

AFRICA UNIVERSITY

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**ANALYSING THE FRAMEWORKS FOR THE IMPLEMENTATION
OF CLIMATE-SMART AGRICULTURE AMONG WOMEN
FARMERS IN MBIRE DISTRICT, ZIMBABWE**

BY

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE
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Abstract

Climate change is threatening agricultural productivity and rural livelihoods in Zimbabwe. In response to these challenges, Climate-smart agriculture (CSA) is a critical strategy for enhancing climate resilience. However, the adoption of CSA practices remains limited, particularly among women farmers. This dissertation explores the institutional support, stakeholder engagement, and women's empowerment necessary for promoting CSA adoption in Mbire District, Zimbabwe. This dissertation explores the climate-smart agriculture (CSA) implementation frameworks among women farmers in Mbire District, Zimbabwe. Women have been active in safeguarding food security and agricultural productivity; hence, understanding their role in implementing CSA practices becomes increasingly vital. The study employs qualitative interviews to assess the barriers and opportunities female farmers face in adopting sustainable agricultural practices. This study's findings point to some ways interventions can incorporate traditional knowledge, address unpaid care responsibilities, invest in education, review customary laws, enhance access to resources, and engage in participatory policy development. Women are critical in Zimbabwe's agriculture and implementation of CSA strategies, yet they face challenges and socio-cultural constraints that hinder their participation in CSA initiatives. The research highlights the importance of targeted interventions that empower women through education, access to technology, and increased support from local governance structures. This research contributes to the knowledge of CSA adoption by highlighting the critical role of institutional support, stakeholder engagement, and women's empowerment. This dissertation has established some important connections between empowering women with resources and boosting their ability for climate resilience through advocating for inclusive policies. The study has recognised that as more women implement sustainable agricultural practices, more households will be able to cope with the effects of climate change. It serves as a foundational study for future research and policy development to enhance the resilience and productivity of women farmers in Zimbabwe and beyond.

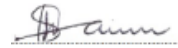
Keywords: Gender, Climate Resilience, Policy framework,

Declaration

This dissertation is my original work except where sources have been cited and acknowledged. The work has never been or will ever be submitted to another university for the award of a degree.

Itayi Usaiwevhu

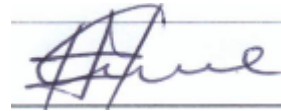
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He who makes all things possible should be praised. Baraka zake hazikwishi !

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Dedication

This work is dedicated to all the women who strive to make agriculture sustainable in the face of climate change. Thank you all for your contributions to this journey.

List of Acronyms and Abbreviations

CSA	Climate-Smart Agriculture
IPCC	Intergovernmental Panel on Climate Change
FAO	Food and Agriculture Organization
FTLRP	Fast Track Land Reform Programme
NCCRS	National Climate Change Response Strategy
MAMID	Ministry of Agriculture, Mechanization and Irrigation Development,
PEI	Partnership for Economic Inclusion
NGOs	Non-Government Organizations
DOI	Diffusion of Innovation Theory
SLF	Sustainable Livelihoods Framework
FAO	Food and Agriculture Organization
ZIMSTAT	Zimbabwe National Statistics Agency
APF	Agricultural Policy Framework
ZRBF	Zimbabwe Resilience Building Fund
KII	Key Informant Interviews
FGDs	Focus Group Discussions

Definition of Key Terms

Climate Change is a long-term alteration in temperature and typical weather patterns in a place, significantly impacting agriculture and food security (Intergovernmental Panel on Climate Change [IPCC], 2014).

Climate-smart agriculture (CSA) is an approach to agricultural development that aims to increase productivity sustainably, enhance resilience to climate change, and reduce greenhouse gas emissions (Food and Agriculture Organization [FAO], 2017).

Adoption refers to the process by which farmers or agricultural stakeholders integrate new practices, technologies, or strategies into their existing farming systems (Rogers, 2003).

Sustainability is maintaining agricultural productivity while conserving environmental quality and resources long-term (World Commission on Environment and Development [WCED], 1987).

Resilience is the capacity of agricultural systems to withstand and recover from the adverse impacts of climate change and other shocks (IPCC, 2014).

A framework is a structured guideline that outlines a specific area's fundamental concepts and components. It facilitates the understanding and implementation of processes and helps to organise and clarify complex issues (Fowler, 2013).

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CHAPTER 1: INTRODUCTION

1.1 Introduction

Climate change is affecting agriculture, household food security, and rural livelihoods. Some effects include unusual rainfall patterns, extremely high temperatures, and increased natural disasters (IPCC, 2014). Climate-smart agriculture (CSA) has emerged as a key strategy for enhancing agricultural productivity, resilience, and sustainability in the face of climate change (FAO, 2010).

Like many other African countries, Mupangwa et al. (2017) identify women farmers as vital to Zimbabwe's agricultural sector; however, they face limitations related to limited access to land, financial resources, and extension services. This chapter contains the study's background, statement of the problem, research objectives, research questions, assumptions, significance, and the delimitations and limitations inherent in the research.

1.2 Background of the Study

Climate change poses significant threats to global food security. (IPCC, 2014) states that Africa has experienced increasingly erratic weather patterns, with notable declines in rainfall over the past decade. According to Kristjanson (2017), the region has experienced reduced crop yields, heightened food insecurity, and an expansion of arid and semi-arid lands. According to the National Climate Change Response Strategy (Government of Zimbabwe, 2013), the agricultural sector is the third-largest contributor to national greenhouse gas emissions, accounting for 16.3% of total emissions.

Moreover, Lipper *et al.* (2014) argue that developing nations bear approximately 75-80% of the financial burdens from climate impacts, highlighting a direct correlation between systemic underdevelopment and heightened vulnerability to these changes. As a result, climate change disproportionately affects impoverished regions, particularly in areas where vulnerable populations reside.

Zimbabwe's agricultural sector has faced significant challenges recently, including declining government investment in critical areas such as agricultural extension, disease control, irrigation, livestock, and mechanisation. The national budget allocation for agriculture has consistently fallen short of the 10% target recommended by the Maputo Agreement, currently standing at a mere 6% (Mugabe, 2017).

Furthermore, smallholder farmers, particularly those who acquired land through the Fast Track Land Reform Programme (FTLRP), face significant barriers in accessing financing from banks and microfinance institutions due to the lack of secure land tenure, which cannot be used as collateral (Scoones *et al.*, 2010). This limited access to finance and credit constrains the ability of women farmers to invest in Climate-Smart Agriculture (CSA) practices, exacerbating their vulnerability to climate change. In response to the urgent need for adaptive agricultural practices, climate-smart agriculture (CSA) has emerged as a promising approach that enhances agricultural productivity, resilience, and sustainability in the face of climate change. According to Wang *et al.* (2024), CSA promotes the utilisation of climate-resilient crop and livestock varieties alongside sustainable practices that conserve soil fertility.

National Climate Change Response Strategy (NCCRS) To address the pressing challenges posed by climate change, the Zimbabwean government has developed crucial policy initiatives, including the National Climate Change Response Strategy (NCCRS), the Agricultural Policy Framework (APF), and the Climate-Smart Agriculture Policy Framework (CSAPF) (Government of Zimbabwe, 2012). These policies aim to establish a robust governance framework that addresses vulnerabilities, particularly for marginalised groups such as women farmers in Zimbabwe, who play a crucial role in the agricultural sector.

Climate-smart agriculture practices align with Zimbabwe's environmental and agricultural policies, and its broader integration into legislative frameworks is still in its infancy. Proposals from the Agricultural Research and the National Climate Change Response Strategy, as Mutasa (2008) outlined, aim to mitigate climate-related risks and enhance adaptation strategies for communities to cope with extreme weather events, such as cyclones and droughts. The widespread prevalence of poverty and limited coping mechanisms render Zimbabwe one of the most vulnerable nations to climate change (Madzwamuse, 2010). However, the effectiveness of these strategies often remains constrained by socioeconomic factors and the prevailing inequities in resource distribution (Madzwamuse, 2010).

Zimbabwe's economy has historically relied on rain-fed agriculture and other climate-sensitive resources, which have been increasingly threatened. For instance, during the 2023-2024 farming season, average maize yields declined to 0.8 tonnes per hectare, down from 0.85 tonnes per hectare in the previous year (Chagutah, 2010). In response to the adverse effects of climate change, community-driven adaptation strategies have

been implemented, (Wang *et al.*, 2024) identified the introduction of drought-resistant crop varieties and sustainable farming practices to enhance resilience among farmers. Madzwamuse (2010) has questioned the prescriptive nature of CSA, suggesting that strategies should consider local cultural values to avoid risking community acceptance and adaptation. Chanukah (2010) also highlighted existing gender biases in the design of agricultural extension services, which frequently overlook women's vital contributions to sustainable development.

Zimbabwe's agricultural landscape features five distinct agroecological regions determined by rainfall patterns, temperature, soil quality, and vegetation (Mashingaidze *et al.*, 2021). Region IV, where Mbire District is situated, is susceptible to periodic seasonal droughts and severe dry spells during the rainy season, rendering it unsuitable for dry-land cropping (Mutasa, 2008). Climate projections indicate that Zimbabwe is expected to experience significant temperature increases. (Government of Zimbabwe, 2013). Despite these challenges, smallholder farmers in the region cultivate drought-resistant crop varieties, including maize, sorghum, pearl millet, and finger millet (Mashingaidze *et al.*, 2021).

Women play a vital role in Mbire's agricultural output. Despite their contributions, they face challenges that hinder their productivity and ability to adopt climate-smart agricultural practices (Mashingaidze *et al.*, 2021). Societal norms and economic barriers frequently restrict women's access to essential resources, including land, credit, training, and technological tools (Doss, 2018). This gender disparity limits women's capacity to embrace innovative agricultural practices, which are crucial for resilience against climate change (Njuki *et al.*, 2016). The literature emphasises the need for targeted interventions to address these gender-specific challenges.

Despite supportive policies, women farmers face multiple barriers to adopting climate-smart agricultural practices. (Schröter *et al.* 2020) Lack of access to training and education perpetuates a cycle of low adoption rates of innovative practices.

Women's limited participation in decision-making processes further exacerbates these challenges, as policies often fail to effectively reflect their needs or encourage their engagement in climate-smart initiatives (Government of Zimbabwe, 2013). Additionally, insufficient infrastructure, such as irrigation systems, and limited access to credit facilities hinder women's ability to implement sustainable practices (Mashingaidze *et al.*, 2021). The land reform program statistics indicate that female farmers constitute only 18% and 12% of A1 and A2 farmers, respectively (MAMID, 2011). This shortfall demonstrates a substantial deviation from the ideal of gender parity, which is 50%.

Women's limited access to essential resources—including land, capital, labour, mechanisation, and irrigation infrastructure—directly impacts their ability to participate effectively in the agricultural sector (MAMID, 2011). Climate change is anticipated to exacerbate these challenges further, jeopardising women's livelihoods, especially in female-headed households (Dodman, 2010). The involvement of women in agriculture is crucial for food security; however, disparities in vulnerability and access to opportunities shape their resilience in the face of the challenges posed by climate change. Climate-smart agriculture offers practical solutions for adapting agricultural practices to a changing climate, thereby enhancing productivity and food security (Steenwerth *et al.*, 2014). Aly and Shields (2010) argue that women are pivotal in improving agricultural productivity and food security in farming communities. Disparities in decision-making roles, unequal access to information, and disparities in land ownership significantly hinder the uptake of CSA practices.

Zimbabwe's legal framework supports the pursuit of gender equality, as evidenced by various laws enacted to enhance women's rights (Government of Zimbabwe, 2013). The National Gender Policy (2013-2017) underscores the importance of gender-responsive approaches to natural resource management and climate change adaptation (Government of Zimbabwe, 2013, p. 12). The government has also promoted women's access to and ownership of land. According to Moyo (2011), only 14% of women nationwide benefited from programs such as the Fast Track Land Reform Program. The insecure land tenure arrangements that characterise these schemes limit women's capacity to invest in high-value crops while prevailing gender norms hinder their mobility and access to profitable markets (Derman & Kaarhus, 2013). Women's land rights can help address structural and social barriers limiting economic growth and sustainable development.

Although legal frameworks exist to support women's rights in agriculture, their implementation is often inconsistent (Derman & Kaarhus, 2013). Firstly, addressing land tenure, as Madzwamuse (2010) argues, empowers women to engage in Climate-Smart Agriculture (CSA) and invest in sustainable agricultural practices. McDevitt (2009) emphasises that the success of climate adaptation strategies is closely aligned with the engagement of affected populations, particularly women. The involvement of women in decision-making processes related to agricultural policy is essential for addressing specific challenges they face (Aly & Shields, 2010). Gender dynamics and societal norms further influence women's engagement in climate change adaptation.

Weaknesses in agricultural policies and government interventions have impeded the adoption of climate-smart agriculture. McDevitt (2009) underscores that success is likely to be undermined without the active involvement of target populations in the

development of climate adaptation strategies. Furthermore, UN Women, the Partnership for Economic Inclusion (PEI), and the World Bank (2015) highlight that development practices often neglect the diversity of affected populations, thereby marginalising vulnerable groups. Despite legal frameworks advocating for women's rights in agriculture, implementation remains inadequate, particularly regarding land ownership, a crucial resource for CSA adoption.

Despite the growing importance of Climate-Smart Agriculture (CSA) in Zimbabwe, the country's environmental policymaking and the social dimensions surrounding the adoption of CSA have received inadequate attention (Mugabe *et al.*, 2017). Barbon, Vidallo, and Gonsalves (2017) emphasise the need to contextualise development interventions, such as CSA initiatives, to target vulnerable groups and leverage their contributions towards poverty alleviation. However, poorly conceived CSA initiatives risk exacerbating existing inequalities, benefiting affluent farmers while further marginalising disadvantaged smallholder farmers, particularly women (UN Women, PEI, & World Bank, 2015). The gender gaps in agricultural productivity are perpetuated by the interplay of gender norms and constraints surrounding the use of productive resources (Doss, 2018). Addressing the social dimensions, ensuring that CSA initiatives in Zimbabwe are inclusive, equitable, and effective in promoting sustainable agriculture

This study aims to analyse the frameworks for CSA adoption among women farmers in Mbire District, Zimbabwe. Specifically, it aims to identify the policy and institutional frameworks that support or hinder CSA adoption among women farmers, assess the effectiveness of these frameworks in promoting CSA adoption, and propose strategies to strengthen them and enhance CSA adoption among women farmers.

