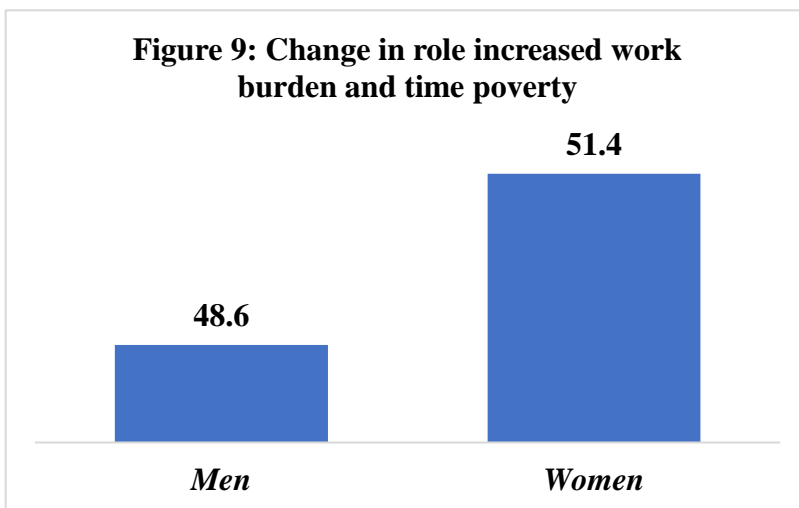
“...since the recurrent drought makes it impossible for male to rear livestock and farm. They usually sit around doing nothing until we finish our assets and livestock we used to sell to buy food. But now they are migrating to nearby towns in search of daily labor to support their families...” (Female FGD respondent, lege Hida district, June, 2022)

The FGD participants from both female and male groups indicated that migration of males in search of labour has become very common in the past three years. This idea was emphasized by female FGD participants as follows; “...We are pleased since our partners are doing their best to support our family. The fact that they are leaving for a job gives us more hope than before. Their absence will add more burden on us because we have to take over their role, usually taking care of

the few goats that escaped death. But, we won't complain and we pray for their safe return hopefully with money that sustains us further..." (Female FGD respondent, Sewena district, June, 2022)

Moreover, some participants from the male FGD group indicated that, since water and firewood sources are becoming far away from their village, they started to be engaged in responsibilities such as the collection of water and firewood which were usually carried out only by women. Explaining this idea, one of the participants from the male FGD group said that; "...as accessing water sources becomes more difficult and unreachable by foot, households who own donkeys started sharing with others and men are using donkeys to fetch water for more than one household including for the owners of the donkey..." (Male FGD respondent, Sewena district, June 2022)

The qualitative finding of the study also illustrated the community's perception towards the observed changes in gender roles, a female FGD participant from Sewena district outlined that, when it comes to engaging in male-dominated roles (such as going to markets far from their village usually in zonal towns to sell livestock) women are more appreciated and praised; "...she is strong/brave like a man..." was a phrase mostly used by the respondents to express the community's appreciation. On the other hand, men and boys are teased and degraded if they attempt to engage in women-dominated roles (such as collecting water and firewood and tending to children).

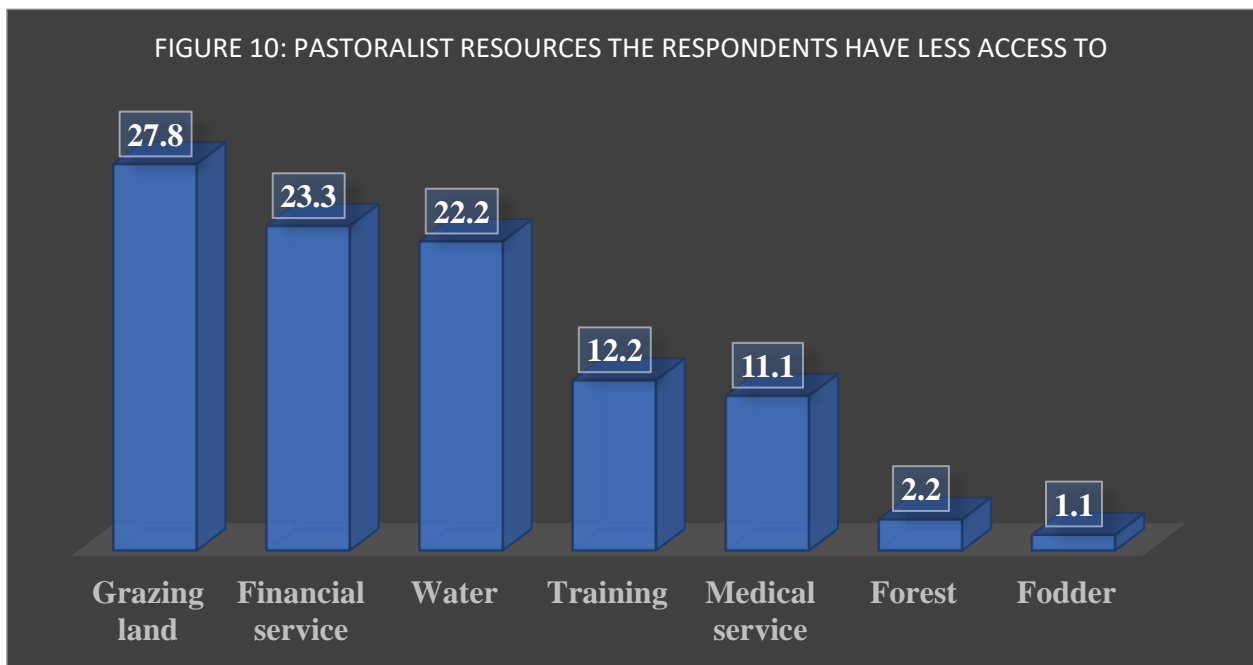


One hundred forty-four (99.3%) of the respondents (n= 145), 51.4% women, indicated that the change in their roles and responsibilities as a result of climate-induced effects such as drought increased work burden on the household members.

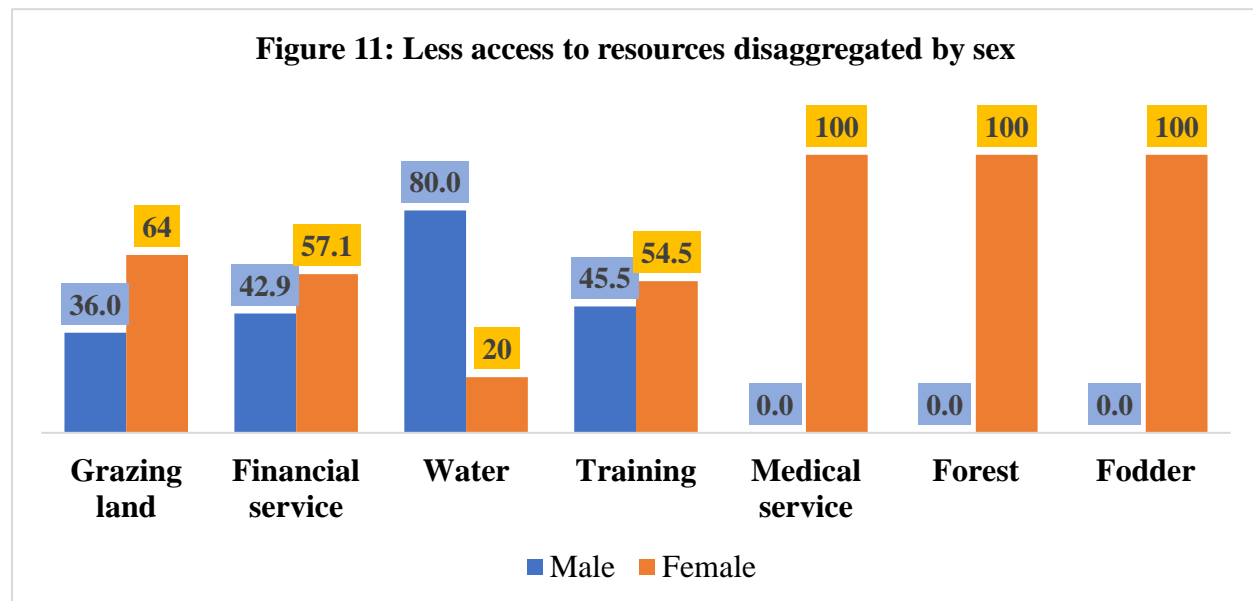
4.5.2. Patterns of decision making, access to and control over resources and effects of climate change

Access to and control over assets and resources compounded with patterns of decision-making at household and community level have a paramount effect on the adaptive capacity of climate change impact. In the present study, the livelihoods of pastoralists and agro-pastoralists in East Bale depend on key resources such as forest; pasture/grazing land, water, and fodder (28.8%), grazing land (28.2%), water (19.4%), fodder (9.4%) and financial services (9.4%) and others (4.7%).

More than half (52.9%) of the respondents indicated that they have less access to and control over available resources; of which 56.7% of them were women and the remaining 43.3% were men. Grazing land, water and financial services are among the important pastoralist resources that the respondents have less access to and control over (Figure 10). Given that the key resources for pastoralist's livelihood depends on climate conditions, recurrent drought further limited pastoralists' access and control over these resources and increased vulnerability to climate shocks and hindered their adaptive capacity. Persistent drought limited access to basic services due to diminished household assets, reduced animal products and low market prices of livestock as a result of poor physical condition and low purchasing power of the local community.



The present study showed that access to and control over agro-pastoralist resources differ among men and women. Women (100%) reported having less access to medical services and forest, 64.0% of them had less access to grazing land whereas 62.4% reported that both women and men have had equal access and control over resources (Figure 11). FGD participants expound as access and control over resources were reinforced by social and cultural norms dictating the role and responsibilities of men and women.



In the study area, 67.7% of the study participants reported that men dominated the resource ownership at the household level. Due to the existing socio-cultural norms, land, cattle and camels are mainly owned by men whereas women to some extent have limited ownership over small livestock including goat, poultry and animal products. All FGD participants in this study highlighted that women had lack of ownership over main household resources which in turn affected their ability to generate sufficient income for basic household needs.

Key informant from the women and social affairs office reaffirmed the above idea saying; “... Women in our community have been victimized by the combined impact of pervasive socio-cultural constraints, persistent drought and fluctuation in the market price of key resources under their ownership. This resulted in the shrinking of their adaptive capacity to climate change...” (Key Informant from Gura Damole District, June 2022).

Table 3: Distribution of responses on gender-based household resource ownership, June 2022

Resources ownership variables	Women	Men
Land	50 (29.4%)	120 (70.6%)
Camels and cattle	42 (24.7%)	128 (75.3%)
Goat, sheep and poultry	82 (48.2%)	88 (51.8%)
Animal products (milk, butter, egg, etc.)	123 (72.4%)	47 (27.6%)
Honey	91 (53.5%)	79 (46.5%)
Petty trade (charcoal, firewood)	136 (80%)	34 (20%)

In this study participants from both women and men FGD groups generally agreed on the existence of unequal patterns of decision making that differently affect the adaptive capacity and means of survival of women and men agro pastoralists. Most of the participants of men FGD groups expressed their entitlement to have final say on major household decisions. This notion is expressed by one of participants from men FGD as “...*someone should be in a position to hold power/control so that the household can secure peace & order. It was always the case that a man is the head of a household in our community and we don’t see any problem with it. Women have their own space to decide mostly with regards to small matters, but the final say is determined by men and it’s the way it should be both according to our culture and religion....*”. (Male FGD participant, Rayitu district, 2022).

