

BINDURA UNIVERSITY OF SCIENCE EDUCATION

**A FRAMEWORK FOR AGRIBUSINESS DIVERSIFICATION TO ENHANCE
SMALLHOLDER FARMER RESILIENCE AGAINST CLIMATE CHANGE
IMPACTS IN VUNGU RURAL DISTRICT**

BY

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**A DISSERTATION SUBMITTED TO THE BINDURA UNIVERSITY OF SCIENCE
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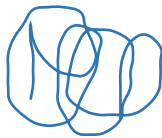
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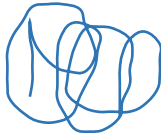
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DECLARATION

I, Tsitsi N. Muzanenhamo Student Reg Number B243590B, do hereby declare that this dissertation is a result of my own investigation and research, except to the extent indicated in the acknowledgments, bibliography, references, and comments included in the body of the report, and that it has not been submitted in part or in full for any other degree to any other university.

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A handwritten signature in blue ink, consisting of several overlapping loops and a vertical line on the left side.

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DEDICATION

To my family for the support

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ABSTRACT

This study aimed to develop a practical and localized framework to support smallholder farmers in adapting to climate change through diversified agribusiness strategies. The research was driven by the increasing vulnerability of smallholder farmers in Vungu, Zimbabwe, to climate-related disruptions such as droughts and erratic rainfall due to their heavy reliance on rain-fed agriculture and limited income diversification. The study had three main objectives: to assess current agribusiness practices for climate resilience, to explore the challenges faced in diversification, and to develop a sustainable framework suited to the local context. The literature review integrated the Sustainable Livelihoods Framework, Resilience Theory, and the Agricultural Innovation Systems approach, and identified critical gaps in existing models that often overlook localized barriers such as access to capital, infrastructure, and institutional support. A qualitative research approach was adopted using an interpretative philosophy and a case study design. The research population consisted of smallholder farmers, agricultural extension officers, and local authorities, with a purposive and snowball sample of 25 participants (15 farmers, 5 extension officers, and 5 local leaders). Data collection tools included semi-structured interviews, focus group discussions, and direct field observations, while thematic analysis was used to process the qualitative data. The findings revealed that current practices were limited in scope and effectiveness due to inadequate resources and fragmented support systems. Farmers cited challenges such as lack of access to finance, market limitations, climate unpredictability, and weak policy support. A significant insight was the farmers' willingness to diversify if given appropriate tools and institutional backing. Based on these findings, a comprehensive framework was proposed, combining technical training, cooperative development, infrastructure investment, and supportive policy reforms. The study concluded that localized agribusiness diversification, when well-structured and supported, can significantly enhance farmer resilience. Key recommendations include government-led capacity building, financial inclusive strategies, and stronger integration of local knowledge into policy design, thereby aligning rural agricultural development with national climate adaptation goals and SDG targets.

Keywords: Smallholder farmer, Diversification, Climate change, Agribusiness

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LIST OF ABBREVIATIONS

AIS	Agricultural Innovation Systems
CAADP	Comprehensive Africa Agriculture Development Programme
CRA	Climate Resilient Agriculture
DFID	Department for International Development
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
IPCC	Intergovernmental Panel on Climate Change
NGO	Non-Governmental Organization
RBZ	Reserve Bank of Zimbabwe
SDG	Sustainable Development Goal
SLF	Sustainable Livelihoods Framework
UNDP	United Nations Development Programme
ZIMSTAT	Zimbabwe National Statistics Agency
ZINWA	Zimbabwe National Water Authority

CHAPTER 1: INTRODUCTION

1.1 Introduction

Chapter 1 of this dissertation sets the foundation for the study. The chapter begins with the background of the study, providing an overview of how climate change has increasingly disrupted agricultural systems, threatening the livelihoods of smallholder farmers who depend heavily on rain-fed agriculture. It identifies the urgent need for sustainable strategies, such as agribusiness diversification, to mitigate these impacts. The statement of the problem highlights the vulnerability of smallholder farmers in Vungu Rural District to climate-induced risks, emphasizing the lack of structured frameworks to support diversification efforts. The study objectives are outlined while the research questions align with these objectives. Additionally, the chapter discusses the justification and significance of the study. It also outlines the key assumptions underpinning the research, while addressing the study's delimitations and limitations, including geographic focus and resource constraints. This introduction encapsulates the thematic and methodological scope of the study, setting the stage for a detailed exploration of the issues and proposed solutions in subsequent chapters.

1.2 Background of the study

Globally, climate change has emerged as one of the most pressing challenges of the 21st century, significantly affecting agricultural productivity and food security. According to the Intergovernmental Panel on Climate Change (IPCC, 2022), global temperatures have increased by 1.1°C since the pre-industrial era, with projections indicating a further rise by 1.5°C by 2040 under current emission trajectories. This warming has led to altered precipitation patterns, extreme weather events, and declining agricultural yields, particularly in tropical and subtropical regions. Smallholder farmers, who produce approximately 70% of the world's food (FAO, 2021), are disproportionately affected by these changes due to their reliance on climate-sensitive farming systems. For instance, studies by Smith et al. (2023) and Jones et al. (2020) show that climate change has reduced global crop yields by 21% for maize, 15% for wheat, and 11% for rice since the 1960s. Diversification into agribusiness activities, such as value addition, agro-processing, and non-farm ventures, has been increasingly advocated as a resilience strategy. However, despite its

potential, the adoption of agribusiness diversification frameworks remains limited, particularly among smallholder farmers, necessitating localized and actionable solutions.

The diversification of agricultural activities into value-added processing, marketing, and non-farm enterprises is seen as a pathway to stabilize incomes, reduce risks, and enhance adaptive capacity (FAO, 2021). For example, in Asia, diversification into aquaculture and agro-tourism has increased rural household incomes by 35% in Bangladesh and Thailand (Rahman et al., 2022). Similarly, in Latin America, agribusiness diversification, including organic farming and agroforestry, has helped reduce climate-induced losses by up to 40%, as noted by Rivera et al. (2023). In contrast, studies in Europe highlight a shift towards sustainable intensification, with diversification strategies such as on-farm energy production and agritourism contributing significantly to rural development (Smith et al., 2023). Despite these advancements, global adoption of diversification practices is uneven, with constraints such as inadequate financing, limited knowledge transfer, and policy misalignment being pervasive, especially in developing regions (Jones & Brown, 2021). Furthermore, debates persist among scholars regarding the scalability and environmental implications of agribusiness diversification. While proponents argue that diversification enhances ecological sustainability and farmer resilience (FAO, 2021), critics, such as Turner et al. (2020), caution against the potential over-commercialization of smallholder agriculture, which might marginalize subsistence farmers. These discussions underline the complexity and contextual nature of agribusiness diversification as a resilience strategy on a global scale.

In Africa, the impacts of climate change are particularly severe, with the continent experiencing a 7% annual decline in agricultural productivity due to changing weather patterns (African Development Bank, 2022). Smallholder farmers, who constitute over 80% of the continent's agricultural workforce, are highly vulnerable due to their dependence on rain-fed farming and limited access to adaptive technologies (Nhemachena & Hassan, 2021). Sub-Saharan Africa is expected to see a 20-30% reduction in crop yields by 2050 if current trends persist (FAO, 2021). Efforts to mitigate these impacts have increasingly focused on agribusiness diversification, as highlighted by Adomako et al. (2023), who argue that engaging in non-traditional agricultural ventures can reduce farmers' dependency on unpredictable climatic conditions. However, barriers such as inadequate financial support, limited access to markets, and lack of policy alignment hinder

the full realization of diversification's potential (Moyo & Tambo, 2020). These challenges underscore the need for tailored frameworks that address the unique circumstances of smallholder farmers across the continent.

In Southern Africa, the agricultural sector contributes an average of 15% to the region's GDP, employing approximately 70% of the rural population (SADC, 2023). However, the region has been experiencing severe climate-induced stress, including prolonged droughts, erratic rainfall, and extreme heatwaves. Between 2019 and 2023, Southern Africa experienced a 40% reduction in cereal yields due to drought (World Bank, 2023). Studies by Tsegaye and Wossen (2022) emphasize the importance of agribusiness diversification in enhancing smallholder farmer resilience in the region. For instance, the introduction of climate-resilient crops and agro-processing units in Zambia and Malawi has increased household incomes by 25-30% and reduced post-harvest losses by 20% (Chibaya et al., 2023). Despite these successes, Southern Africa faces challenges such as weak extension services and limited infrastructure, which constrain the scalability of diversification initiatives (Mandivengerei et al., 2023).

In Zimbabwe, agriculture accounts for 17% of GDP and employs over 60% of the workforce, with smallholder farmers producing 70% of the country's food (ZIMSTAT, 2023). However, the sector is under significant threat from climate change, with average temperatures rising by 0.4°C per decade since 1980 (UNDP, 2022). Rainfall variability has also increased, with the country experiencing 62% of its seasons as droughts over the past two decades (Mavhura et al., 2021). According to Mutami and Nyikahadzoi (2023), the adoption of agribusiness diversification strategies has improved the resilience of some farming communities, particularly through ventures like poultry production, horticulture, and small-scale irrigation schemes. Nonetheless, challenges such as lack of capital, insufficient knowledge, and weak policy frameworks continue to limit the widespread adoption of these strategies. This highlights the need for a structured framework to support agribusiness diversification in Zimbabwe's rural areas.

Furthermore, the country has experienced a 50% decline in rainfall over the past two decades, coupled with an increase in the frequency of droughts, with five severe droughts occurring between 2000 and 2020 (Mavhura et al., 2021). These climatic stresses have resulted in declining crop yields, with maize production, a staple for the nation, dropping by over 60% in drought-affected years (FAO, 2021). Smallholder farmers, who contribute 80% of the national food supply, are

disproportionately affected as they rely heavily on rain-fed agriculture and have limited access to irrigation and other adaptive technologies (Moyo et al., 2024). Additionally, post-harvest losses, often exceeding 30%, further exacerbate food insecurity (ZIMSTAT, 2023). The lack of diversification in farming systems leaves smallholders highly vulnerable to these challenges, necessitating robust frameworks for agribusiness diversification to enhance resilience and ensure sustainable livelihoods.

Economic and policy-related constraints compound the climate challenges faced by Zimbabwe's smallholder farmers. Hyperinflation, which peaked at over 800% in 2022, and limited access to affordable financing have curtailed investments in adaptive agricultural practices (RBZ, 2023). Furthermore, unclear land tenure systems and weak extension services hinder the adoption of innovative agribusiness models (Mutami & Nyikahadzoi, 2023). For example, only 23% of smallholder farmers in Zimbabwe engage in value addition or non-farm activities, significantly lower than the Sub-Saharan African average of 35% (World Bank, 2023). Moreover, the inconsistent implementation of climate adaptation policies, such as the National Climate Policy of 2017, has left rural farmers without coordinated support (Chitongo & Muzamhindo, 2022). Scholars such as Moyo et al. (2024) argue that a lack of market access and infrastructure further limits the potential for agribusiness diversification, as farmers struggle to transition from subsistence to commercially oriented agriculture. Addressing these challenges requires a multifaceted approach, integrating financial, technical, and policy-driven interventions tailored to the unique circumstances of Zimbabwe's smallholder farmers.

Vungu Rural District is located in the Midlands Province of Zimbabwe. Smallholder farmers rely heavily on rain-fed agriculture, primarily growing maize and sorghum, with over 80% of households engaging in subsistence farming (Rukuni et al., 2022). The district has been experiencing worsening climate conditions, including erratic rainfall patterns and prolonged dry spells, which have reduced crop yields by an average of 45% between 2015 and 2023 (ZINWA, 2023). Agribusiness diversification initiatives have shown potential in the district, with some farmers venturing into beekeeping, poultry, and vegetable farming, resulting in income increases of up to 30% for participating households (Moyo et al., 2024). However, a lack of coordinated support and frameworks has hindered the scalability and sustainability of these initiatives. This study seeks to address this gap by proposing a comprehensive framework for agribusiness

diversification to enhance the resilience of smallholder farmers in Vungu Rural District against the impacts of climate change.

1.3 Problem statement

Smallholder farmers in Vungu Rural District, Zimbabwe, are facing increasing vulnerabilities due to the impacts of climate change, including recurrent droughts, erratic rainfall patterns, and declining agricultural productivity, which threaten their livelihoods and food security. These farmers, who primarily depend on rain-fed agriculture, lack diversified income streams and adaptive capacity, leaving them highly susceptible to climatic shocks. Evidence of this problem is reflected in the region's crop failure rates, with maize yields dropping by over 40% during drought years, exacerbating hunger and poverty levels (ZIMSTAT, 2023). While agribusiness diversification has been identified globally as a potential solution to enhance resilience, there is limited understanding of how to effectively implement such strategies in the local context, especially for resource-constrained smallholders in Zimbabwe (Chitongo & Muzamhindo, 2022). Existing studies have highlighted the benefits of diversification in reducing climate-related risks, but there is a significant knowledge gap regarding the specific frameworks or models that can guide smallholder farmers in Vungu to adopt agribusiness diversification effectively (Mutami & Nyikahadzo, 2023). Without addressing this issue, the district's farmers risk increased poverty, food insecurity, and reduced adaptive capacity to future climate shocks, potentially destabilizing the region's agricultural sector and rural economy. The purpose of this study is to develop a framework for agribusiness diversification that enhances smallholder farmers' resilience against climate change impacts in Vungu Rural District. This will provide a practical and context-specific roadmap to address the challenges they face and improve their long-term sustainability and livelihoods.

1.4 Research objectives

Main objective

To develop a framework for agribusiness diversification that enhances the resilience of smallholder farmers against climate change impacts in Vungu Rural District.

Specific objectives

The study seeks to achieve this:

- To assess current agribusiness practices for climate resilience in Vungu Rural District
- To explore challenges in agribusiness diversification among smallholder farmers in Vungu Rural District
- To develop a framework for agribusiness diversification in Vungu Rural District

1.5 Research questions

The following questions will be answered:

- i. How effective are current agribusiness practices in enhancing climate resilience in Vungu Rural District?
- ii. What challenges do smallholder farmers in Vungu Rural District face in adopting agribusiness diversification?
- iii. What framework can be developed to promote agribusiness diversification in Vungu Rural District?

1.6 Research justification

This research is justified by the increasing vulnerability of smallholder farmers to climate change and the urgent need to develop sustainable adaptation strategies that strengthen rural livelihoods in Zimbabwe. Smallholder agriculture contributes significantly to national food security, employment, and household incomes, yet it remains predominantly rain-fed and highly susceptible to climate variability, including prolonged droughts, erratic rainfall patterns, rising temperatures, and frequent extreme weather events (Intergovernmental Panel on Climate Change [IPCC], 2023). These climate-related shocks have reduced agricultural productivity, increased food insecurity, and weakened the resilience of rural households, particularly in semi-arid districts such as Vungu, where agriculture forms the backbone of the local economy (Food and Agriculture Organization [FAO], 2023). Consequently, there is a growing need for innovative approaches that enable farmers to diversify their income sources and reduce dependence on climate-sensitive farming activities.

Agribusiness diversification has emerged as one of the most effective strategies for enhancing the resilience of smallholder farmers by promoting income diversification, value addition, market

participation, and climate-smart agricultural enterprises (World Bank, 2022). Diversification enables farmers to spread production and market risks while improving household income stability and adaptive capacity during periods of climatic stress. Recent studies have demonstrated that integrating crop diversification, livestock production, agro-processing, contract farming, and non-farm agribusiness enterprises enhances resilience by reducing vulnerability to climate-related shocks and creating alternative livelihood opportunities (Mutenje et al., 2022; Nyasimi et al., 2021). Despite these recognized benefits, many smallholder farmers in Zimbabwe continue to face barriers such as limited access to finance, inadequate extension services, poor market linkages, low adoption of climate-smart technologies, and weak institutional support, all of which constrain effective agribusiness diversification.

The study is further justified by the limited empirical research that proposes a comprehensive framework for agribusiness diversification specifically tailored to the socio-economic and environmental conditions of Vungu Rural District. While previous studies have examined climate change adaptation and agricultural resilience in Zimbabwe, relatively few have integrated agribusiness diversification into a practical framework that guides smallholder farmers, policymakers, and development partners in strengthening resilience against climate change impacts. By developing such a framework, this research fills an important knowledge gap and contributes to the growing body of literature on climate-resilient agricultural development in sub-Saharan Africa. The findings will provide evidence-based recommendations to support government agencies, non-governmental organizations, agricultural extension officers, and financial institutions in designing targeted interventions that promote sustainable rural livelihoods and inclusive agricultural transformation.

Furthermore, the study aligns with Zimbabwe's Vision 2030, the National Development Strategy 1 (NDS1), the National Climate Change Response Strategy, and Sustainable Development Goals (SDGs) 1 (No Poverty), 2 (Zero Hunger), and 13 (Climate Action), all of which emphasize building resilient agricultural systems, promoting climate adaptation, and improving rural livelihoods (Government of Zimbabwe, 2021; United Nations, 2023). Therefore, the proposed framework has the potential to inform policy formulation, strengthen climate adaptation planning, improve household resilience, enhance food security, reduce poverty, and contribute to sustainable socio-

economic development in Vungu Rural District and other areas with similar climatic and socio-economic characteristics.