1.3 Statement of the Problem

Despite the critical role of women farmers in agricultural production and food security, adopting Climate-Smart Agriculture (CSA) practices in Mbire District, Zimbabwe, remains suboptimal, hindering the district's agricultural productivity, resilience, and sustainability. Women farmers' well-being positively influences household food security despite the shocks and stresses associated with climate change (Nhamo et al., 2019). However, several barriers impede their effective integration of CSA practices, including limited access to resources, inadequate knowledge and training (Makhwate & Moyo, 2020), and insufficient support from agricultural policies and institutions (FAO, 2018).

The limited adoption of Climate-Smart Agriculture (CSA) practices among women farmers in Mbire District threatens their livelihoods, food security, and overall well-being. The failure to acknowledge and address these disparities within policy frameworks limits the potential for improved agricultural resilience among women farmers (Doss, 2018; FAO, 2018; UN Women, 2020). There is, therefore, a need for a comprehensive analysis of policies and frameworks that support the adoption of CSA among women farmers in the district. Understanding these frameworks is essential for identifying gaps, challenges, and opportunities that could enhance the resilience and productivity of women farmers.

1.4 Research Objectives

1. To assess the effectiveness of the policy and institutional frameworks in promoting CSA adoption among women farmers in Mbire District.
2. To examine the motivations and practices influencing women farmers' adoption of CSA.

3. To analyse the factors affecting the implementation and efficacy of policy and institutional frameworks that support the adoption of Climate-Smart Agriculture (CSA) among women farmers in Mbire District, Zimbabwe.
4. To propose strategies for strengthening the policy and institutional frameworks to enhance the adoption of CSA among women farmers in Mbire District.

1.5 Research Questions

- a) What are the policy and institutional frameworks for adopting climate-smart agriculture in Mbire District?
- b) How effective are these frameworks in promoting climate-smart agriculture among women farmers in Mbire District?
- c) What are the key barriers and enabling factors influencing the implementation and effectiveness of policy and institutional frameworks in promoting the adoption of Climate-Smart Agriculture (CSA) among women farmers in Mbire District, Zimbabwe?
- d) How can these frameworks be enhanced to better promote the adoption of climate-smart agriculture among women farmers in Mbire District?

1.6 Assumptions

Women farmers in Mbire District are informed about climate-smart agriculture (CSA) practices. This assertion is supported by various initiatives promoting CSA in Zimbabwe, including government programs and projects undertaken by non-governmental organisations (NGOS) (Nhamo, 2020). These awareness initiatives have increased outreach and educational efforts.

Zimbabwe's policy and institutional frameworks are assumed to promote Climate-Smart Agriculture (CSA) adoption among women farmers. These frameworks have been communicated to the women farmers in Mbire District.

It is anticipated that women farmers in Mbire District will have access to crucial resources necessary to adopt CSA practices. This assumption is underpinned by the relatively developed infrastructure in the district, which development partners support.

In addition, CSA practices are expected to effectively enhance agricultural productivity and resilience among women farmers in Mbire District. Research has demonstrated that CSA has improved agricultural productivity and resilience, indicating that similar benefits could be expected for this district (Kumar & Ghosh, 2018).

The sample used is assumed to represent women farmers in Mbire District. The convenient sampling technique minimises bias and ensures that the broader population of women farmers in the area participates (Denscombe, 2014).

Finally, the study findings are assumed to be generalisable to other districts in Zimbabwe. This belief is based on the premise that Mbire District shares similar agroecological conditions and socio-economic characteristics with Regions 4 and 5 districts. Consequently, insights from this study could prove valuable in guiding broader agricultural policies and practices across Zimbabwe.

1.7 Significance of the Study

This study aims to analyse the existing frameworks for climate-smart agriculture adoption among women farmers in Mbire District, exploring the barriers they face and identifying opportunities for enhancing gender-sensitive policy interventions. By focusing on the intersection of gender, agriculture, and climate change, this research seeks to contribute to a more equitable and sustainable agricultural future for women in the region. The findings of this study are expected to contribute to developing strategies that promote the adoption and success of Climate-Smart Agriculture (CSA) among women farmers in Mbire District and beyond. By revealing insights into the impact of Climate-Smart Agriculture (CSA) on women farmers and the factors that influence its adoption, this research will provide valuable guidance for policymakers and practitioners seeking to enhance the adoption and success of CSA.

Overall, this study has the potential to significantly enhance the existing body of research on CSA and its effects on women farmers in Africa while also informing policies and practices aimed at fostering CSA adoption and success among women farmers in Mbire District and beyond.

1.8 Delimitation of the Study

This study is limited to assessing the impact of climate-smart agriculture (CSA) among women farmers from Mbire District, Zimbabwe. It focuses specifically on women farmers in Ward 2 and other stakeholders, including male farmers, agricultural extension officers, and policymakers.

The study is further delimited to explore the impact of CSA on the agricultural productivity, income, and food security of women farmers. The study does not

examine the effect of CSA on other aspects of women farmers' livelihoods, such as their health, education, or social status. The study's geographical scope is delimited to Ward 2, Mbire District, Zimbabwe, and it does not explore the impact of CSA on women farmers in other districts or regions of Zimbabwe. The study is also delimited to a specific time frame: the agricultural seasons between 2022 and 2024.

By delimiting the study to a specific population, geographical area, and time frame, the researcher aims to ensure that the study is manageable, focused, and able to provide in-depth insights into the impact of CSA on women farmers in Ward 1, Mbire District.

1.9 Limitations of the Study

This study has potential limitations that may affect the validity and reliability of its findings, but strategies will be put into place to ensure the accuracy of the findings:

Firstly, the research is based on a relatively small sample size of women farmers in Ward 2, Mbire District. This limitation may hinder the generalizability of the results to the broader population of women farmers in Mbire District or across other districts in Zimbabwe. Furthermore, the focus on Ward 2 restricts insights into the effects of climate-smart agriculture (CSA) for women farmers in different regions.

Secondly, a qualitative design has the potential to evaluate and determine causal relationships between CSA and its impact on the lives of women farmers. This design captures a snapshot in time rather than providing a dynamic view of changes and effects over time. Additionally, relying on self-reported participant data introduces potential biases and limitations, as respondents may not always accurately represent their experiences or practices.

The study also faces challenges due to limited access to secondary data regarding CSA and its effects on women farmers in Mbire District, which constrains the ability to triangulate findings with existing literature.

Time constraints have further impacted the comprehensiveness of data collection and analysis. Additionally, the available budget restricts the research to only one ward, which may affect the depth and breadth of the study. Despite these challenges, the study will provide valuable insights into the impact of CSA on women farmers in Ward 2, Mbire District, and make a meaningful contribution to the expanding body of research focused on CSA and its influence on women farmers.

CHAPTER 2: REVIEW OF LITERATURE

2.1 Introduction

This chapter presents a framework for understanding the adoption of CSA, drawing on past theories and literature. Given agriculture's significant role in the country's economy and women's distinct challenges in the agricultural sector, understanding these dynamics is critical for developing effective policies and programs. This chapter highlights key themes in the literature related to the impacts of climate change on agriculture, gender roles in farming, the adoption of climate-smart practices, and the effectiveness of policy frameworks promoting Climate-Smart Agriculture (CSA). By synthesising this information, the chapter aims to inform stakeholders about the potential of Climate-Smart Agriculture (CSA) to address food security and enhance rural livelihoods in the face of ongoing climate challenges.

2.2 Theoretical Framework

The conceptualisation of frameworks necessary for climate-smart agriculture adoption among women farmers in Mbire District is grounded in the Sustainable Livelihoods Framework. The Sustainable Livelihood Framework (SLF) provides a comprehensive approach to analysing communities, particularly women farmers engaging in climate-smart agriculture. The framework reiterates the importance of access to productive assets, institutional structures, processes, and household livelihood strategies (Davy *et al.*, 2017). The framework emphasises that integrating production assets, policies, institutions, processes, and livelihood strategies enables the achievement of sustainable livelihoods. As such, a combination of gender, sustainable agriculture, and climate change policies works towards sustainable development. (Hallegatte *et al.*, 2015).

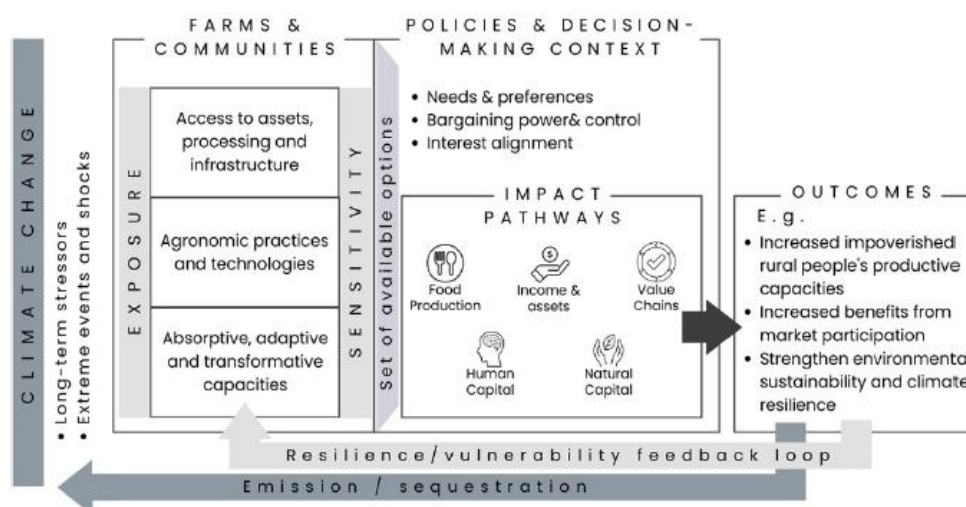
Key components encompass vulnerability, livelihood assets, strategies, policies, institutions, and processes. According to Adger (2006), this framework explores external influences on the livelihoods of women farmers, such as climate change, poverty, and limited resource access. The assets at women's disposal—including human, social, physical, financial, and natural capital—are crucial for their livelihoods (Bebbington, 1999). This links to their strategies and activities for income generation, such as farming, livestock rearing, and off-farm work (Ellis, 2000). The policies, institutions, and processes influencing women farmers' livelihoods include government legislation, market system dynamics, and prevailing social norms (DFID, 1999). The Sustainable Livelihoods Framework therefore provides a comprehensive approach to understanding the complex relationships between livelihoods, vulnerability, and sustainability in the context of CSA adoption among women farmers in Mbire District.

Development stakeholders observe that sustainable livelihoods require governance practices incorporating multi-stakeholder collaboration and coordination (Bahadur *et al.*, 2015). As Kuyper *et al.* (2018) described, CSA interventions are more effective for women farmers if they consider local cultural practices and gender roles, as these are more likely to integrate successfully into existing farming systems. The SLF highlights the interconnectedness between livelihood strategies and the broader social, economic, and environmental contexts in which women farmers operate. This framework emphasises the importance of building local capacities, thereby encouraging women to participate in decision-making processes related to agriculture and environmental management (Chambers & Conway, 1992).

The Sustainable Livelihoods Framework (SLF) offers a comprehensive approach to understanding how households can leverage their assets—natural, human, social, physical, and financial capital—to promote sustainable agricultural practices that are resilient to climate change (Chambers & Conway, 1992; DFID, 1999). Research has shown that access to natural resources and knowledge of sustainable farming techniques empower women farmers to adapt to shifting climatic conditions and enhance their productivity (Scoones, 1998). Therefore, the combination of the two theories and the SLF is a valuable resource for policymakers and practitioners seeking to develop effective interventions that promote gender equity and climate-resilient agriculture among women farmers.

The study also aims to understand the factors influencing adopting of climate-smart agriculture (CSA) practices among women farmers in the Mbire District. Walsh *et al.*, (2024) suggest utilising the Conceptual Framework of design and decision-making tools to identify effective strategies for promoting resilience and sustainability in agricultural systems. This framework recognises the complex relationships between climate change, vulnerability, and resilience (Berkes & Ross, 2013). CSA interventions should precisely address localised climate change impacts, enhancing resilience while improving agricultural productivity and incomes (World Bank, 2020). As such, multidimensional outcomes are also achieved through various pathways to foster meaningful resilience.

Table 2.1 Conceptual Framework of the CSA design and decision-making tool.



Walsh *et al.*, (2024)

2.3 Relevance of the theoretical framework

A significant body of literature emphasises that effective adoption of CSA practices is closely linked to access to education, resources, and technology. Doss (2018) highlights that women farmers often lack vital information regarding climate-smart practices, which inhibits rational decision-making. Rogers' (2003) Diffusion of Innovations (DOI) theory offers critical insights into how CSA practices are disseminated within agricultural communities. The DOI framework identifies various barriers to adoption, including a lack of information, limited access to resources, and resistance to change due to concerns about upfront costs (Dixon *et al.*, 2016; Niles *et al.*, 2016). Enhanced access to resources is essential for enabling women to make informed choices that favour CSA adoption.

The SLF provides a robust analytical lens for understanding the complexities surrounding women farmers' engagement in CSA. By focusing on the interplay between various assets and the socio-economic context, the SLF emphasises that achieving sustainable livelihoods necessitates governance practices that promote multi-stakeholder collaboration (Bahadur *et al.*, 2015). Access to natural resources and knowledge about sustainable farming practices empowers women to adapt to climatic shifts and enhance their productivity (Scoones, 1998). Moreover, the SLF emphasises the importance of building local capacities and ensuring women's participation in agricultural decision-making (Chambers & Conway, 1992). Addressing these barriers through structured interventions is vital for improving adoption rates. Therefore, the Sustainable Livelihoods Framework (SLF) advocates for a comprehensive approach that creates an enabling environment, allowing policies to support women in adopting innovative agricultural techniques for resilience and sustainability.

2.4 Review of related literature

2.4.1 Conceptualising climate-smart agriculture

Climate-smart agriculture (CSA) encompasses a broad range of agricultural practices and technologies designed to address the challenges posed by climate change while promoting food security and sustainable development. The Food and Agriculture Organization (FAO, 2010) defines CSA as "agriculture that sustainably increases productivity, enhances resilience, reduces or mitigates greenhouse gas emissions, and contributes to the achievement of national food security and development goals." This definition highlights the interconnection between agricultural practices and climate resilience, addressing contemporary challenges in the agricultural sector.