On the other hand, women FGD participants expressed the unequal decision making pattern at the household level by saying; “... *We can’t even decide to go to the health center without the permission of our husbands, let alone other big decisions. For example, there are some married men in our community who decide to sell their camel just to marry another wife at this difficult time. The existing wife has no say on the matter. Even if she complained to religious/cultural leaders, they always favor the male. There are a lot of first wives who were neglected and living in the worst situation without having their husband to support them & their children. The fact that polygamy is permitted by our religion is being abused, though our religion says a man should*

marry another wife if and only if he has enough resources to support all of his wives equally... ”
(Female FGD participants, Dawe Kachen district, June 2022)

This study indicated that early and forced marriage is a predominant practice in the study area. Participants from men FGD groups said that; “...*Our community often considers a girl of 15 years too old for marriage. Thus, girls have to exhaust their chance before exceeding the age of 15 and if they stay unmarried beyond the socially accepted marital age, no one would offer to marry them. Their only chance would be to be a third or a fourth wife for a man who is considerably older than them*” *(Man FGD Participants, Rayitu district, June 2022)*. The study participants further indicated that the recurrent drought exacerbated harmful traditional practices such as early and forced marriage. According to key informants from government structure, the pressure for early and forced marriages increased in times of poverty, since families seek to marry their daughters to relieve economic burden through exchange of cattle as a bride price.

As a KII participant from the Disaster risk management office said; “... *Marrying off young girls could mean less household members to feed in the current situation apart from being a means of survival for the remaining members of the family through pride...*” *(KII participant, Rayitu district, June 2022)*. *During FGD with women groups there were participants at the age of 12 and 13 who were married. When asked the reason for marrying at an early age, they responded that it's a common practice for a girl to marry at this age and they claimed that they helped their family to survive a difficult time due to the cattle they have gained following their marriage...* *(Women FGD participants, Lege Hida, June 2022)*.

Moreover, study participants from both women and men groups indicated that women and children are differently affected by the impacts of climate change induced drought since food distribution at household level is directly influenced by unequal gender norms and practices. As indicated by the FGD participants, Women including pregnant and lactating women and children are victims of malnutrition due to inequitable intra-household food distribution. This is mostly because the socio-cultural norms dictate male preference in household food distribution and women are expected to feed themselves after ensuring the family members are fed. In case of household food shortage women are exposed to hunger and malnutrition with additional health risk for pregnant and lactating women and their child. This practice is more explained by KII participant as; “... *Both*

gender and age are determining factors in the food distribution at the household level. Generally, there is a preference and prioritization of men and boys as they are conceived of requiring more food than women and girls. Children and women come next on the ladder in household food distribution respectively. In case of scarcity of food to be distributed, women/mothers are the ones left behind and only eat if there is leftover and such a trend affects more pregnant and lactating women and they might lose their child” (KII participant from Women and Social Affairs office, Rayitu district, June 2022).

The disproportionate effect of climate change on women and children are further demonstrated in the table below (Table 4).

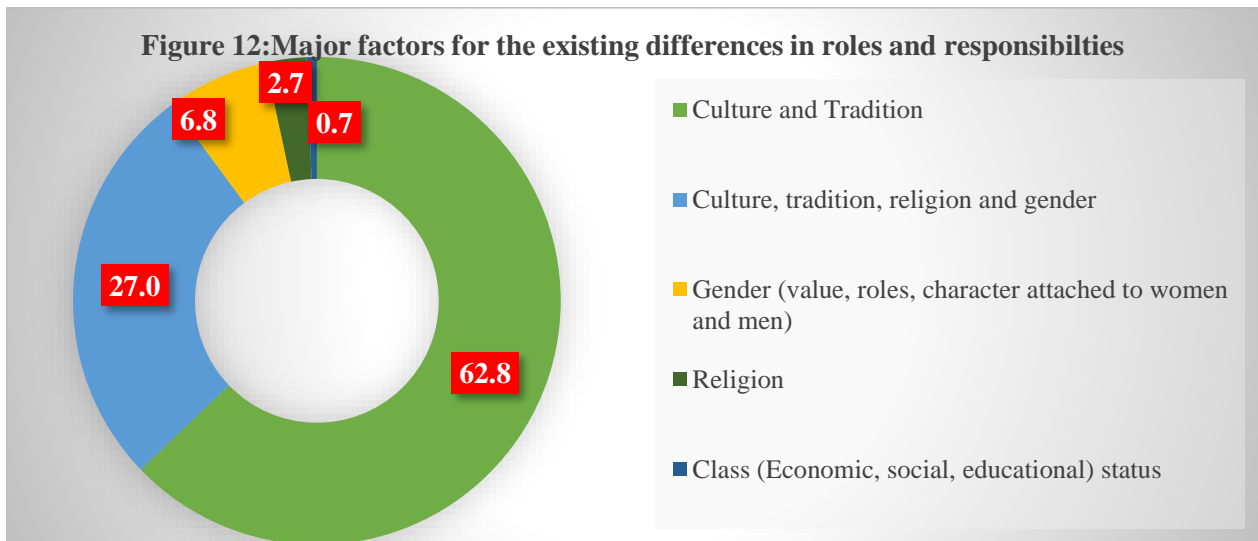
Table 4: Effect of climate change on women and children, East bale zone, July 2022

Variable	Response	#	%
Effect of climate change on women	Increased workload – as a result of recurrent drought nearby water sources such as ponds, rivers and streams dried up and women were forced to travel a long distance to access water sources, queued to fetch water and back to their residences. The average time to travel forth and back with time spent in the queue is about four hours.	33	19.4
	Poor health - the increased burden of productive and reproductive tasks, lack of access to food especially food especially during pregnancy and lactation, and a critical shortage of water put women in a vulnerable position to diseases.	34	20.0
	Increased stress level – recurrent drought forced men to leave their families behind to search pasture and water points for their livestock, and migrate to nearby towns for daily labor. In turn, all household responsibilities fall on women’s shoulders.	20	11.8
	Household food insecurity – unable to feed their children	28	16.5

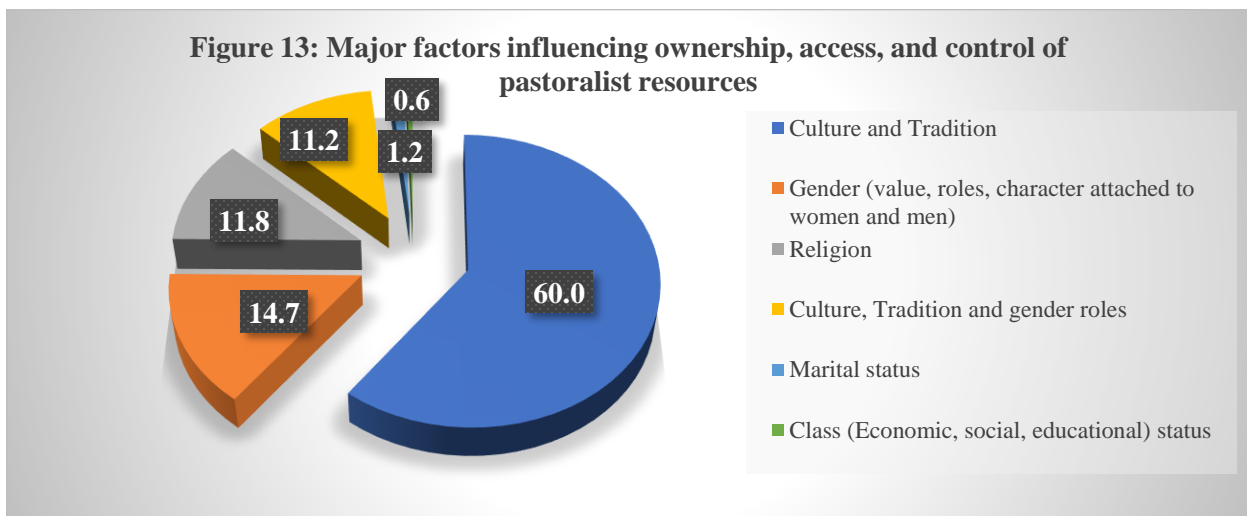
	Increased risk of malnutrition – women tend to eat the leftovers after other family members eat or may not eat at all prioritizing others. Additionally, high productive (HH chores), and reproductive (unregulated pregnancy and breastfeeding) workload and frequent illnesses predispose women to deficiency of essential nutrients.	31	18.2
	Sexual harassment – as men migrate to nearby kebeles and towns for pasture, water sources and labor work, women and girls stay at home without safeguard that increases the risk of sexual and gender based violence.	6	3.5
	Social issues – frequent migration/relocation resulted in a lack of permanent settlement and limited social interaction, networking and a weakened social support system.	8	4.7
	Economic problems – frequent drought affected household assets, death and physical deterioration of livestock, diminished animal products and crop loss impeded household economy.	10	5.9
Effect of climate change on children	Malnutrition due to lack of access to nutritious food, frequent disease, and absence of basic services during migration.	43	25.3
	Lack of care/psychological problems – increased burden of tasks, and migration to search for basic needs affect a quality of time family spend with their children.[WU1]	33	19.5
	Poor health – due to suboptimal breastfeeding and lack of balanced diet.	27	15.9
	Child labor[WU2] – diminished household economy due to prolonged drought forced young children to discontinue from school to subsidize their family by riding donkey carts.	15	8.8
	Early marriage	18	10.6
	School dropout – adolescents discontinue their education, relocate with livestock to pasture areas and subsidize their family through labor work.	34	20.0

4.6. Factors Influencing Gender Dynamics

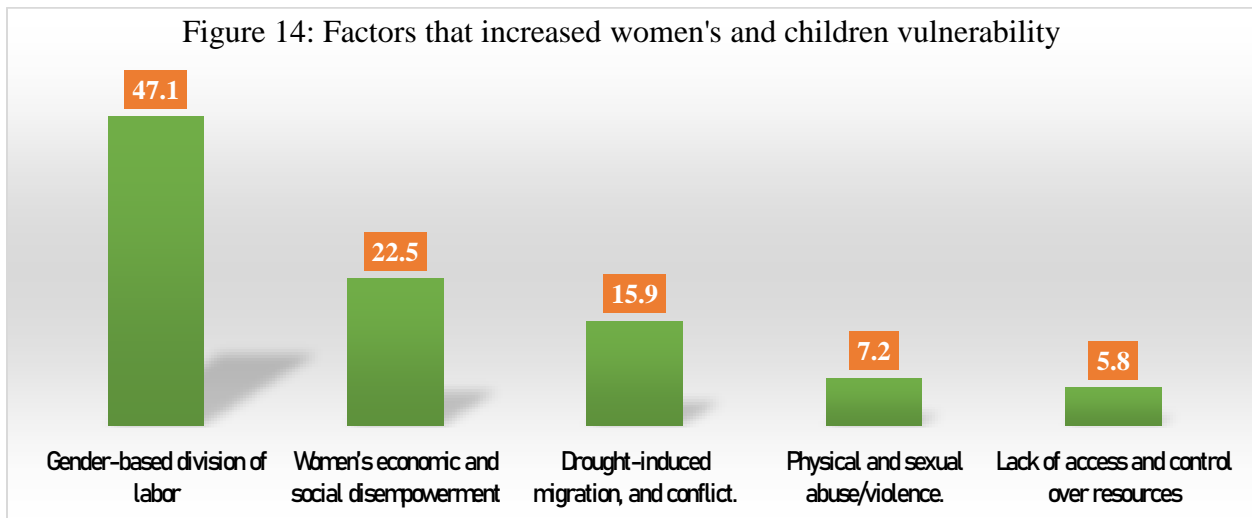
The quantitative household survey showed that culture, tradition, religion and gender (89.8%) are among the major factors for the prevailing difference in the roles and responsibilities of women and men, boys and girls in the community (Figure 12). Amongst important internalized social and cultural values are the general beliefs about responsibilities and behavior deemed appropriate for women and men. Individuals holding traditional gender role beliefs support women’s role as the caretaker at home and in the family and men’s role is to provide financial support as the breadwinner of the family.