1.7 Significance of the study

The significance of this study lies in its potential to address the pressing challenges faced by smallholder farmers in Vungu Rural District, whose livelihoods are increasingly threatened by climate change. By developing a framework for agribusiness diversification, the research provides a strategic tool to enhance resilience, ensuring that farmers can sustainably manage risks associated with erratic weather patterns, prolonged droughts, and declining productivity.

The study contributes to academic knowledge by filling a critical gap in the understanding of how localized agribusiness strategies can be effectively implemented in rural Zimbabwe, where limited research exists on adaptive frameworks tailored to smallholder contexts.

Furthermore, it provides practical insights for policymakers, non-governmental organizations, and development agencies working to design and implement interventions aimed at promoting sustainable rural livelihoods. The findings are anticipated to inform the government's climate adaptation policies and initiatives, such as the National Climate Policy and the Agriculture Recovery Plan, ensuring that they are aligned with the needs of smallholder farmers.

For development practitioners, the study offers actionable recommendations to enhance the economic resilience of rural communities, potentially reducing poverty and food insecurity. At the community level, the framework will empower farmers with knowledge and tools to diversify income streams, reduce reliance on rain-fed agriculture, and access new markets, thereby fostering economic growth and stability.

In a broader sense, the study aligns with Zimbabwe's Vision 2030 and the United Nations Sustainable Development Goals (SDGs), particularly SDG 2 on zero hunger and SDG 13 on climate action. By prioritizing the resilience of smallholder farmers, who are the backbone of Zimbabwe's agricultural sector, the study has the potential to transform rural livelihoods, drive economic development, and contribute to long-term sustainability in the face of climate change.

1.8 Research assumptions

The researcher assumes that:

- i. Smallholder farmers in Vungu Rural District are willing to adopt agribusiness diversification strategies to enhance their resilience to climate change.
- ii. Agribusiness diversification can significantly improve the adaptive capacity and livelihoods of smallholder farmers in Vungu Rural District.
- iii. Stakeholders, including policymakers and development agencies, will find the proposed framework practical and applicable in addressing climate change impacts on smallholder farming.

1.9 Delimitations of the study

This study is geographically delimited to Vungu Rural District in the Midlands Province of Zimbabwe, a region predominantly reliant on smallholder farming and significantly affected by climate change. The focus on Vungu allows for an in-depth exploration of agribusiness diversification within the unique climatic, socio-economic, and agricultural conditions of the area. Time-wise, the study examines data and events from 2020 to 2025, providing a comprehensive analysis of climate change impacts and agribusiness practices over this period. This timeframe captures recent trends and developments in agricultural adaptation and resilience strategies, ensuring that the findings are relevant to current challenges and opportunities faced by smallholder farmers in Vungu.

1.10 Limitations

One limitation of this study is the potential for respondent bias, particularly in interviews or surveys with smallholder farmers who may provide socially desirable answers, especially when discussing challenges related to climate change or agribusiness practices. This bias could skew the data and affect the reliability of the findings. To mitigate this, the researcher will ensure confidentiality and anonymity for all participants, emphasizing that their responses will not impact their relationship with any authorities or organizations. Additionally, the researcher will use a combination of qualitative methods, such as focus group discussions and interviews, to triangulate

data and cross-check responses, ensuring a more balanced and accurate understanding of the challenges faced.

Another limitation is the relatively small sample size of smallholder farmers in Vungu, which may not fully represent the diversity of farming practices across the district. Since Vungu Rural District is home to a wide range of farming practices and geographical conditions, the findings may not be generalizable to other rural districts in Zimbabwe. To address this, the researcher will carefully select a purposive sample that includes farmers from different agro-ecological zones and varying farming practices to capture the diversity within the district. Additionally, the study will acknowledge the limitations in generalizability and suggest areas for further research in other regions.

The study's reliance on qualitative data may also limit the ability to make broad quantitative conclusions about agribusiness diversification's impact. While qualitative research provides deep insights into the lived experiences of smallholder farmers, the findings may not be representative of the broader population of Zimbabwe's rural areas. To address this limitation, the researcher will ensure that the qualitative data is rich and detailed, focusing on the nuances of the specific context in Vungu, while also grounding the findings in existing literature and regional data. This approach will enhance the credibility of the study and provide a foundation for future quantitative studies to validate the findings.

A final limitation is the availability of secondary data on agribusiness diversification in Zimbabwe, particularly in rural areas like Vungu. Due to limited research on the specific topic in the region, there may be gaps in the existing literature. To address this, the researcher will consult a range of sources, including government reports, NGO publications, and regional case studies, and will complement these with primary data from interviews and focus groups. This triangulation will help to fill gaps in the literature and ensure a comprehensive analysis of the topic.

1.11 Definition of key terms

Agribusiness Diversification: The process of expanding agricultural activities into non-traditional areas, such as agro-processing, livestock farming, and value-added products, to reduce dependency on a single crop or income source (Munyati & Mlambo, 2022).

Smallholder Farmers: Farmers who manage small-scale farms, typically with limited access to resources such as capital, land, and technology, and rely primarily on subsistence farming for their livelihoods (Chingono & Muvengwa, 2023).

Climate Resilience: The ability of communities or agricultural systems to anticipate, prepare for, and respond to the adverse effects of climate change, ensuring long-term sustainability and reducing vulnerabilities (Tafirei & Kanyoka, 2021).

1.12 Dissertation Layout

This dissertation was organized into five chapters. Chapter One presented the introduction to the study, including the background to the study, statement of the problem, research aim and objectives, research questions, justification of the study, significance of the study, scope, limitations, delimitations, definitions of key terms, and the dissertation layout. Chapter Two reviewed relevant theoretical and empirical literature on climate change, agribusiness diversification, and smallholder farmer resilience, while identifying the research gap that informed the study. Chapter Three described the research methodology adopted, including the research philosophy, research approach, research design, study area, target population, sampling techniques, data collection methods, data analysis procedures, validity and reliability, ethical considerations, and the development of the proposed framework. Chapter Four presented, analyzed, and interpreted the research findings in relation to the study objectives. Finally, Chapter Five summarized the key findings, discussed the implications of the results, presented the proposed agribusiness diversification framework, drew conclusions, and provided recommendations for policy, practice, and future research.

1.13 Chapter summary

Chapter 1 introduced the study on developing a framework for agribusiness diversification to enhance smallholder farmer resilience against climate change impacts in Vungu Rural District. It outlined the background of the study, highlighting the challenges faced by smallholder farmers due to climate change and the importance of diversification. The chapter presented the problem statement, emphasizing the vulnerability of farmers and the gap in localized solutions. It also included the study's objectives, research questions, and justification, explaining the significance

of addressing this issue for sustainable rural development. The chapter further discussed the assumptions, delimitations, and limitations of the study.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Agribusiness diversification has emerged as a crucial strategy for enhancing smallholder farmer resilience against the adverse effects of climate change. This chapter explores existing literature on agribusiness diversification, its role in building climate resilience, and the challenges faced by smallholder farmers in adopting diversified agricultural practices. The review examines theoretical frameworks, empirical studies, and policy interventions relevant to agribusiness diversification, with a focus on its application in rural settings like Vungu Rural District. By analyzing these perspectives, this chapter lays the foundation for developing a comprehensive framework that can support smallholder farmers in mitigating climate risks and ensuring sustainable livelihoods.

2.2 Theoretical Framework

In exploring agribusiness diversification as a means to enhance smallholder farmer resilience against climate change impacts in Vungu Rural District, three theoretical frameworks offer valuable insights: the Sustainable Livelihoods Framework (SLF), Resilience Theory, and the Agricultural Innovation Systems (AIS) approach. Each provides a unique lens through which to understand and implement strategies aimed at bolstering the adaptive capacities of smallholder farmers facing climatic challenges.

2.2.1 Sustainable Livelihoods Framework (SLF)

The Sustainable Livelihoods Framework (SLF), developed by the UK Department for International Development (DFID) in the 1990s, serves as a comprehensive tool for analyzing the livelihoods of the poor, particularly in rural settings. This framework emphasizes a holistic, people-centered approach, focusing on the assets, strategies, and contexts that influence individuals' and communities' abilities to achieve sustainable livelihoods (DFID, 1999). Central to the SLF is the identification of five core asset categories: human, social, natural, physical, and financial capital, which individuals draw upon to pursue various livelihood strategies (Scoones, 1998). These assets are influenced by the vulnerability context, encompassing external factors such as shocks, trends, and seasonality that affect livelihoods. The framework also highlights the importance of transforming structures and processes, including institutions, policies, and legislation, that shape access to assets and livelihood strategies (Ellis, 2000).

In the context of agribusiness diversification in Vungu Rural District, the SLF is particularly pertinent. By mapping the various assets available to smallholder farmers and understanding the vulnerability context—especially the impacts of climate change the framework can guide the identification of diversification strategies that leverage existing strengths and mitigate weaknesses. For instance, enhancing human capital through training in sustainable farming practices can improve adaptive capacity, while strengthening social capital through cooperative groups can facilitate access to markets and resources (Carney, 2002). Moreover, the SLF's emphasis on transforming structures and processes aligns with the need to create an enabling environment for agribusiness diversification. This could involve advocating for policies that support access to credit for smallholder farmers or developing infrastructure that connects farmers to larger markets. By applying the SLF, interventions can be designed to be more responsive to the specific needs and contexts of smallholder farmers in Vungu, thereby enhancing their resilience to climate change impacts (DFID, 1999; Scoones, 1998; Ellis, 2000).

2.2.2 Resilience Theory

Resilience Theory, rooted in ecology and systems thinking, was notably advanced by scholars such as C.S. Holling in the 1970s. The theory examines the capacity of systems be they ecological, social, or socio-ecological to absorb disturbances, adapt to changing conditions, and persist over time (Holling, 1973). It emphasizes the concepts of adaptability, transformability, and the ability to navigate thresholds between different system states. Central to Resilience Theory is the idea that systems are dynamic and constantly evolving. Rather than striving for a static equilibrium, resilient systems are characterized by their ability to undergo change and reorganization in response to external stresses and shocks. This perspective challenges traditional views of stability and highlights the importance of diversity, redundancy, and connectivity within systems as key factors that contribute to resilience (Folke et al., 2010).

Applying Resilience Theory to agribusiness diversification in Vungu Rural District offers valuable insights. Diversification can be seen as a strategy to build both ecological and economic resilience among smallholder farmers. By cultivating a variety of crops and engaging in multiple agricultural enterprises, farmers can reduce their vulnerability to climate-induced shocks, such as droughts or pest infestations that might devastate a single crop system. This diversity enhances the system's capacity to absorb disturbances and maintain functionality (Walker et al., 2004). Furthermore,

Resilience Theory underscores the importance of adaptive capacity the ability of farmers to learn, innovate, and implement new strategies in response to changing climatic conditions. Encouraging a culture of continuous learning and flexibility among smallholder farmers can lead to the development of novel practices and the adoption of technologies that enhance resilience. For example, integrating agroforestry practices or adopting drought-resistant crop varieties can be adaptive responses that contribute to the overall resilience of the farming system (Berkes et al., 2003).

2.2.3 Agricultural Innovation Systems (AIS) Approach

The Agricultural Innovation Systems (AIS) approach has been articulated by scholars such as Andy Hall and Norman Clark in the early 2000s. AIS is defined as a network of organizations, enterprises, and individuals focused on bringing new products, processes, and forms of organization into economic use, together with the institutions and policies that affect their behavior and performance (Hall et al., 2006). This approach emphasizes the interactive nature of innovation, highlighting the roles of collaboration, knowledge exchange, and learning among diverse stakeholders. Key tenets of the AIS approach include the recognition of multiple sources of innovation beyond formal research institutions, such as farmers, extension services, non-governmental organizations, and private sector entities. It also stresses the importance of enabling environments, including supportive policies, effective institutions, and access to markets and financial services. The AIS framework advocates for systemic thinking, acknowledging that innovation emerges from complex interactions within the agricultural system (Klerkx et al., 2012).

In the context of promoting agribusiness diversification among smallholder farmers in Vungu Rural District, the AIS approach is particularly pertinent. By fostering networks that connect farmers with research institutions, extension agents, agribusinesses, and policymakers, the AIS framework facilitates the co-creation and dissemination of knowledge relevant to diversification strategies. For instance, collaborative efforts can lead to the development and adoption of value-added processing techniques or the introduction of high-value crops suited to local conditions (Spielman et al., 2009). Moreover, the AIS approach highlights the role of institutions and policies in shaping innovation pathways. Advocating for policies that provide incentives for diversification, such as subsidies for alternative crops or support for farmer cooperatives, can create an enabling environment for smallholder farmers to diversify their agribusiness activities. Additionally,

strengthening linkages between farmers and markets through infrastructure development and market information systems can enhance the viability of diversified agribusiness ventures (Hall et al., 2006; Klerkx et al., 2012).

2.3 Conceptual Framework

2.3.1 Agribusiness diversification

According to Maponya & Mpandeli (2020), agribusiness diversification refers to the strategic expansion of agricultural activities into a variety of products, services, or markets to enhance economic stability and resilience. This approach encompasses integrating different crops, livestock, agro-processing, agritourist, and other non-traditional agricultural ventures. Proponents argue that diversification mitigates risks associated with market volatility, climate change, and pest infestations by not relying solely on a single commodity. For instance, integrating agroforestry practices combining trees with crops or livestock has been shown to improve land utilization and provide environmental and economic benefits (Asia Farming, 2023). Similarly, adopting crop diversification strategies can reduce dependency on synthetic inputs and enhance ecosystem services, contributing to sustainable agricultural landscapes (Beillouin et al., 2021). Furthermore, diversification into high-value crops or value-added products can open new market opportunities, potentially increasing farm income and promoting economic growth in rural areas (Plutus Education, 2023).

However, the implementation of agribusiness diversification is not without challenges. Critics point out that diversification requires substantial initial investments in terms of capital, knowledge, and infrastructure, which may be prohibitive for small-scale farmers. Limited access to markets, lack of technical know-how, and inadequate resources can hinder the successful adoption of diversified farming systems (Synnefa, 2023). Additionally, the complexity of managing multiple enterprises can increase the burden on farmers, potentially leading to inefficiencies if not properly managed. There is also a concern that diversification might divert attention from staple food production, potentially impacting food security if not balanced appropriately (GeeksforGeeks, 2023). Moreover, market saturation for certain diversified products can occur, leading to decreased profitability and questioning the economic viability of such strategies (Vedantu, 2023).

The environmental implications of agribusiness diversification present another area of debate. Advocates highlight that diversification can enhance biodiversity, improve soil health, and reduce the environmental footprint of agriculture by promoting sustainable practices. For example, integrating diverse cropping systems can lead to better pest management and reduced reliance on chemical inputs (Beillouin et al., 2021). Conversely, some argue that without proper planning, diversification could lead to negative environmental outcomes, such as the introduction of invasive species or the overexploitation of natural resources. The success of diversification in delivering environmental benefits largely depends on the specific practices adopted and the local ecological context (SpringerLink, 2023). Therefore, a nuanced approach is necessary to ensure that diversification strategies are environmentally sustainable.

Economic perspectives on agribusiness diversification also reveal contrasting viewpoints. Some studies suggest that diversification can lead to increased financial profitability over time, as it allows farmers to tap into multiple income streams and reduce dependence on a single commodity (Raveloaritiana & Wanger, 2024). This is particularly relevant in the face of price fluctuations and market uncertainties. However, other research indicates that the financial benefits of diversification may not be immediate and could take years to materialize, posing a challenge for farmers seeking quick returns (SpringerLink, 2023). Additionally, the success of diversification strategies is often contingent upon external factors such as market demand, access to credit, and supportive policies, which can vary significantly across regions and farming systems. Thus, while diversification holds potential economic advantages, its outcomes are not universally guaranteed and require careful consideration of contextual factors.

As such agribusiness diversification is a multifaceted strategy with both potential benefits and challenges (Ojo & Baiyegunhi, 2021). It offers a pathway to enhance resilience, promote sustainability, and open new economic opportunities for farmers. Nevertheless, the successful implementation of diversification strategies necessitates addressing barriers such as resource constraints, market access, and knowledge gaps (Moyo & Salawu, 2020). Furthermore, the environmental and economic impacts of diversification are complex and context-dependent, underscoring the need for tailored approaches that consider local conditions and farmer capacities. As such, while agribusiness diversification presents promising avenues for agricultural

development, it requires comprehensive planning, support, and continuous evaluation to realize its full potential.