One of the primary objectives of Climate-Smart Agriculture (CSA) is to increase productivity, which is achieved by adopting efficient and sustainable agricultural practices (Lipper *et al.*, 2014). This dimension focuses on enhancing crop and livestock yields through improved crop rotation, drought-resistant crop varieties, and optimised nutrient management (FAO, 2013).

These practices aim to meet the growing food demands of a rising global population (Tilman *et al.*, 2011) and maintain ecological balance by minimising the overuse of chemical inputs.

Farmers' resistance to adopting climate-smart agriculture (CSA) practices can be attributed to various barriers, including limited access to information, resources, and financial constraints (Dixon *et al.*, 2016; Niles *et al.*, 2016). To overcome these barriers, tailored training programs and financial incentives can effectively improve CSA adoption rates. According to rational choice theory, individuals make decisions based on the expected outcomes that maximise their utility (Becker, 1976; Haynes & Mangas, 2015).

This theory suggests that women farmers' adoption of CSA practices depends on careful consideration of various factors, including economic viability, risk, and resource availability (Agarwal, 2010). Women farmers tend to weigh the potential benefits of adopting new practices against the associated costs and risks. They are more likely to adopt CSA if they perceive it as leading to higher yields and income with manageable costs (Agarwal, 2010).

Enhanced resilience is a critical component of Climate-Smart Agriculture (CSA), referring to the capacity of agricultural systems to withstand, recover from, and adapt to the impacts of climate change (IPCC, 2013). This includes managing risks associated with climatic variability, such as droughts and floods, through strategies like crop diversification, water conservation techniques, and the adoption of agroforestry practices (Mastorillo *et al.*, 2016).

By fostering an adaptive management approach, CSA aims to empower farmers to navigate the uncertainties posed by climate change, thereby ensuring food security across various regions (Mastorillo *et al.*, 2016; Vermeulen *et al.*, 2012). This adaptive capacity is essential for reducing the vulnerability of agricultural systems to climate-related shocks and stresses.

Reducing emissions in Climate-Smart Agriculture (CSA) highlights the need to mitigate the agricultural sector's significant contribution to greenhouse gas emissions (IPCC, 2013). Agricultural practices, including deforestation, soil degradation, and the inefficient use of fertilisers, are significant sources of emissions (Smith *et al.*, 2014). CSA promotes practices that enhance carbon sequestration, improve land use efficiency, and integrate renewable energy sources, reducing the sector's carbon footprint (Lipper *et al.*, 2014). Agroecological practices that optimise soil health, such as conservation agriculture and agroforestry, contribute to productivity and serve as effective measures for reducing emissions and promoting climate change mitigation (Smith *et al.*, 2014; Vermeulen *et al.*, 2012).

CSA emphasises the need for comprehensive solutions that balance economic viability, ecosystem health, and social equity (Dixon *et al.*, 2016). Economic viability is crucial to ensure farmers can sustainably operate their businesses without compromising the environment, promoting agricultural productivity and food security (Lipper *et al.*, 2014). Ecosystem health involves maintaining biodiversity and ensuring that agricultural practices promote the health of surrounding ecosystems, which are essential for supporting ecosystem services and promoting resilience to climate change (Swift *et al.*, 2004).

Social equity addresses access to resources, knowledge, and markets, ensuring that all stakeholders, including marginalised communities, can benefit from CSA practices and contribute to sustainable agricultural development (Béné *et al.*, 2016). Several key principles guide the implementation of Climate-Smart Agriculture (CSA). These include the importance of stakeholder engagement, recognising and incorporating traditional knowledge, and promoting multi-level governance to support farmers in transitioning to climate-smart practices (Pannell *et al.*, 2014; Vermeulen *et al.*, 2012). Stakeholder engagement is crucial, ensuring that CSA strategies are context-specific and culturally appropriate, ultimately leading to greater adoption and effectiveness (Pannell *et al.*, 2014).

Integrating traditional knowledge is also vital, as it can provide valuable insights into locally adapted agricultural practices and promote more sustainable and resilient farming systems (Mijatović *et al.*, 2013). Furthermore, adopting innovative technologies, such as precision agriculture and digital tools, can enhance farm management, facilitating farmers' effective implementation of CSA practices (Lobell *et al.*, 2013; Porter *et al.*, 2014).

2.4.2 Importance of climate-smart agriculture in Africa

Climate-smart agriculture (CSA) responds to the challenges posed by climate change and is a pathway toward sustainable development, food security, and resilience within Africa's agricultural sector. The continent faces various environmental stresses, including erratic rainfall, increasing temperatures, and land degradation. In this context, CSA offers opportunities to enhance agricultural productivity while minimising greenhouse gas emissions.

According to the Food and Agriculture Organization (FAO, 2013), adopting sustainable agricultural practices is crucial to meet the food demands of a population projected to reach 9.6 billion by 2050. Smallholder farmers, who play a crucial role in food production throughout Africa, are particularly susceptible to the adverse effects of climate change. CSA equips these farmers with various strategies and techniques to bolster their resilience. For instance, adopting drought-resistant crop varieties and efficient irrigation systems can help mitigate the impacts of prolonged dry spells. Kuyper, de Snoo, and de Boeck (2018) emphasise integrating local knowledge when developing CSA practices, enabling farmers to tailor solutions that fit their unique circumstances.

In Tanzania and Kenya, approximately 2,500 participants, comprising 46% women, received training in climate-smart agriculture, resulting in notable improvements in productivity and sustainability (Kihara *et al.*, 2018; Manda *et al.*, 2020). This was facilitated by an innovative approach, including developing "menus of practices" for climate-smart agriculture (CSA), which involves conducting site-specific assessments that evaluate the adaptation, mitigation, and food security benefits of various agricultural practices.

Recognising the localised nature of CSA, practices were selected based on each pilot project's specific agroecological and socio-economic contexts (FAO, 2013). Farmers from these projects actively participated in multiple field consultations, which facilitated the identification of existing agricultural practices and their potential impacts. This participatory approach enabled farmers to create a curated menu of climate-smart practices that can be seamlessly integrated into their current farming systems (Manda *et al.*, 2020).

Furthermore, the capacity development of CSA practices is intricately linked to extension methodologies and incentive mechanisms, as demonstrated by dairy farmer groups in Kenya and Farmer Field Schools in Tanzania, which significantly enhanced the uptake of diverse practices.

The role of women in agriculture is particularly significant in Africa, where they are a vital part of food production. However, their contributions are often overlooked within the agricultural sector. CSA practices have the potential to empower women by providing them with the training and resources necessary to adapt effectively to climate change. The FAO (2011) stresses that closing the gender gap in agriculture is paramount for achieving food security and sustainable development. By integrating gender-sensitive approaches into CSA initiatives, it is possible to maximise the contributions of women in agricultural innovation.

2.4.3 Climate Change and Agriculture in Zimbabwe

Climate change significantly threatens agricultural productivity, particularly in Zimbabwe, where farming is predominantly rain-fed. According to Madzivhandila (2020), the increased frequency of extreme weather events, shifting rainfall patterns,

and rising temperatures have severely affected crop yields and food security. The agricultural sector, which employs a significant portion of the population, is particularly vulnerable due to its reliance on natural water resources (ZIMSTAT, 2021). Several policies and governance mechanisms facilitate the adoption of CSA practices in Zimbabwe; however, the vulnerability of some communities underscores the importance of adopting climate-resilient agricultural practices, which can mitigate the adverse impacts of climate change and enhance food security.

Policies such as the National Climate Change Response Strategy (2013), the National Gender Machinery, and the Agricultural Policy Framework (APF) recognise the significance of smallholder farmers, who constitute a large portion of Zimbabwe's agricultural workforce.

The framework advocates for access to finance, land, and markets, thereby enabling these farmers to invest in sustainable technologies and practices. According to the World Bank (2021), targeted interventions, including access to financing, improved agricultural practices, and infrastructure development, significantly empower rural populations. The institutional capacity of Zimbabwe's agricultural sector is inadequate to support the adoption of CSA practices (Chikanda *et al.*, 2018). The sector lacks skilled personnel, infrastructure, and resources to provide farmers with extension services, training, and support. Zimbabwe faces multiple socio-economic challenges, prominently including the impact of climate change on agriculture, which is the backbone of its economy.

They (ZRBF,2022) have identified that due to the unequal power dynamics in households, men tend to have a more significant impact on the coping, adaptation, and mitigation strategies employed in male-led farming operations. Consequently, in response to the frequent and prolonged dry spells caused by climate change, these farms may shift from cultivating traditional cash crops, such as tobacco, to more dependable, drought-resistant, and early-maturing food crops, such as small grains.

Women's capacity to accumulate assets likely limits their ability to own and manage large livestock. Most women own goats and chicken. If a climate-induced hazard occurs and the household opts to undertake an asset-stripping strategy, small livestock are usually sold first, as they are the easiest to sell (Hallegatte & Kerr, 2015).

2.4.4 Factors Influencing the adoption and success of climate-smart agriculture in rural communities

(Dixon *et al.*, 2016) identified access to information through a well-trained extension system, financial support, the presence of output markets, and labour-saving technologies as critical factors driving adoption. Agriculture plays a significant role in the Zimbabwean economy and remains one of women's most important livelihood sources. FAO (2011) states that women comprise about 40% of the agricultural labour force. However, substantial gender gaps persist in access to and control over six key agricultural resources and inputs: land, labour, credit, information, extension, and technology (Sheahan & Barrett, 2014). Existing literature has focused on mitigating the impacts of climate-related risks and fostering resilience in the face of climate variability and other stochastic drivers of change (Lipper, 2014). Thus, the study needs to emphasise how climate-smart agricultural technologies and practices can diminish women's vulnerability.

Numerous factors influence the adoption and success of Climate-Smart Agriculture (CSA) in Africa's rural communities. Vermeulen et al. (2012) cited access to climate information, credit, and markets as the top three determinants of successful adoption. Dorward (2009) notes that understanding farmers' aspirations helps them develop longer-term strategies. Recent studies have also evaluated how climate-smart agriculture has improved crop yields; however, Kristjanson (2017) argues that it alleviates women's labour burden by decreasing the time spent in the field. However, UN Women, PEI, and the World Bank (2015) contend that the burden of unpaid care and domestic work leaves women with limited time to engage in community activities, diminishing their ability to invest in their agricultural work. Further studies, therefore, suggest adopting holistic approaches to evaluate the implications of different interventions on men and women in various socioeconomic settings and roles (Khatr-Chhetri, 2019).

Moreover, policy frameworks and socioeconomic conditions also influence the successful adoption of CSA practices in rural communities. Mason *et al.*, (2017) identified that institutional capacity, community engagement, and the policy environment are essential factors affecting the effectiveness of community development programmes. Farmers with access to markets and financial services are more likely to adopt climate-smart practices (Niles *et al.*, 2016). Economic incentives, including access to credit and government subsidies for sustainable practices, play a crucial role in enhancing the adoption rates of these practices.

Conversely, rural communities facing high poverty levels or limited market access often encounter significant challenges in implementing climate-smart agriculture due to financial constraints (Kuyper *et al.*, 2018). Bridging the gap between financial resources and rural communities is vital for promoting the widespread adoption of climate-smart agriculture practices and ensuring sustainable agricultural development.

Education and awareness regarding climate change and sustainable agricultural practices are essential for successfully adopting Climate-Smart Agriculture (CSA). Farmers who comprehend the benefits and methods are more likely to implement these practices (Birkhaeuser *et al.*, 1991). Agricultural extension services are pivotal in disseminating information and training farmers on CSA techniques (FAO, 2016). However, in many rural areas, access to such services is limited, hindering the potential for CSA uptake (Rogers, 2003). Therefore, exploring how the policy framework can enhance access to education and extension services in rural communities is crucial, enabling farmers to adopt sustainable practices that benefit their livelihoods and the planet's health.

2.5.5 Gender Roles in Agriculture

Women are vital in Zimbabwe's agricultural sector, accounting for 56% of communal farmers and bearing significant responsibility for crop production and household food security (Mashingaidze *et al.*, 2021; WCOZ, 2021). Despite their contributions, women face numerous challenges, including limited access to essential resources such as land, credit, training, and technological tools (FAO, 2016). This gender disparity hinders women's capacity to adopt innovative agricultural practices, exacerbating their vulnerability to climate change (Dodman, 2010).

The distribution of land ownership and control in Zimbabwe has significant gender disparities. Men predominantly hold larger and higher-quality plots, while women are often restricted to smaller plots, such as community gardens (Bennett, 2002). Traditional norms perpetuate this disparity, assuming that women's agricultural production is primarily for subsistence.

Furthermore, livestock ownership, often a symbol of wealth, is also skewed towards men, with women typically favouring small livestock, such as goats and chickens (Doss *et al.*, 2015). Traditionally, land access has been reserved for married male community members, with allocation rights resting with local government authorities and traditional leaders, as outlined in the Rural District Council Act (1988) and the Communal Lands Act (1982) (Bennett, 2002). In contrast, the large-scale commercial farming sector operates under a freehold tenure system, allowing for individual and corporate ownership and collateral use.

Research highlights the potential of Climate-Smart Agriculture (CSA) to enhance women's access to agricultural resources, improve their participation in decision-making, and create pathways to new market opportunities (Barbon *et al.*, 2017). Chaudhury *et al.* (2012) reveal that the agricultural sector holds considerable potential for gender-responsive climate mitigation and adaptation strategies. However, UN Women (2022) identifies that gaps in institutional structures and systems impede the mainstreaming of gender-responsive climate-smart agriculture within local development programming. Addressing these gaps is critical to promoting gender equality and empowering women farmers in Zimbabwe.

Over the past few decades, research has highlighted the significance of gendered norms in influencing decisions regarding crop selection and input usage, thereby limiting female farmers' opportunities to enhance productivity and generate income (Doss *et al.*, 2015).

Chaudhury *et al.* (2012) argue that social norms related to gender complicate women's ability to engage in decision-making regarding agricultural productivity, perpetuating the gender gap in agricultural development. However, Kuyper *et al.* (2018) argue that women's traditional agricultural knowledge significantly contributes to ecological sustainability and biodiversity. By merging these traditional practices with scientific approaches, women can drive innovations that bolster agricultural resilience to climate change (Tekwa & Adesina, 2018). This integration of traditional and scientific knowledge can enhance the adoption of climate-smart agriculture practices, ultimately contributing to sustainable agricultural development.