Similarly, the study indicated that Culture, tradition, religion and gender (86.5 %) as the major influencing factors for the pre-existing patterns of unequal decision making, access to and control over resources.

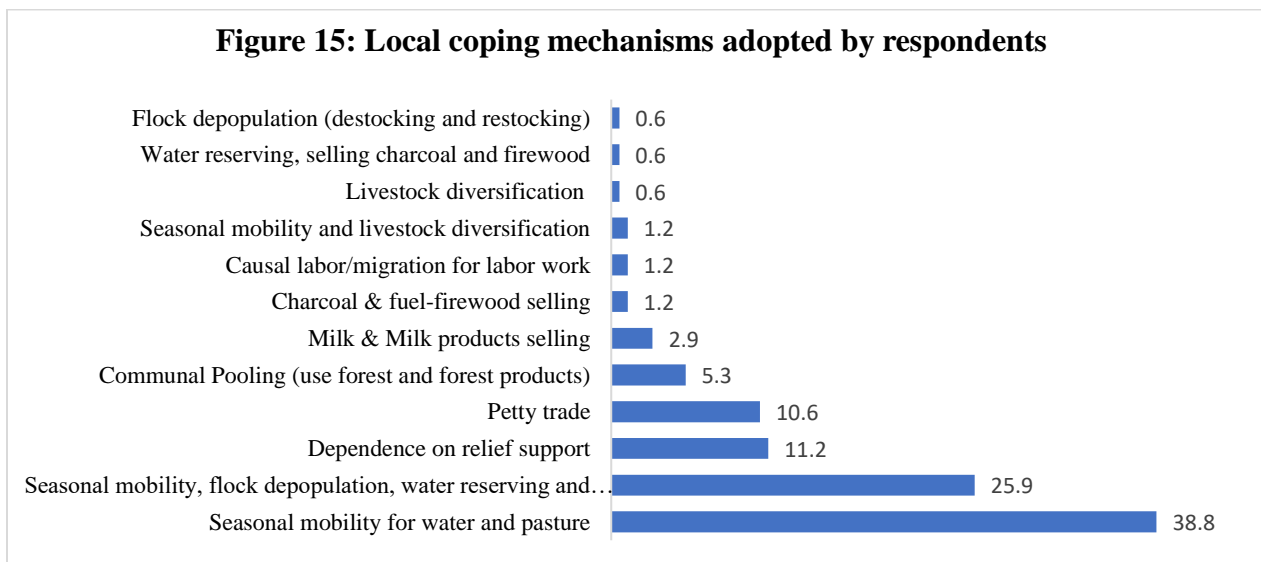


Moreover, gender-based division of labor, women’s economic and social disempowerment, drought-induced migration and conflict, and lack of access and control over resources were the factors that increased women’s and children’s vulnerability to the impact of climate change (Figure 14).



4.7. Climate change adaptation mechanisms of women and men pastoralists.

Adaptation generally refers to actions that help in better coping with the circumstances or ground realities. Generally, it refers to changes in livelihood or survival strategy so as to reap better returns under changed conditions. In this study, the coping strategies adopted by the respondents were seasonal mobility for water and pasture (38.8%), flock depopulation, water shade management, and selling of charcoal and firewood (25.9%) and petty trade (10.6%) (Figure 15).



Similarly, the FGD and KII respondents indicated livestock diversification, seasonal mobility, resource sharing, income diversification, natural resource management and reducing household consumption as some of the most commonly used climate change adaptation strategies. Livestock diversification from cattle to goat and seasonal mobility (to far places than before for a long period of time) were the most emphasized adaptation mechanisms among male FGD participants.

“... The drought killed most of our cattle and forced us to sell the few remaining at an unreasonable price to buy drought resistant species like goats. Goats are more affordable than camels for most households. However, households who can afford to buy camels are much more resilient considering their milk production for household consumption and their money value....”
(Male FGD participant from Lega-Hida district, June 2022).

Whereas income diversification was a strategy mostly emphasized by female FGD participants. Women to ease household food shortage escalated by the impact of climate change mostly carry out income generating activities like petty trade and firewood selling. The FGD and KII participants have also indicated that migration to urban areas in search of labor work was one of the coping mechanisms especially for male heads of households. Moreover, as household resources deteriorate, reducing consumption or food intake was mentioned as an adaptation measure. Both women and men FGD participants although it was more emphasized by women FGD participants as follows indicated this; *“...Eating more than once is not common any more. We can't have a dissent portion of food once a day. We have to share a small portion of food with the whole family, usually giving priority to our children. sometimes the food we have can't be shared even in smaller portions and we are forced to spend the day without having any food...”*
(Women FGD participant, Sewena district, June 2022).

In June 2022 Men FGD participants indicated that, local pastoralist communities used to employ a longstanding social support system known as **“Busa Gonofa”** as a climate change adaptation mechanism. Male FGD also cited Busa Gonofa as an indigenous social support system by which wealth is shared between community members. It involves the provision of cattle, money, milk, and the like to needy members of the community. When disaster strikes a household, the affected community members seek support from within their clan groups through this social security network.

This is a traditional practice wherein respected elders gather and respond to community members who need help to become normal functioning members of the community again. The elders first assess the member seeking support. The recipient will not be asked to pay back whatever support is given. However, if the person regains capacity, he or she is expected to provide support to the needy members of the community. The support is a risk-sharing approach, which could be in the form of livestock transfers in the case of clans, or sharing milk herds in the case of friends and relatives. However, the recent recurrent drought diminished households assets and weakened the social support system. This is more elaborated by the quote below;

“...In the past, we used to share cows and goats to households affected by the drought the most and lost all of their cattle. We contribute at least one goat or cow and the affected individual could have more than twenty livestock at once and can sustain his family. But now, we all are struggling and having ten goats becomes a big deal for us, let alone sharing to the needy...” (Men FGD participants, Rayitu districts, June 2022).

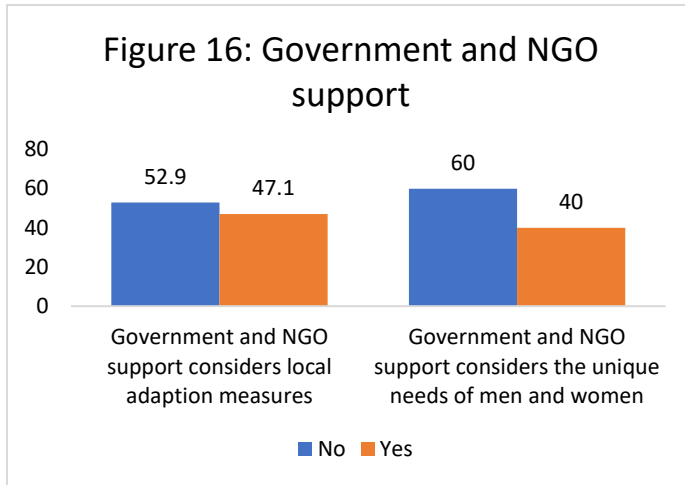
Natural resource management like planting trees and water harvesting are among the climate change adaptation methods indicated rarely by FGD and KII participants. As indicated by the respondents, they couldn't practice such adaptation measures due to the lack of a continuous support system from concerned government and non-government institutions.

4.8. The Gender Implication of Institutional Climate Change Adaptation Measures

Adaptations vary according to the system in which they occur, who undertakes them, the climatic stimuli that prompt them, and their timing, functions, forms, and effects. In the meantime, the support from government, non-government and private organizations has to be in line with an adaptation pattern of the community and address the differential needs of men and women, boys and girls.

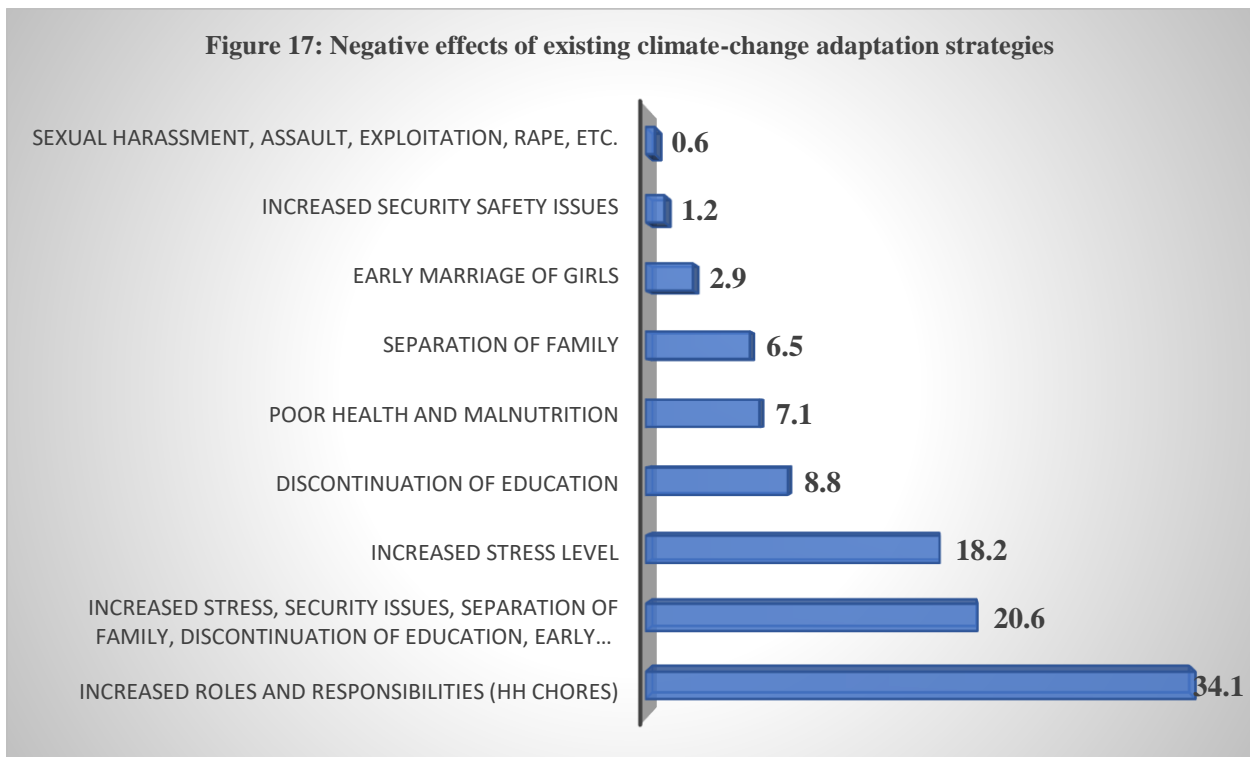
The study respondents from FGD and KII indicated that, in the past few decades, there have been various institutional responses against the adverse impacts of climate change. The government emergency safety net program assists with gifts in kind including soya, wheat, maize and oil, and cash prioritizing the most vulnerable households. Whereas the non-governmental organizations operating in the districts provide emergency lifesaving support including food and nonfood items for highly vulnerable members of the population. Moreover, strengthening of local capacity for

climate change adaptation including the provision of essential medicines, rehabilitation and/or development of water schemes and capacity-building activities were among the adaptation measures by non-state actors.