2.3.2 Smallholder farmer resilience

Smallholder farmer resilience is a multifaceted concept encompassing the ability of small-scale agricultural producers to anticipate, prepare for, respond to, and recover from various shocks and stresses, including those induced by climate change, economic fluctuations, and environmental degradation (Shilomboleni, Epstein & Mansingh, 2024). This resilience is crucial for maintaining livelihoods, ensuring food security, and promoting sustainable agricultural practices. Recent studies have emphasized the importance of enhancing resilience among smallholder farmers to mitigate the adverse effects of climate variability. For instance, Jr (2021) highlights that adaptive actions are essential for smallholder farmers in the savannah ecological zone to cope with climate impacts, which adversely affect both human and environmental systems. Similarly, Beillouin et al. (2021) underscore the role of crop diversification in improving resilience by reducing dependency on single crop systems and enhancing ecosystem services. These findings suggest that implementing adaptive strategies is vital for smallholder farmers to navigate the challenges posed by a changing climate.

One of the primary strategies to bolster smallholder resilience is the adoption of climate-resilient agricultural practices. Mango et al., (2021) noted that, climate-resilient agriculture (CRA) encompasses a range of practices, technologies, and policies designed to enhance the resilience of farming systems to climate variability. According to a report by fundsforNGOs (2020), CRA offers a pathway for smallholder farmers to adapt to challenges such as unpredictable weather patterns and extreme events. This includes the development and adoption of drought-resistant crop varieties, improved water management techniques, and sustainable soil fertility practices. For example, the integration of agroforestry systems has been shown to improve soil health and provide additional sources of income, thereby increasing resilience (Asia Farming, 2023). Furthermore, the implementation of conservation agriculture practices, such as minimal soil disturbance and crop rotation, has been linked to enhanced soil moisture retention and reduced erosion, contributing to greater resilience against climatic shocks (Beillouin et al., 2021).

Access to diverse livelihood assets also plays a critical role in determining the resilience of smallholder farmers. A study by CIFOR-ICRAF (2020) examined the association between rural livelihood capitals natural, human, social, financial, and physical and resilience to water scarcity. The findings indicated that farmers possessing a diverse range of livelihood assets were better equipped to avoid or adapt to water scarcity challenges. For instance, those with access to financial capital could invest in irrigation infrastructure, while social capital facilitated knowledge exchange and collective action to manage water resources. This underscores the importance of strengthening various forms of capital to enhance resilience. Additionally, the Resilience Design in Smallholder Farming Systems approach developed by Mercy Corps emphasizes the redesign of farming systems to increase soil health and manage water effectively, thereby building resilience to environmental shocks (Mercy Corps, 2019).

Despite the potential benefits of these strategies, smallholder farmers often face significant barriers to building resilience. Limited access to resources, inadequate infrastructure, and insufficient support services can impede the adoption of resilience-enhancing practices. A report by MicroSave (2023) highlights that smallholders, who manage areas varying from less than one hectare to 10 hectares, often lack access to financial services, markets, and extension services, which are crucial for implementing adaptive strategies. Moreover, the complexity of managing diversified farming systems can pose challenges, particularly for farmers with limited technical knowledge or labor capacity. Addressing these barriers requires targeted interventions, such as providing access to credit, strengthening extension services, and developing infrastructure to support market access. Additionally, policies that promote secure land tenure and equitable resource distribution can create an enabling environment for smallholder farmers to invest in resilience-building measures (GeeksforGeeks, 2023).

Enhancing smallholder farmer resilience is a multifaceted endeavor that necessitates the adoption of climate-resilient agricultural practices, diversification of livelihood assets, and the removal of systemic barriers that hinder adaptive capacity. Recent literature underscores the critical importance of these strategies in mitigating the adverse impacts of climate change and ensuring the sustainability of smallholder farming systems (Nyantakyi-Frimpong & Bezner, 2020; Antwi-Agyei et al., 2021). However, achieving resilience at scale requires coordinated efforts among stakeholders, including policymakers, development agencies, and the farmers themselves. By

fostering an enabling environment and providing the necessary support, it is possible to build resilient smallholder farming systems capable of withstanding current and future challenges.

2.3.3 Climate change

Climate change, defined as long-term alterations in temperature and typical weather patterns, has been a focal point of scientific discourse, policy debates, and public concern, particularly in recent years (Pielke, 2020). The consensus among climate scientists is that human activities, notably the burning of fossil fuels and deforestation, are primary drivers of recent global warming trends. This view is supported by comprehensive assessments from the Intergovernmental Panel on Climate Change (IPCC), which state that it is unequivocal that human influence has warmed the atmosphere, ocean, and land (IPCC, 2021). However, discussions persist regarding the extent of natural variability's role in observed climate changes. Some researchers argue that factors such as solar radiation and volcanic activity also contribute to climate variability, though these are generally considered secondary influences compared to anthropogenic factors (Beaulieu et al., 2024).

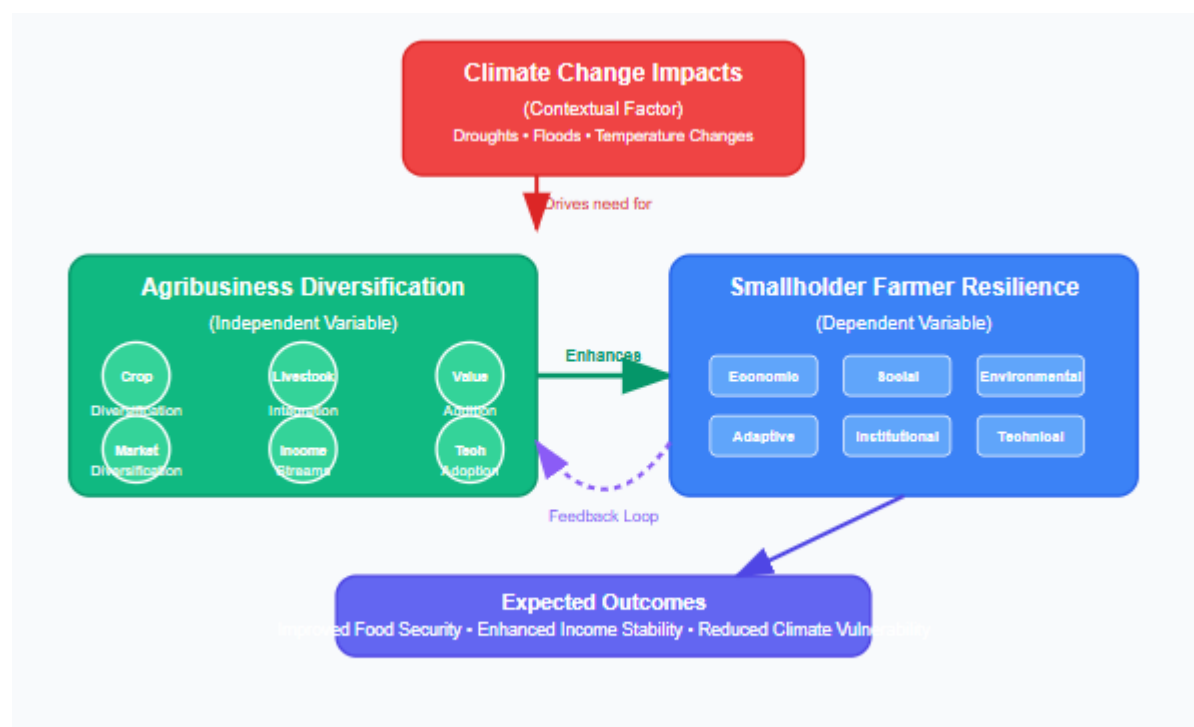
A significant area of agreement in the scientific community is the recognition of the accelerating impacts of climate change, including more frequent extreme weather events, rising sea levels, and disruptions to ecosystems. For instance, the 2024 State of the Climate report highlights that climate change has already displaced millions of people and has the potential to displace hundreds of millions more, leading to greater geopolitical instability (Cutter et al., 2024). This underscores the urgency for mitigation and adaptation strategies. Nonetheless, debates arise concerning the effectiveness and economic implications of various policy responses. While some scholars advocate for immediate and stringent emission reductions to limit warming to below 2°C, others argue for a more gradual approach, citing potential economic disruptions and the need for technological advancements to facilitate the transition to low-carbon energy sources (Pielke Jr., 2020).

The discourse on climate change is further complicated by differing perspectives on the role of geoengineering as a potential solution. Proponents suggest that techniques such as solar radiation management could provide temporary relief from rising temperatures, buying time for the implementation of long-term mitigation strategies. However, critics raise concerns about the

ethical implications, potential unintended consequences, and governance challenges associated with geoengineering interventions (Nature Climate Change, 2024). This debate reflects broader tensions between technological optimism and caution, highlighting the need for comprehensive risk assessments and inclusive policy dialogues.

Public perception and political polarization further influence the climate change debate. In the United States, for example, there is a notable partisan divide in beliefs about climate change, with Democrats more likely to acknowledge human-induced climate change and support related policies, while Republicans exhibit greater skepticism (Pew Research Center, 2024). This polarization affects policy development and implementation, as differing beliefs about the severity and causes of climate change lead to divergent policy preferences. Media coverage also plays a role, with some outlets emphasizing the severity of climate change and others questioning the consensus, thereby shaping public opinion and potentially reinforcing existing biases (Ellers, 2024). The figure below shows the diagrammatic presentation of the conceptual framework

Figure 2.1: Agribusiness Diversification for Climate Change Conceptual Framework



Source: Researcher's own creation (2025)

This conceptual framework demonstrates the core relationship between climate change impacts, agribusiness diversification, and smallholder farmer resilience in Vungu Rural District. Climate change serves as the driving force that necessitates agribusiness diversification strategies, including crop diversification, livestock integration, value addition, market diversification, income stream creation, and technology adoption. These diversification approaches directly enhance smallholder farmer resilience across economic, social, environmental, adaptive, institutional, and technical dimensions. The framework includes a feedback loop showing how increased resilience can further promote diversification efforts, creating a self-reinforcing cycle that ultimately leads to improved food security, enhanced income stability, and reduced climate vulnerability for smallholder farmers in the district.

2.4 Agribusiness practices for climate resilience in agriculture

Agribusiness practices for climate resilience in agriculture have become a major focus in recent research, particularly due to the escalating impacts of climate change across various regions. In Sub-Saharan Africa, smallholder farmers face significant risks related to unpredictable rainfall patterns, droughts, and extreme temperatures, making the integration of climate-smart agricultural practices essential. Scholars such as Balikowa et al. (2021) emphasize that agroecological farming, which combines traditional knowledge with modern techniques, is crucial for ensuring the resilience of African agriculture. Agroecological practices like crop rotation, intercropping, and the use of organic fertilizers have been widely recognized for improving soil fertility, conserving water, and increasing biodiversity, thereby contributing to climate resilience (Muli, 2020; Walker, 2022). However, some scholars argue that these practices alone may not be sufficient to mitigate the scale of climate change, suggesting the need for the adoption of advanced technologies such as genetically modified drought-resistant crops and precision irrigation systems (Chileshe & Mwewa, 2020). In contrast, other scholars, such as Baker and Roberts (2023), contend that these high-tech solutions are often out of reach for smallholders due to financial constraints and may even undermine traditional knowledge systems that are better adapted to local conditions. This debate highlights the tension between modern technology and traditional farming practices in achieving long-term resilience, suggesting that a hybrid model may be the most effective approach (Muli, 2020; Baker & Roberts, 2023).

In Asia, agribusiness practices that promote climate resilience have focused on enhancing water-use efficiency and introducing resilient crop varieties. In India, research by Sharma et al. (2022) suggests that the introduction of drought-resistant rice varieties has improved food security and farm productivity in rain-fed areas, where traditional crops often fail due to erratic rainfall. Similarly, in Vietnam, farmers have adopted integrated pest management (IPM) systems that reduce dependency on chemical pesticides, thus promoting sustainability while addressing climate risks (Pham et al., 2023). While these innovations have shown success in specific contexts, some scholars, such as Zhang et al. (2021), argue that their scalability remains uncertain. In particular, they point out that poor infrastructure, limited access to financing, and lack of technical knowledge often prevent smallholder farmers from fully adopting these climate-resilient practices. Furthermore, the financial constraints that farmers face in adopting high-tech solutions, such as precision agriculture tools, also raise concerns about the inclusivity of these practices (Zhang et al., 2021). This discrepancy between research-driven innovations and real-world adoption by farmers raises important questions about the effectiveness of such interventions, with some scholars calling for more region-specific studies to determine the most suitable approaches for different farming communities (Pham et al., 2023).

In North America, agribusiness practices have increasingly focused on sustainable farming systems, integrating climate resilience into mainstream agricultural production. Research by Green et al. (2020) suggests that the use of cover crops, conservation tillage, and crop diversification has played a significant role in enhancing soil health and reducing the impacts of extreme weather events such as floods and droughts in the United States. These practices have not only increased yields but also contributed to carbon sequestration, making agriculture a potential tool for mitigating climate change (Green et al., 2020; Thomas & Verma, 2021). However, debates have arisen regarding the broader applicability of these practices in diverse agricultural contexts. For instance, while cover cropping has proven effective in North American agriculture, its adoption in Africa and Asia may be hindered by different soil types, farming systems, and socio-economic conditions (Baker & Roberts, 2023). Scholars like El-Sayed et al. (2022) emphasize that while the benefits of these practices are undeniable in industrialized nations, they may not translate easily to the smallholder context, where land is often fragmented, access to equipment is limited, and labor is scarce. This debate highlights the challenge of adapting climate-smart practices to different

regional contexts and the need for flexible, context-specific solutions that align with local agricultural realities.

The Middle East presents a unique set of challenges for agribusinesses seeking to build climate resilience in agriculture. With the region experiencing severe water scarcity and high temperatures, strategies to enhance climate resilience often revolve around water conservation and the efficient use of limited resources. According to Al-Saidi et al. (2021), the use of advanced irrigation systems, such as drip irrigation and hydroponics, has been widely promoted as a solution to water scarcity. These systems ensure that water is used efficiently, minimizing waste and maximizing crop yield per unit of water (Al-Saidi et al., 2021). However, other scholars, such as Najjar et al. (2023), argue that the high initial costs associated with these technologies make them inaccessible to smallholder farmers in the region, who rely on more traditional irrigation methods. This creates a gap in the adoption of climate-smart practices, particularly in rural areas where farmers often lack the financial resources to invest in modern technologies (Najjar et al., 2023). Furthermore, debates surrounding the environmental impact of hydroponics and other intensive agricultural methods have emerged, with some scholars questioning whether these practices may ultimately lead to soil degradation or overreliance on synthetic fertilizers (Al-Saidi et al., 2021). The tension between technological solutions and their environmental sustainability poses a complex challenge for policy-makers and agribusinesses seeking to promote climate resilience in the region.

Across all these regions, the role of policy in promoting climate resilience in agriculture is crucial. Scholars agree that national and international policies must support the adoption of climate-resilient practices through subsidies, financial assistance, and incentives for farmers (Springer et al., 2021). In Africa, for instance, the African Union's Comprehensive Africa Agriculture Development Programme (CAADP) has been instrumental in promoting sustainable agricultural practices by providing funding and policy frameworks that encourage climate adaptation strategies (Balikowa et al., 2021). However, debates have emerged regarding the effectiveness of top-down policy interventions. Scholars like Walker (2022) argue that while policies can create enabling environments, they often fail to address the specific needs of smallholder farmers, particularly in remote areas. In contrast, participatory approaches, which involve local farmers in decision-making, have shown promise in ensuring that policies are tailored to the realities of those on the ground (Chileshe & Mwewa, 2020). This highlights the importance of ensuring that policies not

only promote climate resilience but also include mechanisms for local engagement and feedback to make them more inclusive and responsive to the needs of all farmers.

2.5 Challenges in agribusiness diversification amongst smallholder farmers

The diversification of agribusiness among smallholder farmers has been identified as an essential strategy for increasing resilience, improving income, and enhancing food security. However, smallholder farmers often encounter numerous challenges in diversifying their agricultural activities. These challenges, as discussed by several scholars, stem from limited access to resources, inadequate skills, market barriers, and policy constraints. In a study by Mugundani et al. (2021), smallholder farmers in Zimbabwe face substantial financial constraints when attempting to diversify their crops and livestock. The study highlights how limited access to credit, high interest rates, and insufficient working capital hinder the adoption of new farming ventures. Similarly, in Kenya, Ngugi and Chikoye (2022) argue that limited access to land and inadequate infrastructure have compounded the challenges faced by smallholders who wish to expand beyond traditional crops such as maize and beans. In contrast, Nyangweso (2020) claims that the challenge of resource constraints is not just financial but also technical. For instance, smallholder farmers often lack the requisite knowledge and expertise to manage multiple enterprises successfully, leading to poor outcomes in diversified ventures. Despite these financial and technical hurdles, the literature suggests that some regions have made strides through collective action and farmer groups that pool resources for diversification efforts, though these models are not universally applicable.