Women in Zimbabwe bear a disproportionate burden of unpaid care work, significantly impacting their ability to participate in decision-making processes and adopt Climate-Smart Agriculture (CSA) practices (Pereira *et al.*, 2019). Traditional gender roles dictate the types of activities women can pursue, limiting their prospects for growth and development (Pereira *et al.*, 2019). Approximately 86% of women in Zimbabwe depend on land for their livelihoods, yet they face significant barriers to accessing resources, markets, and decision-making opportunities (Pereira *et al.*, 2019).

The burden of unpaid care work is a significant obstacle to women's empowerment and participation in agricultural development (FAO, 2016). Women invest considerable time in domestic and care work, leaving them with limited time and

energy to engage in income-generating activities or participate in decision-making processes (Kumar *et al.*, 2019). This perpetuates the cycle of poverty, restricting women's ability to adopt climate-smart agriculture (CSA) practices essential for building resilience to climate change (Kristjanson, 2017).

The adoption of CSA practices necessitates a transformative approach that addresses unpaid care work and promotes women's participation in decision-making processes (Kumar *et al.*, 2019). Research highlights the importance of addressing these gender-specific challenges to promote sustainable agricultural development and climate change resilience (Alber, 2009; Brody *et al.*, 2008). Policymakers can create policies that address the specific needs of women farmers, promoting the adoption of gender-sensitive and environmentally sustainable agricultural technologies (Chaudhury *et al.*, 2012). The Women's Environment and Development Organization (WEDO, 2008) emphasises the importance of incorporating these issues into global frameworks for sustainable development.

The literature also acknowledges that climate change affects men and women farmers differently, with women often facing more significant challenges due to limited access to resources and decision-making power (Kristjanson, 2017). However, women's traditional agricultural knowledge significantly contributes to ecological sustainability and biodiversity, core components of CSA (Kuyper *et al.*, 2018).

Incorporating gender perspectives into agricultural policies and programs can significantly enhance the overall effectiveness of Climate-Smart Agriculture (CSA) initiatives (Dixon *et al.*, 2016). By ensuring women have equal access to resources and

opportunities, governments and organisations can unlock the full potential of agricultural innovation and sustainability (Barbon *et al.*, 2017)

2.5.6 Empowerment through Policy and Practice

Zimbabwe has made significant strides in promoting gender equity, implementing various policies and strategies to empower women and girls (Tarinda, 2019). Establishing the Zimbabwe Gender Commission and the Zimbabwe Women Microfinance Bank are notable examples of these efforts. Government policies and institutional frameworks play a crucial role in the adoption and effective implementation of CSA, particularly in addressing the unique challenges faced by women farmers (Dixon *et al.*, 2016). The Food and Agriculture Organization (FAO, 2013) emphasises that supportive policies fostering sustainable agricultural practices can drive greater adoption within rural communities.

The policy landscape in Zimbabwe has been characterised as conducive to progress, with the government enacting 17 pieces of legislation to foster gender equity, including the Matrimonial Causes Act (1987) and the Domestic Violence Act (Government of Zimbabwe, 2013). The National Climate Change Response Strategy provides a comprehensive framework for addressing climate change, integrating climate considerations across various sectors, engaging stakeholders, and emphasising capacity building and research (Government of Zimbabwe, 2013). Similarly, the Zimbabwe Agenda for Sustainable Socio-Economic Transformation (Zim-ASSET) promoted agricultural practices that mitigate the impacts of climate change (Government of Zimbabwe, 2013). However, while these frameworks are in place, they may lack specific strategies to confront women's unique barriers in agriculture (Tirivangani & Cater, 2020).

The Agricultural Policy Framework (APF) illustrates the commitment to enhancing Zimbabwe's agricultural landscape through sustainable development practices (Kassam *et al.*, 2019). Nevertheless, the omission of targeted strategies addressing women's challenges represents a significant gap within the policy. Women in Zimbabwe often face barriers, including limited access to land, financial resources, and agricultural inputs (Tirivangani & Cater, 2020).

Addressing these challenges through targeted interventions is essential to fostering an equitable agricultural sector. The Climate-Smart Agriculture (CSA) Policy Framework has been established as a guideline to promote sustainable practices (Niles *et al.*, 2016). Empowering women farmers requires integrating gender-responsive strategies that include women's experiences and voices and promote the adoption of sustainable practices (FAO, 2016). Initiatives that empower women through training, enhance access to resources, and foster collaborative networks are crucial for increasing resilience to climate impacts.

The National Gender Policy 2013-2017 outlined a vision for a gender-just society, striving for equity in development benefits (Government of Zimbabwe, 2013). It emphasises increasing gender responsiveness towards environmental management and adaptation strategies. The Ministry of Women's Affairs, Gender, and Community Development (MWGCD) has prioritised women's economic empowerment as a key strategy for long-term economic development and poverty alleviation.

The National Gender Policy in Zimbabwe acknowledges the challenges faced by rural women but falls short of explicitly addressing their unique needs (Government of Zimbabwe, 2013). Women's access to land is governed by customary law, which is

upheld by common law, resulting in a notable gender bias in land ownership and control (Chimwala, 2016). Research has consistently shown that women's limited access to land, technology, and financial resources hinders their ability to participate in and benefit from agricultural development programs (Doss *et al.*, 2015). The existing agricultural policy framework primarily focuses on productivity improvements with insufficient attention to climate change mitigation and adaptation (Government of Zimbabwe, 2012). A well-articulated policy framework that incorporates CSA into national agricultural policies is necessary to encourage CSA practices.

Despite these advancements, the adoption and success of CSA in Zimbabwe remain complex, influenced by socioeconomic, gender, educational, policy, and resource dynamics (Moyo *et al.*, 2017). Gender-based violence (GBV) remains a pervasive issue in Zimbabwe, with a significant proportion of women excluded from participating in governance and national development processes due to gender bias, inequalities, cultural norms, and low economic status (Moyo, 2018). Despite the country's relatively strong GBV legal framework, the prevalence of physical and sexual violence against women remains alarmingly high (Zimbabwe National Statistics Agency, 2019). Integrating gender-responsive strategies and policies that facilitate equal access to land, technology, and financial resources into CSA frameworks can play a crucial role in empowering women farmers.

2.6 Summary

This literature review examined the existing body of research on the adoption of climate-smart agriculture among women farmers in Africa, with a specific focus on Zimbabwe. The review aimed to identify the key factors influencing the adoption of

climate-smart agriculture, the benefits and challenges associated with this adoption, and the role of women farmers in the context of climate-smart agriculture.

Overall, the adoption and success of CSA in Zimbabwe's rural communities are multifaceted and influenced by various socio-economic, gender, educational, policy, and resource factors. Understanding these influences is crucial to developing effective strategies that promote CSA practices and enhance their implementation. The findings of this review will inform the development of effective strategies for promoting the adoption of climate-smart agriculture among women farmers, ultimately contributing to sustainable agricultural development and improved livelihoods.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This research focuses on the frameworks governing the adoption of CSA among women farmers in Mbire District, a demographic that faces numerous barriers to the effective implementation of sustainable practices. The study employed a qualitative methodology to explore women's experiences, challenges, and empowerment in-depth, aiming to gain a rich understanding of the socio-economic and cultural dynamics that influence the adoption of CSA among women. This approach considers the intersection of gender with other social attributes, including age, marital status, ethnicity, and socioeconomic status.

This study contributes to the growing body of literature on gender-responsive agricultural policies by identifying key factors that influence CSA adoption and uncovering the challenges and opportunities that women farmers encounter. Through this research, the findings inform policy frameworks that foster gender equality and promote sustainable agricultural practices, ultimately enhancing food security and resilience in the face of climate change in Zimbabwe.

3.2 Research Design

This study employed a qualitative design to gather comprehensive insights into the framework for adopting climate-smart agricultural practices by using a representative sample of women farmers. Creswell (2013) argues that knowledge is constructed through social interactions and the meanings individuals derive from their experiences. Data collection methods included document reviews. Key Informant Interviews (KII) and Focus Group Discussions, which were guided by semi-structured interview questions guides.

The methodology collected both secondary and primary data. Secondary data collection involved reviewing available literature from country reports, strategic frameworks, legislative policies, academic literature, statistical information, and other relevant government and ZRBF documentation. The primary data to complement the documentary review was obtained from focus group discussions and key Informant Interviews. This approach allowed the researcher to examine the relationships between different variables and assess the prevalence of a particular pattern.

3.3 Population and Sampling

3.3.1 Population

The study focused on women farmers in Mbire District, specifically in Ward 2, as the target population. According to Fisher and Foreit (2002), the target population is the entire group of individuals the researcher aims to describe or to which findings can be generalised. In this case, the target population comprised women farmers residing in Mbire District who were engaged in agricultural activities and had experience with climate-smart agricultural practices.

The ward has a total population of approximately 2,500 households in Ward 2, constituting 7% of the Mbire District population, with women comprising a significant proportion of the farming community (Mbire District, Food and Security Nutrition Profile, 2022). The women farmers in this district primarily partake in small-scale farming, producing crops such as maize, cotton, and vegetables and rearing livestock, including cattle, goats, and chickens.

3.3.2 Sample size

The sample size for this study was carefully chosen to ensure equal representation of women farmers in Mbire District. According to Holmer and Solvany (1997), the sample size should be selected to represent each potential individual of the same size. The study population consisted of 80 women farmers in total. To complement this population, seven stakeholders involved in agricultural development were also included, comprising agricultural extension officers, officials from the Ministries of Agriculture and Women Affairs, representatives from the Mbire Rural District Council, other government officials, and development partners operating in the district.

Fisher and Foreit (2002) define a sample as the subset of the population that a researcher intends to study to generalise findings to the total population. Therefore, convenience sampling was used to select informants who participated in the survey. This approach ensured that the sample was representative of the population, reducing the risk of sampling bias (Creswell, 2003).

Creswell (2003) emphasizes the importance of carefully selecting participants in a study, as errors in sampling can compromise the findings, rendering them invalid. Therefore, the researcher took a rigorous approach to sampling, ensuring that the sample was representative of the population and that the findings could be generalized to the broader population of women farmers in Mbire District.

3.3.3 Sampling Techniques

Sampling techniques play a crucial role in assessing the impact of climate-smart agriculture on women farmers in Mbire, as they determine the representativeness and validity of the findings (Etikan *et al.*, 2016). For this study, a mixed sampling approach was employed, combining convenience and purposive sampling. Convenience sampling was utilised for the Focus Group Discussions (FGDs) to ensure diverse representation among the informants. (Creswell 2014) states that a recruitment strategy should be consistent with best practices in qualitative research. Individuals were selected from training registers provided by the Zimbabwe Resilience Building Fund, specifically from Ward 2, to participate in FGDs. As such, potential participants were contacted via phone calls using the contact details provided on the register.

Purposive sampling was also used to select stakeholders for Key Informant Interviews (KIIs). A total of seven stakeholders were interviewed, as no new information was gained from them beyond this point. Additionally, a purposive sampling technique, specifically peer-nominated sampling, was employed to identify and nominate participants' peers who met specific criteria, such as women farmers who have recently adopted climate-smart practices (Biernacki & Waldorf, 1981). This approach allowed the researcher to tap into the social networks and relationships within the community, gaining access to valuable insights and perspectives (Maxwell, 2013).

As Robinson (2020) argues, understanding the complexities of individual perspectives and the factors influencing their results underscores the significant impact of subjective experiences on overall outcomes. A combination of convenience and purposive sampling provided a comprehensive understanding of how a framework for

climate-smart agriculture adoption impacts women's livelihoods in Mbire, ultimately informing more effective policy recommendations.

3.4 Data Collection Instruments

This study employed qualitative and quantitative data collection methods to gather comprehensive insights into the frameworks for climate-smart agriculture adoption among women farmers in Mbire District. The data collection methods included focus group discussions (FGDs), key informant interviews (KIIs), and document reviews. Using different data collection methods facilitated the triangulation of findings to illuminate the framework supporting the adoption of climate-smart agriculture by women farmers and integrate the collected data with existing knowledge.

3.4.1 Focus Group Discussions

Four FGDs were conducted with two different demographics: young women aged 18-35 and older women aged 36 and above. Each FGD comprised approximately 10-15 individuals and lasted between 1.5 to 2 hours. This approach ensured adequate representation of vulnerable groups and facilitated the exploration of collective perspectives and social dynamics related to the research topic (Krueger & Casey, 2015). The FGDs were conducted with ZRBF beneficiaries. An additional focus group discussion was held with ten community members who had not participated in these training or activities. The participants did not fit the criteria but had accompanied other beneficiaries.

3.4.2 Key Informant Interviews

Eight women beneficiaries elected by their peers as CSA champions were interviewed to gain insights into their pathways and motivations for the effective adoption of climate-smart agriculture. This approach allowed for a more in-depth exploration of each woman's experiences, motivations, and barriers (Kvale & Brinkmann, 2015). The interviews lasted approximately 20 to 40 minutes. Furthermore, seven stakeholders, including government officials, agricultural extension officers, local government representatives, and members of civil society organisations, were interviewed to obtain their perspectives on the local agricultural context and the adoption of CSA.

3.4.3 Document Reviews

A comprehensive document review was conducted to analyse existing literature, policy documents, and other relevant texts, offering context and reinforcing the findings from interviews and focus groups. The review identified crucial documents that emphasised implementation strategies, trends, and gaps concerning the specific involvement of women farmers.

3.5 Data Collection Procedure

Following approval from the Africa University Research and Ethics Committee, fieldwork commenced with courtesy calls to district officials and collaboration with ZRBF field staff to mobilise participants for focus group discussions (FGDs) and key informant interviews (KIIs). The qualitative data was obtained through audio recordings, which were conducted using digital recorders to ensure high-quality audio.

After obtaining informed consent from participants, focus group discussions (FGDs) and key informant interviews (KIIs) were conducted in a private and comfortable setting. (Kvale & Brinkhoff, 2015) emphasises minimal distractions and interruptions. Upon completion of each interview, the interviewers completed an interview summary form that highlighted key issues emerging from the interview, characteristics of the discussion, and any questions that required revision or inclusion. Guest *et al.* (2012) emphasise the importance of systematic data management to ensure analysis accuracy, consistency, and comprehensiveness.

The audio recordings were transcribed verbatim in the interview language and subsequently translated into English. The transcribed text was entered into Kobotoolbox and exported to Excel for analysis. (Miles & Huberman, 1994), states that this approach helps to keep track of complex data sets but also supports the iterative nature of qualitative analysis, where initial findings can be continually refined as new insights emerge. This software was used to organise and analyse the interviews and FGDs, facilitating the identification of themes and patterns in the data.