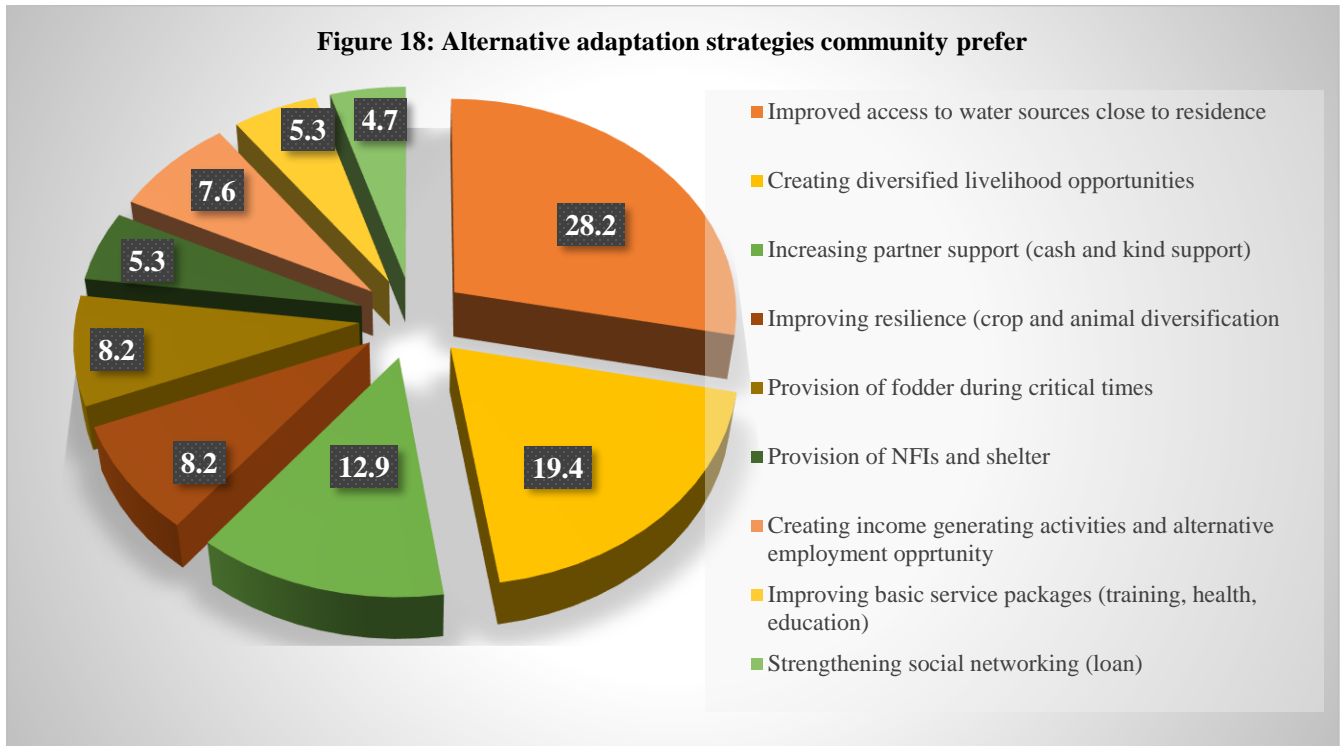
However, the both women and men FGD participants affirmed that considering the severity and the magnitude of the problem the response was not adequate. Furthermore, in this study, 52.9% of the respondents highlighted that resilience building support from government and non-government institutions were not based on local coping strategies and

60.0% reported the existing support did not consider the differential or unique needs of women and men (Figure 17).



The respondents also highlighted alternative adaptation strategies the community prefers to use to reduce the negative impacts of existing adaptation strategies. Improving water accessibility

(28.2%), creating diversified livelihood opportunities (19.4%), increasing relief (cash and in-kind) support (12.9%) and crop and animal diversification 8.2% and others (Figure 18).



CHAPTER FIVE: DISCUSSION

This chapter presents the results from primary data collection that was done through conducting household surveys of 170 participants, 10 focus group discussions and 15 semi-structured key informants' interviews with agro-pastoralist men and women, boys and girls in Lega Hida, Sewena, Rayitu, Dawe kachen and Gura Damole lowland Districts of Bale Zone. The chapter also, simultaneously, attempts to compare and contrast the results obtained with the different literature on the study.

In the Lowland Districts of Bale zone, agro-pastoralists main livelihood activities are livestock rearing, beekeeping, and petty trade (selling of charcoal and firewood). According to the respondents, crop farming is the last livelihood activity practiced by a small portion of the agro-pastoralist communities in Lega Hida, Sewena, and Gura Damole Districts. Yet, crop farming and selling charcoal, according to the respondents from Lega Hida District is a secondary income source that pastoralists pursue as a drought becomes recurrent and persistent.

In this study, 99.4% of agro-pastoralists (both women and men) perceived climate change in terms of reduced rainfall amount, increased temperature, drying of water sources, barren agricultural lands, short rainy season and prolonged drought. Debela et al (2015) also reported similar perceptions on climate change variability among Borana Pastoralists. The finding is also in line with the study conducted in Tanzania (16) and is significantly higher than the finding of study conducted in China, which reported 70% of agro-pastoralists perceived climate change as changes in temperature and pattern of rainfall (Shuntao Xie et al., 2021). This difference might be due to differences in sample size, access to weather information, communication infrastructures, literacy level, and difference in sociodemographic characteristics of the study participants (livelihood means, historical farming experience, and availability of natural resources).

In this study, 78.2% of the participants related climate change with higher rate of deforestation, fast population growth and increased depletion of natural resources. The finding from qualitative study also reinforced this finding by highlighting increased rate of deforestation, high population pressure on natural resources, and shorter rainy season, and few participants cited climate change as punishment by God. It is also similar to the finding of the study by (Debela et al, 2015) which

identified the above-mentioned causes of climate change and added natural resource exploitation, and poor soil and water shade management as climate change causes.

In this study, the majority of agro-pastoralists (87.1%) witnessed the difference in the roles and responsibilities of women, men, girls, and boys in the household and wider community. 63.5% of women participants reported that their role is more routine and time taking than their male partners. Similarly, the qualitative finding illustrated that the predominant roles of women as caregivers and nurturers is harder and longer especially during periods of scarcity. This finding is in line with the finding of the study conducted by (Berita M. Musau, 2021) illustrated that women's work hard in order to compensate for the resource scarcity caused by climate change.

The present study showed an increased magnitude of early and forced marriage due to climate change induced prolonged drought. Respondents highlighted that climate shock forced them to marry off girls to secure bride price to help support the rest of the family, to have one less mouth to feed, and to help the bride enter a better-off household. In its recent analysis, UNICEF (2022) reported in the regions of Ethiopia worst affected by drought, child marriage on average has doubled in the period of one year.

This study also showed that women and girls are disproportionately affected by the socio-cultural norms affecting household food distribution and food consumption. Focus group discussants highlighted that women have poor access to quality food which is critical for physical development and good health. Men and even women in the study themselves stressed that they are the last to eat after rationing all the food to the family members. Here too, during critical scarcity of food for household consumption, women prioritize men and children.

Regarding the influence of climate change on shifting the pre-existing gender roles, the study showed that 85.5% of women assume more traditional male responsibilities including the productive duties of their husbands. These women not only run their homes and raise their children, but are also livestock managers and tend to all pastoralist's way of life. In those drought situations, women's workload doubled and jeopardized their health and nutritional status. Climate shock also worsened time poverty among women which negatively affected their public life and resulted in increased stress level and intensify household economic crisis. Pastoralist men also engaged in traditionally female dominated tasks like fetching water, collecting firewood, and petty trade such

as selling charcoal and animal products. This finding is supported by the study conducted in Kenya and Mozambique which highlighted how men started to engage in traditionally female tasks such as fetching water and collecting firewood as a result of prolonged drought to subsidize their family (FCCC, 2022).

The finding of the current study showed that the experiences of women and men agro-pastoralists and their adaptive capacity is determined by the existing patterns of access to and control over productive resources and decision-making. Despite the pastoralist women's contribution to pastoral life, they only have limited access to and control over key productive resources. Pastoralist women are in a disadvantaged position regarding access to resources, ownership, and decision-making. 67.7% of respondents highlighted that resource ownership is dominated by men and women have low decision-making power on key resources. About 56.7% of women reported that they have less access to and control over resources. Zenebe in his research indicated that unequal access to resources and to decision-making processes has made women disproportionately affected by the effects of climate change (Zenebe M.,2022).

This study also explored the predominant adaptation measures employed by agro-pastoralists communities of the study area. The study has shown that agro pastoral communities of the Bale zone adopted a wide range of adaptation measures to overcome the perceived climate change conditions. Herd mobility to remote areas for pasture and water, petty trade, production and selling of charcoal, and firewood, migration for casual labor, reducing household food consumption, and relief support are the most commonly used adaptive strategies by the community as responses to climate change. The finding of this study indicated variation in adaptation mechanisms of men and women agro pastoralists. Accordingly, seasonal mobility for water and pasture, and migration for casual labor are the commonly used adaptation measures used by men agro-pastoralists. Whereas, women agro pastoralists mostly employ petty trade, and selling of charcoal and firewood as adaptation mechanisms to ease household food shortage escalated by the impact of climate change. This finding is aligned with the finding of the study conducted in Tanzania by Edward, (2020) that indicated most adaptation measures employed by women agro-pastoralists are inclined to activities having immediate effect on food security, compared to adaptation activities done by men, since the burden to feed the household has shifted more to women (Mamkwe CE, 2020).