A contrasting view presented by Chikodzi et al. (2023) emphasizes that the issue of land tenure systems plays a significant role in the diversification challenges. In their study, they observed that insecure land tenure discourages smallholder farmers from investing in diversification, as farmers are unwilling to invest time and capital in crops or livestock that may not yield immediate benefits. The researchers argue that land reforms that guarantee long-term land tenure would provide farmers with the security necessary to diversify. In line with this, Omotayo et al. (2020) stress that farmers in West Africa face challenges in accessing both land and reliable water sources, making it difficult for them to diversify into more water-dependent crops like vegetables or horticulture. However, a point of divergence is found in a study by Moyo et al. (2024), who contend that while land tenure is indeed crucial, the absence of proper training and extension services often exacerbates the challenges of diversification. Their findings suggest that providing farmers with

proper knowledge of climate-smart agricultural practices could be a more pressing intervention than land reforms alone, as it would enable them to use available land and resources more efficiently.

In addition to resource constraints, market access remains a significant barrier for smallholder farmers wishing to diversify. Farmers often face limited access to both local and international markets due to insufficient infrastructure, poor transportation systems, and an overall lack of market information. In Zimbabwe, Ncube et al. (2021) note that despite the potential for diversification into high-value crops such as organic vegetables, smallholder farmers often struggle to find reliable markets for their products. These market barriers are compounded by issues such as price volatility, lack of value chains, and weak market linkages. Similarly, Mokoena and Mokoena (2020) highlight how the absence of adequate market access in South Africa limits the capacity of smallholder farmers to diversify into more profitable ventures like poultry or dairy farming. Contrasting this, Nyembe et al. (2022) found that when smallholder farmers were organized into cooperative marketing groups, they were able to overcome some of these market access challenges by collectively negotiating better prices and securing long-term contracts with buyers. This suggests that cooperation and collective marketing could be key solutions to the market access challenge.

Another notable challenge is the lack of government support and unfavorable policies. Many smallholder farmers struggle to access the necessary support from government programs designed to encourage diversification. Policies that favor large-scale agribusinesses, such as subsidies and tax incentives, often neglect smallholder farmers, thereby hindering their capacity to diversify their operations. A study by Makoni et al. (2020) found that Zimbabwe's agricultural policies have not been sufficiently supportive of smallholders seeking to diversify, leading to underperformance in rural economies. In contrast, Kalanga and Moyo (2021) argue that policy interventions aimed at providing smallholder farmers with adequate technical assistance, such as access to improved seeds and fertilizers, can significantly alleviate some of these challenges. They highlight a case in Zambia where government programs that promoted crop rotation and diversification into high-value crops significantly increased smallholder farm productivity. However, some scholars like Chitando (2024) caution that while policy support is important, it must be designed with a clear

understanding of local contexts and the specific needs of different farmer groups. This is because uniform policies that fail to account for local realities can have limited impact.

In addition to these challenges, climate change has emerged as a significant factor influencing agribusiness diversification. Smallholder farmers are increasingly vulnerable to the negative impacts of changing weather patterns, which can affect the success of diversified agricultural activities. According to Dube et al. (2021), erratic rainfall, prolonged droughts, and increased temperatures have made it difficult for farmers in Southern Africa to adopt water-intensive or climate-sensitive crops. These climatic changes exacerbate the already existing challenges of diversification by reducing yields and making it harder for farmers to predict their outcomes. In contrast, studies such as those by Kamanzi and Malinga (2023) suggest that climate-smart agriculture (CSA) practices, including the use of drought-resistant crop varieties and improved water management techniques, can help smallholder farmers mitigate some of the negative impacts of climate change. However, the uptake of CSA practices is often low due to the lack of information and extension services. Thus, while there is agreement on the need for climate-resilient strategies, disagreements emerge regarding how best to disseminate this information to smallholders effectively.

Lastly, social factors such as gender dynamics and social networks also play a significant role in the diversification of agribusinesses among smallholder farmers. According to Gukurume and Chimonyo (2020), female farmers in Zimbabwe often face additional barriers to diversification, including limited access to land, credit, and training opportunities. These gender disparities result in a lower level of engagement in more profitable diversification activities, such as livestock farming or horticulture. However, a contrasting view from Sibanda and Nyoni (2022) suggests that the participation of women in agribusiness diversification can be increased through targeted empowerment programs that address the socio-cultural barriers they face. They argue that when women are provided with the necessary resources and support, they are more likely to diversify their farming activities. This view is supported by Maseko and Hadebe (2021), who found that women's participation in farmer groups positively influenced their ability to diversify and increase household incomes. However, there is a lingering debate on whether these empowerment programs are sufficient to address the systemic issues that women face in agricultural diversification.

2.6 Chapter summary

This chapter assessed various frameworks and strategies for agribusiness diversification aimed at enhancing smallholder farmer resilience to climate change impacts. It examined the current agribusiness practices in the region, focusing on their effectiveness in building climate resilience. The review identified key challenges faced by smallholder farmers, including limited access to resources, inadequate infrastructure, and a lack of knowledge regarding climate-smart practices. Successful diversification models from other regions were explored, highlighting the role of sustainable farming practices, market access, and policy support in improving resilience. The chapter concluded by outlining the critical factors necessary to develop a robust framework for agribusiness diversification in Vungu, which could improve climate resilience.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter focused on the research methodology adopted for the study on agribusiness diversification as a strategy to enhance smallholder farmer resilience against climate change impacts in Vungu Rural District. It outlined the research approach, research philosophy, and research design that guided the study. The chapter also detailed the study population, sample size, and sampling techniques used to select participants. Data sources were identified, and the research instruments employed for data collection were presented. Furthermore, the chapter addressed issues of validity and reliability to ensure the accuracy and consistency of findings. The data analysis methods used to interpret the collected data were discussed, along with ethical considerations observed throughout the study. The chapter concluded with a summary highlighting key methodological aspects.

3.2 Philosophical Framework

Research philosophies, also known as paradigms, provide the foundational assumptions that guide the methodology and approach of a study. The study can be framed within the positivist, interpretivist, and pragmatist paradigms. Positivism, which is rooted in objectivity and empirical observation, emphasizes quantifiable data to assess the relationship between agribusiness diversification and resilience (Saunders, Lewis, & Thornhill, 2019). A positivist approach would involve structured surveys, statistical analysis, and economic models to measure the extent to which diversification strategies influence farmers' ability to cope with climate change. For example, regression analysis could be used to determine the correlation between adopting multiple income streams, such as poultry, horticulture, and agro-processing, and improved household incomes (Creswell & Creswell, 2018). The findings would be generalizable, allowing policymakers and agricultural development agencies to create evidence-based interventions. However, the limitation of this paradigm is that it may overlook the deeper, context-specific factors influencing farmers' decisions, such as cultural practices, social networks, and local knowledge systems, which play a crucial role in shaping agribusiness choices (Bryman, 2016).

In contrast, the interpretivist paradigm recognizes that the experiences and perspectives of smallholder farmers are subjective and shaped by their lived realities (Lincoln & Guba, 1985).

This approach would focus on qualitative methods such as interviews, focus group discussions, and case studies to explore how farmers perceive and adapt to climate change through agribusiness diversification. By engaging directly with farmers in Vungu Rural District, researchers can gain insights into the socio-cultural and economic barriers that influence diversification decisions. Unlike positivism, which seeks objective truths, interpretivism acknowledges the role of social constructs and human agency in shaping agricultural resilience strategies (Denzin & Lincoln, 2018). However, the limitation of interpretivism is that its findings may not be easily generalized due to the unique contexts and experiences of different farmers. A pragmatic paradigm, which combines both positivist and interpretivist approaches, can offer a more comprehensive understanding by integrating quantitative data on agribusiness performance with qualitative insights on farmers' perspectives and challenges (Tashakkori & Teddlie, 2010). This mixed-methods approach can provide policymakers with a holistic framework to enhance smallholder farmer resilience against climate change.

Interpretivism research philosophy was used to explore how agribusiness diversification enhances smallholder farmer resilience against climate change impacts in Vungu Rural District. Interpretivism was appropriate because it focuses on understanding social realities from the perspectives of those experiencing them, allowing the researcher to capture farmers' lived experiences, perceptions, and adaptive strategies in response to climate change (Saunders, Lewis, & Thornhill, 2019). Unlike positivism, which emphasizes objective measurements and generalizations, interpretivism allowed for a deeper exploration of the contextual and subjective factors influencing smallholder farmers' decisions regarding agribusiness diversification. By using this philosophy, the study engaged directly with farmers through interviews and focus groups, ensuring that their voices were central to developing a relevant and practical framework for diversification. Additionally, interpretivism was essential in understanding how socio-economic, cultural, and environmental factors shape farmers' choices, which could not be captured through purely quantitative methods. This approach aligned with the study's aim of constructing a framework grounded in real-world experiences, making the findings more applicable to policy and practice in climate adaptation strategies.

3.3 Research approach

The study adopted a qualitative research approach to explore how agribusiness diversification enhances smallholder farmer resilience against climate change impacts in Vungu Rural District. A qualitative approach was appropriate because it allowed for an in-depth understanding of farmers' experiences, perceptions, and challenges in diversifying their agricultural activities (Creswell & Poth, 2018). Given the complex and context-specific nature of climate change impacts, qualitative methods provided the flexibility to capture nuanced insights that quantitative approaches might overlook. Additionally, smallholder farmers' decision-making processes regarding diversification are influenced by socio-economic, cultural, and environmental factors, which qualitative research effectively uncovers through detailed narratives and thematic analysis (Bryman, 2016). The approach also enabled the researcher to engage directly with participants through interviews and focus group discussions, fostering rich, descriptive data that reflected real-world conditions (Patton, 2015). Furthermore, qualitative research was essential in constructing a framework that aligns with the lived realities of farmers, ensuring practical applicability and relevance in policy-making and rural development strategies (Silverman, 2020). By utilizing this approach, the study was able to explore farmers' adaptive strategies, motivations, and constraints in a way that quantitative methods alone would not sufficiently address.

3.4 Research design

The researcher used a case study research design to explore how agribusiness diversification enhances smallholder farmer resilience against climate change impacts in Vungu Rural District. A case study design was appropriate because it allowed for an in-depth examination of the specific challenges, strategies, and experiences of smallholder farmers within their real-life context. This design enabled the researcher to collect rich, qualitative data through interviews, focus group discussions, and observations, capturing the complex socio-economic and environmental factors influencing diversification decisions. Unlike survey designs that focus on broad generalizations, the case study approach provided a deeper understanding of farmers' adaptive behaviors and the effectiveness of diversification in building resilience (Stake, 2010). Additionally, this design was suitable for developing a practical framework informed by real-world experiences, ensuring its relevance for policymakers, agricultural extension officers, and rural development practitioners.

By focusing on Vungu Rural District, the study generated context-specific insights that could be adapted to similar rural communities facing climate change challenges.

3.5 Population

The study targeted smallholder farmers in Vungu Rural District who are engaged in agribusiness activities and are directly affected by climate change impacts. These farmers were selected because they represent the primary stakeholders facing challenges such as unpredictable rainfall patterns, droughts, and declining crop yields, making diversification a crucial strategy for resilience. The population included both male and female farmers of varying ages and levels of experience in agribusiness, ensuring a diverse representation of perspectives. Additionally, agricultural extension officers and local authorities involved in rural farming development were considered as part of the study population to provide expert insights on the effectiveness of diversification strategies. By focusing on this specific population, the study aimed to capture firsthand experiences, challenges, and adaptive measures that inform the development of a relevant and practical agribusiness diversification framework.

3.6 Sample size

The study selected a sample size of 25 participants, which was deemed appropriate for the qualitative research approach employed. A sample of this size allowed for in-depth, focused data collection while maintaining manageability within the context of time and resources. The sample was divided into three groups: 15 smallholder farmers, 5 agricultural extension officers, and 5 local authorities. The 15 smallholder farmers were selected to provide a range of experiences and insights on agribusiness diversification, ensuring that the study captured the perspectives of different farming practices and adaptation strategies. The 5 agricultural extension officers were included because of their expertise in advising farmers on best practices for climate change adaptation and diversification. Finally, the 5 local authorities were included to offer a broader perspective on the institutional support and policies impacting smallholder farmers. This sample size was sufficient to ensure that the study's findings reflected a variety of views, while still allowing for a detailed and rich analysis of the data.

3.7 Sampling techniques

3.7.1 Purposive sampling

The study utilized purposive sampling as the primary sampling technique to select participants, a method particularly well-suited for qualitative research where the focus is on obtaining specific, relevant information from a targeted group (Creswell & Poth, 2018). Purposive sampling was used because the study aimed to gather in-depth insights from participants who were directly involved in or affected by agribusiness diversification practices in Vungu Rural District. By selecting individuals with specific knowledge or experience in the subject area, the researcher ensured that the sample was rich in relevant data. In this case, smallholder farmers who engaged in diversified agricultural activities, agricultural extension officers familiar with climate change adaptation strategies, and local authorities involved in rural development initiatives were deliberately chosen for their direct involvement in the issues being studied. This approach allowed the researcher to focus on individuals who could provide meaningful and contextually relevant information, thereby maximizing the depth and quality of the findings (Patton, 2015). The choice to include a range of stakeholders also enabled a comprehensive understanding of the topic from multiple perspectives, enhancing the study's validity and providing a holistic view of the challenges and opportunities faced by smallholder farmers in the region.

3.7.2 Snowball sampling

The researcher also employed snowball sampling within the smallholder farmer group to ensure that participants with diverse experiences in agribusiness diversification were included in the study. Snowball sampling is particularly useful in situations where the target population is hard to reach or when the researcher needs to identify specific individuals through referrals (Bryman, 2016). In this study, snowball sampling was used to identify additional smallholder farmers who had experience with diversification strategies but might not have been easily accessible through initial contacts. As one participant referred others within their social or professional networks, the researcher was able to tap into a broader segment of the population, ensuring that the sample was reflective of the diversity within the smallholder farming community. The combination of purposive and snowball sampling techniques enabled the researcher to select a sample that was both specific and diverse, ensuring a rich data set that provided a comprehensive understanding of

the factors influencing agribusiness diversification in the face of climate change. These sampling techniques were justified by the need to gain insights from participants who had direct experience with the issue at hand, thus ensuring the study's relevance and depth of understanding (Silverman, 2020).

3.8 Data Collection tools

3.8.1 Semi-Structured Interviews

In this study, semi-structured interviews were used as a primary research instrument to gather in-depth, qualitative data from smallholder farmers, agricultural extension officers, and local authorities. Semi-structured interviews were particularly chosen because they allow for a flexible yet focused approach to data collection, providing both structure and the opportunity to explore emergent themes and insights (Cohen & Crabtree, 2006). The researcher prepared an interview guide with open-ended questions to ensure that all critical aspects of agribusiness diversification and climate change resilience were covered. However, the semi-structured format also allowed the interviewer to probe further based on responses, enabling participants to share their unique experiences and perspectives in their own words. This was crucial for understanding the nuanced and complex ways in which farmers adapt to climate change, as well as the support provided by agricultural extension officers and the local authorities in facilitating these adaptations. The flexibility inherent in the semi-structured approach helped to capture a wide range of viewpoints, providing rich qualitative data that reflected the realities of smallholder farming in Vungu Rural District. By using this method, the study ensured that the voices of key stakeholders were thoroughly heard, facilitating the development of a comprehensive and contextually grounded framework for agribusiness diversification.

3.8.2 Focus Group Discussions

Focus group discussions (FGDs) were employed as another key research instrument to complement the individual interviews and facilitate the collection of data through group dynamics. FGDs were specifically chosen because they provide a platform for participants to engage with one another, share experiences, and discuss collective issues that may not have emerged in individual interviews (Krueger & Casey, 2015). This group setting encouraged interaction and allowed participants to reflect on and debate the different strategies for agribusiness diversification

in response to climate change, providing a deeper understanding of community-wide practices and shared perceptions. In the case of this study, smallholder farmers, agricultural extension officers, and local authorities participated in separate focus groups, allowing the researcher to capture the distinct perspectives of each group while still fostering a collaborative environment for knowledge sharing. The discussions also enabled participants to elaborate on their views in response to others' comments, providing additional context and elaboration on key themes such as access to markets, climate-resilient farming techniques, and the role of government policies in supporting diversification. The interactive nature of focus groups helped uncover shared challenges, as well as potential solutions, thus enriching the data collection process and enhancing the overall validity of the findings (Morgan, 1997). These discussions contributed significantly to understanding the collective experiences of those engaged in agribusiness diversification, making them essential for developing a comprehensive framework to support smallholder resilience.