To ensure data security and confidentiality, all data and audio recordings are stored in digital format, password-protected, and accessible only to authorised study personnel (Emanuel *et al.*, 2011). The protection of participants' security and confidentiality is paramount in qualitative research, as highlighted by Emanuel *et al.* (2011)

3.6 Analysis and Organization of Data

The data collected for the study on frameworks for climate-smart agriculture adoption among women farmers in Mbire was analysed using a systematic approach that encompassed content analysis, thematic analysis, and data interpretation.

Each analytical method was used to derive meaningful insights from various data sources, including focus group discussions (FGDs), key informant interviews (KIIs), and document reviews.

3.6.1 Content Analysis

Content analysis was utilised to objectively examine the qualitative data collected from focus group discussions (FGDs) and key informant interviews (KIIs). This method involves categorising verbal and written communication to identify recurring patterns and keywords relevant to the adoption of climate-smart agriculture.

A structured analysis of the collected data was followed by aggregating and normalising the frequency of mentions for specific themes and keywords. This facilitates the establishment of overall rankings of priority practices and frameworks related to climate-smart agriculture (Brown, 2019). The transcripts of FGDs and KIIs were meticulously reviewed and coded, with key phrases and concepts highlighted for further examination.

Krippendorff (2018) argues that a coding framework is developed based on both existing literature and emerging themes identified in the data itself. The coding process yielded several categories, including barriers to adoption, motivations for embracing climate-smart practices, and the roles of government and non-governmental organisations in facilitating these frameworks.

By quantifying the frequency of specific keywords and phrases, the content analysis provided a statistical overview of the significance of each theme, thereby establishing a foundation for further qualitative insight.

3.6.2 Thematic Analysis

Building on the initial findings from content analysis, thematic analysis was employed to explore the deeper underlying themes and patterns in the data. Thematic analysis, as outlined by Braun and Clarke (2006), involves a systematic procedure of data familiarisation, generating initial codes, searching for themes, and reviewing, defining, and naming themes.

Themes such as adoption, benefits, socio-economic factors, sustainability, policy, and institutional frameworks emerged as crucial in understanding the dynamics influencing women's adoption of climate-smart agriculture. Consequently, Smith and Jones (2020) propose that community statements are categorised according to the relevant themes within a framework. The process involved organising data into these themes and sub-themes, enabling a thorough examination of the nuanced experiences of women farmers.

3.6.3 Interpretation of Data

The final data analysis stage involved interpreting the themes and patterns identified in the previous analyses. This interpretation aimed to connect the findings with broader socio-economic and environmental contexts and existing literature on climate-smart agriculture. Compiling a comprehensive list of future women's empowerment interventions that the women farmers most frequently cited was crucial.

Williams (2022) argues that this holistic approach ensured a comprehensive understanding of agricultural practices and the social dynamics that influence their implementation. The insights were critically evaluated to inform the formulation of practical implications for policy development and implementation.

3.7 Ethical Consideration

All the participants in this research were asked to complete an informed consent form. This form confirms and guarantees that the informants' views are provided solely for academic purposes and will not be used for any other reason. Levine (1976) advocates that confidentiality means that individuals are free to give and withhold as much information as they wish to the person they choose. Therefore, the researcher ensured that participants were not involved without their knowledge and consent.

Data collection methods may be susceptible to bias from the facilitator. Therefore, precautions will be taken to ensure that discussions are open to the participants' views with less influence from the facilitator. According to Kottler (2006), it is prudent to inform participants that they are not compelled to participate in the study against their wishes, and therefore, they can choose not to take part at any time.

Participants were advised that they are free to withdraw at any time they wish. Interviews may seem intrusive to the respondent, so Treece and Treece (1982) suggest that whenever subjects refuse to report personal information, as they regard it as an invasion of privacy, the researcher should respect their views. As such, no participant was forced to participate, and there was a great emphasis on maintaining the privacy of all participants.

Ferreira (2015) suggests that participants must be informed that their contribution is deliberate; therefore, no respondent will be advised on ways to respond. Gray (2004) notes that any research aims to collect data without influencing the respondent to provide information in a certain way. Women have multiple roles and household

responsibilities; therefore, the times will be scheduled to respect the respondents' schedules, avoiding inconvenience through time clashes.

3.8 Summary

The methodology chapter outlined the structured approach employed to achieve the study's aims and objectives, guided by Creswell's (2013) principles of research design. A qualitative research methodology is adopted, focusing on collecting rich, descriptive data to understand the impact of climate-smart agriculture (CSA) on women in Mbire. The data collection methods include Focus Group Discussions (FGDs), Key Informant interviews, and document review. FGDs will enable the collective exploration of women's experiences, challenges, and benefits associated with CSA, thereby fostering a deeper understanding of these issues. In-depth interviews will provide personal narratives, capturing the individual lived experiences of women and yielding nuanced insights. The chapter establishes a comprehensive qualitative design, outlining a combination of FGDs, interviews, and literature review to gather diverse perspectives and enhance understanding of women's roles in CSA.

CHAPTER 4: DATA PRESENTATION, ANALYSIS AND PRESENTATION

4.1 Introduction

This chapter analyses and interprets the data collected from various methodologies employed in this study, which aim to examine the frameworks for climate-smart agriculture (CSA) adoption among women farmers in Mbire District, Zimbabwe. The data complements existing literature and contributes to understanding the barriers and facilitators affecting women's participation in CSA. This analysis focuses on adopting climate-smart agricultural practices in Zimbabwe, with a particular emphasis on gender roles, economic barriers, and access to resources. Data were gathered through surveys, interviews, and secondary sources to assess the influence of market access, education, and gender dynamics on the implementation of CSA.

4.2 Data Presentation and Analysis

This section presents and analyses findings from the document review, focus group discussions, and key informant interviews regarding frameworks for Climate-Smart Agriculture adoption among women farmers in Mbire District. The findings are categorised according to the research objectives under the following main themes: adoption and benefits of Climate-Smart Agriculture, socio-economic factors influencing adoption, policy and institutional framework, and recommendations for enhancing adoption and sustainability. The data will be presented, analysed, and interpreted under the three main themes mentioned above and further subdivided into subheadings.

4.2.1 Policy and Institutional Frameworks Supporting Climate-Smart Agriculture

4.2.1.1 Policies and frameworks

The analysis of existing policies and frameworks reveals a committed effort by the Zimbabwean government and various organisations to enhance the role of women in climate-smart agriculture (CSA) within the Mbire District. Qualitative data collected from key informant interviews and policy documents highlight several themes reflecting an inclusive approach toward female farmers, capacity building, and integrating gender considerations into agricultural policies.

The National Climate Change Response Strategy (NCCRS, 2015) outlines a comprehensive framework aimed at adaptation and mitigation related to climate change. This strategic emphasis aligns with crucial CSA practices such as effective post-harvest management, improved livestock breeds, and integrated water resource management. One respondent noted, “The NCCRS provides a solid foundation for addressing climate challenges, particularly concerning agricultural priorities such as developing drought-resistant crop varieties” (KII, Respondent 9).

Additionally, the Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZimASSET) illustrated a long-term economic development approach that actively encourages the cultivation of high-yield, drought-tolerant crops, “Our goal is to create a resilient agricultural structure that promotes food security and economic empowerment, particularly among women.” (ZimASSET)

The Agricultural Policy Framework (2015–2035) emphasises the need to expand irrigation within the smallholder sector, acknowledging the country's vulnerability to drought. This framework is further supported by the Conservation Agriculture Strategy, which promotes sustainable agricultural practices. A participant emphasised, “The government is right to focus on irrigation; without it, the future of farming, particularly for us women, is uncertain” (KII, Respondent 13).

The National Agricultural Policy (2012) is a foundational document advocating for sustainable practices incorporating gender inclusivity. This reinforces institutional support for women's roles in agriculture and resilience against climate change. A key informant highlighted, “Inclusivity is vital for agricultural success; it is our women who ensure food security in households. Their empowerment is a national priority” (KII, Respondent 14).

Capacity building is consistently emphasised as a key theme across various frameworks, mainly through Knowledge and Capacity Building initiatives. These programs deploy extension officers to help women adopt innovative water management and conservation agriculture practices. NGOs also play a vital role in developing women's skills, thus fostering a culture of sustainability. “Extension services have been critical, as they help us understand and implement climate-smart practices that empower us to adapt more effectively”, (KII, Respondent 6).

The Zimbabwe National Gender Policy acknowledges women's cultural and logistical challenges in agriculture, outlining a roadmap for creating an inclusive environment. However, some stakeholders feel that implementation has not yielded the desired

results. “Until we address these barriers, we cannot tap into the full potential of our female farmers” (KII, Respondent 11).

In addition, the National Climate Change Policy emphasises the importance of integrating gender considerations into climate strategies, encouraging women's involvement in decision-making. This legal framework highlights the importance of adaptive practices. “Women's voices must be central in agricultural decision-making to shape effective climate strategies” (Ministry of Environment, Water, and Climate, 2013). Together, these insights illustrate a growing recognition and support for women's integral role in climate-smart agriculture within the policies that foster sustainable agricultural practices in Mbire District.

The agriculture sector in Zimbabwe requires significant funding to implement adaptation and mitigation action plans outlined in the country's Climate Change Response Strategy (Government of Zimbabwe, 2018). However, financing for climate-smart agriculture (CSA) projects is constrained by limited government funding for agriculture and inadequate enabling conditions for leveraging capital investments (World Bank, 2018). Public and private sector partnerships are necessary to ensure adequate financing for CSA practices.

4.2.1.2 Institutions Supporting Climate-Smart Agriculture

Various institutions dedicated to empowering women farmers significantly bolster the promotion of climate-smart agriculture (CSA) in Mbire District. Recognizing women's crucial role in agricultural production and food security, these institutions implement strategies and programs that enhance the capacity and resilience of female farmers.

The Government of Zimbabwe, through the Ministry of Agriculture and the Rural District Council, are key players in implementing policies that support CSA. “We work to integrate gender considerations into agricultural frameworks, ensuring that women are included in training and programs” (KII, Respondent 4). The programs are spearheaded mostly by Agricultural Extension officers. They provide hands-on support and guidance to women farmers, helping them implement sustainable practices that enhance productivity. (Davis, 2008), suggests that agricultural extension services are vital for disseminating information and best practices related to climate-smart agriculture.

The government programs are complemented by Non-Governmental Organisations (NGOs) and other development partners who are integral to advancing climate-smart agricultural practices among women farmers. “For years, we have designed and implemented targeted training programs that impart knowledge of sustainable farming techniques, innovative water management, and conservation agriculture.” (KII, Respondent 7). However, some beneficiaries have expressed challenges related to some of the innovations the development partners introduce, “We appreciate the training in improving productivity in our fields. However, they could be difficult and expensive to practice” (FGD 2, Respondent, 3). The Zimbabwe Resilience Building Fund (ZRBF) and the Smallholder Agriculture Cluster Project (SACP) are examples of initiatives providing training, capacity building, and resources to women farmers in Mbire District. As one beneficiary noted, “The training and resources provided by ZRBF have been instrumental in helping us adopt CSA practices. We are now able to produce more and better crops” (FGD, Respondent 2). According to the ZRBF (2020), the fund aims to enhance the resilience of vulnerable communities to climate change.

Through its Zimbabwe Resilience Building Fund (ZRBF), the UNDP plays a pivotal role in advancing women's participation in climate-smart agriculture (CSA) in Mbire District. By focusing on capacity-building initiatives, the UNDP has developed strategic documents and support mechanisms to formulate policy recommendations (UNDP, 2020). One respondent noted, "The support we receive from ZRBF has been transformative—it is about ensuring women have what they need to succeed" (KII, Respondent 5).

4.2.2 Effectiveness of Policies and Frameworks

The qualitative data gathered from women farmers in Mbire District provides valuable insights into the effectiveness of recently implemented policies promoting climate-smart agriculture (CSA). The existing policy frameworks, including the National Climate Change Response Strategy and Agricultural Sector Policy, have contributed to adopting and implementing CSA practices among women farmers in Mbire District. Engaging with beneficiaries directly has enabled a comprehensive understanding of their experiences and the impacts of government initiatives, including incentives, the grain swap scheme, threshing machinery, agroecological matching, and value chain development. One respondent noted, "The policies are in place, but the challenge is with implementation. We need more resources and support to implement CSA practices effectively" (KII, Respondent 1).

The government's introduction of premium prices for traditional grains has greatly impacted women farmers. This finding is consistent with the existing literature, which suggests that financial incentives can effectively promote the adoption of climate-smart agriculture practices (World Bank, 2018). Many beneficiaries expressed the

positive influence of this policy on their livelihoods. One farmer noted, “It is now possible for me to send my children to school, as I can afford the fees with the income from selling traditional grains” (FGD 4, Respondent 10).

The grain swap scheme has facilitated an innovative approach to agricultural diversification. Women farmers reported that switching from traditional grains to other crops has enabled them to improve their food security and income stability. “For the past few years, we have been growing maize, but we have dismally failed due to poor climate conditions, which have affected our livelihood. At some point, my family relied on government food handouts, which were insufficient” (FGD2, Participant 12)

The introduction of threshing machinery has significantly improved efficiency in harvesting traditional grains. Women farmers highlighted the time savings and increased productivity that this new technology offers. This enhancement not only eases the labour burden but also allows women to adopt new agricultural practices that are crucial for climate adaptation, “With the new threshing machines, I can finish my work in just a few hours. Earlier, it would take days, and now I have time to start planting more crops” (FGD 3, Respondent 9)

The policy of matching agricultural practices to specific agroecological zones has resonated well with women farmers, who appreciate guidance aligned with their local conditions. The emphasis on strengthening value chains has proven beneficial in connecting women farmers to markets. “Being part of a group that processes and sells our grain together has made an enormous difference. We support each other and can sell at better prices (KII, Respondent 12).” This communal approach enhances the collective bargaining power of women, establishing a more equitable marketplace for traditional grains.

The study also identified several challenges and limitations. These include limited access to finance, inadequate infrastructure, and lack of market access for CSA products. One respondent noted, "We need more access to finance to implement CSA practices. The current funding is not enough to cover all the costs" (KII, Respondent 3). According to the World Bank (2020), access to finance is a significant challenge for smallholder farmers in developing countries.