Regarding the gender dimension and implication of the dominant climate change adaptation measures, the traditional social support system (especially Busa Gonofa) had frequently brought people together to support each other and bolstered social fabric and relationship. It also strengthened local adaptation capacities because it was inclusive and depend on early warning and risk reduction communication among women and men, elders and even local authorities. Nonetheless, climate change adaptation measures employed by government and non-government actors in the study area did not consider the gender differentiated impact of climate change and the unique needs of women and men. It was designed to grossly address emerging climate change effects with short-term supports. Accordingly, 52.9% and 60% of the study participants highlighted that support from government and non-government institutions did not take into account the local adaptation measures and did not consider the differential or unique needs of women and men. Godana in his research done in Borena indicated that institutional climate change adaptation measures overlooked the gender dimensions of climate change effect (Godana BJ, 2016).

CHAPTER SIX: CONCLUSION AND RECOMMENDATION

6.1. Conclusion

The result of this study demonstrated that both women and men agro-pastoralists perceived reduced rainfall amount, increased temperature, drying of water sources, barren agricultural lands, short rainy season and prolonged drought. Higher rate of deforestation, fast population growth and increased depletion of natural resources were acknowledged as climate change causes. The adverse impacts of climate change on agro-pastoralist livelihood were illustrated in terms of increasing death of livestock, loss of crop, livestock diseases/pests, severe and sudden dryness of pasture/grasses, and dryness of water pounds.

The result of this study showed the differentiated effect of climate change impact on women and men agro-pastoralists experience. Accordingly, women's and men's roles, access to and control over resources, pattern of decision-making and social norms defining gender relation determine the climate change effects and experiences of women and men agro-pastoralists. Consequently, impacts of climate change disproportionately affect women's ability to perform everyday reproductive tasks particularly collecting firewood and water, which are heavily affected by adverse climate change impacts. As a result, impacts of climate change coupled with gender role worsened time poverty among women which negatively affected their public life and resulted in increased stress level and intensify household economic crisis. Particularly to the effect of climate change impact on shifting traditional gender roles, the result of this study indicated that, traditional roles of women and men started to shift due to effects of climate change as women and men started to assume roles beyond their traditional gender roles. In turn, the study indicated that such change in traditional gender roles significantly increased women's workload compared to men.

In this particular study, women agro- pastoralists were found in disparity with men with regard to access to and control over productive resources, and decision making over production and income. Whereas men tend to have greater access and control over most productive resources. Culture and religion also encourage and justify men's dominance in decision making both at household and public sphere. This pattern, contributed to the disproportional effect of climate change impact on women exacerbating the pre-existing traditional harmful practices such as early and forced marriage, unequal distribution of resources including food at household level and limiting the adaptive capacities of women agro-pastoralists.

According to this study, seasonal mobility to remote areas for pasture and water, petty trade, production and selling of charcoal, and firewood, migration for casual labor, reducing household food consumption, and relief support are the predominant adaptation measures employed by agro-pastoralists communities of the study area. The study also indicated variation in adaptation mechanisms of men and women agro pastoralists. Hence, seasonal mobility for water and pasture, and migration for casual labor are the commonly used adaptation measures used by men agro pastoralists. Whereas, women agro pastoralists mostly employ petty trade, and selling of charcoal and firewood as adaptation mechanisms. Despite the differentiated effect of climate change impact on women and men agro-pastoralists and the variation in climate change adaptation measures employed by them, this study indicated that, government and non-government actors working on climate change adaptation design their intervention to address immediate problems usually targeting the poorest and barely considered the gender differentiated impact of climate change.

6.2. Recommendation

Based on the findings of the study, the following recommendations are forwarded

- Climate change adaptation initiatives and investments should be informed by evidences from critical analysis of the gender dynamics, its influence on the effect and experiences; scrutinize and build up on the local adaptive mechanisms and capacities of women and men agro-pastoralists prior to intervention designing.
- Governments and partners should devise context specific climate change adaptation interventions that consider the disproportionate effect of climate change on women and men agro-pastoralists to effectively target and improve resilience to climate change-induced effects. Investments shall target interventions that improve women's adaptive capacity and extra burdens such as the construction of water points (especially ponds and hand-dug wells) nearby their villages and the introduction of energy-saving cooking appliances should be prioritized. Investments shall also target provision of drought-resistant seeds, modern beekeeping technology, water shade management and livestock diversification schemes.
- Regional government shall prioritize strengthening of existing capacities among local authorities, civil societies and local gatekeepers on community based climate change risk reduction through livelihood diversification, livestock diversification, water shade

management, context-specific income generating activities and environmental protection for robust management of climate risks.

- Local government authorities (districts and region) and partners operating the area should develop robust resource mobilization mechanisms to further strengthen and back up a local social support system called **“Busa” and “Gonofa”** to ensure the flow of both financial and technical support to local actors.
- Institutional (government and non-government) climate change adaptation measures and investments shall promote activities that don't exacerbate the workload of women. This study has shown clearly that agro-pastoralist women are already overworked and their situation is worsening due to climate change impacts and climate change adaptation measures being employed. As women's workload is also a main barrier to women's participation in productive activities and climate change adaptation efforts restricting their adaptive capacity; institutional climate change adaptation interventions should aim to reduce women's workload and shall be carefully designed not to intensify it.
- The government through its “Green Legacy” project should prioritize the lowlands of Bale Zone by replanting forests and restoring the damaged ecosystem of the intervention area and strengthening the “irrigation” initiative so that they are better able to adapt to the changing environment and build a resilient environment.
- Government and partners working in the area should emphasize on advocacy programming and continuous dialogue with the community to challenge and change the existing sociocultural norms related to gender inequality, early and forced marriage and other discriminatory gender norms.
- Institutional (government and non-government) shall strive to address gender inequality by focusing on issues beyond climate change impacts and adaptation. This can contribute to the improvement of unequal gender relations which is translated into unequal access to and control over resources, decision making and division of labor. Understanding how gender dynamics intersect with climate change and disproportionately affect women (in terms of intensifying their workload, diminishing their adaptive capacities and exposing them to

health and safety risks) and addressing interrelated demands will enable institutional actors to respond to the different needs and priorities of women and men agro-pastoralists.

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	roles and responsibilities of men, women, girls, and boys?	<p>3= marital status</p> <p>4= gender (value, roles, characters attached/expected from women & men)</p> <p>5= ethnicity and caste</p> <p>6= age</p> <p>7= class (economic, social, educational etc. status)</p>	
2.3	As women/male head of household, do you think your roles are more routinely performed, and time taking compared to your partner?	<p>1 = Yes</p> <p>2 = No</p>	
2.4	As a woman/male head of household, does your role affect/restrict you or make you have less time to participate in different social, economic and political activities? (<i>focus on impact on their participation in IGA, social & political activities</i>)	<p>1 = Yes</p> <p>2 = No</p>	
2.5	As women/male head of household, does your role affect/restrict your personal development, empowerment, independence, and confidence?	<p>1 = Yes</p> <p>2 = No</p>	
2.6	What are the major pastoralist activities in your community?	<p>1= Herding livestock including cattle, goats, sheep, camels, horses, and donkeys.</p> <p>2= Beekeeping</p> <p>3= Produce & sale food products like meat, milk, and eggs</p> <p>4= Produce & sell non-food products such as hides, and handcrafts.</p> <p>5= Produce and sale cow dung and firewood</p> <p>6= petty trade</p> <p>7= Poultry</p> <p>Other specify _____</p>	

2.7	As a female/male head of household, are there pastoralist activities that you are not supposed to do?	1= Herding livestock including cattle, goats, sheep, camels, horses, and donkeys. 2= Beekeeping 3= Produce & sale food products like meat, milk, and eggs 4= Produce & sell non-food products such as hides, and handcrafts. 5= Produce and sell cow dung and firewood 6= petty trade 7= Poultry Other specify _____	
2.8	As a woman/male head of household, do you think your roles (<i>at the household/community level and specific to pastoralist activities</i>) are more dependent on the availability of natural resources compared to your male/female partner?	1 = Yes 2 = No	
2.9	As women/male head of household, does your role changed or shifted due to climate change-induced impacts like drought?	1 = Yes 2 = No	
2.10	If your answer to Q 2.9 is yes, does the change/shift in your role increase your work burden and time poverty (time shortage)?	1 = Yes 2 = No	
Section 3: gender relation, access to resources, and decision making			
3.1	What are the important resources required for key pastoralist activities performed by women/men in your community?	1= Forest 2 = Grazing land 3 = Training 4 = Medical service 5 = water 6 = Fodder (food, especially dried for cattle and other livestock.	

		7 = Financial service Other specify _____	
3.2	As a women/men pastoralist, do you think you have less access and control over the resources identified in the question above? <i>(i.e. equal right/influence to use, keep and freely access the services available for pastoralists)</i>	1 = Yes 2 = No	If No, skip to Q 3.4
3.3	If yes, what are the pastoralist resources you have less access to and control over?	1= Forest 2 = Grazing land 3 = Training 4 = Medical service 5 = water 6 = Fodder (food, especially dried for cattle and other livestock. 7 = Financial service Other specify _____	
3.4	Male/female pastoralists have equal opportunities in getting professional, technical, financial, and technological support from private, government & non-government service providers.	1= Strongly disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly agree	
3.4	As a women/men pastoralist, Do you involve equally in decisions made at the household level to determine access, control, and use of pastoralist resources and benefits?	1= yes 2 = No	
3.5	What are the major factors influencing ownership, access, and control of pastoralist resources and benefits?	1= culture and tradition 2= religion 3= marital status 4= gender (value, roles, characters attached/expected from women & men)	

		5= ethnicity and caste 6= age 7= class (economic, social, educational etc. status)	
Section 4: knowledge and perception of climate change and its impacts			
4.1	Do you observe that the climate is changing?	1= Yes 2 = No	
4.2	If yes to Q 4.1, what climate change variability did you perceive?	1= Higher/hot temperature 2= Shortage/absence of rainfall 3= Drying of ponds/water sources 4= Agricultural land being left barren 5= Shorter rainy season 7= Prolonged drought 7= Other (specify)	
4.3	What are the causes of climate change and variability in your area?	1= Fast population growth 2= Higher rate of deforestation 3= Increased natural resource depletion 4. Poor soil or water management 5. Other (specify)	
4.4	As a women/men pastoralist, How did climate change or variability affect your livelihood?	1= Death of animals 2= Reduced yields or Crop failure 3= Diminished animal products 4= Pest infestation 5= De flocking of livestock asset 6= Increased HH food insecurity 7= Increased diseases burden 8= increase household burden and time poverty 8= Other (specify)	
4.5	Women and children are disproportionately/ differently affected by the negative effect/impact of climate change.	1= Strongly disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly agree	If answer 1 & 2 skip to section 5

5.2	The support of government, non-government and private sectors is in line with the adaptation pattern and mechanism you indicated above.	1= Strongly disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly agree	
5.3	Climate change or variability adaptation supports government, non-government and private sectors considering women and men's different and unique needs. <i>(In terms of targeting, timing, labor contribution, leadership, and decision-making).</i>	1= Strongly disagree 2= Disagree 3= Neutral 4= Agree 5= Strongly agree	
5.4	As a women/men pastoralist, what are the major negative effects of the predominantly implemented climate-change adaptation strategies?	1= Increased roles and responsibilities (HH chores) 2= Increased stress level 3= Increased security safety issues 4= Separation of family 5= Discontinuation of education 6=Early marriage of girls 7= Sexual harassment, assault, exploitation, rape, etc. 8= Child labor 9= Poor health and malnutrition 10= Other _____	
5.5	As a women/men pastoralist, describe the alternative adaptation strategies that you prefer to use to reduce the negative impacts indicated above.		