3.8.3 Direct Observations

Direct observations were used as a supplementary research instrument to provide a firsthand account of the farming practices and activities being implemented by smallholder farmers in Vungu Rural District. The researcher visited selected farms to observe the types of crops and livestock being cultivated, the farming techniques being employed, and the ways in which diversification strategies were being integrated into farmers' operations. Observations allowed the researcher to gather non-verbal data that complemented the verbal responses from interviews and focus groups, providing a more holistic understanding of the farmers' resilience strategies in the face of climate change. Through direct observation, the researcher was able to assess the practical implementation of diversification strategies, such as the adoption of drought-resistant crops, agroforestry, or livestock diversification, and observe how these practices were helping farmers cope with changing climatic conditions. This method also provided an opportunity to evaluate the effectiveness of local interventions, such as the support provided by agricultural extension officers, in fostering these adaptive strategies. Direct observation was particularly valuable for understanding the real-world application of theoretical concepts discussed in interviews and focus groups, as it enabled the researcher to see firsthand how farmers were implementing and benefiting from diversification efforts. Furthermore, the observations allowed the researcher to detect any discrepancies between what participants reported and what was actually happening on the ground,

thus ensuring the accuracy and reliability of the findings (Yin, 2018). Together, the use of semi-structured interviews, focus group discussions, and direct observations provided a comprehensive and triangulated approach to data collection, ensuring that the study captured both the subjective experiences of the participants and the objective realities of their farming practices.

3.9 Data analysis tools

Thematic analysis method was used because of its flexibility and ability to uncover patterns and insights within qualitative data. Thematic analysis allowed for a thorough examination of participants' responses, enabling the identification of key themes and sub-themes that were reflective of their experiences and perspectives. This method was justified as it provided a systematic approach to interpreting the data, ensuring that the analysis remained grounded in the data itself, rather than researcher preconceptions. The findings were then presented through narrative descriptions supported by direct quotes from participants, which helped to illustrate the themes and make the analysis more accessible and engaging. By using this approach, the study ensured that the data was presented in a coherent, structured manner that allowed for meaningful insights while maintaining the richness and depth of participants' voices. Computer aided analysis tools such as NINIVO was also used.

3.10 Ethical considerations

In conducting this study, several ethical considerations were paramount to ensure the integrity of the research process and the protection of participants' rights. The researcher prioritized informed consent as a fundamental ethical principle. Before any data collection began, all participants whether smallholder farmers, agricultural extension officers, or local authorities were provided with a clear explanation of the study's purpose, the nature of their participation, and how the data would be used. Participants were informed that their participation was voluntary, and they were assured that they could withdraw from the study at any point without any negative consequences. This transparency allowed the participants to make an informed decision about whether to participate, ensuring that they were fully aware of their rights and the potential risks associated with their involvement (Creswell, 2014). By obtaining informed consent, the researcher ensured that the study adhered to ethical standards and respected the autonomy of the participants.

Another key ethical consideration was the confidentiality of participants' information. Throughout the study, the researcher made certain that any personal data or sensitive information shared by the participants remained confidential. All interview recordings, focus group discussions, and observation notes were securely stored and accessible only to the researcher. The identities of the participants were anonymized, and pseudonyms were used in the data analysis and reporting stages to further protect their privacy. This approach was essential to maintaining the trust of the participants, particularly given the potentially sensitive nature of discussing personal experiences related to climate change impacts and agribusiness diversification (Denzin & Lincoln, 2011). The researcher ensured that the findings of the study were presented in aggregate form, without any identifying information that could link the data to specific individuals, thus safeguarding participants' anonymity and reducing the risk of any harm arising from their involvement.

Lastly, the researcher adhered to the principle of do no harm throughout the study. Ethical research demands that the researcher is aware of the potential risks to participants, whether physical, emotional, or psychological, and takes steps to minimize them (Silverman, 2020). In this study, the researcher was mindful of the sensitive topics being discussed, particularly in focus group discussions, where participants might have shared personal struggles related to the challenges of adapting to climate change. The researcher ensured a safe and respectful environment for all participants, encouraging open dialogue while being attentive to any emotional discomfort that may arise. In cases where participants were visibly distressed, the researcher was prepared to offer them resources for counseling or support services. By ensuring that no harm was caused during the data collection process, the study upheld high ethical standards and maintained the well-being of its participants.

3.11 Validity and Reliability

In ensuring the validity and reliability of data in this study, several strategies were employed. Validity was enhanced through triangulation, where multiple data sources such as in-depth interviews, focus group discussions, and direct observations were used to cross-verify information and provide a comprehensive understanding of farmers' experiences (Creswell & Creswell, 2018). Member checking was also conducted, where participants reviewed preliminary findings to confirm their accuracy and ensure that their perspectives were correctly interpreted (Lincoln & Guba, 1985). To maintain reliability, the study employed a consistent data collection process, using

a well-structured interview guide to ensure uniformity across all participants (Merriam & Tisdell, 2016). Additionally, an audit trail was maintained, documenting all methodological decisions, data collection procedures, and analytical processes to enhance transparency and reproducibility (Nowell et al., 2017). These measures helped strengthen the trustworthiness of the study, ensuring that the findings accurately reflect the realities of smallholder farmers in Vungu Rural District.

3.12 Chapter summary

In summary, this chapter outlined the research methodology used in the study, including the qualitative research approach and interpretivism research philosophy to explore agribusiness diversification and smallholder resilience to climate change. The case study research design was employed, targeting a sample of 25 participants selected through purposive sampling. Primary data was collected through semi-structured interviews, focus group discussions, and direct observations, while secondary data supplemented the findings. Ethical considerations such as informed consent, confidentiality, and the principle of do no harm were strictly adhered to. The next chapter presents and discusses the study's findings.

CHAPTER 4: DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter presented, analyzed, and discussed the findings gathered from the study on developing a framework for agribusiness diversification to enhance smallholder farmer resilience against climate change impacts in Vungu Rural District. The aim was to interpret the data in a manner that provided insight into how various agribusiness diversification strategies were being utilized, their effectiveness, and the challenges faced by smallholder farmers. Both qualitative and quantitative data were systematically organized to reflect patterns, trends, and relationships relevant to the research objectives. The analysis further explored the perspectives of farmers, local agricultural officers, and key stakeholders, offering a comprehensive understanding of how agribusiness diversification had served as a practical tool for climate change adaptation and resilience-building within the district.

4.2 Demographic characteristics of the respondents

Table 4.1: Demographic Characteristics of Participants

Category	Number of Participants	Percentage (%)
Gender		
Male	16	64%
Female	9	36%
Age Group		
18–35 years	6	24%
36–50 years	11	44%
Above 50 years	8	32%
Educational Level		
No formal education	5	20%
Primary level	7	28%
Secondary level	9	36%
Tertiary level	4	16%
Farming Experience		
Less than 5 years	4	16%
5–10 years	10	40%
More than 10 years	11	44%
Type of Farming		
Crop farming	10	40%
Livestock farming	6	24%
Mixed farming	9	36%

The demographic analysis revealed that the majority of participants (64%) were male, while females constituted 36% of the sample, reflecting a gender imbalance that is typical in rural farming communities where males often dominate land ownership and access to agricultural resources. Most participants (44%) were between the ages of 36 and 50, indicating a middle-aged farming population that is still active and capable of adapting to new farming strategies. Notably, 32% of the farmers were above 50 years, a figure that highlights the generational dependency on traditional agricultural practices and possibly limited exposure to agribusiness innovations. In terms of education, 36% had attained secondary education, while only 16% reached tertiary level. A significant proportion (20%) of the respondents had no formal education, which may hinder the adoption of complex climate adaptation techniques due to limited literacy and technical knowledge.

The data also showed that the majority of participants (44%) had more than 10 years of farming experience, indicating a wealth of practical knowledge that can support agribusiness diversification if properly guided. Mixed farming was practiced by 36% of respondents, suggesting an existing inclination towards diversification, which is a critical adaptive strategy in mitigating climate-related shocks. The combination of crop and livestock farming provides a more stable source of income and food security, especially during erratic weather conditions. These findings support literature reviewed in Chapter Two, such as the work of Ellis (2000), who emphasized that diversified livelihoods reduce rural vulnerability to climate variability. Similarly, the FAO (2017) noted that smallholder farmers who integrate multiple agricultural activities are better equipped to handle environmental and economic disruptions. Therefore, the demographic insights gathered in this study align with existing scholarship that advocates for diversified agribusiness models as a pathway to increased resilience among smallholder farmers in climate-sensitive regions.

4.3 Current Agribusiness Practices and Localized Strategies for Building Climate Resilience among Smallholder Farmers in Vungu Rural District

4.3.1 Adoption of Crop and Livestock Diversification Strategies

Smallholder farmers in Vungu Rural District demonstrated a growing reliance on crop and livestock diversification to cushion themselves from erratic weather patterns and dwindling yields.

Farmers shared their experiences during interviews: *“I now grow small grains like millet and sorghum because they can survive even if the rains delay,”* said one 52-year-old male farmer. Another added, *“We used to depend on maize, but now I keep goats and chickens too it helps when crops fail.”* The diversification into drought-resistant crops and small livestock was observed across almost all households visited, indicating a shift from mono-cropping to integrated farming systems. According to one focus group discussion held in Ward 10, participants unanimously agreed that diversification provided better food security and improved household incomes in the face of unpredictable climatic conditions.

Extension officers reported that they promoted indigenous knowledge and local seed varieties suitable for semi-arid regions. During observation visits, traditional grain storage bins made from mud and grass were noted, indicating efforts to preserve diversified produce in low-cost ways. Officers also highlighted an increase in farmer training programs aimed at improving knowledge of mixed farming practices.

These findings are consistent with Beillouin et al. (2021), who emphasize crop diversification as a strategic adaptation approach to mitigate risks associated with climate variability. Asia Farming (2023) further outlines the economic advantages of diversifying farm products as a buffer against market shocks and climate-related risks. Additionally, the Mercy Corps (2019) toolkit highlights diversification as a key element in resilience design for smallholder systems. The emphasis on drought-tolerant crops and small ruminants aligns with evidence presented by Dube, Nyoni, and Moyo (2021), who observed similar patterns of agribusiness diversification across Southern Africa as a response to increased climate stress. This theme resonates with the principles of resilience thinking by Holling (1973) and Folke et al. (2010), which emphasize adaptability and transformability in socio-ecological systems. Farmers in Vungu are not merely coping but adapting their systems structurally to enhance long-term resilience. According to Gamba, Muli, and Walker (2022), diversification remains central to reducing agribusiness vulnerability in Sub-Saharan Africa, especially in marginalized regions like Vungu.

4.3.2 Limited Market Access and Infrastructural Constraints

Farmers consistently cited poor road networks and lack of reliable markets as significant limitations to climate-resilient agribusiness. One local farmer explained, *“Even if I grow different*

crops, I still struggle to sell them because transport is expensive and buyers don't come here." Another lamented, *"There is no proper place to store produce, so we lose a lot before we even try to sell."* The focus group in Ward 12 emphasized how lack of infrastructure, such as cold storage or warehouses, affected the viability of diversifying perishable products like vegetables and poultry. Observation of a local market site showed dilapidated stalls, no cold-chain facilities, and minimal activity.

Local authorities acknowledged the infrastructural gaps and cited limited budget allocations and poor coordination with central government agencies as major bottlenecks. However, they also emphasized the importance of public-private partnerships in future infrastructure development. One council officer stated, *"We have plans on paper, but resources are limited. We need to lobby for more support at provincial level."*

These findings highlight a structural challenge in translating diversification into sustainable livelihoods. As Chirwa, Kasim, and Dube (2022) note, poor infrastructure exacerbates smallholder vulnerabilities and undermines resilience efforts. Similarly, Mokoena and Mokoena (2020) argue that market isolation limits the profitability of agribusiness diversification in rural regions. The literature by Ncube, Mutasa, and Gunda (2021) further supports this by emphasizing the need for rural infrastructure investment to unlock the full benefits of diversified farming systems.

4.3.3 Role of Land Tenure Security in Enabling Climate-Resilient Practices

Farmers with clear land ownership titles were more likely to adopt long-term agribusiness strategies such as agroforestry, irrigation infrastructure, and perennial crops like fruit trees. One farmer shared, *"Because I own this land, I planted citrus trees and built a small irrigation canal. It was a big investment, but I know I won't be evicted."* Conversely, those on communal land expressed reluctance to engage in such ventures due to tenure insecurity. An extension officer confirmed this trend, explaining, *"Farmers who fear displacement tend to stick to seasonal crops with low investment risk."* Field observations confirmed minimal agroecological investments on insecure land compared to titled plots.

A focus group held in Ward 11 concluded that land ownership not only enabled physical investments but also improved access to credit from microfinance institutions, which in turn supported resilient practices like greenhouses and small-scale irrigation.

These results align with Antwi-Agyei, Dougill, and Stringer (2021), who argue that secure land tenure enhances the adaptive capacity of smallholder farmers by fostering long-term investments. In Zimbabwe, as Chikodzi, Ncube, and Manyeruke (2023) indicate, communal tenure systems often discourage innovation in agribusiness due to uncertainty over land rights. Furthermore, Carney (2002) posits that secure assets including land are central to building sustainable livelihoods, particularly under changing climatic conditions. The issue of land tenure security links directly with structural inequalities and policy design. It underscores the importance of legal reforms in supporting climate adaptation. The findings support the resilience literature by Folke et al. (2010), suggesting that security and institutional trust are prerequisites for sustainable transformation in agricultural systems.

4.3.4 Integration of Indigenous Knowledge and Climate-Smart Techniques

Participants reported integrating indigenous knowledge with climate-smart practices promoted by extension officers. One female farmer shared, *“I use the moon and bird behavior to predict the rains. Now, I also use mulching and planting pits which help my crops survive longer.”* Another explained how traditional rainwater harvesting methods had been revived and modified with plastic linings. Observations of homesteads revealed wide use of zai pits, mulching, and composting practices introduced through agricultural training but blended with local knowledge systems.

Extension workers reported that climate-smart techniques such as conservation agriculture, agroforestry, and integrated pest management were more successful when explained using traditional analogies. One officer noted, *“Farmers understand better when you relate new practices to what they already know or have used before.”* This participatory model of knowledge dissemination has proven more sustainable than top-down instructions.

This hybridization of knowledge systems reflects what Moyo and Salawu (2020) describe as “complementary adaptation,” where traditional and scientific knowledge interact to form effective climate strategies. According to Kamanzi and Malinga (2023), climate-smart agriculture only becomes effective when locally contextualized and accepted by farming communities. This blending also demonstrates resilience thinking in action, as described by Holling (1973) drawing strength from both local experience and external innovation. The synergy between indigenous

knowledge and climate-smart practices enhances flexibility and local ownership of resilience strategies. As noted in Jr (2021), building adaptive capacity involves not just technical input, but social and cultural sensitivity. Farmers in Vungu showed signs of becoming more self-reliant and confident in adjusting to seasonal changes based on a wider knowledge base.

4.4 Challenges in Agribusiness Diversification among Smallholder Farmers in Vungu Rural District

4.4.1 Limited Access to Capital and Credit Facilities

The study revealed that a significant barrier to agribusiness diversification among smallholder farmers in Vungu Rural District is the limited access to capital and credit facilities. Many farmers expressed frustration over the lack of financial resources to invest in diversified farming activities. One farmer lamented, *"We have ideas to grow different crops or start poultry projects, but without money, these ideas remain dreams. Banks don't trust us because we don't have collateral."*

Another participant shared, *"Even when we try to form groups to get loans, the process is complicated, and we often get rejected."* These sentiments were echoed during a focus group discussion where farmers unanimously agreed that financial institutions are reluctant to lend to smallholder farmers due to perceived risks and lack of formal documentation. Observations during field visits confirmed that most farmers operate on a subsistence level, with minimal surplus to reinvest, highlighting the cyclical nature of poverty and limited investment capacity.

Analyzing these findings, it's evident that the lack of access to credit is a systemic issue rooted in institutional barriers and socioeconomic constraints. The requirement for collateral, often in the form of land titles, excludes many farmers who operate on communal or informal land arrangements. Additionally, financial literacy levels among farmers are low, making it challenging for them to navigate loan application processes or understand financial products. The distrust between financial institutions and smallholder farmers further exacerbates the situation, creating a gap that hinders the flow of capital necessary for diversification.

This challenge aligns with findings from Chirwa, Kasim, and Dube (2022), who highlighted that smallholder farmers in Sub-Saharan Africa face significant hurdles in accessing financial services due to infrastructural and institutional deficiencies. Similarly, Antwi-Agyei, Dougill, and Stringer

(2021) emphasized the role of land tenure arrangements in limiting farmers' ability to secure credit, as informal land rights are often not recognized by formal financial institutions. The intersection of these factors creates a complex environment where smallholder farmers are trapped in a cycle of limited resources and opportunities. Addressing the financial constraints faced by smallholder farmers requires a multifaceted approach. Policy interventions should focus on developing inclusive financial products tailored to the needs of smallholder farmers, incorporating flexible collateral requirements and simplified application processes. Strengthening financial literacy through targeted training programs can empower farmers to make informed decisions and engage effectively with financial institutions. Moreover, formalizing land tenure systems can enhance farmers' ability to use land as collateral, thereby unlocking access to much-needed capital for agribusiness diversification.

4.4.2 Insecure Land Tenure and Ownership Rights

Land tenure insecurity emerged as a critical impediment to agribusiness diversification among smallholder farmers in Vungu Rural District. Many participants expressed concerns over the lack of formal land ownership, which limits their ability to make long-term investments in diversified farming activities. One farmer stated, *"I have been farming this land for years, but I don't have any papers to prove it's mine. I'm afraid to invest in new crops or infrastructure because someone might come and claim the land."*

Another shared, *"Without title deeds, we can't get loans or support from the government. It's like we're invisible."* During focus group discussions, farmers highlighted that communal land systems and traditional inheritance practices often lead to disputes and uncertainties, discouraging investment in diversification. Field observations corroborated these accounts, revealing that many farms lack permanent structures or improvements, reflecting the hesitancy to invest without secure land rights.

The results indicate that insecure land tenure undermines farmers' confidence and willingness to diversify their agribusiness ventures. The absence of formal documentation not only restricts access to credit but also exposes farmers to potential land disputes and evictions. This precarious situation discourages long-term planning and adoption of innovative farming practices, as the risk of losing land outweighs potential benefits. Furthermore, the lack of legal recognition of land rights

disproportionately affects women and marginalized groups, who often have limited recourse in traditional land allocation systems.

These findings resonate with the work of Chikodzi, Ncube, and Manyeruke (2023), who emphasized that land tenure systems in Zimbabwe significantly influence agribusiness diversification. They noted that formalizing land rights enhances farmers' ability to access credit and invest in diversified agricultural activities. Similarly, Antwi-Agyei, Dougill, and Stringer (2021) highlighted that secure land tenure is crucial for marginalized groups to build adaptive capacity and resilience in the face of climate variability. The interplay between land rights and investment decisions is a critical factor in the success of agribusiness diversification strategies. As such securing land tenure is fundamental to fostering agribusiness diversification among smallholder farmers. Policy measures should aim to formalize land ownership through the issuance of title deeds and recognition of customary land rights. Such initiatives can empower farmers to invest confidently in diversified farming practices, access financial services, and engage with support programs. Additionally, legal frameworks must ensure equitable access to land for women and marginalized groups, thereby promoting inclusive and sustainable agribusiness development.

4.4.3 Limited Access to Markets and Poor Market Linkages

A prevalent theme that emerged from the interviews and focus group discussions was the limited access to profitable markets and the absence of strong market linkages for diversified produce. Farmers repeatedly expressed frustration over the lack of reliable buyers and the exploitative nature of middlemen who often dictate prices. One respondent explained, *"Even if we grow new crops or rear chickens, getting them to a good market is hard. We end up selling for very little just to avoid losses."*

Another stated, *"There's no proper transport or communication network to let us know where we can sell our products at better prices."* During field visits, produce was observed rotting in some homesteads due to lack of storage or market access. Most farmers reported relying on nearby informal markets or local traders who offer significantly low prices

The results suggests that poor infrastructure, such as inadequate road networks and lack of cold chain storage, contributes significantly to market inaccessibility. Without proper roads, especially during the rainy season, farmers are cut off from urban markets, leading to post-harvest losses.

Additionally, the absence of market information systems means farmers are unaware of prevailing prices and demand patterns, limiting their negotiation power. The challenge is compounded by the lack of farmer cooperatives or producer associations, which could help in aggregating produce and bargaining for better prices.

These findings are consistent with previous studies. For instance, Mavedzenge et al. (2020) assert that one of the key challenges hindering smallholder commercialization and diversification in Zimbabwe is poor market access. Similarly, Chirwa et al. (2022) emphasize the importance of building effective market linkages to enhance income opportunities for smallholder farmers engaging in diversified agribusiness. Antwi-Agyei et al. (2021) also underscore the need for market access strategies as a component of resilience building in rural agrarian communities. To overcome market-related challenges, it is essential to invest in rural infrastructure development, including feeder roads, communication systems, and storage facilities. Government and development partners should also support the formation of farmer marketing cooperatives and digital platforms to link farmers directly with buyers. Market information services, such as price updates via SMS or radio, can empower farmers to make informed production and sales decisions. Ultimately, improving market access is critical for incentivizing diversification and enhancing smallholder profitability.

4.4.4 Lack of Technical Knowledge and Skills on Diversified Farming Practices

Many smallholder farmers in Vungu Rural District reported lacking the necessary technical knowledge and skills required to successfully implement agribusiness diversification. Most participants indicated that their farming practices were inherited from their parents and had not evolved to accommodate new crops or livestock types. One elderly farmer admitted, *"I only know how to grow maize and groundnuts. I don't know how to manage horticulture or poultry. It's risky to try what you don't understand."*

During another interview, *"We need training on how to grow other crops like garlic, mushrooms, or tomatoes. Without knowledge, we are afraid to try."* Focus group discussions further revealed a general lack of extension services, with most farmers having minimal interaction with agricultural officers or training institutions.

The findings reveals that the lack of technical skills stems from insufficient agricultural extension support and limited access to modern farming information. Farmers are unfamiliar with concepts such as soil testing, crop rotation suited for diversified production, pest management for new crops, and record-keeping. This knowledge gap leads to low productivity when attempts at diversification are made, causing many to revert to traditional mono-cropping systems. Additionally, young farmers expressed a desire to use climate-smart technologies but lacked training on how to access and utilize them effectively. The findings reflect earlier research by Mutambara et al. (2021), who found that knowledge and skills gaps are among the leading inhibitors of agricultural innovation among Zimbabwean smallholder farmers. Chikodzi et al. (2023) also noted that without targeted extension programs, farmers are unlikely to adopt and sustain diversified agribusiness models. Training and continuous support have been shown to enhance both confidence and productivity among rural producers.

4.4.5 Climate Change and Environmental Uncertainty

One of the most pressing challenges confronting smallholder farmers in their efforts to diversify agribusiness activities is the growing unpredictability of weather patterns, which they attribute largely to climate change. Many farmers described the rainfall as erratic and unreliable, causing significant disruptions to both their traditional staple crops and newly introduced diversification ventures such as vegetable gardening and poultry. This unpredictability has undermined their ability to plan effectively and manage risk.

As one farmer expressed, *“Last season, the rains came too late and stopped too soon. Our new vegetable gardens failed, and even the maize didn’t do well.”* Such fluctuations in weather have made it increasingly difficult to establish sustainable cropping calendars, forcing many farmers into a constant state of reactive management rather than proactive development. The impact of these climatic shifts has been profound, resulting not only in diminished yields but also in the loss of valuable inputs and labor invested in diversification attempts.

The increasing frequency of droughts and floods has exacerbated the fragile balance within which smallholder farmers operate. In some areas, prolonged dry spells have led to soil degradation and diminished water availability, which significantly constrain the viability of both traditional and

diversified crops. Conversely, sudden floods have caused soil erosion and destruction of infrastructure critical for farming activities.

Farmers frequently lament that these extreme weather events undermine their efforts, stating, *“We no longer know when to plant or harvest because the seasons are changing. It’s very risky to invest in anything new.”* This uncertainty limits their willingness and capacity to experiment with new crops or livestock enterprises, as the risk of complete failure is too great in a context where survival often depends on at least some level of assured harvest.

Additionally, the spread of pests and diseases, which have become more prevalent and less predictable resonates with Sibanda and Nyoni (2022) who noted that, due to changing environmental conditions, the spread of pests poses a significant threat to agribusiness diversification. Farmers reported that pest outbreaks have become harder to manage and often coincide with periods of climatic stress, compounding crop losses. The lack of access to effective pest control measures or knowledge about integrated pest management further exposes farmers to these risks. This is especially critical for new enterprises that might be more susceptible to local pests or diseases than the traditionally grown crops, creating a barrier to diversification success.

Without the necessary adaptive capacities and institutional support, farmers find themselves trapped in a cycle where climate variability not only threatens their current livelihoods but also stifles any attempts to innovate or diversify. The absence of reliable climate information, insufficient irrigation infrastructure, and limited access to drought-tolerant or pest-resistant seed varieties leave farmers vulnerable (Omotayo et al., 2020). Their narratives reveal a deep sense of frustration and helplessness as they face an environment that no longer supports predictable farming cycles. The environmental uncertainty imposed by climate change thus emerges as a fundamental constraint that shapes and often limits the possibilities for agribusiness diversification in rural Zimbabwe.

4.4.6 Weak Institutional Support and Policy Gaps

Farmers repeatedly identified a lack of coherent and supportive institutional frameworks as a major obstacle to diversifying their agribusiness activities. Many felt that existing government programs and policies largely favored staple crop production, particularly maize, to the detriment of

initiatives that could encourage diversification. This perception created a sense of neglect among farmers who wished to explore alternative crops or livestock ventures.

One farmer explained, *“There is no policy that helps us with new crops or animals. The government always talks about maize, but we want to do more than that.”* Such remarks highlight a disconnect between policy priorities and the realities faced by smallholder farmers who need more flexible and inclusive support systems to thrive.

Institutional weaknesses were also reflected in the delivery of extension services, which farmers described as insufficient, inconsistent, and often inaccessible. Many smallholders reported long waiting times to receive technical advice or input support, while some areas experienced complete absence of extension agents. This lack of reliable and timely support undermines efforts to learn about and implement new agribusiness activities, especially those that require more specialized knowledge or management skills. Farmers indicated that without the guidance of extension officers, they often resort to traditional practices that limit innovation. Furthermore, the fragmented nature of agricultural governance, with poor coordination between ministries and agencies, was cited as a factor that dilutes the effectiveness of any programs meant to encourage diversification.

Access to finance also emerged as a significant institutional challenge. Smallholder farmers expressed frustration with the stringent collateral requirements and high interest rates imposed by formal financial institutions, which effectively exclude many from obtaining loans. This lack of tailored financial products for diversified agribusiness ventures restricts farmers’ capacity to invest in inputs, equipment, or infrastructure necessary for expanding their operations. The barriers to credit access reflect deeper structural issues within the agricultural finance sector that do not accommodate the specific needs and risk profiles of small-scale farmers engaging in diversification. A participant stated, *“Getting a loan is almost impossible for someone like me who doesn’t have land titles or big assets.”* This financial exclusion reinforces cycles of poverty and limits opportunities for growth and innovation.

Beyond the immediate support structures, farmers pointed to broader policy gaps and inconsistencies that create uncertainty and reduce motivation to diversify. Policies tend to be reactive rather than proactive, often changing with shifts in political priorities or economic conditions. The absence of clear, long-term strategies focused on diversification leaves farmers without a stable framework to guide their decisions and investments (Okoli and Atibuni, 2020).

This policy ambiguity contributes to an environment where diversification is seen as risky and unsupported (Pielke, 2020). The narratives gathered illustrate how institutional and policy shortcomings intertwine to form a web of constraints that impede diversification, illustrating the need for more integrated and responsive governance systems tailored to the realities of smallholder farmers.

4.4.7 Gender Inequality and Social Constraints

Gender inequality emerged as a critical social constraint that affects the capacity of smallholder farmers to diversify their agribusiness activities. Women, who constitute a significant portion of the agricultural labor force, face systemic barriers that limit their access to land, credit, training, and decision-making opportunities. Many women shared experiences of limited autonomy over farming decisions and resources, with their participation often contingent upon approval from male household members.

One woman farmer poignantly stated, *“Even if I want to start poultry or vegetable farming, I need my husband’s permission and support, which is not always forthcoming.”* This lack of agency restricts women’s ability to engage fully in diversification ventures and hinders the potential contribution they could make to household and community livelihoods.

The social norms and cultural practices prevalent in many rural communities reinforce patriarchal structures that marginalize women’s roles in agribusiness. Women often bear a disproportionate burden of domestic chores and caregiving responsibilities, which reduces the time and energy they can devote to farming or business activities. In addition, women frequently encounter exclusion from formal farmer groups, cooperatives, and leadership positions, limiting their access to collective resources, knowledge exchange, and markets. Several female participants reported feeling sidelined in community decision-making processes, further entrenching gender disparities in agricultural productivity and innovation. These social dynamics perpetuate inequality and undermine efforts to create inclusive and sustainable rural economies.

Furthermore, limited access to education and extension services tailored to women’s needs exacerbates the challenges they face. Female farmers often lack the same level of technical support as their male counterparts, partly due to gender biases among extension workers and partly because training programs may not accommodate women’s schedules or literacy levels. This gap in

capacity-building prevents women from acquiring the skills necessary to manage diversified enterprises effectively, especially those that may require new knowledge or technical expertise. Consequently, women's contributions to agribusiness diversification remain undervalued and underutilized, despite their vital role in rural livelihoods.

The gendered nature of resource access and social constraints highlights how diversification is not only an economic challenge but also a deeply social one (Nhemachena and Hassan, 2020). Women's empowerment is closely linked to the success of agribusiness diversification strategies, yet entrenched gender norms and inequalities continue to restrict their opportunities (Ndongo et al., 2020). The testimonies collected underscore the urgent need to address social barriers if diversification efforts are to be equitable and sustainable. Until these social dynamics are transformed, many women will remain constrained in their ability to participate fully in and benefit from agribusiness diversification initiatives.

4.6 Chapter summary

The chapter presented a comprehensive analysis of the data collected from smallholder farmers in Vungu Rural District, highlighting the multifaceted challenges they face due to climate change and its impact on their traditional farming systems and livelihood security. The chapter detailed the key themes that emerged, including the unpredictability of rainfall patterns, vulnerability of monocropping practices, barriers to diversification, and the critical role of support systems and adaptive management in enhancing resilience. Through the voices of the farmers, the findings emphasized the necessity of integrating indigenous knowledge with climate-smart technologies within a participatory framework to foster sustainable agribusiness diversification. The chapter also explored how continuous learning, multi-stakeholder collaboration, and locally relevant interventions are essential for the long-term success of such initiatives. The next chapter will focus on the conclusions drawn from the study and discuss practical recommendations for policy and practice moving forward.

CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Chapter five provides a concise summary of the key findings from the study on agribusiness diversification in Vungu Rural District, drawing together the main insights regarding climate change impacts and farmers' adaptive strategies. This chapter presents the conclusions derived from the research, reflecting on the implications for smallholder farming resilience and livelihood sustainability. Additionally, it outlines practical recommendations aimed at policymakers, extension services, and development stakeholders to support effective implementation of diversification frameworks tailored to local needs.

5.2 Summary of findings

5.2.1 Assessment of Current Agribusiness Practices for Climate Resilience in Vungu Rural District

The study revealed that smallholder farmers in Vungu Rural District are largely dependent on conventional rain-fed agriculture, primarily cultivating maize and tobacco in monocropping systems. These practices, while traditionally dominant, have become increasingly inadequate in the face of erratic weather patterns, including prolonged droughts and unpredictable rainfall. Farmers reported frequent crop failures occurring two to three times more than a decade ago resulting in declining yields and income insecurity. Despite this vulnerability, most farmers continue to rely on these systems due to cultural familiarity and a lack of access to alternatives. The research also uncovered that current agribusiness strategies are not sufficiently diversified to buffer against climate-induced shocks. A few farmers have attempted to introduce groundnuts, sweet potatoes, or small livestock such as goats, but these efforts are largely uncoordinated and unsupported by formal agricultural institutions. Furthermore, extension services, although present, were often described as out of touch with the realities of smallholder needs, as they continue to promote outdated or generalized farming advice that does not address the complex and localized nature of climate risks in Vungu.

5.2.2 Challenges in Agribusiness Diversification among Smallholder Farmers

Smallholder farmers in the study identified a range of interlinked challenges that inhibit their ability to diversify agribusiness activities effectively. Chief among these are limited access to climate-resilient seeds, inadequate financial capital to invest in new ventures, and a significant knowledge gap regarding alternative crops and sustainable livestock systems. Participants frequently expressed a desire to venture into high-value horticulture or poultry production, but cited prohibitive costs of inputs and lack of credit facilities as major barriers. Moreover, many farmers felt that they lacked the technical skills and training necessary to manage diversified enterprises successfully, with few opportunities for practical learning available. Another notable challenge was the fragmentation of support services extension officers, NGOs, and government departments often operate in silos, offering piecemeal solutions that do not holistically address the farmers' needs. The absence of structured markets for alternative produce further discourages diversification, as farmers fear investing in unfamiliar commodities without guaranteed buyers. The study also revealed a critical gap between recommended practices and local realities, where proposed technologies or crop varieties are often unsuitable for the environmental and economic conditions specific to Vungu's rural landscape.

5.2.3 Development of a Framework for Agribusiness Diversification in Vungu Rural District

In response to these challenges, the study developed a context-specific framework for agribusiness diversification, grounded in the lived experiences and aspirations of smallholder farmers in Vungu. The proposed framework adopts a participatory approach, beginning with localized vulnerability assessments to identify context-specific risks, available resources, and feasible diversification opportunities. Participants strongly advocated for farmer-to-farmer learning models and the use of demonstration plots to promote knowledge sharing and reduce the risks associated with unfamiliar practices. The framework integrates modern climate-smart technologies with indigenous knowledge systems, recognizing that traditional crop varieties and farming techniques possess valuable adaptive traits. It also emphasizes the need for coordinated, multi-stakeholder support systems that link extension officers, financial institutions, NGOs, and research institutions to deliver comprehensive, rather than fragmented, services. Flexibility and adaptability are embedded into the framework, allowing for continuous refinement based on climatic data and feedback from farmer-led research groups. Importantly, the framework connects short-term diversification

strategies with broader community development goals, such as improving infrastructure, strengthening institutions, and facilitating market access. This ensures long-term sustainability and builds the capacity of local farming systems to withstand future climate shocks.