4.2.3 Key Barriers and Enabling Factors for Implementation of CSA

4.2.3.1 Motivations

In Mbire District, several women farmers who have undergone training have increasingly adopted climate-smart agriculture (CSA) practices driven by environmental, economic, and social factors. Findings from focus group discussions and individual interviews illustrate a heightened awareness of climate variability and its effects on crop yields. As one participant reflected, "As unpredictable weather patterns have started to threaten traditional farming methods, we are now embracing CSA practices" (FGD, Respondent 5).

Training programs provided by organisations such as the Zimbabwe Resilience Building Fund (ZRBF) have empowered women farmers in Mbire. "ZRBF invited us to participate in a training session that inspired some of us to explore innovative methods and fostered a sense of community among the farmers" (FGD, Respondent 2)

The availability of these training sessions has facilitated knowledge-sharing and provided essential resources, enabling women to learn best practices and acquire new agricultural techniques. This access has significantly bolstered their confidence in implementing CSA strategies.

The adoption of CSA not only enhances families' diets through diverse produce but also improves overall food security within the community. Another participant noted, “Small grains such as sorghum and sesame can better withstand droughts”, KII, Respondent 8)

This shift towards climate-resilient crops is critical, as sustainable agricultural methods can mitigate the adverse effects of climate change on food production (Husak et al., 2017). Economic incentives also play a significant role in this transition. One farmer shared, “I was motivated by my neighbours, who earned \$205 last year from selling Sesame Seeds. I also realised it is less costly than maize, which has costs such as fertiliser” (KII, Respondent 2).

Many individuals have experienced increased income due to the higher yields and lower costs associated with sustainable practices, such as organic farming. By selling surplus produce at local markets, farmers can reinvest in their operations and better provide for their families (IFAD, 2018). Furthermore, a notable segment of women in Mbire expressed a strong desire to protect the environment and natural resources, which has been a compelling motivation for their involvement in CSA. “I feel that I am making a positive contribution to environmental conservation by adopting practices that avoid digging into the ground and damaging the soil” (KII, Respondent 3)

4.2.3.2 Enabling Factors influencing implementation of policy and institutional frameworks for Climate-Smart Agriculture

A significant portion of respondents reported growing drought-resistant varieties of maize and sorghum. Others mentioned diversifying their crop production by incorporating legumes and vegetables, which improve soil fertility and provide alternative income sources. These crops were selected for their resilience to changing

rainfall patterns. Some practised conservation tillage, which involves minimal soil disturbance to preserve moisture and enhance soil structure, and modestly adopted water management techniques such as rainwater harvesting and drip irrigation methods.

Conservation agriculture is the most widely promoted CSA practice, with over 100,000 farmers practising it across more than 125,000 hectares. Other CSA activities that hold potential for scaling up and out include seed multiplication of drought-tolerant crops, small-scale irrigation, and agroforestry. (KII, Respondent 5)

The analysis of the data indicates that climate-smart agriculture practices adopted by women farmers in Mbire significantly enhance resilience against climate variability. There is a pressing need to reduce the frequency of wildfires through enhanced management of savannas and grasslands. Soil-based CSA practices, such as precise fertiliser application, manure application, agroforestry, crop rotations, intercropping, and soil conservation structures, are also vital. Stakeholders shared that, “The high adoption rate of drought-resistant crops is particularly noteworthy, as it reflects a proactive approach to combating the adverse effects of climate change. Improved varieties help to mitigate yield losses and bolster food security” (KII, Respondent 6)

One participant mentioned adopting improved seed varieties, which are more resilient to climate fluctuations, “I used less seed for small grains than I would for maize, and I harvested more using the seed varieties combined with integrated pest management strategies. With new techniques, we are well-equipped to adapt to changing weather patterns” (FGD 2, Respondent 12)

There is a significant shift in the beneficiaries' circumstances, showcasing the empowerment and self-sufficiency gained through improved harvests. Participants noted that CSA practices enabled them to harvest enough sorghum to ensure food

security. “We no longer need to work in other people’s fields for mealie meals. I harvest enough to cook for my family until the next season” (FGD 3, Respondent 5)

Women farmers who adopted CSA techniques reported improved crop yields. The farmers reported gaining confidence in their ability to manage their fields sustainably. “I feel empowered to teach my children about these practices.” This enables me to provide better for my family and even sell the surplus” (KII, Respondent 6)

Many women farmers participated in training programmes that equipped them with knowledge about quality standards and market demands, “Before learning about climate-smart methods, I sold whatever I had at low prices. Now, I understand what the market wants, and my income has significantly increased”, (KII, Respondent 4)

The formation of farmer groups has encouraged the sharing of information on best practices and resources, thereby enhancing social capital within the community. Such collaborations have proven vital in overcoming the challenges posed by climate change, underscoring the importance of collective efforts in developing effective adaptation strategies. “We now meet regularly to learn from one another and collaborate on solving our challenges together” (KII, Respondent 8)

Participants reported attending workshops on resilient farming and training in goat breeding, pen fattening, Income Savings and Lending (ISALs), and hay layering conducted by the Zimbabwe Resilience Building Fund (ZRBF) in their ward. One participant noted, “The goat breeding training has helped me improve my livelihood and increase my income” (FGD 1, Respondent, 10).

Resilient households in the districts surveyed had multiple sources of livelihood, primarily involving livestock, and utilised inputs and climate-smart agriculture techniques. They also practised some form of irrigated farming and had off-farm sources of income. (KII, Respondent, 14).

Infrastructure development is also a crucial component of institutional support for the adoption of CSA. The installation of solar-powered irrigation systems, for example, is crucial for ensuring a sufficient and reliable water source for crops and household use. One beneficiary reported, “I no longer have to walk long distances to look for water after school” (FGD 3, Respondent 5).

4.2.3.3 Barriers Restricting Implementation of Climate-Smart Agriculture Frameworks

However, challenges remain, particularly in the uptake of water management techniques such as drip irrigation, which, despite its benefits, remains underutilised. One respondent cited the initial cost as a significant detriment to its uptake, “Barriers such as high initial costs and limited technical knowledge impede broader adoption” (KII, Respondent 6)

Despite the notable benefits, several challenges hinder the full implementation of CSA practices among women farmers. The perceived benefits of climate-smart agriculture practices among women farmers in Mbire District highlight a significant opportunity for improving agricultural resilience and economic empowerment. However, it is essential to address the existing barriers to maximise the full potential of these practices. Participants explained that they are still facing challenges with inputs, “Most of us rely on government seeds or donors for financial support and agricultural inputs” (FGD 4, Respondent 3)

Implementing activities in isolation is likely to have a less significant impact. This was confirmed by the OMS Round 3 and both end-line quantitative and qualitative studies for the ZRBF project's Phase 1. The more interventions a household participated in, the more likely it was to experience changes in income and expenditure (KII, Respondent 14)

4.2.3.4 Impact of Cultural and Social Norms

The data analysis reveals that cultural and social norms in Mbire District significantly impact women farmers' lives. The qualitative analysis pointed out that patriarchal norms exist in the community, where men often control the finances and decision-making processes. “When a husband and wife grow crops together, men often insist they have custody of the money instead of discussing how to use it with their family”, (KII, Respondent, 5).

Culture was also used as a vehicle for exclusion, to discriminate against women in terms of access to land. Early marriages and domestic violence were also prevalent in the community. “Early marriages were rife in our communities, and we witnessed much domestic violence. I was a victim of domestic violence and mainly suffered from emotional abuse” (FGD 3, Respondent 8)

The finding suggests that women-headed households face more challenges in achieving resilience due to cultural and social norms. “A higher proportion of male-headed households compared to female-headed households had improved resilience”, (KII, Respondent, 14).

The qualitative findings also indicate a strong interest in entrepreneurship and vocational skills among young women. However, the youth argued that the interventions were often biased towards agriculture, meaning that beneficiaries needed to own productive assets, such as land. This finding suggests a need for more inclusive and diversified interventions that cater to the needs and interests of all beneficiaries, regardless of their background or ownership of productive assets.

4.2.4 Enhancing Frameworks to Promote Climate-Smart Agriculture

4.2.4.1 Improved Collaboration and Coordination of Institutions

Conservation agriculture is another key strategy the government and NGOs promote. This approach involves promoting conservation agriculture practices, such as minimum tillage and mulching, to help farmers adapt to climate change and improve soil health. One participant noted, “The training on conservation agriculture has helped me to improve my soil health and increase my crop yields” (FGD 1, Respondent, 10). A gender-responsive approach is also essential for achieving sustainable and equitable results in CSA adoption. Identifying and addressing the various constraints faced by men and women, as well as recognizing their distinct capabilities, is crucial for promoting CSA practices (UN Women, 2020).

Agricultural extension services, NGOs, and other organisations provide training and outreach programs tailored to empower women farmers. These organisations serve as critical links between governmental policies and grassroots implementation.

4.2.4.2 Stakeholders and Partnerships

Various stakeholders, including governmental bodies, non-governmental organisations, and international agencies, are implementing Climate-Smart Agriculture (CSA) in Mbire District. The Ministry of Agriculture, Mechanization, and Irrigation Development (MAMID) plays a crucial oversight role, ensuring that agricultural projects align with CSA principles. The Department of Agricultural, Technical and Extension Services (AGRITEX) collaborates directly with farmers in Mbire, guiding on implementing CSA practices. “Our direct engagement with farmers is vital; we help them understand the benefits of adaptive farming techniques and how these can secure their livelihoods” (KII, Respondent 13)

The Climate Change Management Department (CCMD) plays a vital role in formulating policies to address climate change. It serves as the focal point for international funding, facilitating access to global resources that empower local farmers to adopt climate-resilient practices, as noted by the head of CCMD. This role is essential in framing the strategy for Climate-Smart Agriculture (CSA) implementation in Mbire.

International organisations, such as the Food and Agriculture Organization (FAO) and the United Nations Development Programme (UNDP), support local initiatives by developing frameworks that foster investment in Climate-Smart Agriculture (CSA). These organisations are committed to empowering communities through knowledge and resources, enabling them to implement sustainable agricultural practices.

The Meteorological Services Department provides critical climate data to inform stakeholders and farmers in Mbire about weather patterns, thereby aiding in informed decision-making. A farmer in Mbire commented, “I am part of a WhatsApp group that provides us with daily updates and accurate weather forecasts. I can plan my planting activities more effectively and avoid losses due to unexpected weather changes”(KII, Respondent 6).

Other Non-Governmental Organizations, such as Action Aid, with the support of the United Nations Development Programme, are implementing on-the-ground initiatives to build resilience. They work with government departments to roll out activities. One of the significant initiatives under the Ministry of Women, Gender, and Community Development (MWGCD) is the promotion of community gardens. “Our programs focus on the most vulnerable populations, helping them adapt through innovative projects such as water conservation and community gardens” (KII, Respondent, 11). This program targets women to alleviate food shortages.

“Receiving seedlings and support has transformed how we grow food; it empowers us and ensures the security of our families” (FGD 1, Respondent 2). The collaboration between these stakeholders has proven crucial for the successful implementation of CSA strategies. Several partnerships have emerged to enhance the overall effectiveness of initiatives.

This collaborative effort has led to the establishment of the Zimbabwe Resilience Building Fund (ZRBF), which supports interventions in rural areas, including Mbire. According to development experts, achieving sustainable livelihoods hinges on practices that promote stakeholder coordination. The successful adoption of Climate-Smart Agriculture in Mbire District relies heavily on effective collaboration among various stakeholders. Their collective efforts, supported by strong policies and community engagement, create a robust framework that enhances adaptive capacities among local farmers. Continuous dialogue and partnership development will be crucial in addressing emerging challenges and ensuring the long-term sustainability of agricultural practices.

There has been a positive impact resulting from public-private sector partnerships in facilitating labour-saving technologies in agriculture. A CGIAR Initiative on Agroecology, in partnership with local service providers, has ensured access to modern machinery that empowers women farmers to increase their productivity and reduce the burden of manual labour. “Our loan programs are designed to support smallholder farmers by providing them with the necessary funds to invest in efficient machinery. It is about building a sustainable agricultural future together” (KII, Respondent 10)

The farmers involved in the Feed the Future Zimbabwe Mechanization and Extension initiative now have access to essential equipment, with payments spread over a

specified period. “The loan facility enables me to acquire machinery that I could never have afforded on my own; it has changed the way I approach farming. The hire purchase agreement has significantly relieved financial pressure” (KII, Respondent 5)

4.2.4.3 Environmental Sustainability and Climate Change Mitigation

Despite the existence of policies promoting CSA, there remains a significant gap in addressing the unique needs of women farmers. A prevalent theme from the qualitative data was the disconnect between policy frameworks and the realities faced by women in the agricultural sector. “The frameworks are good on paper, but they often forget about the context of women farmers and their traditional knowledge” (KII, Respondent, 12)

Women farmers expressed a strong desire for training and resources tailored to their specific circumstances. Limited access to modern agricultural technologies, coupled with inadequate financial support, restricts their ability to manage climate risks effectively. The data collected, however, revealed successful adaptation strategies employed by women farmers in response to climate-related challenges. The adoption of drought-resistant crops has emerged as a practical measure. One woman shared, “We started planting sorghum and millets, and they have survived the dry seasons better than maize” (FGD 3, Respondent, 7)

The progress in shaping policy development on resilience programming has been slower than anticipated. This sentiment is reflected in the prolonged finalisation and approval of the Traditional Grain Commercialization Policy Strategy document, which took two years to complete despite an original timeline of one year. As one stakeholder noted,

Policy adoption takes time; we need to be patient and persistent. Despite these delays, stakeholders see an opportunity for partners to actively engage and influence decision-makers across different levels of government. A barrier analysis study of the small grain value chain in Zimbabwe played a pivotal role in developing the Small Grain Strategy Document, highlighting the need for evidence-based approaches in policy formulation. (KII, Respondent 14).

4.2.4.4 Access and control of resources

In the context of climate-smart agriculture (CSA) adoption, access to and control over resources is crucial, especially for women farmers in Mbire District. Gender disparities in property rights and economic roles significantly contribute to women's vulnerability regarding climate change impacts (Mkodzongi & Lawrence, 2019). While the Constitution of Zimbabwe purportedly guarantees property rights for all citizens, customary laws often hinder women's access to land and other critical resources (Chingarande, 2008; Gaidzanwa, 2011). The study found that women farmers in Mbire face significant challenges in accessing and controlling resources, including land, credit, and decision-making power. This sentiment is echoed by many women who find their voices marginalised within household decision-making. One female farmer expressed frustration over her limited influence, “Even if I want to implement a new farming technique, if my husband disagrees, it becomes challenging for me to proceed”, (KII, Respondent, 7).