Annex II: Focus Group Discussion Guide

Introducing yourself:

Hello, my name is (name of interviewer). I am here to collect qualitative data for my MA thesis. I am hoping to ask you a few questions and to hear your perspectives on how your life is impacted by climate change and how your needs, interests, capacities and vulnerabilities are impacted by your gender as well as by climate change adaptation interventions.

Obtaining informed consent:

Whatever you share will be kept confidential and if there are questions you don't want to answer, there is no need to answer them. You are also welcome to leave at any time.

Participation is voluntary; please can you let me know whether you are happy to participate in the discussion for the next 90 minutes? In addition, do you have any questions before we start?

Complete this form: (whilst the interpreter hands out drinks/water at the start so that participants can remain hydrated).

Interview Date:	
Facilitator Name:	
Facilitator Sex:	Male <input type="checkbox"/> Female <input type="checkbox"/>
Interpreter Sex:	Male <input type="checkbox"/> Female <input type="checkbox"/>
Location:	
Sex of Participants:	
Number of Participants:	
Age range of Participants (from youngest to oldest):	
Marital status	Single <input type="checkbox"/> Married <input type="checkbox"/> Widowed <input type="checkbox"/> Separated <input type="checkbox"/>

Religion	Islam <input type="checkbox"/> Christianity <input type="checkbox"/> Traditional <input type="checkbox"/> Other (specify).....

Section 1: Gender roles and responsibilities

1. What are the main roles and responsibilities of men, women, girls and boys in the household and in the wider community? (E.g. fetching water, cooking, collecting firewood, caring for children, washing clothes etc.)
 - Why are roles divided in this way?
 - How long does this task take each day?
 - Are these roles routinely performed or as and when needed.
 - Have these roles changed over time as a result of climate change?
2. As a female/male head of household, what are you supposed to do and not to do related to agro-pastoral activities?
3. Are these roles dependent on availability of natural resources such as water, forest, grazing & agricultural land?

Section 2: gender relation, access to resources and decision making

1. What are the important resources required for key agro-pastoralist activities performed by women/men in your community?
2. Do women/men have access to or control of the agro-pastoral resources identified in the question above? Elaborate? (Probe: farmland, grazing land, forest, agricultural extension service, etc.)
 - Is there a difference between single and married women/men in ownership, access and control of agro-pastoral resources? If yes, why?
3. What are the major factors influencing ownership, access and control of agro-pastoral resources? (probe: culture, religion, marital status, economic/social status)
4. How are decisions made in the household to determine who access, control and use agro-pastoral resources? Who is involved in the decision-making process?

5. Which community-based associations/networks (farmers', forest users...) are operating in your community?
 - What is their purpose and what are the criteria to be a member?
 - What is the composition of the women and men members?
 - Are women proportionally represented in leadership? If not, what are the reasons for this state of affair?
 - Do you participate equally in meetings and discussions organized by community based associations/networks and local government representatives? How/why not?

Section 3: knowledge and perception on impacts of climate change on women and men

1. How do you describe the climate condition of your area through time?
 - Do you believe that the climate is changing? If yes, which aspects of the climate are changing?
 - What do you consider the causes of these climatic events?
2. What are the main climate changes or variability that you have experienced? How do you describe it?
 - in terms of weather and climate elements (Rainfall, Temperature, frost)
 - in terms of your livelihood (crop failure, death of livestock, facing food insecurity, facing water shortage....).
 - in terms of your village/kebele natural environment (forest related impacts, range land related impacts, river/pond/spring related impacts)
3. When was the last time you experienced drought in your area? How hard is your living being affected by climate change related disasters? (Probe: have you lost your means of living, health related impacts, have you lost your family due to climate related disaster, etc.)
 - Do you think women's and men's experiences are different? If yes, how/why?
4. Has the time allocated for agro-pastoralist activities like agriculture, livestock production, and household chores such as water and firewood collection etc. changed over the past decades due to climate change impacts, if so how?
5. Has women's & men's access & control over resources such as agricultural and grazing land, water, energy and other resources changed due to climate change over the past decades? If so, how?

6. Do you experience physical and sexual abuse/violence during the aftermath of climate change related disasters?
 - How do community and responsible authorities handle/ respond to GBV cases?

Section 4: climate change adaptation measures taken by women and men agro-pastoralists

1. At a time of climate change related disaster like drought, what are the different ways women & men used to manage the situation?
 - Agro-pastoral related measures
 - Mobility related measures
 - Storage related strategies
 - Diversification related measures (engage in different activities other than agro-pastoralism)
 - Communal Pooling (use community resources like forest and forest products...)
 - Market Exchange related measures
2. What are the alternative adaptation strategies that you would like to adopt in addition to what is already being used to reduce the negative impacts of climate change?
3. What are the barriers to apply these alternative adaptation strategies?
4. What are the major challenges/constraints women & men face to manage their living during climate change related disasters.
5. Which livelihood resources are important for climate change adaptation? Why? Indicate their level of significance.
6. How do the Government and non-government organizations respond to climate change related problems?
 - Does their climate change adaptation intervention consider women and men's different and unique needs? (In terms of targeting, timing, labor contribution, leadership and decision-making).

Wrap-up

Thank you for your time. That is all the questions I have. Is there anything you would like to ask me or add

Annex III: Key Informants Interview Questions

Introducing yourself:

Hello, my name is (name of interviewer). I am here to collect qualitative data for my MA thesis. I am hoping to ask you a few questions and to hear your perspectives on how your life is impacted by climate change and how your needs, interests, capacities and vulnerabilities are impacted by your gender as well as by climate change adaptation interventions.

Obtaining informed consent:

Whatever you share will be kept confidential and if there are questions you don't want to answer, there is no need to answer them. You are also welcome to leave at any time.

Participation is voluntary; please can you let me know whether you are happy to participate in the discussion for the next 45 minutes? In addition, do you have any questions before we start?

Site Overview

- Name of District
- Name of village/kebele
- Date of Visit

KII participant information

1. Age
2. Sex
Male Female
3. Marital status
Single Married Divorced Widowed Separated
4. educational status
Basic primary Secondary Tertiary None
5. Religion
Christianity Islam Traditional Other (specify).....

I. Semi-structured interview Questions for key-informants from government structures

1. What are the main threats that agro-pastoralists face due to climate change in your district?
Is there any difference between the threats of male and female agro-pastoralists? If yes, please elaborate?
2. What are the strategies and adaptation interventions being implemented by the government to respond to climate change?
3. In terms of your organization's response to climate change adaptation, Do you think integrating gender is relevant? How?
4. How do you evaluate government adaptation intervention in terms of considering the different & unique needs & potential of women & men? (in terms of targeting, timing, labor contribution, leadership and decision making participation).
5. What are the major challenges your organization encounters to implement gender responsive climate change adaptation measures? (knowledge & skill to identify & integrate gender issues aligned with climate change adaptation, appropriate budget, institutional capability & structure)

Wrap-up

Thank you for your time. That is all the questions I have. Is there anything you would like to ask me or add?

	hirmaannaa isaanii irratti dhiibbaa uumuu irratti xiyyeeffachuu)		
2.5	Akka dubartoota/dhiira mataa maatii tokkootti gaheen kee guddina dhuunfaa, humneessuu, walabummaa, fi ofitti amanamummaa kee irratti dhiibbaa qabaa/daangessa?	1 = Eyyeen 2 = Lakki	
2.6	Hawaasa keessan keessatti hojiiwwan horsiisee bultootaa gurguddoon maal fa'a?	1= Loon, re'ee, hoolaa, gaala, farda, fi harree dabalatee horii tiksuu. 2= Kanniisa horsiisuu 3= Oomishaalee nyaataa kanneen akka foon, aannan, fi hanqaaquu oomishuuf & gurguruu 4= Oomishaalee nyaataa hin taane kan akka gogaa, fi hojii harkaa oomishuuf & gurguruu. 5= Xaa'oo loonii fi muka ibiddaa oomishuuf gurguruu 6= daldala xixiqqaa 7= Shimbirroo Kan biroo (ibsi)_____.	
2.7	Akka bulchituu /bulchaa maatii dubartii/dhiiraatti hojiiwwan horsiisee bulaa ati hojjechuu hin dandeenye jiraa?	1= Loon, re'ee, hoolaa, gaala, farda, fi harree dabalatee horii tiksuu. 2= Kanniisa horsiisuu 3= Oomishaalee nyaataa kanneen akka foon, aannan, fi hanqaaquu oomishuuf & gurguruu 4= Oomishaalee nyaataa hin taane kan akka gogaa, fi hojii harkaa oomishuuf & gurguruu. 5= Xaa'oo loonii fi muka ibiddaa oomishuuf gurguruu 6= daldala xixiqqaa 7= Shimbirroo Kan biroo (ibsi)_____.	
2.8	Akka dubartii/dhiira mataa maatii tokkootti, gaheen kee (sadarkaa maatii/hawaasaatti fi hojii tiksee irratti adda ta'e) hiriyyaa kee dhiiraa/dubartii wajjin wal bira qabamee yoo ilaalamu qabeenya uumamaa jiraachuu irratti caalaatti kan hundaa'e sitti fakkaata?	1 = Eyyeen 2 = Lakki	
2.9	Akka dubartoota/dhiira mataa maatiitti, sababa dhiibbaa jijjiirama qilleensaatiin dhufu kan akka gogiinsaatiin gaheen keessan jijjiirameera moo jijjiiramee?	1 = Eyyeen 2 = Lakki	
2.10	Yoo deebiin kee G 2.9 eeyyee ta'e, jijjiiramni gahee keerratti ta'e kun hojii ulfaataa fi hiyyummaa yeroo (hanqina yeroo) sitti dabalaa?	1 = Eyyeen 2 = Lakki	
Kutaa 3: hariiroo saalaa, qabeenya argachuu, fi murtee dabarsuurratti			