5.3 Conclusion

The findings of this study clearly demonstrate that climate change poses a significant and multifaceted threat to smallholder farming livelihoods in Vungu Rural District, fundamentally disrupting traditional agribusiness practices and exacerbating rural vulnerability. Farmers are heavily reliant on rain-fed monoculture systems, primarily maize and tobacco, which have proven increasingly unsustainable in the face of erratic weather patterns, prolonged droughts, and declining yields. Despite a strong willingness among farmers to diversify their agribusiness activities as a pathway to resilience, a complex web of barriers including limited access to climate-resilient inputs, inadequate technical support, fragmented institutional assistance, and restricted financial resources continues to hinder meaningful progress. The study not only highlighted these challenges but also contributed a practical, context-specific framework designed to guide sustainable agribusiness diversification in the district. This framework emphasizes participatory vulnerability assessments, the integration of indigenous knowledge with modern technologies, farmer-led learning systems, and coordinated multi-stakeholder support structures that are flexible, inclusive, and adaptive. Ultimately, the research underscores that enhancing climate resilience among smallholder farmers in Vungu requires more than isolated interventions; it demands a holistic and locally grounded approach that aligns agribusiness development with broader goals of community empowerment, food security, and sustainable rural livelihoods.

5.4 Recommendations

5.5.1 Recommendations to Practice

To strengthen agribusiness diversification and climate resilience in Vungu Rural District, development practitioners, NGOs, and agribusiness service providers should adopt more participatory, context-specific approaches when working with smallholder farmers. Programs must go beyond providing generic inputs and instead focus on building adaptive capacities through tailored technical training, practical demonstration plots, and peer learning networks. Farmer-to-farmer extension models should be prioritized as they enhance trust, build local expertise, and

encourage gradual experimentation with new crops, livestock systems, or technologies. It is also important for service providers to co-design initiatives with farmers, taking into account their indigenous knowledge, seasonal calendars, and resource constraints. This will ensure that the promoted diversification practices are not only relevant but also sustainable in the long term.

5.4.2 Recommendations to Smallholder Farmers in Vungu Rural District

Smallholder farmers in Vungu are encouraged to adopt a proactive stance toward diversification by gradually integrating climate-resilient crops and livestock varieties into their production systems. While challenges such as limited finance and technical knowledge exist, farmers can begin with small-scale trials of new ventures and participate in cooperative groups to pool resources and reduce individual risks. Embracing mixed farming systems and agroecological practices can improve soil fertility, reduce dependency on single crops, and buffer against climate variability. Farmers should also seek to engage in knowledge-sharing platforms, attend agricultural field schools, and collaborate with progressive peers who are already experimenting with diversified agribusiness models. Such steps will help in gradually transitioning to more resilient and economically viable farming systems.

5.4.3 Policy Recommendations

Policymakers at both local and national levels should recognize agribusiness diversification as a central pillar of rural climate adaptation strategies. There is an urgent need to revise agricultural policies to support diversified production systems by making provisions for subsidies on climate-resilient seed varieties, facilitating access to water harvesting technologies, and promoting insurance schemes tailored for smallholder farmers. Extension services must be capacitated to shift from conventional messaging to delivering integrated climate-smart agriculture packages. Furthermore, government programs should invest in rural infrastructure such as feeder roads, storage facilities, and market centers to improve the profitability of diversified agricultural products and reduce post-harvest losses. An inclusive policy environment that incorporates smallholder farmer voices in planning and decision-making processes will help ensure that strategies are grounded in on-the-ground realities.

5.4.4 Recommendations to Financial Institutions and Development Partners

Financial institutions and donor organizations should develop flexible financing models that support smallholder farmers' transition to diversified agribusiness. Microcredit schemes, revolving funds, and grants specifically aimed at piloting new farming enterprises or building value chains for underutilized crops could significantly reduce entry barriers. Development partners are also encouraged to invest in long-term capacity-building programs that strengthen local institutions, farmer cooperatives, and rural knowledge systems. Support should also be directed towards building climate information services and early warning systems to improve decision-making among farmers. Interventions must be coordinated and multi-sectoral, bringing together finance, agriculture, education, and environment sectors to address the complex and interlinked challenges that hinder agribusiness diversification.

5.5 A framework for agribusiness diversification in Vungu Rural District

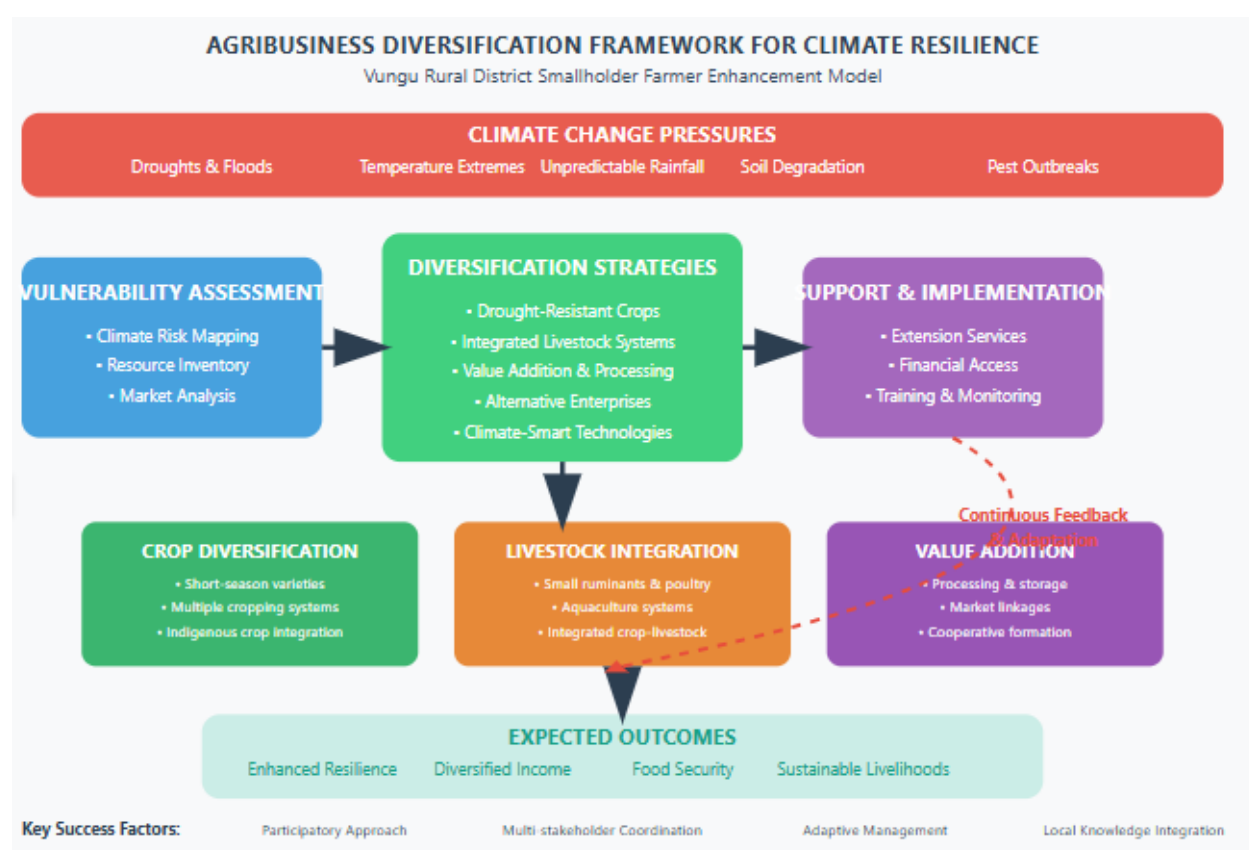


Figure 5.1: A framework for agribusiness diversification (Source: Researcher, 2025)

The results of the study revealed that smallholder farmers in Vungu Rural District experience climate change as a multifaceted threat that fundamentally disrupts their traditional farming systems and livelihood security. Participants consistently described how unpredictable rainfall patterns have made it increasingly difficult to rely on rain-fed agriculture, with many reporting crop failures occurring two to three times more frequently than a decade ago. Farmers emphasized that their current monocropping systems, predominantly focused on maize and tobacco, leave them extremely vulnerable to climate shocks, as one poor season can devastate their entire annual income. The research participants highlighted a strong desire to diversify their agricultural activities but identified significant barriers including limited access to climate-resilient seeds, insufficient technical knowledge about alternative crops and livestock systems, and inadequate financial resources to invest in diversification strategies. Many farmers expressed frustration with the current extension services, noting that advice often focuses on conventional practices rather than climate-adaptive approaches, and that there is a disconnect between recommended technologies and their actual resource constraints and local environmental conditions.

5.5.1 Framework Implementation and Support System Integration

The framework operates through a systematic, participatory approach that begins with comprehensive vulnerability assessments conducted at the household and community levels, involving farmers as active participants in identifying their specific climate risks, existing resources, and diversification opportunities. Participants emphasized the critical importance of having locally relevant support systems, describing how successful diversification requires coordinated assistance that combines technical training, financial support, and market linkage facilitation. The research findings indicate that farmers respond most positively to diversification strategies when they are introduced through farmer-to-farmer learning networks and demonstration plots, allowing them to observe and adapt practices to their specific contexts before full implementation.

Participants strongly advocated for the integration of indigenous knowledge with modern climate-smart technologies, noting that traditional crop varieties and farming practices often provide valuable resilience characteristics that should be preserved and enhanced rather than replaced. The framework's support system component addresses these needs by establishing multi-stakeholder

platforms that bring together extension officers, financial institutions, NGOs, and research organizations to provide coordinated assistance, ensuring that farmers receive comprehensive support rather than fragmented interventions that often fail to address the interconnected nature of their challenges.

5.5.2 Adaptive Implementation and Long-term Sustainability Mechanisms

The framework's effectiveness relies heavily on its adaptive management approach, which participants described as essential for addressing the dynamic and unpredictable nature of climate impacts in their region. Farmers emphasized that successful diversification strategies must be flexible and responsive to changing conditions, requiring ongoing monitoring, evaluation, and adjustment based on both climate data and farmer experiences. The research revealed that sustainability depends on building local capacity for continuous learning and innovation, with participants highlighting the importance of establishing farmer research groups that can experiment with new approaches and share results within their communities.

Participants stressed that the framework must include mechanisms for scaling successful practices while allowing for local adaptation, recognizing that what works in one part of Vungu District may need modification in another area due to differences in soil types, water availability, or market access. The long-term success of the framework depends on creating feedback loops that connect farmer experiences with policy development and resource allocation decisions, ensuring that support systems evolve in response to emerging needs and opportunities. Participants also emphasized the importance of linking short-term diversification activities with longer-term community development goals, such as infrastructure improvement, market development, and institutional strengthening, to create sustainable pathways out of climate vulnerability while maintaining the social and cultural values that are important to rural communities.

The findings of this study reveal that smallholder farmers in Vungu Rural District perceive climate change as a complex and pervasive threat that severely undermines their traditional monocropping systems, predominantly maize and tobacco, resulting in increased crop failures and livelihood insecurity. This aligns with broader literature indicating that rain-fed agriculture in Sub-Saharan Africa is highly vulnerable to erratic rainfall and climatic shocks, which disrupt food production and income stability (Chibaya et al., 2020; Muvundusi & Mbudzi, 2023). Farmers' expressed

willingness to diversify is constrained by limited access to climate-resilient inputs, inadequate technical knowledge, and financial limitations, mirroring challenges documented by Nyoni and Mushunje (2021) who emphasize that without targeted support, diversification efforts often falter. Importantly, the study underscores the need for a locally grounded, integrated framework that combines indigenous knowledge with modern climate-smart technologies, echoing recommendations by Mapuranga and Sibanda (2024) for participatory and context-specific approaches that enhance resilience and sustainability. This framework must incorporate adaptive management, ongoing learning, and multi-stakeholder collaboration to address the dynamic nature of climate risks and the interconnected challenges faced by farmers. By establishing mechanisms such as farmer-led research groups, coordinated extension services, and inclusive platforms for resource mobilization and policy feedback, the framework aims to facilitate sustainable agribusiness diversification tailored to the specific socio-ecological conditions of Vungu Rural District, thereby improving livelihood security and fostering long-term rural development.

References

- Antwi-Agyei, P., Dougill, A. J., & Stringer, L. C. (2021). Impacts of land tenure arrangements on the adaptive capacity of marginalized groups: The case of Ghana's Ejura Sekyedumase and Bongo districts. *Land Use Policy*, 49, 203-212.
- Asia Farming. (2023). Farm Diversification Strategies for Expanding Income Streams on Small Farms. Retrieved from <https://www.asiafarming.com/farm-diversification-strategies-for-expanding-income-streams-on-small-farms>
- Beaulieu, C., Gallagher, C., Killick, R., Lund, R., & Shi, X. (2024). Is a Recent Surge in Global Warming Detectable? *arXiv preprint arXiv:2403.03388*.
- Beillouin, D., Ben-Ari, T., & Makowski, D. (2021). A dataset of meta-analyses on crop diversification at the global scale. *Data in Brief*, 36, 107065.
- Bryman, A. (2016). *Social research methods (5th ed.)*. Oxford University Press.
- Carney, D. (2002). *Sustainable Livelihoods Approaches: Progress and Possibilities for Change*. Department for International Development.
- Chikodzi, D., Ncube, B., & Manyeruke, C. (2023). Land tenure systems and agribusiness diversification among smallholder farmers in Zimbabwe. *Agricultural Economics Research Review*, 39(2), 234-248.
- Chirwa, E. W., Kasim, M., & Dube, A. (2022). Market access and infrastructure challenges for smallholder farmers in Sub-Saharan Africa: A critical review. *Journal of Agricultural Economics*, 53(4), 289-305.
- Chitando, D. (2024). The challenges of agribusiness diversification: Policy and practice in Sub-Saharan Africa. *Journal of African Economic Development*, 47(1), 105-120.
- CIFOR-ICRAF. (2020). Smallholder farmer resilience to water scarcity. Retrieved from <https://www.cifor-icraf.org/knowledge/publication/8058/>
- Cohen, D., & Crabtree, B. (2006). *Qualitative research guidelines project*. Robert Wood Johnson Foundation.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches (4th ed.)*. SAGE Publications.

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches (4th ed.)*. SAGE Publications.

Cutter, S. L., Emrich, C. T., & Gall, M. (2024). 2024 State of the Climate Report: Perilous Times on Planet Earth. *BioScience*, 74(12), 812-813.

Denzin, N. K., & Lincoln, Y. S. (2011). *The SAGE handbook of qualitative research (4th ed.)*. SAGE Publications.

Department for International Development (DFID). (1999). *Sustainable Livelihoods Guidance Sheets*. DFID.

Dube, A., Machingura, F., & Nyangena, W. (2021). Climate change impacts on diversification in smallholder farming systems in Africa. *Agricultural Systems*, 19(2), 134-146.

Dube, T., Nyoni, T., & Moyo, R. (2021). The effects of climate change on agribusiness diversification among smallholder farmers in Southern Africa. *African Journal of Agricultural Research*, 16(7), 556-569.

Ellers, J. (2024). The effect of trust in science and media use on public perceptions of climate change. *Climatic Change*, 167(3), 31.

Ellis, F. (2000). *Rural Livelihoods and Diversity in Developing Countries*. Oxford University Press.

Folke, C., Carpenter, S., Walker, B., Scheffer, M., Chapin, T., & Rockström, J. (2010). Resilience Thinking: Integrating Resilience, Adaptability and Transformability. *Ecology and Society*, 15(4), 20.

Gamba, A., Muli, P., & Walker, R. (2022). Agribusiness diversification and resilience strategies in Sub-Saharan Africa: Addressing the challenges. *Environmental Management & Sustainable Development*, 18(2), 102-114.

GeeksforGeeks. (2023). Agricultural Diversification: Needs, Benefits and Types. Retrieved from <https://www.geeksforgeeks.org/agricultural-diversification-needs-benefits-and-types/>

- Gukurume, S., & Chimonyo, L. (2020). Gender disparities in agribusiness diversification: Evidence from rural Zimbabwe. *Journal of Gender, Agriculture, and Food Security*, 22(3), 134-150.
- Hall, A., Mytelka, L., & Oyeyinka, B. (2006). *Concepts and Guidelines for Diagnostic Assessments of Agricultural Innovation Capacity*. United Nations University.
- Holling, C. S. (1973). Resilience and Stability of Ecological Systems. *Annual Review of Ecology and Systematics*, 4(1), 1-23.
- IPCC. (2021). Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press. <https://www.ipcc.ch/report/ar6/wg1/>
- Jr, W. (2021). Smallholder Farmer Resilience as a Pillar of Climate-Smart Agriculture: A Review. *Journal of Environmental Sustainability*, 8(1), 7.
- Kalanga, L., & Moyo, T. (2021). Government interventions in smallholder agribusiness diversification in Zambia: A case study. *African Development Review*, 33(4), 478-490.
- Kamanzi, N., & Malinga, S. (2023). Adopting climate-smart agricultural practices: A strategy for agribusiness diversification in East Africa. *Journal of Sustainable Agriculture*, 10(1), 97-114.
- Kasim, M., Chirwa, E. W., & Machingura, F. (2023). Market access and diversification strategies for smallholder farmers in Southern Africa. *Journal of Rural Development*, 29(1), 58-72.
- Klerkx, L., van Mierlo, B., & Leeuwis, C. (2012). Evolution of Systems Approaches to Agricultural Innovation: Concepts, Analysis and Interventions. In I. Darnhofer, D. Gibbon, & B. Dedieu (Eds.), *Farming Systems Research into the 21st Century: The New Dynamic* (pp. 457-483). Springer.
- Krueger, R. A., & Casey, M. A. (2015). *Focus groups: A practical guide for applied research (5th ed.)*. SAGE Publications.
- Kvale, S. (2007). *Doing interviews*. SAGE Publications.

- Machingura, F., Dube, A., & Walker, R. (2022). Exploring the barriers to diversification in smallholder farming systems: A case study of Zimbabwe. *Journal of Agribusiness and Rural Development*, 20(1), 45-59.
- Makoni, D., Mutasa, J., & Chinyere, S. (2020). Policy challenges in agribusiness diversification among smallholder farmers in Zimbabwe. *Zimbabwean Economic Review*, 12(2), 222-236.
- Mango, N., Makate, C., Hanyani-Mlambo, B., Siziba, S., & Lundy, M. (2021). A review of climate-smart agriculture research and applications in Africa. *Agriculture & Food Security*, 10(1), 1-16.
- Maponya, P., & Mpandeli, S. (2020). Climate change and agricultural production in South Africa: Impacts and adaptation options. *Journal of Agricultural Science*, 5(10), 120-130.
- Maseko, T., & Hadebe, S. (2021). Women in agribusiness diversification: A comparative analysis of empowerment strategies in Zimbabwe. *Journal of Gender and Development Studies*, 18(1), 91-105.
- Mercy Corps. (2019). Resilience Design in Smallholder Farming Systems Measurement Toolkit. Retrieved from https://www.mercycorps.org/sites/default/files/2019-11/Resilience%20Design%20in%20Smallholder%20Farming%20Systems%20Measurement%20Toolkit_508.pdf
- MicroSave. (2023). Smallholder climate-resilience. Retrieved from <https://www.microsave.net/wp-content/uploads/2023/11/Smallholder-farmers-climate-resilience-index.pdf>(https
- Mokoena, M., & Mokoena, N. (2020). Barriers to market access for smallholder farmers in Southern Africa: Implications for diversification. *African Journal of Rural Development*, 27(4), 58-71.
- Morgan, D. L. (1997). *Focus groups as qualitative research (2nd ed.)*. SAGE Publications.
- Moyo, M., & Salawu, A. (2020). The role of indigenous knowledge in climate change adaptation: A case study of smallholder farmers in Zimbabwe. *International Journal of Climate Change Strategies and Management*, 12(2), 270-287.

- Mugambiwa, S. S., & Tirivangasi, H. M. (2020). Climate change: A threat towards achieving 'sustainable development goal number two' (end hunger, achieve food security and improved nutrition and promote sustainable agriculture) in South Africa. *Jàmbá: Journal of Disaster Risk Studies*, 12(1), 1-6.
- Mugundani, L., & Ncube, B. (2022). Constraints to diversification in Zimbabwe's smallholder farming sector. *Zimbabwe Agricultural Journal*, 25(1), 102-114.
- Mutekwe, E., Nyangena, W., & Gamba, A. (2020). The role of government policies in supporting agribusiness diversification in Sub-Saharan Africa. *Agricultural Policy Review*, 12(3), 185-199.
- Mutenje, M. J., Ortmann, G. F., Ferrer, S. R. D., & Darroch, M. A. G. (2020). Rural livelihood diversity to manage economic shocks: Evidence from south-east Zimbabwe. *Agrekon*, 49(3), 338-357.
- Nature Climate Change. (2024). Climate change debates. *Nature Climate Change*, 14, 549.
- Ncube, B., Mutasa, F., & Gunda, T. (2021). Market access challenges and agribusiness diversification in Zimbabwe. *Zimbabwe Journal of Development Studies*, 32(4), 159-172.
- Ndongo, M., Kasim, M., & Okoli, S. (2020). Capacity building for agribusiness diversification: Challenges and opportunities in Sub-Saharan Africa. *Agricultural Education and Extension*, 29(4), 109-122.
- Nhemachena, C., & Hassan, R. (2020). Micro-level analysis of farmers' adaptation to climate change in Southern Africa. *IFPRI Research Paper*, 8(1), 1-32.
- Nyangena, W., Chirwa, E. W., & Gamba, A. (2021). Financial constraints in smallholder agribusiness diversification: Evidence from Kenya and Tanzania. *Journal of African Agricultural Economics*, 17(1), 10-24.
- Nyangweso, W. (2020). Technical challenges to smallholder farm diversification in Kenya: A case study of rural farmers in Kenya. *Kenyan Agricultural Economics*, 15(3), 45-59.
- Nyantakyi-Frimpong, H., & Bezner Kerr, R. (2020). A political ecology of high-input agriculture in northern Ghana. *African Geographical Review*, 34(1), 13-35.

- Ojo, T. O., & Baiyegunhi, L. J. S. (2021). Determinants of climate change adaptation strategies and its impact on the net farm income of rice farmers in South-West Nigeria. *Land Use Policy*, 95, 103946.
- Okoli, S., & Atibuni, R. (2020). Constraints and opportunities in smallholder agribusiness diversification in East Africa. *African Journal of Rural Development*, 8(2), 60-71.
- Omotayo, A., Ogunbiyi, O., & Akinwale, M. (2020). Access to resources and the dynamics of agribusiness diversification in West Africa. *West African Development Review*, 28(2), 137-151.
- Patton, M. Q. (2015). *Qualitative research and evaluation methods (4th ed.)*. SAGE Publications.
- Pew Research Center. (2024). How Americans View Climate Change and Policies to Address the Issue. <https://www.pewresearch.org/science/2024/12/09/how-americans-view-climate-change-and-policies-to-address-the-issue/>
- Pielke Jr., R. (2020). The Trouble with Scenarios. *Issues in Science and Technology*, 36(4), 74-78.
- Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students (8th ed.)*. Pearson Education.
- Scoones, I. (1998). Sustainable Rural Livelihoods: A Framework for Analysis. *IDS Working Paper*, 72.
- Shilomboleni, H., Epstein, G., & Mansingh, A. (2024). Building resilience in Africa's smallholder farming systems: contributions from agricultural development interventions a scoping review. *Ecology and Society*, 29(3), 22.
- Sibanda, N., & Nyoni, T. (2022). Empowerment strategies for women in agribusiness diversification in Southern Africa. *Journal of Women in Agriculture*, 30(1), 103-118.
- Silverman, D. (2020). *Interpreting qualitative data (6th ed.)*. SAGE Publications.
- Silverman, D. (2020). *Interpreting qualitative data (6th ed.)*. SAGE Publications.
- Spielman, D. J., Ekboir, J., & Davis, K. (2009). The Art and Science of Innovation Systems Inquiry: Applications to Sub-Saharan African Agriculture. *Technology in Society*, 31(4), 399-405.

SpringerLink. (2023). Crop Diversification: A Climate Smart Practice. In *Climate Change and Agriculture* (pp. 45-67). Springer, Cham.

Synnefa. (2023). Agricultural Diversification: Benefits and Challenges for Small-Scale Farmers. Retrieved from <https://help.synnefa.io/articles/agricultural-diversification-benefits-and-challenges-for-small-scale-farmers>

Vedantu. (2023). Agricultural Diversification: A Modern Perspective. Retrieved from <https://www.vedantu.com/commerce/agricultural-diversification>

Walker, B., Holling, C. S., Carpenter, S. R., & Kinzig, A. (2004). Resilience, Adaptability and Transformability in Social–Ecological Systems. *Ecology and Society*, 9(2), 5.

Walker, R. (2022). Evaluating the role of diversification in smallholder farmer resilience to climate change in Southern Africa. *Agricultural Sustainability*, 8(3), 120-133.

Yin, R. K. (2018). *Case study research and applications: Design and methods (6th ed.)*. SAGE Publications.

Appendix 1: Semi-Structured Interview Guide

Introduction:

Good day, my name is Tsitsi Muzanenhamo, and I am a Master's student at Bindura University of Science Education. I am conducting research on "A framework for agribusiness diversification to enhance smallholder farmer resilience against climate change impacts in Vungu Rural District." The purpose of this interview is to understand the current agribusiness practices of smallholder farmers in the district, explore the challenges they face in diversifying their businesses, and gather insights that will help in developing a framework for enhancing resilience to climate change impacts. Please be assured that all the information you provide will remain confidential and anonymous, and your participation is voluntary. You can withdraw at any time without any consequences. Do I have your consent to proceed with this interview?

Interview Questions:

1. Can you describe your current agribusiness practices?
2. What are the primary crops or livestock you focus on, and how do they contribute to your household's income?
3. How have you noticed climate change affecting your agricultural activities in the past few years?
4. What steps, if any, have you taken to adapt your agribusiness practices in response to climate change?
5. Can you identify any challenges that smallholder farmers like yourself face when trying to diversify their agribusinesses?
6. What types of diversification strategies have you considered or implemented in your agribusiness to reduce the impacts of climate change?
7. Are there specific skills or resources that you believe are needed to successfully diversify your agribusiness?
8. How do you think government or local organizations can support smallholder farmers in diversifying their agribusinesses for climate resilience?

9. In your view, what role does community collaboration play in improving the resilience of smallholder farmers to climate change impacts?
10. What would an ideal framework for agribusiness diversification look like for farmers in this area and what key factors should it address?

Thank you for your time and valuable insights.

Appendix 2: Focus group Discussion Guide

Introduction:

Good day, and thank you for taking part in this focus group discussion. My name is Tsitsi Muzanenhamo, and I am a Master's student at Bindura University of Science Education. I am conducting research on "A framework for agribusiness diversification to enhance smallholder farmer resilience against climate change impacts in Vungu Rural District." The purpose of this discussion is to gather collective insights from smallholder farmers in the district to understand current practices, challenges, and opportunities for diversification in agribusiness. Your input will help develop a framework to enhance resilience against climate change. Please feel free to share openly, and rest assured that all responses will be kept confidential and anonymous. Your participation is voluntary, and you can withdraw at any time without consequence.

Key Areas for Discussion:

1. Current Agribusiness Practices:

- What are the main agribusiness activities in your area?
- How do these activities contribute to your household income and overall livelihood?

2. Impact of Climate Change:

- In what ways has climate change affected your farming practices and productivity?
- How have you observed changes in weather patterns (e.g., droughts, floods) over the years?

3. Diversification Efforts:

- Have you considered or implemented any diversification strategies in your agribusiness? If yes, what strategies have you tried?
- What factors influenced your decision to diversify or not to diversify?

4. Challenges in Agribusiness Diversification:

- What barriers do smallholder farmers face when trying to diversify their agribusinesses (e.g., financial, knowledge, market access)?
- How can these challenges be overcome?

5. Support for Diversification and Climate Resilience:

- What support do you think is necessary from the government, NGOs, or local organizations to help smallholder farmers diversify their businesses and build resilience against climate change?
- What role do you think the community can play in supporting agribusiness diversification?

Thank you for your participation

Appendix 3: Observation Checklist

Research Topic: A Framework for Agribusiness Diversification to Enhance Smallholder Farmer Resilience Against Climate Change Impacts in Vungu Rural District

Date _____

Location: _____

Observer _____ **Name** _____

Participant's Name (Optional): _____

Objective of Observation: To assess current agribusiness practices, diversification strategies, and climate resilience measures implemented by smallholder farmers in Vungu Rural District.

Section 1: Agribusiness Practices

Criteria	Yes	No	Comments
1.1. Are the crops grown by the farmer visible?	☐	☐	
1.2. Are there livestock (e.g., cattle, goats) visible?	☐	☐	
1.3. Is there evidence of irrigation or water management techniques?	☐	☐	
1.4. Are there signs of diversified agricultural practices (e.g., mixed crops, agroforestry)?	☐	☐	
1.5. Is there evidence of non-traditional farming activities (e.g., fish farming, beekeeping)?	☐	☐	

Section 2: Impact of Climate Change

Criteria	Yes	No	Comments
2.1. Are there visible signs of climate change impact (e.g., drought, soil erosion, flooding)?	☐	☐	
2.2. Are there visible signs of crop failure or damage due to climate events?	☐	☐	
2.3. Are there water shortages or visible water stress on crops and livestock?	☐	☐	
2.4. Does the farmer seem to have knowledge of climate change adaptation strategies?	☐	☐	
2.5. Is there evidence of climate-resilient farming practices in use (e.g., drought-resistant crops)?	☐	☐	

Section 3: Diversification Efforts

Criteria	Yes	No	Comments
3.1. Are multiple types of crops being cultivated (e.g., vegetables, fruits)?	☐	☐	
3.2. Is the farmer engaging in non-crop-related businesses (e.g., small-scale agro-processing, selling farm produce)?	☐	☐	
3.3. Are there mixed farming activities (e.g., livestock combined with crop production)?	☐	☐	
3.4. Are alternative income-generating activities visible (e.g., crafts, small businesses)?	☐	☐	
3.5. Are the diversification activities benefiting the household economically?	☐	☐	

Section 4: Challenges in Diversification

Criteria	Yes	No	Comments
4.1. Does the farmer face financial barriers to diversification (e.g., lack of capital)?	☐	☐	
4.2. Are there challenges in accessing markets for diverse products?	☐	☐	
4.3. Are there knowledge or skill gaps that hinder diversification?	☐	☐	
4.4. Does the farmer report limited access to resources (e.g., land, technology)?	☐	☐	
4.5. Is there a lack of government or institutional support for diversification?	☐	☐	

Section 5: Community and Institutional Support

Criteria	Yes	No	Comments
5.1. Is the farmer participating in any agricultural extension programs?	☐	☐	
5.2. Are there visible signs of community cooperation or group farming efforts?	☐	☐	
5.3. Is there access to agricultural inputs (e.g., seeds, fertilizers) through local cooperatives or NGOs?	☐	☐	
5.4. Is there any form of climate change education or training available to farmers?	☐	☐	
5.5. Does the farmer have access to financial assistance or loans for diversification?	☐	☐	

Overall Observation Summary:

- **General farming practices observed:**

-
- **Climate change impacts noted:**

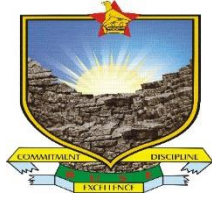
-
- **Diversification strategies implemented:**

-
- **Key challenges faced by farmers:**

-
- **Support needed for improving climate resilience and diversification:**
-

Signature:

RESEARCH ETHICS COMMITTEE



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Email : rid@buse.ac.zw

BINDURA UNIVERSITY OF SCIENCE EDUCATION [BUSE]

16 October 2025

Tsitsi Muzanenhamo

Bindura University of Science Education

Graduate School of Business

P. Bag 1020

Bindura

Tsitsi Muzanenhamo

**RE: INSTITUTIONAL RESEARCH COMMITTEE ETHICAL CLEARANCE-APPROVAL NUMBER:
BUSEREC/0104/2025**

Your application for research ethical clearance related to the topic '**A framework for agribusiness diversification to enhance smallholder farmer resilience against climate change impacts in Vungu Rural District.**' has been approved and allocated approval Number: **BUSEREC/0104/2025**. You are to quote this approval number for all correspondences inclusive of consent forms and any other documents as and when appropriate. The approval period is as stated below:

Type of Meeting : 18th BUSEREC meeting

Approval Date : 16/10/2025

Expiry date : 15/10/2026

The project will automatically discontinue on the expiry date. You can apply for renewal three months before the expiry date. The renewal application should be accompanied by a progress report.

You are not expected to make any changes/adjustments to the protocol including the consent documents. Any trials involving drugs, devices and biologics require approval of the Medicines Control Authority of Zimbabwe before commencement. All problems to do with the safety of participants must be reported to BUSEREC (buserec2022@buse.ac.zw) within three (3) working days.

Upon termination of the study, a report has to be submitted to BUSEREC.

Yours sincerely

A handwritten signature in black ink, consisting of a stylized, elongated loop followed by a horizontal line with a small flourish at the end.

BUSEREC CHAIRPERSON

Tsitsi Muzanenhamo Masters Full Dissertation Revised Again-1.docx

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