The recent enactment of the Marriages Act (2022) may offer improved rights for women; however, obstacles remain in the inheritance system, where male heirs are preferentially favoured, thereby perpetuating existing gender inequalities. One female farmer noted, “Most women who own land are widowed, that is, if you are lucky that your in-laws will not take the property away from you” (KII, Respondent, 4)

The study also found that women are taking steps to empower themselves and improve their access to resources. For example, women's groups have formed Village Savings and Lending (VSL) groups, which provide access to credit and other financial services. Success stories demonstrate the potential of women's involvement in animal goat breeding. This diversification into small livestock enables women to manage their food security more effectively while generating income opportunities through sales. “In 2019, we received four goats, and we successfully multiplied the number by 32” (KII, Respondent, 4)

Civil society organisations (CSOs) play a transformative role in empowering women farmers through capacity-building initiatives. Programs led by organisations like Katswe Sistahood have been offering leadership training, enabling women to secure positions within Irrigation Management Committees.

4.2.4.5 Household responsibilities and decision-making power

Women in the surveyed households work tirelessly, often balancing extensive agricultural duties with domestic responsibilities. Many rural women reportedly work between 16 to 18 hours a day, dedicating approximately 49% of their time to agricultural activities and around 25% to domestic tasks (UN Women, 2022). Traditional household responsibilities can restrict women's engagement with CSA. “Many women are overburdened with domestic tasks, which limits their time and ability to explore new agricultural practices”,(KII, Respondent 10).

Beneficiaries echoed the struggle of unpaid care work, with one participant suggesting that sharing domestic duties can significantly enhance women's capacity to engage in agricultural training and decision-making, which is crucial for adopting innovative

practices. “When my husband helps with household chores, I have more time to attend training on climate-smart methods” (FGD, 4, Respondent 2).

The role of collaboration in decision-making emerged as a crucial factor in the effectiveness of CSA adoption. Many women noted that they not only rely on their labour but also familial and communal support. One farmer remarked, “I put in long hours in the field; it is my responsibility to ensure our crops succeed” (FGD, 1, Respondent 8).

Another participant added, emphasising the importance of intergenerational support in farming activities, “My daughters help me with planting and harvesting. Without their assistance, I would not have been able to keep up” (FGD, 4, Respondent 10).

Stakeholders emphasized the importance of raising awareness and education about CSA at the household level. This sentiment suggests that family education on climate-smart practices could lead to more equitable decision-making and increase the overall effectiveness of agricultural interventions. “Educating both men and women about CSA could transform household dynamics and improve crop resilience” (KII, Respondent 12).

4.3 Discussion and Interpretation

The findings of this study highlight the critical role of collaboration and institutional support in promoting the adoption of climate-smart agriculture (CSA) in Mbire District. Before examining the macro environment, it is essential to foster equitable household dynamics and shared responsibilities within households.

Success stories have also underscored the significance of teamwork and a multifaceted approach that involves collaboration among government bodies, non-governmental organisations (NGOs), and international agencies (FAO, 2020).

Women in rural households bear a significant burden of unpaid care work and domestic responsibilities, limiting their time and capacity to engage with CSA (UN Women, 2022). Overburdening of domestic tasks severely restricts women's ability to engage with and explore new agricultural practices, as well as participate in essential decision-making processes. Therefore, policies and programs aimed at promoting CSA should focus on alleviating the burden of unpaid care and domestic responsibilities that women typically shoulder.

The study highlights the need for policymakers to engage more deeply with the lived experiences of women farmers, incorporating their traditional knowledge and understanding of local contexts into the developmental discourse. The qualitative data reveals a critical disconnect between agricultural policy frameworks and the realities facing women farmers (Munemo *et al.*, 2022). This gap suggests that policymakers need to review customary law, including the Communal Land Act, to expand the rights of women and girls and readdress the patriarchal institutions that limit and deny women access and ownership rights to productive resources such as land and other property.

Economic stressors such as currency depreciation and high inflation undermine positive interactions and transformative capacities among farming households, leading to a decline in their capability to adopt climate-smart practices (Munemo, Manzvera, & Agbelie, 2022). Hence, establishing partnerships and coordinated efforts among

stakeholders remains crucial to effectively address emerging agricultural challenges. The successful implementation of CSA in Mbire District requires a collaborative framework involving multiple stakeholders and practical policy guidance guided by the ZRBF strategy of layering and sequencing. It is essential to note that CSA activities must be complemented with other off-farm activities to increase the chances of program success. Women farmers have demonstrated remarkable resilience, employing innovative strategies to lift themselves out of poverty. As such, the successful implementation of CSA in the Mbire District requires a collaborative framework that involves multiple stakeholders and provides practical policy guidance.

With increased opportunities to accumulate assets, the qualitative data highlighted a path towards more equitable decision-making (Mubvumi et al., 2022). When knowledge of CSA practices is shared at the household level, it can foster collaborative farming efforts and increase involvement in transformative agricultural practices. This participation enhances the effectiveness of agricultural interventions and empowers women by strengthening their agency in decision-making processes. Women have more significant potential to contribute to agricultural sustainability if they have equal opportunities (Mubvumi *et al.*, 2022).

A revaluation of customary laws, such as the Communal Land Act, is crucial for expanding women's rights in agriculture, particularly regarding land ownership and access to productive resources (Munemo, Manzvera, & Agbelie, 2022). This legal reform is essential for dismantling patriarchal structures that constrain women's agency in agricultural practices. As cultural expectations dictate women's roles in caring for family needs, providing access to cash income contributes to household necessities and enables women to participate more actively in agricultural pursuits.

This dual focus on alleviating burdens and promoting agency can significantly enhance the overall effectiveness of CSA interventions in the region.

Improvements in CSA practices are likely to improve households' food security situation. A sequenced and layered approach is best suited to deliver better household outcomes, including resilience capacity, the ability to mitigate the effects of shocks, and recovery from drought, among others.

Rural communities' high dependency on natural resources renders their livelihoods highly vulnerable to the impacts of climate change. Practical strategies for enhancing climate-smart agricultural practices must consider the heightened labour demands these methods may impose (Morton et al., 2017) and traditional practices that may conflict with modern techniques, such as the utilisation of crop residues (Giller et al., 2015). Investments in educational programs addressing these demands will be imperative for fostering broader adoption and sustaining growth in climate-smart agriculture (FAO, 2017).

4.4 Summary

The chapter then presents the study's findings, organised around the research questions and objectives. The results show that there are strategies for implementing climate-smart agriculture but are not deliberate within a framework that promotes the participation of women farmers. It is also evident that most beneficiaries of such initiatives are women, yet they face challenges. The chapter also discusses the findings in relation to existing literature on climate-smart agriculture.

CHAPTER 5: SUMMARY CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter analyses the findings, organised into sections that include discussions, conclusions, implications, and recommendations based on the findings' implications. The chapter then presents the conclusions drawn from the study, highlighting the implications of the findings for policymakers, practitioners, and researchers. Finally, the chapter provides recommendations for future research, policy, and practice to promote implementation of relevant frameworks for promoting climate-smart agriculture practices among women farmers in Mbire District and similar contexts.

5.2 Discussion

The study's primary objective was to examine the framework for climate-smart agriculture (CSA) adoption among women farmers in Mbire District. This led to a problem statement that identified systemic barriers and cultural dynamics influencing women's capacity to take up the practices. The study was conducted with the awareness that previous studies had primarily focused on factors influencing adoption. However, it was necessary to explore how entrenched gender expectations often limit women's contributions to agricultural productivity and sustainability.

The literature review identified that limited access to resources, resulting from cultural norms and perceptions of gender roles, continues to influence women's autonomy, particularly in rural settings. Informants frequently highlighted systemic obstacles related to financing, agricultural inputs, and essential technologies. These limitations significantly inhibit women's ability to implement CSA, underscoring the need for policies that foster equitable access to these resources.

The findings suggested the need for comprehensive and inclusive strategies to empower women farmers through education, enhanced access to resources, and dismantling cultural and legal barriers. By addressing these interconnected issues, stakeholders can cultivate a more equitable agricultural framework that supports the resilience and potential of women farmers in implementing climate-smart agricultural practices.

5.3 Conclusions

The study analysed the framework to support the adoption of Climate-Smart Agriculture (CSA) in Mbire District, with a focus on the role of policy, stakeholders, institutional support, and the impact of CSA on rural livelihoods. The most successful households implemented more than one activity, in addition to CSA, to increase their resilience. This was a result of several interventions designed to help communities adapt to the effects of climate change. The findings underscore the importance of a collaborative approach that involves government agencies, non-governmental organisations (NGOs), and international agencies in promoting the adoption of CSA. In addition, coordinating activities will ensure that the interventions are implemented in a manner that maximises their value and impact on the beneficiaries.

The study also emphasises the need for policymakers to engage more deeply with the lived experiences of women farmers, incorporating their traditional knowledge and understanding of local contexts into the developmental discourse. Addressing the unique challenges faced by women farmers in Mbire District is crucial for enhancing environmental sustainability and effective climate change mitigation through CSA practices. Fostering an inclusive framework can yield significant benefits not only for women farmers but also for the broader community, paving the way for a sustainable

agricultural future. Such frameworks should prioritise understanding and integrating women's perspectives and needs to lead to more resilient agricultural practices in the face of climate change. Furthermore, investments in educational programs addressing the labour demands associated with CSA practices will be imperative for fostering broader adoption and sustaining growth in climate-smart agriculture.

Despite the existence of policies promoting CSA, there remains a significant gap in addressing the unique needs of women farmers. A prevalent theme from the qualitative data was the disconnect between policy frameworks and the realities faced by women in the agricultural sector. As noted by KII, the Respondent, "The frameworks are good on paper, but they often overlook the context of women farmers and their traditional knowledge." This statement highlights the importance of greater sensitivity to the context in which these women operate. Climate-smart agriculture encompasses a range of strategies designed to enhance agricultural productivity while reducing greenhouse gas emissions and increasing resilience to climate change. As such, addressing the unique challenges faced by women farmers in Mbire District is crucial for enhancing environmental sustainability and effective climate change mitigation through Community Supported Agriculture (CSA) practices. Fostering an inclusive framework can yield significant benefits not only for women farmers but also for the broader community, paving the way for a sustainable agricultural future.

The study revealed that women in rural households bear a significant burden of unpaid care work and domestic responsibilities, limiting their time and capacity to engage with CSA. Therefore, policies and programs aimed at promoting CSA should focus on alleviating the burden of unpaid care and domestic responsibilities that women typically shoulder.

A critical finding emerged regarding the necessity of involving women farmers in the formulation and implementation of agricultural policies. A representative from a local NGO emphasised this point: "Without the voices of women, our policies will not be effective. They are the ones who face these challenges daily. Ensuring that women's perspectives are integral to policy development can enhance the relevance and efficacy of CSA initiatives.

5.4 Implications

The study calls on policymakers to prioritise the needs and concerns of women farmers in CSA policy frameworks. Policymakers should review customary law, including the Communal Land Act, to expand the rights of women and girls and readdress the patriarchal institutions that limit and deny women access and ownership rights to productive resources such as land and other property.

The study emphasises the importance of promoting equitable household dynamics and shared responsibilities to support women's participation in CSA. Practitioners should design and implement programs that alleviate the burden of unpaid care and domestic responsibilities typically borne by women and provide training and education on CSA practices tailored to the needs and concerns of women farmers.

The study highlights the need for further research on adopting CSA in Mbire District and similar contexts. Researchers should investigate the impact of Climate-Smart Agriculture (CSA) on rural livelihoods, the role of stakeholders in promoting CSA adoption, and the effectiveness of various CSA practices and technologies in enhancing agricultural productivity and resilience.

The study suggests that the successful implementation of CSA in Mbire District requires a collaborative framework involving multiple stakeholders, practical policy guidance, and education and awareness-raising about CSA. Scaling up CSA adoption in Mbire District and similar contexts will require significant investments in institutional capacity building, infrastructure development, and farmer education and training. Women farmers strongly desired training and resources tailored to their specific circumstances.

5.5 Recommendations

5.5.1 Strengthening the Effectiveness of Policy and frameworks for adopting Climate-Smart Agriculture

The study identified a disconnect between the policy framework and certain lived realities. Strengthen the implementation of existing policies and frameworks to support CSA adoption among women farmers. This can be achieved by providing adequate resources, capacity building, and technical support to farmers and extension officers. While gender considerations have been incorporated in some of the policies and frameworks, it is essential for the Government of Zimbabwe to strengthen participatory policy development, which is crucial to ensure that women's voices are heard and their unique challenges are addressed. Actively involving women in decision-making processes regarding agricultural policies and programmes will lead to more effective and equitable agricultural policies.

It is essential to secure land tenure rights for smallholder farmers to encourage long-term investments in sustainable agricultural practices and innovations that enhance resilience to climate change. A comprehensive review of customary laws, including the Communal Land Act, is necessary to broaden the rights of women and girls.

This review should aim to dismantle patriarchal structures that hinder women's access to ownership of productive resources, such as land, thus fostering their empowerment in the agricultural sector. Furthermore, policymakers should prioritize the integration of traditional knowledge into developmental discussions to create more effective and inclusive strategies.

To encourage the widespread adoption of climate-smart agriculture (CSA) practices, governments and organizations can introduce targeted financial incentives such as subsidies, low-interest loans, and grants designed to support farmers in transitioning to more sustainable and resilient agricultural methods. Offering tax breaks on eco-friendly agricultural inputs can further alleviate the financial burden on farmers, fostering the use of environmentally responsible practices.

Additionally, recognizing the unique challenges faced by women farmers in accessing finance, it is essential to provide them with dedicated access to credit facilities and other financial resources. This can be accomplished through strategic partnerships with financial institutions, microfinance organizations, and other stakeholders, ensuring that women farmers have the necessary support to invest in their farms and communities. By implementing these financial initiatives, governments and organizations can empower farmers—especially women—to build resilience against climate change and enhance their livelihoods.

The government should allocate funding for research initiatives that focus on developing innovative climate-smart technologies and practices tailored to local conditions. This approach emphasises partnerships with universities and agricultural research institutions. It entails a deeper engagement with the lived experiences of

women farmers and values their insights in decision-making processes. By doing so, agricultural policies will not only be enriched but also become more effective in addressing the unique challenges faced by women farmers.