3.1	Hojiwwan horsiisee bultootni hojjetaniif waantoni ijoon dubartoota/dhiirota hawaasa keessaniif barbaachisoo ta'an maal fa'i?	1= Bosona 2 = Lafa dheedichaa 3 = Leenjii 4 = Yaala fayyaa 5 = Bishaan 6 = Nyaata horii (nyaata, keessattuu loonii fi beeylada biroof kan gogfame. 7 = Tajaajila faayinaansii Kan biroo (ibsi)_____.	
3.2	Akka tikfattoota dubartoota/dhiirotaatti qabeenya gaaffii armaan olii keessatti adda baafame argachuu fi to'achuurratti ga'ee xiqqaa qabda jettee yaaddaa? (<i>jechuun, tajaajila tikfattootaaf kennamu fayyadamuu, eeguu fi bilisaan argachuuf mirga walqixummaa</i>)	1 = Eyyeen 2 = Lakki	Yoo lakki jette, gara G 3.4 tti darbi
3.3	Yoo Eyyeen jette, qabeenyi tikfattootaa ati argachuu fi to'annoo xiqqaa qabdu maali?	1= Bosona 2 = Lafa dheedichaa 3 = Leenjii 4 = Tajaajila yaala fayyaa 5 = bishaan 6 = Nyaata horii (nyaata, keessattuu loonii fi beeylada biroof kan gogfame. 7 = Tajaajila faayinaansii Kan biroo (ibsi)_____.	
3.4	Tikfattoonni dhiiraa/dubartoonni tajaajila dhuunfaa, mootummaa fi miti-mootummaa irraa deeggarsa ogummaa, teeknikaa, maallaqaa, fi teeknooloojii argachuuf carraa walqixa qabu.	1= Baay'ee itti walii hin galu 2= Walii hin galu 3= Giddu galeessa 4= Walii gala 5= Cimsee itti walii gala	
3.4	Akka tikfattoota dubartootaa/dhiirotaatti, Murtii sadarkaa maatiitti kennamu keessatti qabeenyaa fi faayidaa tikfattoonni argachuu, to'achuu fi itti fayyadamuu qaban murteessuuf walqixa hirmaattaa?	1= Eyyeen 2 = Lakki	
3.5	Qabxiileen gurguddoon abbummaa, argachuu fi to'annoo qabeenya fi faayidaa tikfattootaa irratti dhiibbaa geessisan maali?	1= aadaa fi duudhaa 2= amantii 3= haala gaa'elaa 4= saala (gatii, gahee hojii, taphattoota dubartoota fi dhiirota irraa walitti hidhaman/eegaman). 5= sabaa fi gosa 6= umrii 7= gita (dinagdee, hawaasummaa, barnootaa fi kkf sadarkaa) .	
Kutaa 4: beekumsaa fi hubannoo jijjiirama qilleensaa fi dhiibbaa inni qabu			

4.1	Haalli qilleensaa jijjiiramaa jiraachuu hubattee?	1= Eyyeen 2 = Lakki	
4.2	Yoo deebiinkee G 4.1 eeyyee ta'e, jijjiirama qilleensaa akkamii hubatte?	1= Ho'a ol'aanaa 2= Hanqina/dhibamuu rooba 3= Goguu kuusaa/madda bishaanii 4= Lafti qonnaa gogaa ta'ee hafuu 5= Yeroo rooba gabaabaa 7= Gogiinsa yeroo dheeraa 7= Kan biroo (ibsi) .	
4.3	Naannookeetti sababoonni jijjiirama qilleensaa maal fa'a?	1= Guddina baay'ina ummataa saffisaan 2= Ciramuu bosonaa ol'aanaa 3= Hanqinni qabeenya uumamaa dabaluu 4. Bulchiinsa biyyee ykn bishaanii gaarii hin taane 5. Kan biroo (ibsi) .	
4.4	Akka tikfattoota dubartoota/dhiirotaatti, jijjiiramni qilleensaa jireenya kee irratti dhiibbaa akkamii geessiseera?	1= Du'a bineensotaa 2= Omishni hir'achuu ykn Midhaan kufaa ta'uu 3= Oomishni beeyladaa hir'achuu 4= Weerara raammoo 5= Bibittinnaa'uu qabeenya beeyladaa 6= Wabiin nyaata dhabuu maatii dabaluu 7= Balaan dhukkuboota dabaluu 8= Ba'aan manaa fi hiyyummaa yeroo dabaluu 8= Kan biroo (ibsi) .	
4.5	Dubartoonni fi daa'imman dhiibbaa hamaa jijjiirama qilleensaatiin haala adda ta'een miidhamu.	1= Baay'ee itti walii hin galu 2= Walii hin galu 3= Giddu galeessa 4= Walii gala 5= Cimsee itti walii gala	Yoo 1 fi 2 jette, gara kutaa 5tti darbi
4.6	Yoo deebiinkee G 4.5, 4 ykn 5 ta'e, Wantoonni saaxilamummaa dubartootaa fi daa'immanii dabalaa maali?	1= Qoodinsa hojii koorniyaa irratti hundaa'e 2= Qabeenya argachuu fi to'achuu dhabuu 3= Godaansa gogiinsa irraa kan ka'e, fi walitti bu'iinsa. 4=Dubartootni dinagdee fi hawaasummaan humna dhabuu 5= Miidhaa/jeequmsa qaamaa fi saalaa.	
4.7	Yoo saaxilamummaan dubartootaa fi daa'immanii jiraate, jijjiiramuun qilleensaa gareewwan kana irratti rifaatuu fi dhiibbaa akkamii akka geessise ibsi?	1. Dubartoota 2. Daa'imman	
Kutaa 5: Tarkaanfiiwwan jijjiirama qilleensaa madaqsuuf dubartootaan fi dhiirota tikfattootaan fudhataman			

5.1	Akka dubartoota/dhiirota tikfattootaatti jijjiirama qilleensaa dandamachuuf tooftaaleen madaqsuu fayyadamtan maali?	1 = Sochii waqtii bishaanii fi dheedichaaf 2= Walitti qabamuu Hawaasaa (qabeenya hawaasaa kan akka bosonaafi oomisha bosonaa fayyadamuu...) . 3= Deeggarsa gargaarsaa irratti hirkataa ta'uu 4= Horii adda addaa (horii gosa adda addaa horsiisuun) . 5= Uummata tuuta irraa hir'isuu (dhabamsiisuu fi deebisanii damdamachiisuu) . 8. Bulchiinsa gaaddidduu bishaanii (kuusaa, bishaan fooqii qabachuu, fi bishaan gahaa kuusuu) . 9= Gurgurtaa cilee fi boba'aa-muka ibiddaa 10= Gurgurtaa aannaniifi bu'aalee aannanii 11= Daldala xixiqqaa 12= Hojii humna namaatiif sababa/godaansa 9= Kanneen biroo (ibsi) .	
5.2	Deeggarsi qaama mootummaa, miti mootummaa fi dhaabbata dhuunfaan siniif taasifamu mala madaqsuu asiin olitti ibsite waliin kan walsimudha.	1= Baay'ee itti walii hin galu 2= Walii hin galu 3= Giddu galeessa 4= Walii gala 5= Cimsee itti walii gala	
5.3	Jijjiirama qilleensaa madaqsuun fedhii dubartootaa fi dhiirotaa adda adda ta'e ilaalcha keessa galchuun damee mootummaa, miti mootummaa fi dhuunfaa ni deeggara. (<i>Gama xiyyeeffannoo, yeroo, gumaacha hojjetaa, hoggansa, fi murtee kennuutiin</i>).	1= Baay'ee itti walii hin galu 2= Walii hin galu 3= Giddu galeessa 4= Walii gala 5= Cimsee itti walii gala	
5.4	Akka tikfattootaatti dubartoota/dhiirotaatti, tooftaaleen badaa jijjiirama qilleensaa madaqsuuf baay'inaan hojiirra oolan bu'aa maal fa'a?	1= Gahee fi itti gaafatamummaa dabaluu (hojii maatii) . 2= Sadarkaan dhiphina sammu dabaluu 3= Dhimmi nageenyaa dabaluu 4= Maatii addaan bahuu 5= Barnoota addaan kutuu 6=Shamarran dursanii fuudhuu 7= Miidhaa saalaa, reebicha, qisaasa'ummaa, gudeeddii fi kkf. 8= Hojii daa'immanii 9= Fayyaa dhabuu fi hanqina nyaataa 10= Kan biroo _____ .	
5.5	Akka tikfattoota dubartoota/dhiirotaatti, tooftaalee madaqsuu filannoo kanneen dhiibbaa hamaa armaan olitti agarsiifaman hir'isuuf itti fayyadamuu filattu ibsi.		

II: Qajeelfama Marii Garee Xiyyeeffannoo

Of beeksisuu:

Akkam jirtu, maqaan koo (maqaan interviewer) jedhama. Ani as kanan dhufe barruu qorannoo MA kootiif daataa qulqullinaa walitti qabuuf. Gaaffii muraasa si gaafachuu fi jireenyi kee jijjiirama qilleensaatiin akkamitti akka dhiibbaa irra ga'uu fi fedhiin, fedhiin, dandeettii fi saaxilamummaan kee saala keetiin akkasumas gidduu seensaa jijjiirama qilleensaa madaqsuu akkamitti akka dhiibbaa irra ga'u ilaalcha kee dhaga'uuf abdiin qaba.

Hayyama beekumsa qabu argachuu:

Odeeffannoon naaf qooddan iccitii ta'ee kan eegamu yoo ta'u, gaaffiin deebii kennuu hin barbaanne yoo jiraate deebisuun hin barbaachisu. Akkasumas yeroo barbaaddanitti addaan kutuu dandeessu.

Hirmaannaan fedhii ofiitiin; mee daqqiqa 90 itti aananiif marii kana irratti hirmaachuutti gammaduu fi dhiisuu keessan naaf beeksisuu dandeessu? Kana malees osoo hin jalqabin dura gaaffii qabduu?

Unka kana guuti: (hirmaattonni bishaan akka qabaataniif jalqaba irratti dhugaatii/bishaan kenniif).

Guyyaa Af-gaaffii:	
Maqaan Haala Mijeessituu:	
Saala Haala Mijeessituu	Dhiira <input type="checkbox"/> Dhalaa <input type="checkbox"/>
Saala hiikaa Sex:	Dhiira <input type="checkbox"/> Dhalaa <input type="checkbox"/>
Bakka:	
Saala hirmaattotaa:	
Baay'ina hirmaattotaa	
Umurii Hirmaattotaa (xiqqaa irraa kaasee hanga guddaatti):	
Haala gaa'ila	Kan hin fuune/heerumne <input type="checkbox"/> Kan hin fuudhe/heerumte <input type="checkbox"/> Kan jalaa du'e/duute <input type="checkbox"/> kan adda ba'an <input type="checkbox"/>
Amantii	Islaama <input type="checkbox"/> Kiristaana <input type="checkbox"/> Aadaa <input type="checkbox"/> Kan biraa (inbsi).....

Kutaa 1: Gahee fi itti gaafatamummaa saalaa

1. Gahee fi itti gaafatamummaan ijoo dhiiraa, dubartoota, shamarranii fi ijoollee dhiiraa mana keessattis ta'e hawaasa bal'aa keessatti maal fa'a? (Fkn bishaan fiduu, nyaata bilcheessuu, muka ibiddaa walitti qabuu, daa'imman kunuunsuu, uffata dhiquu fi kkf)
 - Gaheen hojii haala kanaan kan qoodamu maaliifi?
 - Hojiin kun guyyaa guyyaan yeroo hammamii fudhata?
 - Gaheen hojiiwwan kun yeroo hunda kan raawwataman moo akka barbaachisummaa isaatti kan raawwatamanidha.
 - Sababa jijjiirama qilleensaatiin gaheen kun yeroon darbaa dhufee jijjiiramee jiraa?
2. Akka bulchaa maatii dubartii/dhiiraatti, hojii qonna-tikfatootaa (agro-pastoral) wajjin walqabatee maal gochuu fi gochuu dhiisuu qabda?
3. Gaheen kunniin qabeenya uumamaa kan akka bishaanii, bosona, margaa & lafa qonnaa argamuu irratti kan hundaa'aniidha?

Kutaa 2: hariiroo saalaa, qabeenya argachuu fi murtee kennuuratti

1. Hojiiwwan qonna-tikfatootaa ijoo dubartoota/dhiirota hawaasa keessan keessatti raawwatamaniif qabeenya barbaachisoo ta'an maali?
2. Dubartoonni/dhiirri qabeenya qonna-tikfatootaa gaaffii armaan olii keessatti adda baafame argachuu ykn to'achuu danda'uu? Ibsuu? (Qorannoo: lafa qonnaa, lafa dheedichaa, bosona, tajaajila ekisteenshinii qonnaa fi kkf)
 - Dubartoota/dhiirota qeenxee fi gaa'ela qaban gidduutti garaagarummaan abbummaa, qaqqabummaa fi to'annoo qabeenya qonnaa-tikfatootaa irratti ni jiraa? Yoo eeyyee ta'e maaliif?
3. Wantoonni gurguddoon abbummaa, qaqqabummaa fi to'annoo qabeenya qonnaa tiksee irratti dhiibbaa geessisan maali? (qorannoo: aadaa, amantii, haala gaa'elaa, haala dinagdee/hawaasummaa)
4. Qabeenya qonnaa-tikfatootaa eenyu akka argatu, akka to'atu fi akka itti fayyadamu murteessuuf murtoon mana keessatti akkamitti kennama? Adeemsa murtii kennuu keessatti eenyutu hirmaata?
5. Waldaaleen/quunnamtiin hawaasa irratti hundaa'e (qonnaan bul'tootaa, fayyadamtoota bosona...) hawaasa keessan keessatti socho'aa jiru kamfa'i?
 - Kaayyoon isaanii maali fi ulaagaaleen miseensa ta'uuf barbaachisan maali?
 - Qabiyyeen miseensota dubartootaa fi dhiirotaa maali?
 - Dubartoonni hoggansa keessatti bakka bu'ummaa walmadaalaa qabuu? Yoo hin taane sababoonni haala kanaa maali?
 - Walgahii fi marii waldaalee/quunnamtii hawaasa bu'uura fi bakka bu'oota mootummaa naannootiin qophaa'u irratti walqixaa hirmaattaa? Akkamitti/maaliif hin taane?

Kutaa 3ffaa: beekumsaa fi hubannoo dhiibbaa jijjiiramni qilleensaa dubartootaa fi dhiirota irratti qabu

1. Haala qilleensa naannoo keessanii yeroon akkamitti ibsitu?
 - Haalli qilleensaa jijjiiramaa akka jiru ni amantaa? Yoo eeyyee ta'e, haala qilleensaa kamitu jijjiiramaa jira?
 - Sababoonni jijjiirama qilleensaa kanaa maal jettee yaaddaa?
2. Jijjiiramni qilleensaa qilleensaa hamaa isin mudate maali? Akkamitti ibsitu?
 - gama haala qilleensaa fi elementoota haala qilleensaatiin (Rooba, Teempireechara, qorra) .
 - gama jireenya keessaniitiin (midhaanii dhabuu, du'a beeyladaa, wabii nyaataa dhabuu, hanqina bishaanii mudachuu....).
 - gama naannoo uumamaa mandara/ganda keessaniitiin (dhiibbaa bosonaan walqabatu, dhiibbaa lafa range waliin walqabatee, dhiibbaa lagaa/bishaan kuufamaa/birraa waliin walqabatee) .
3. Yeroo dhumaaf naannoo keessanitti gogiinsa yoom isin mudate? Jireenyi keessan balaa jijjiirama qilleensaatiin walqabatee hangam miidhamaa jira? (Qorannoo: qabeenya jireenyaa kee, dhiibbaa fayyaa wajjin walqabatee dhufu, sababa balaa haala qilleensaatiin walqabatee maatii kee dhabdee fi kkf)
 - Hubaminsa dubartootaa fi dhiirotaa adda adda jettanii yaaddu? Yoo eeyyee ta'e akkamitti/maaliif?
4. Waggoota kurnan darban keessatti dhiibbaa jijjiirama qilleensaatiin yeroon hojiiwwan qonna-tikfattootaa kan akka qonnaa, oomisha beeyladaa, fi hojii mana keessaa kan akka bishaanii fi muka ibiddaa walitti qabuu fi kkff ramadame jijjiirameeraa, yoo ta'e akkamitti?
5. Waggoota kurnan darban keessatti sababa jijjiirama qilleensaatiin qabeenya akka lafa qonnaa fi dheedichaa, bishaan, anniisaa fi qabeenya biroo irratti dubartoonni fi dhiironni argachuu fi to'annoon qaban jijjiirameeraa? Yoo jiraate akkamitti?
6. Balaa jijjiirama qilleensaatiin walqabatee dhufu booda miidhaa/jeequmsi qaamaa fi saalaa si mudataa?
 - Hawaasni fi qaamoleen itti gaafatamummaa qaban dhimmoota miidhaa saalaa (GBV) akkamitti ilaalu/ deebii kennu?

Kutaa 4: tarkaanfiiwwan jijjiirama qilleensaa madaqsuu dubartootaa fi dhiirota qonna-tikfattootaan fudhataman

1. Yeroo balaan jijjiirama qilleensaatiin walqabatee akka gogiinsaa mudatan, karaaleen adda addaa dubartoonni & dhiironni haala kana ittiin to'atan maal fa'i?
 - Tarkaanfiiwwan qonna-tikfattootaa waliin walqabatan
 - Tarkaanfiiwwan godaansa waliin walqabatan
 - Tooftaalee kuusuu wajjin walqabatan
 - Tarkaanfiiwwan jijjiiruun (Diversification) walqabatan (qonna-tikfattoota irraa kan hafe hojiiwwan adda addaa irratti bobba'uu) .

- Walitti dhufuu hawaasaa (qabeenya hawaasaa kan akka bosonaafi oomisha bosonaa fayyadamuu...)
 - Tarkaanfiiwwan Jijjiirraa Gabaa waliin walqabatan
2. Dhiibbaa hamaa jijjiirama qilleensaa hir'isuuf amma dura itti fayyadamaa jiran irratti dabalataan tooftaalee madaqsuu filannoowwan fudhachuu barbaaddan maali?
 3. Tooftaalee madaqsuu filannoo kana hojiirra oolchuuf gufuuwwan jiran maali?
 4. Yeroo balaa jijjiirama qilleensaatiin walqabatee mudatu keessatti qormaanni/danqaaleen gurguddoon dubartoonni & dhiironni jireenya isaanii bulchuuf isaan mudatu maali.
 5. Jijjiirama qilleensaa madaqsuuf lubbu qabeeyyii akkamii qabaachuun fayyadaa? Maalif? Sadarkaa barbaachisummaa isaanii agarsiisi.
 6. Mootummaa fi dhaabbileen miti mootummaa rakkoolee jijjiirama qilleensaa wajjin walqabatan akkamitti deebii kennu?
 - Giddu-galli jijjiirama qilleensaa madaqsuu isaanii fedhii dubartootaa fi dhiirotaa adda adda ilaalaa? (Gama xiyyeeffannoo, yeroo, gumaacha humna namaa, hoggansaafi murtee kennuutiin).

Dhumarratti

Yeroo nuuf kennitaniif galatoomaa. Gaaffiin ani qabu kana qofa. Wanti na gaafachuu ykn itti dabaluu barbaaddan jiraa?

III: Gaaffiiwwan Af-gaaffii Odeeffattoota Ijoo

Of beeksisuu:

Akkam jirtu, maqaan koo (maqaa gaafataa) jedhama. Ani as kanan dhufe barruu qorannoo MA kootiif daataa qulqullinaa walitti qabuuf. Gaaffii muraasa si gaafachuu fi jireenyi kee jijjiirama qilleensaatiin akkamitti akka dhiibbaa irra ga'uu fi fedhiin, fedhiin, dandeettii fi saaxilamummaan kee saala keetiin akkasumas gidduu seensaa jijjiirama qilleensaa madaqsuu akkamitti akka dhiibbaa irra ga'u ilaalcha kee dhaga'uuf abdiin qaba.

Hayyama beekumtii qabu argachuu:

Odeeffannoon naaf qooddan iccitii ta'ee kan eegamu yoo ta'u, gaaffiin deebii kennuu hin barbaanne yoo jiraate deebisuun hin barbaachisu. Akkasumas yeroo barbaaddanitti akka addaan kutuu dandeessan isin beeksisna.

Hirmaannaan fedhii ofiitiin; mee daqiiqaa 45 itti aananiif marii kana irratti hirmaachuutti gammaduu fi dhiisuu keessan naaf beeksisuu dandeessu? Kana malees osoo hin jalqabin dura gaaffii qabduu?

Haala Waliigalaa Bakkaa

- Maqaa aanaa
- Maqaa mandaraa/gandaa
- Guyyaa daawwii

Odeeffannoo hirmaattota KII (odeeffattoota ijoo ta’anii)

1. Umurii
2. Saala
Dhiira Dhalaa
3. Haala gaa’ilaa
Kan hin fuune/heerumne Kan fuudhe/heerumte Kan wal hiikan Kan jalaa du’e/duute Kan adda ba’an
4. Haala Barnootaa
Barnoota bu’uuraa sadarkaa 1ffaa sadarkaa 2ffaa sadarkaa 3ffaa Hin jiru
5. Amantii
Kiristaana Islaama Aadaa Kan biraa (ibsi).....

I. Af-gaaffii walakkaa caaseffama qabu Gaaffiiwwan odeeffattoota ijoo caasaa mootummaa irraa

1. Sababa jijjiirama qilleensaan aanaa keessan keessatti balaawwan gurguddoon qonna-tikfattootaa mudatan maali? Dhiibbaan tiksitoota-qonnaa dhiiraa fi dubaraa gidduu garaagarummaan jiraa? Yoo eeyyee ta’e bal’inaan ibsaa?
2. Jijjiirama qilleensaaf deebii kennuudhaaf tooftaaleen fi gidduu-galli madaqsuu mootummaan hojiirra oolchaa jiru maali?
3. Gama deebii dhaabbati keessan jijjiirama qilleensaa wajjin walsimsiisuuf kennu ilaalchisee, Saala adda baasuu dhiisuun barbaachisaa dha jettanii yaaddu? Akkam?
4. Fedhii & dandeettii adda adda ta’e dubartootaa fi dhiirotaa ilaaluun gidduu seensaa madaqsuu mootummaa akkamitti madaaltu? (gama xiyyeeffannoo, yeroo, gumaacha hojjetaa, hoggansa fi hirmaannaa murtee kennuutiin).
5. Tarkaanfiiwwan madaqsuu jijjiirama qilleensaa garaagarummaa saalaaf deebii kennan hojiirra oolchuuf qormaatni gurguddoon dhaabbati keessan mudatu maali? (beekumsa fi dandeettii dhimmoota koorniyaa madaqsuu jijjiirama qilleensaa wajjin walsimu adda baasuu fi walitti makuu, baajata sirrii, dandeettii fi caasaa dhaabbilee)

Dhumarratti

Yeroo nuuf kennitaniif galatoomaa. Gaaffiin ani qabu kana qofa. Wanti na gaafachuu ykn itti dabaluu barbaaddan jiraa?