5.5.2 District Stakeholders and Non-Governmental Organizations

District stakeholders and NGOs should work together to devise a strong advocacy strategy that encourages policy changes promoting Climate-Smart Agriculture (CSA) among women farmers. This effort involves ongoing discussions to pinpoint the obstacles faced by women. Moreover, stakeholders must enhance awareness of the advantages of CSA practices. Ultimately, a united campaign for supportive policies will not only increase women's involvement in agriculture but also improve food security and strengthen community resilience.

To further boost the adoption of Climate- Smart Agriculture (CSA) among women farmers, it is crucial to foster strong collaborations and partnerships among institutions like government agencies, NGOs, and private sector entities. This cooperative approach will enable the sharing of resources, expertise, and knowledge, thereby improving the effectiveness of CSA initiatives. Additionally, enhancing market access for CSA products is vital for women farmers to sell their produce competitively, increasing their income and livelihoods. To accomplish this, strategic partnerships with market actors need to be formed, and value chains developed to link women farmers with markets, processors, and other stakeholders. By reinforcing collaboration and market access, women farmers will be more equipped to adopt and gain from CSA practices.

To effectively encourage Climate-Smart Agriculture (CSA) adoption among women farmers, it is essential to support the establishment and strengthening of farmer organizations and networks. Collaborative initiatives enable women to unite, promoting CSA frameworks' implementation. Consequently, efforts should focus on providing training and capacity development in leadership and decision-making to empower women farmers and facilitate their active participation in these networks. Implementing these strategies could significantly enhance the efficacy of policies and frameworks designed to promote Climate-Smart Agriculture (CSA) among women farmers in Mbire District. By fostering better coordination and collaboration and offering comprehensive technical support, we can create a more conducive environment for these farmers to adopt sustainable practices.

5.5.3 Women Smallholder Farmers

Women smallholder farmers should join or actively participate in cooperatives and farmer groups. They can pool resources, exchange knowledge, and strengthen their negotiating power for market access and financing by collaborating. A united front can advocate more effectively for policy changes that align with their needs and interests. These groups empower women farmers to engage in advocacy efforts that shape policies at both local and national levels. By sharing their experiences and highlighting specific challenges, they can influence policies that address gender inequalities in access to resources, technology, and support systems essential for adopting (CSA). Women smallholder farmers may establish committees to oversee the implementation of CSA-related policies. By ensuring accountability, they can identify gaps in policy execution and advocate for adjustments that fulfil their needs.

To address the unique challenges faced by women smallholder farmers, it is essential to advocate for policies that recognize and address unpaid care responsibilities. This can be achieved by pushing for improvements in community infrastructure, such as childcare services and time-saving technology, which can help alleviate the dual burden of farming and domestic responsibilities. Furthermore, embracing the use of information and communication technologies (ICT) can provide women farmers with access to vital agricultural information, market data, and weather forecasts, enabling them to make informed decisions and improve their productivity. By leveraging mobile apps and online platforms, women farmers can enhance their decision-making processes, improve productivity, and better connect with buyers, ultimately increasing their income and livelihoods. By combining policy advocacy with technological empowerment, women smallholder farmers can overcome some of the key barriers to their success and contribute to a more sustainable and equitable agricultural sector.

5.5.4 Rural Households

The critical aspect is addressing unpaid care responsibilities. Men must be encouraged to share responsibilities to alleviate the burden of unpaid care and domestic responsibilities that women typically shoulder. By providing support in these areas, women will have more time and resources to devote to agricultural activities.

Rural households should actively participate in local meetings and discussions regarding agricultural policies. By engaging with local governance structures, rural households can voice their needs, share their perspectives on CSA, and advocate for policies that address their specific challenges.

Households should encourage family members, especially women and youth, to participate in education and training programs focused on CSA. This can include workshops on modern agricultural practices, resource management, and the use of technology in farming. An informed community is better equipped to adopt new techniques effectively.

5.6 Suggestions for Further Research

This study was limited to the Mbire District, and future research should explore the adoption of CSA in other districts and regions. Furthermore, additional research is necessary to examine the impact of (CSA) on rural livelihoods and the role of stakeholders in promoting its adoption.

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APPENDICES

Appendix 1 – Consent Form

Informed Consent Form for Participation in the Assessment of Climate Smart Agriculture among Young Women in Mbire

Purpose of the Study:

This study aims to assess the impact of Climate-Smart Agriculture (CSA) practices on the livelihoods and empowerment of young women in Mbire and gather information on the challenges and opportunities these women face in adopting CSA practices.

Study Procedures:

If you agree to participate in this study, you will be asked to:

- Participate in a structured interview that will last approximately [duration, e.g., 30-60 minutes].
- Respond to questions about your experiences with climate change, agricultural practices, and any involvement with CSA.
- Participate in group discussions or workshops if applicable.

Voluntary Participation :

Your participation in this study is entirely voluntary. You may choose not to participate or to withdraw your consent at any time without any consequence or loss of benefits.

Risks and Benefits:

There are minimal risks associated with this study, as your responses will be kept confidential. However, if discussing your experiences causes you discomfort, you may take a break or withdraw.

Confidentiality:

All information collected from you will be kept confidential and used solely for research purposes. Your name and any identifying information will not be shared in any reports or publications resulting from this study. Data will be securely stored and only accessible to the research team.

Consent Statement:

I have read and understood the information above. I have been allowed to ask questions, and my questions have been answered. I agree to participate in this study voluntarily.

Participant's

Name: _____ Signature: _____

Date: _____

Researcher's Signature:

_____ Date: _____

If you have any questions concerning this study or consent form beyond those answered by the researcher including questions about the research, your rights as a research participant, or if you feel that you have been treated unfairly and would like to talk to someone other than the researcher, please feel free to contact the Africa University Research Ethics Committee on telephone (020) 60075 or 60026 extension 1156 email aurec@africau.edu

Thank you for considering participation in this important research study!

Appendix 2 – Data Collection Tools

Documentation Tools

Focus Group Discussion Guide

Objective - To gather qualitative insights on the adoption, benefits, influencing factors, and potential enhancements of Climate-Smart Agriculture (CSA) among women farmers in Mbire District.

Discussion Guide

I. Introduction (5 minutes)

- Welcome participants and introduce the facilitator.
- Explain the purpose of the focus group discussion.
- Assure confidentiality and encourage open and honest sharing.

II. Adoption of Climate-Smart Agriculture (20 minutes)

Question 1: What community strategies are available to promote women's participation in climate-smart agriculture?

- What specific CSA practices have you and your community adopted?
- How long have you been using these practices?
- What challenges did you face during the adoption process?
- How do you perceive the overall adoption level in your community?

III. Policy and Institutional Framework

Question 2. Can you describe any policies or institutional frameworks in place for implementing climate-smart agriculture in Mbire District?

- What specific institutions are involved? How are these frameworks communicated to farmers?

Question 4: How effective are the current policies and frameworks in promoting climate-smart agriculture practices among women farmers?

- Are there specific policies aimed at supporting women? How effective are they?
- Can you share examples of successful adoption or instances where support was lacking

V. Influencing Factors for Adoption and Success (20 minutes)

Question 5: What factors influence the adoption and success of CSA among women farmers in Mbire District?

- Are there any socio-economic factors that affect the ability to adopt CSA?

- What role does access to resources (such as finance, training, tools) play in CSA adoption?

Are there any perceptions or cultural beliefs that influence the adoption of CSA?

VI. Enhancing Adoption of Climate-Smart Agriculture (15 minutes)

Question 6: What can enhance the adoption and success of climate-smart agriculture in Ward 1, Mbire District?

Question 7 : How can stakeholders (government, NGOs, community leaders) better engage with women farmers in these processes?

- What role do you think women should play in policymaking?

- Are there successful examples of initiatives or programmes that could be replicated?

Question 8: Are there any gender-specific challenges that affect women's ability to adopt climate-smart practices?

-How do cultural norms, household responsibilities, or access to resources play a role?

Question 9: How can stakeholders (government, NGOs, community leaders) better engage with women farmers in these processes?

- What role do you think women should play in policymaking?

VII. Conclusion (5 minutes)

- Summarize key points discussed.

- Allow participants to add any final thoughts or comments.

- Thank participants for their valuable insights.

INDIVIDUAL INTERVIEW GUIDELINES FOR ANALYSING THE FRAMEWORKS FOR CLIMATE-SMART AGRICULTURE ADOPTION AMONG WOMEN FARMERS IN MBIRE DISTRICT, ZIMBABWE

Objective: To gather in-depth, qualitative insights from individual women farmers regarding their experiences, challenges, and the impacts of Climate-Smart Agriculture (CSA) on their lives and communities in Mbire District.

Interview Structure**

I. Introduction (5 minutes)

- Greet the participant warmly and introduce yourself.
- Explain the purpose of the interview, emphasizing the focus on individual experiences with CSA.
- Assure confidentiality of responses and encourage open dialogue.

II. Demographic Information (5 minutes)

- Age:
- Educational background:
- Years of farming experience:
- Types of crops grown:

III. Personal Adoption of Climate-Smart Agriculture (10 minutes)

How would you define climate-smart agriculture (CSA)?

Have you received any training or information about CSA? If yes, please elaborate.

What specific practices have you implemented in your farming?

IV. Challenges Faced (10 minutes)

- What challenges have you encountered in adopting and implementing CSA?
 - Are there any specific barriers that you believe are unique to women farmers in your community?
 - How did you overcome or address these challenges?

V. Support systems (15 minutes)

What kind of support (from government, NGOs, or community) do you receive for adopting new agricultural practices?

- How effective do you find these supports in helping you adopt climate-smart agriculture?

VI. Social and Economic Factors (10 minutes)

In your opinion, how do cultural beliefs and societal norms impact women's participation in agricultural decision-making?

- Do you feel supported by your family and community in your farming decisions?

VII. Support and Resources (10 minutes) **

- What kind of support or resources would help you enhance your CSA practices?
 - How could government or local organizations better support women farmers in adopting these practices?
 - Are there any successful initiatives or programs that you believe should be replicated in your community?

VIII. **Closing Remarks (5 minutes) **

- Ask if the participant has any additional thoughts they would like to share regarding CSA.
- - Thank the participant for their time and valuable contributions.

Key Informant Interview Guide – Local Authority/ CSO organizations / Government

Purpose of the Interview: The purpose of these key informant interviews is to gather insights from relevant stakeholders regarding the impact of climate-smart agriculture on women in Mbire. This information will help assess current strategies, identify challenges, and explore opportunities to enhance women's empowerment and sustainability in agricultural practices.

Interview Structure:

1. Introduction

- Brief self-introduction of the interviewer and purpose of the study.
- Assurance of confidentiality and the voluntary nature of participation.
- Explanation of the interview duration (approx. 45-60 minutes).

2. Participant Background

- Name and designation of the interviewee.
- Organization/Department represented and its role in agriculture and gender issues.
- Experience related to climate-smart agriculture or women's empowerment in agriculture

3. Understanding of Climate-Smart Agriculture

- How do you define climate-smart agriculture (CSA)?
- In your view, what are the key components of CSA relevant to women farmers in Mbire?

4. Current Implementation of CSA

- What climate-smart agriculture practices are currently being promoted in Mbire?
- How are these practices tailored to address the needs and vulnerabilities of women farmers?
- Who are the primary stakeholders involved in implementing CSA in this region?

5. Policies and institutional Framework

Can you describe the existing policies and institutional frameworks that support climate-smart agriculture in Mbire District?

- Who are the key stakeholders involved in implementing these frameworks?

How are these policies communicated to farmers, especially women farmers?

- What mechanisms exist for feedback from farmers regarding these policies?
- In your opinion, how effective are the current frameworks in promoting the adoption of climate-smart practices among farmers?
- Can you provide examples of successes or challenges observed with these frameworks?

5. Impact on Women

- Based on your observations, how have women farmers in Mbire benefited from CSA practices?

- Are there any notable challenges or barriers that women face in adopting these practices?
- How do you think CSA influences the social and economic status of women in the community?

6. Engagement and Participation

- How are women involved in decision-making processes related to CSA initiatives?
- What measures are in place to ensure women's voices are heard in agricultural policies and programs?

7. Collaboration and Support

- What roles do local authorities/CSOs play in supporting women's engagement with CSA?

Are there any successful partnerships that have helped enhance the adoption of CSA among women?

8. Recommendations for Improvement

- What recommendations would you propose for enhancing the policies and frameworks that support climate-smart agriculture in Mbire District?
- What further assistance do you believe is needed to encourage the adoption of CSA?
- How can local authorities and organizations better support women in agriculture moving forward?
- What additional resources or training do you believe are necessary for women to implement CSA successfully?

9. Conclusion

- Is there anything else you would like to add that we haven't covered?
- Thank the interviewee for their time and valuable insights

Appendix 3 – AUREC Approval Letter



AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE (AUREC)

P.O. Box 1320 Mutare, Zimbabwe, Off Nyanga Road, Old Mutare-Tel (+263-20) 60075/60026/61611 Fax: (+263 20) 61785 Website: www.africaun.edu

Ref: AU 3860/25

24 March, 2025

Itayi usaiwevhu
C/O Africa University
Box 1320
MUTARE

RE: **ANALYZING THE FRAMEWORKS FOR CLIMATE-SMART AGRICULTURE ADOPTION
AMONG WOMEN FARMERS IN MBIRE DISTRICT, ZIMBABWE**

Thank you for the above-titled proposal you submitted to the Africa University Research Ethics Committee for review. Please be advised that AUREC has reviewed and approved your application to conduct the above research.

The approval is based on the following.

a) Research proposal

- **APPROVAL NUMBER** AUREC 3860/25
This number should be used on all correspondences, consent forms, and appropriate document
- **AUREC MEETING DATE** NA
- **APPROVAL DATE** March 24, 2025
- **EXPIRATION DATE** March 24, 2026
- **TYPE OF MEETING:** Expedited
After the expiration date, this research may only continue upon renewal. A progress report on a standard AUREC form should be submitted a month before the expiration date for renewal purposes.
- **SERIOUS ADVERSE EVENTS** All serious problems concerning subject safety must be reported to AUREC within 3 working days on the standard AUREC form.
- **MODIFICATIONS** Prior AUREC approval is required before implementing any changes in the proposal (including changes in the consent documents)
- **TERMINATION OF STUDY** Upon termination of the study a report has to be submitted to AUREC.



Yours Faithfully

MARY CHINZOU
FOR CHAIRPERSON
AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE