BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SOCIAL SCIENCES AND HUMANITIES

BUILDING FOOD SECURITY IN DROUGHT VULNERABLE COMMUNITIES. A CASE STUDY OF MARYMOUNT, RUSHINGA DISTRICT

by

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A Dissertation Submitted to the Department of Peace and Governance in partial fulfilment for the requirements for the Bachelor of Science Honors in Peace and Governance Degree

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ABSTRACT

This study explored the ways of building food security in drought vulnerable communities, particularly in Marymount, Rushinga district. The main purpose of the study was to identify strategies for building sustainable food in drought vulnerable communities like Marymount, Rushinga District. This is significant as many households in Marymount struggle to access enough, safe and nutritious food leading to increased malnutrition, food insecurity and poverty. A mixed methodology approach was employed, combining qualitative interviews and surveys to gather comprehensive data. The study revealed that drought has devastating effects on crop yields, livestock productivity and household food access. The findings revealed several significant ways used by smallholder farmers in Marymount other stakeholder to build food security, which include farming, off farming activities, temporary migration and receiving aid. However, it also identified opportunities for building food security through sustainable agriculture practices, irrigation development and community-based initiatives. The findings inform policy and practice recommendations for enhancing food security in drought-vulnerable communities, highlighting the significance community-based initiatives, climate-smart agriculture and social protection programs.

DECLARATION

I, Halima Nokutenda Chimusoro, hereby declare that this research titled building food security in drought vulnerable communities. A case study of Marymount, Rushinga District is my original work and has been carried out under the supervision of Mr K.I Mhuri, in partial fulfillment of the requirements for the Bachelor of Peace and Governance in Honors Degree at the Bindura University.

I affirm that all sources of information have been duly acknowledged and that this work has not been submitted elsewhere for academic credit.

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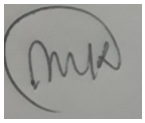
Chairperson  ……..

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DEDICATION

To my mom who supported and inspired me throughout my journey. I thank you for your prayers and for standing with me all the way, our support is the best thing I have and you are simply the best mom. The dedication extents to my sister Salama Chimusoro and my friend Mitchelle Shambare, whose unwavering support and encouragement have been my guiding light throughout this journey. Your belief in me has inspired me to reach for my dreams. Thank you for being there through the late nights always ready to give a listening ear.

RELEASE FORM

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ABBREVIATIONS

BIZ- Bio-Innovation Zimbabwe

CA- Conservation Agriculture

CAMFED -Campaigning for Female Education

CBA- Community Based Adaptation

CSA- Climate Smart Agriculture

FAO- Food and Agriculture Organization

FEWS NET- Famine Early Warning System Network

GDP- Gross Domestic Product

IPCC- Intergovernmental Panel on Climate Change

PIPs- Political Institution Processes

SADC- Southern Africa Development Community

SLA- Sustainable Livelihood Approach

SPSS-Statistical Package of Social Sciences

UNDP- United Nations Development Program

WFP- World Food Program

ZimVAC- Zimbabwe Vulnerability Assessment Committee

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CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUNG OF THE STUDY

Food security has become an increasingly urgent global concern, largely because of the growing impact of climate change and extreme weather patterns (Moda et al, 2025). Rising temperatures, unpredictable rainfall, and frequent climate disruptions are destabilizing agricultural systems across the world (IPCC, 2022). Climate-related factors have contributed to 21% decrease in agricultural productivity since 1961 (Ndlovu, 2025), intensifying the challenge of feeding vulnerable populations. The World Food Programme (2023) estimates that around 828 million people face chronic hunger daily, highlighting the critical need for sustainable solutions. Among the most severe climate threats is drought, which continues to escalate and worsen food insecurity worldwide.

Africa remains particularly exposed to climate-induced food insecurity because of its high reliance on rain-fed farming systems (Tenaw, 2025). Research by Ahmadalipour et al. (2019) points to a rise in both the regularity and severity of agricultural droughts across the continent, with future projections indicating continued deterioration (Tenaw, 2025). Sub-Saharan Africa is especially at risk, as repeated droughts have significantly reduced crop yields and food availability (FAO, 2018). Southern Africa, in particular, is experiencing notable warming and erratic rainfall patterns, which undermine agricultural sustainability (Davis-Reddy & Vincent, 2017). Between 2015 and 2020, the region endured several

climate shocks, including two major droughts that left approximately 45 million people food insecure (SADC, 2021).

Zimbabwe has not been spared from these challenges. The country has experienced multiple severe droughts in recent decades, which have disrupted agricultural production and deepened food insecurity (Munyenyembe et al., 2020). During the 2020 lean season, an estimated 5.5 million rural Zimbabweans were food insecure (FEWS NET, 2021). Agriculture plays a vital role in Zimbabwe's economy, contributing roughly 17% to the national GDP and employing about two-thirds of the population (World Bank, 2022).

Within Zimbabwe, Rushinga District in Mashonaland Central Province is particularly vulnerable to drought-related food insecurity. Recurrent dry spells have led to widespread hunger, malnutrition, and poverty (UNDP, 2019). The district's dependence on rain-fed agriculture makes smallholder farmers especially susceptible to climate variability (Moyo, 2018). In Marymount, a community within Rushinga, food insecurity is driven by erratic rainfall, low access to agricultural inputs, and a lack of diversified income sources.

This study responds to these pressing challenges by exploring strategies to improve food security in drought-affected communities, with a specific focus on Marymount. Guided by the Sustainable Livelihoods Approach and the Vulnerability Framework, the research will examine local conditions, analyze coping mechanisms, and assess the potential of agro-ecological and climate-smart farming practices. The ultimate aim is to design a community-based framework that enhances resilience and promotes sustainable food security in Marymount and other similarly affected areas.

1.2PURPOSE OF THE STUDY

To identify strategies for building sustainable food in drought vulnerable communities like Marymount, Rushinga District.

1.3 STATEMENT OF THE PROBLEM

Recurring drought causes a major threat to food security in Marymount, Rushinga district. With scant rainfall, extended dry spells, and a heavy reliance on rain-fed farming, the area is especially exposed to climate change impacts. As a result, many households struggle to obtain sufficient, safe, and nutritious food, which drives up rates of malnutrition, food scarcity, and poverty. Nduru et al. (2020) points out the importance of community-led, context-specific interventions to build resilience and strengthen food security in drought-prone regions. However, detailed research into Marymount's particular challenges, coping strategies, and viable solutions is scarce. This study will fill that gap by conducting an in-depth case study that captures local perspectives and experiences, while identifying sustainable practices to safeguard food security against recurring droughts.

1.4 OBJECTIVES

- To evaluate the prevailing food security conditions and the vulnerability landscape affecting smallholder farmers in Marymount.
- To investigate the livelihood approaches, adaptive responses, and current support systems employed by smallholder farmers in mitigating food insecurity.
- To assess the role and effectiveness of agro-ecological methods and climate-smart farming practices in boosting agricultural output and resilience in Marymount.

- To formulate a locally grounded framework aimed at promoting long-term food security in communities vulnerable to drought.

1.5 RESEARCH QUESTIONS

- What is the current situation of food security among smallholder farmers in Marymount, and how does their vulnerability manifest within the local context?
- In what ways are smallholder farmers in Marymount responding to drought conditions, and what coping or adaptation strategies are they employing to mitigate food insecurity?
- How can agro-ecological approaches and climate-smart agricultural practices contribute to improved food production and resilience in Marymount?
- What community-driven approaches can be developed to establish long-term food security in areas prone to drought?

1.6 ASSUMPTIONS

This study will contribute to the understanding of sustainable food security strategies in drought-vulnerable communities.

The findings will inform the development of community-based interventions and policy recommendations to enhance food production, reduce vulnerability and improve the livelihoods of smallholder farmers in drought-prone areas.

This research will contribute to the development of community-based framework for building sustainable food security

1.7 SIGNIFICANCE OF THE STUDY

This study is important in educating and providing recommendations to the following stakeholders:

1.7.1 The Researcher

The researcher is going to gain more insight in the area of agriculture and its contribution to food security and socio-economic development. It will also recommend ways to address the impacts of drought in Marymount, Rushinga district. Most importantly the researcher is going fulfill the requirements of the university that all final year students are expected to come up with.

1.6.2 The Farmers

This study will educate the farmers in drought vulnerable communities on climate-smart agriculture and coping mechanism during droughts. It will also help them to know ways that contribute to food security in their community.

1.6.3 Policymakers

The study will be valuable in policy making, designing and implementation of effective drought mitigation strategies and for policymakers to consider the views of people that are affected by drought. It will help them to develop policies that contribute to the building of food security in drought vulnerable communities like Marymount and other drought prone areas in Zimbabwe and other countries facing the same problem.

1.8 DELIMITATIONS OF THE STUDY

The study focuses primarily on smallholder farmers potentially overlooking the experiences and perspectives of commercial farmers or other agricultural stakeholders. It may also not fully explore the impact of policy and institutional factors like government programs and market access on drought-resilient practices and food security. The study may not account for potential future changes in climate and weather events which could affect the effectiveness of drought-resilient practices. However, there are issues closely related to the study that the researcher is going to include in the study, these include human security, sustainable agriculture, poverty and inequalities, climate change, malnutrition, economic empowerment and conflict resolution.

1.9 LIMITATIONS OF THE STUDY

Focusing on a single community which is Marymount may limit the generalizability of findings to other areas in Zimbabwe. Also collecting data from limited number of farmers and household may not represent the whole district and country, while relying on self-reported data may lead to biased information. The researcher is also aware that some limitations such as limited access to the participants involved in smallholder farming which therefore delays the progress in data collection and capturing. To

deal with this problem the researcher is going to arrange for meetings and dates which are both convenient to her and the stakeholders involved. Resistance from the participants to cooperate and participate in the research is also a limitation which the researcher is going to face. The researcher is going to seek for permission from the responsible authorities such as the District Development Coordinator's office and community heads such as village heads and chiefs to assure the participants that the data needed is for academic purposes. Language barrier is also another limitation which the researcher is likely to face because Marymount is a marginalized community most of the smallholder farmers had limited access to education.

1.10 DEFINITION OF KEY TERMS

- **Food security** refers to a condition in which individuals consistently have dependable access physically, socially, and economically to adequate, safe, and nutritious food that aligns with their dietary needs and cultural preferences, supporting a healthy and active lifestyle (FAO, 2018).
- **Drought** is an extended period of abnormally low rainfall leading to water shortage and impacts on ecosystems and human societies (IPCC, 2013).
- **Vulnerable communities** are communities that experiences a higher degree to risk or limited capacity to cope with and adapt to hazards, shocks and stresses like those related to climate change, conflicts or economic crises (United Nations Office for Disaster Reduction, 2016).
- **Smallholder farmers** are agricultural producers who manage small plots of land and rely primarily on family labour to produce food for household consumption and local markets (FAO,2018).

1.11 DISSERTATION OUTLINE

Chapter 1

This chapter centers on identifying the research problem and contextualizing it from a global scale down to the specific study area. It provides a comprehensive overview of the introductory components, including the study's background, purpose, problem statement, objectives, scope and limitations, research questions, underlying assumptions, significance, and definitions of key terms. Together, these elements establish the foundation for the research and guide the inquiry into food security challenges within the targeted community.

Chapter 2

This chapter presents the literature review and outlines the theoretical framework underpinning the study. It highlights key scholarly works that inform and support the research topic, while also identifying the core theories that provide a foundation for the investigation. Together, these elements establish the academic context and conceptual basis for exploring food security in drought-prone communities.

Chapter 3

This chapter concentrates on the research methodology and design adopted for the study. It outlines the philosophical foundations, methodological approaches, research design, and sampling strategies that guide the data collection process. These elements are carefully selected to ensure the research is well-structured and capable of generating meaningful insights into the study's objectives.

Chapter 4

This chapter presents the research findings and offers a detailed analysis and interpretation of the results. Data is displayed using various visual formats such as tables, graphs, figures, and pie charts to enhance clarity and support the discussion. These tools help illustrate key patterns and relationships, providing a foundation for meaningful insights into the study's objectives.

Chapter 5

Chapter 5 focuses on summarization, conclusions, recommendations and areas of further research by the researcher. The conclusions are drawn from analysed data. The researcher must account for the outcome of the results.

CHAPTER TWO

2.0 LITERATURE REVIEW AND THEORETICAL FRAMEWORK

This chapter is centred on the work and contribution of other authors who carried out the researches focused on food security in drought vulnerable communities. Various studies have been conducted to get a better understanding of drought and its effects to food security as well as strategies and coping mechanisms to such disasters, particularly in drought vulnerable communities. The chapter also comprises of the theoretical framework whereby the researcher looks at the theories which align with the research. The chapter is also going to highlight the food security state and the vulnerability context of smallholder farmers, livelihood strategies, coping mechanisms and existing interventions used by farmer in addressing food security, potential agro- ecological and climate-smart agricultural practices and community-based framework for building sustainable food security in drought vulnerable communities.

2.1 THEORATICAL FRAMEWORK

Many different theories have been proposed to understand and address food security situation in drought vulnerable communities. While some theories have focused on measuring human well-being in a manner that incorporates exposure to potential harm, such as vulnerability framework, others, such as sustainable livelihood Framework, have focused on addressing root causes of human insecurity. Maslow (1964), have explained motivation by combining different levels of needs can help individuals by addressing their basic needs before moving on to higher -level needs. Each of these theories has viewed motivation differently, but put together, all of these theories have helped to gain a deeper understanding

of food security situation in drought vulnerable communities and how to come up with community-based framework. These theories are discussed in detail below.

2.1.1Sustainable Livelihoods Approach

The Sustainable Livelihood Approach (SLA) highlights the importance of resources and capabilities that individuals and communities mobilize to navigate challenges such as drought (Connolly-Boutin & Smit, 2015). It made up of five foundational assets human, social, natural, physical, and financial capital that underpin livelihood strategies (Maro, 2025). Evaluating these assets offers important insights into the resilience and adaptability of smallholder farmers in Marymount.

Access to these capitals is shaped by the broader vulnerability context, which encompasses both sudden shocks (e.g., conflict, natural disasters, political instability) and gradual changes (e.g., demographic shifts, environmental degradation, technological advancements, and trade dynamics). Political institutions and processes (PIPs) including laws, governance systems, and policy frameworks play a critical role in mediating access to resources. These structures interact with vulnerability factors to influence how rural populations utilize their assets to pursue development goals.

For instance, securing access to essential natural resources such as irrigation and fertile land is vital for sustaining agricultural productivity amid climate variability (Stringer, 2014). Additionally, socio-economic elements like education and community networks enhance farmers' capacity to manage food shortages. A nuanced understanding of these interconnections enables targeted interventions that address specific vulnerabilities (Kivunike et al., 2022; Tesema & Berhanu, 2018).

Adopting appropriate livelihood strategies can lead to improved income, reduced exposure to risks, enhanced well-being, and more sustainable resource use (Toner & Franks, 2006). SLA is guided by

principles that prioritize people-centered development, holistic analysis of livelihood influences, adaptability to change, and sustainability through resilience. It emphasizes building on existing strengths rather than focusing solely on needs and fosters communication between communities and policy-level institutions (Carney, 2011).

In this study, the SLA serves as a lens to examine how capital assets and environmental conditions interact to shape food security and adaptive capacity among smallholder farmers in Marymount. This framework facilitates a deeper understanding of local challenges, coping strategies, and opportunities for strengthening food systems. By addressing both immediate food insecurity and its root causes, the SLA supports the development of long-term, inclusive solutions that benefit not only smallholders but also commercial farmers ultimately contributing to broader economic stability. Thus, the SLA is central to the study's objective of enhancing food security in drought-prone communities.

2.1.2 Vulnerability Framework

Many scholars argue that the concept of vulnerability is only meaningful when applied to a specific context or situation. Brooks (2003) emphasizes that vulnerability must be understood in relation to a particular system and the specific hazards it faces, distinguishing between present and future risks. Luers et al. (2003) advocate for a shift in vulnerability assessments from measuring the vulnerability of entire locations to evaluating particular variables of concern in relation to defined stressors. Fussel (2004) outlines climate-related vulnerability assessments by examining the traits of the affected system, the nature and number of stressors, their underlying causes, their impacts, and the timeframe of the analysis. Downing and Patwardhan (2004) propose a formal framework for describing communities using indicators such as education levels, security, access to basic rights, governance quality, and environmental

conditions factors that reflect the internal characteristics of the vulnerable system rather than external pressures.

Another strand of vulnerability research, rooted in ecological studies, centres on the concept of resilience (Janssen et al., 2006). According to the Resilience Alliance, vulnerability refers to the tendency of social and ecological systems to experience harm when exposed to external shocks and stresses. It encompasses exposure, sensitivity to these stresses, and the system's resilience its capacity to adapt and mitigate future risks. Resilience is often viewed as the opposite of vulnerability, and the ability to cope plays a critical role in shaping these dimensions.

In this study, the researcher explores how vulnerability, resilience, and livelihoods interact within the Marymount community, particularly in the context of drought. Key factors contributing to vulnerability in Marymount include climate change, drought, limited market access, financial constraints, poverty, inadequate education, and restricted livelihood choices. The capacity of smallholder farmers to adapt and build resilience depends on their access to and effective use of resources. Therefore, applying a vulnerability framework enables the identification of farmers most at risk due to reduced access to resources, funding, and weather information, and supports the development of community-based strategies to ensure food security and decrease vulnerability to drought.

Combining asset-based analysis of SLA with the multidimensional assessment of vulnerability, the researcher will develop a more detailed framework for the recognition of the causes of vulnerability and identifying appropriate interventions to enhance the resilient of smallholder farmers (Hahn et al, 2009). These integrated approaches can be applied to context like drought prone areas, to identify the socio-economic, environmental and institutional factors that shape the adaptive capacity and vulnerability of smallholder farmers. Integrating these frameworks contribute to a better understanding of how stresses

like drought affects livelihoods as SLA enhances the vulnerability framework by providing a more detailed analysis of the assets and capabilities that contribute to adaptive capacity.

2.2 Literature Review

Smallholder farmers around the globe are widely recognized as being particularly susceptible to the impacts of climate change. Shifts in rainfall patterns, temperature and the regularity of extreme weather events directly threaten their agricultural and livestock productivity and their household food security (Vignola et al., 2015). For example, in the Philippines, farmers whose livelihoods are closely tied to natural resources face ongoing risks and are significantly affected by climate-related changes (Peria et al., 2016). The vulnerability of smallholder farming systems is well-documented (Morton, 2007), largely due to their reliance on agriculture and livestock for survival (Dasgupta et al., 2014).

In Zimbabwe, farmers are especially at risk because of their remote locations, limited technological advancement, and insufficient access to essential agricultural inputs. They frequently endure severe droughts, drying water sources, and unpredictable seasonal shifts. These climate-induced conditions such as extended periods of heat, rainfall, and dryness lead to crop failure, livestock deaths, soil degradation, wildfires, poor germination rates, and pest outbreaks (Mutekwa, 2009).

Similarly, in Madagascar, small-scale farmers face heightened food insecurity due to geographic isolation and the absence of formal support systems. These factors compound their vulnerability to disruptions in agricultural production (Harvey et al., 2014). Key climate threats in these regions include hailstorms, droughts, and dry spells, all of which contribute to reduced crop yields.

2.3.1 The current food security state and vulnerability context of smallholder farmers in Marymount

Smallholder farmers, who produce over 80% of the globe's food, are central to global food systems especially in developing regions. Despite their importance, they face a range of structural vulnerabilities that hinder productivity and compromise food security. As Makuya et al. (2024) explain, the challenges confronting smallholders stem from a complex mix of environmental, socioeconomic, and institutional pressures.

These farmers are particularly susceptible to climate change and ecological degradation, which heighten their exposure to food insecurity. Climate-related disruptions such as erratic rainfall, prolonged droughts, and extreme weather events interfere with planting cycles, reduce yields, and destabilize livelihoods (Makuya et al., 2024). In sub-Saharan Africa, where agriculture is predominantly rain-fed, even slight changes in precipitation can trigger significant crop failures (Morton, 2007). The IPCC (2022) similarly warns that smallholders in tropical zones are at elevated risk due to their dependence on climate-sensitive farming practices. Environmental degradation including soil erosion and deforestation further weakens resilience. Altieri and Nicholls (2017) argue that monoculture and unsustainable land use, often driven by economic necessity, deplete soil fertility and reduce the capacity to withstand climate shocks. Moreover, limited access to adaptive technologies such as drought-tolerant seeds and irrigation systems leaves farmers ill-prepared to respond to changing conditions (Makuya et al., 2024).

Socioeconomic disparities compound these vulnerabilities. According to Makuya et al. (2024), poverty traps caused by restricted access to capital, markets, and infrastructure impede investment in agricultural productivity. In regions like South Asia and sub-Saharan Africa, smallholders often sell perishable produce at low prices due to inadequate storage and exploitative intermediaries (Barrett, 2021),

increasing cycles of poverty and food insecurity. Gender inequality adds another layer of complexity. Women, who make up 43% of the agricultural production in developing countries, frequently faces challenges in getting financial resources (FAO, 2023). Thomas et al. (2023) note that patriarchal norms in East Africa limit women's agency, reducing household resilience to food shortages.

Institutional shortcomings are also key contributors to smallholder vulnerability. Makuya et al. (2024) criticize the lack of targeted policy support, including weak extension services and fragmented safety nets. In Latin America, for example, agricultural subsidies often favor large-scale enterprises over smallholders, deepening inequality (Kay, 2009). In politically unstable regions like the Sahel, corruption and governance failures disrupt access to essential inputs such as fertilizers and seeds (Mignouna et al., 2023). The COVID-19 pandemic further exposed these systemic weaknesses. Lockdowns disrupted supply chains, and low digital literacy excluded many smallholders from online platforms that could have cushioned economic losses (Béné, 2020). Post-pandemic recovery efforts have largely overlooked rural producers, focusing instead on urban-centered economic models (Makuya et al., 2024). As a result, nearly 80% of the world's undernourished population resides in smallholder farming households (FAO, 2021). Food insecurity in these communities is not only about insufficient calories but also about poor dietary diversity, as seen in Malawi where maize monoculture has led to widespread micronutrient deficiencies (Snapp et al., 2019).

To address these challenges, Makuya et al. (2024) advocate for climate-smart agricultural practices like agroforestry and conservation tillage, which enhance productivity while restoring ecological balance. Strengthening farmer cooperatives and digital platforms can also improve market access (Ashraf et al., 2022). Policy reforms such as equitable land distribution and gender-inclusive financial programs are essential for long-term resilience (Doss et al., 2023). The vulnerability of smallholder farmers is rooted in overlapping environmental, economic, and institutional failures. Research by Makuya et al. (2024) and

others emphasizes the need for systemic solutions that address foundational causes rather than surface-level symptoms. Without inclusive policies, technological empowerment, and climate resilience strategies, the food security of millions will remain fragile jeopardizing progress toward Sustainable Development Goal 2 (Zero Hunger).

In Marymount, a community within Rushinga District, smallholder farmers face heightened vulnerability because of lack of access to technology, financial instability, and poor infrastructure (Nabi & Shafi, 2021). Leading factors include dependence on rain-fed agriculture, low levels of education, and inadequate irrigation and storage facilities (Shumba et al., 2020). Farmers also struggle to obtain agricultural inputs, financing, and market access, which limits their ability to adapt to environmental shocks. Matondi (2017) points out that weak policy frameworks, short-term interventions, and the absence of comprehensive support systems undermine efforts to build sustainable food security. Therefore, this study seeks to assess the current situation of food security and the vulnerability context of smallholder farmers in Marymount.

2.3.2 The livelihood strategies, coping mechanisms and existing interventions employed by farmers to address food insecurity

Smallholder farmers, who produce over 70% of the world's food, face persistent challenges in achieving food security due to climate shocks, economic marginalization, and institutional neglect. In regions like Marymount, where drought and resource scarcity exacerbate vulnerabilities, understanding how farmers navigate these challenges is critical.

Smallholder farmers barely rely on agriculture alone to sustain their households. Instead, they adopt livelihood diversification as a risk-spreading strategy. Ellis (2000) conceptualizes this as a multi-dimensional approach where households combine on-farm activities (crop-livestock integration) with off-farm labour (petty trade and seasonal migration). For instance, in drought-prone areas of Kenya, farmers supplement agricultural income with beekeeping and artisanal crafts, which provide a buffer against crop failure (Ngugi et al., 2021). Similarly, in Bangladesh, rural households engage in aquaculture alongside rice cultivation to hedge against monsoon variability (Belton et al., 2018). Agricultural intensification is another common strategy where farmers adopt agro ecological practices like intercropping to maximize limited land resources. In Malawi, the integration of legumes such as pigeon peas into maize systems has improved soil fertility and dietary diversity, reducing reliance on chemical fertilizers (Snapp et al., 2010). However, such strategies often require access to credit, knowledge, and inputs resources that remain unevenly distributed, particularly for women and marginalized groups (Bezner Kerr et al., 2022).

When shocks like droughts or price collapses occur, smallholders deploy short-term coping mechanisms, often at the cost of long-term resilience. They reduce meal frequency, portion sizes, or switch to less preferred foods. In Ethiopia, families facing recurrent droughts rely on drought-tolerant but nutritionally poor crops like *enset* (false banana), leading to micronutrient deficiencies (Tadesse et al., 2021). Similarly, foraging for wild foods a practice documented in Zimbabwe and Nepal provides temporary relief but risks depleting natural resources (Shackleton & Shackleton, 2004). They also sell assets like livestock, land, or tools generates immediate cash but erodes future productive capacity. A study in Niger found that households selling livestock during droughts took over a decade to recover herd sizes, perpetuating cycles of poverty (Alinovi et al., 2010).

Governments, NGOs, and international agencies have implemented various interventions to support smallholders, yet their effectiveness remains contested. Programs like Malawi's Farm Input Subsidy Programme (FISP) aim to boost productivity by providing subsidized seeds and fertilizers. While FISP initially increased maize yields by 30%, benefits disproportionately favoured wealthier farmers with larger landholdings, exacerbating inequities (Chirwa & Dorward, 2013). Similarly, Ethiopia's Productive Safety Net Programme (PSNP) combines cash transfers with public works to build community assets (Arimoro, 2025). However, participants report that climate shocks such as irregular rains often nullify the gains from infrastructure like terraces (Berhane et al., 2019). Agro ecology, which blends traditional knowledge with ecological science, has gained traction as a sustainable alternative. Practices such as conservation agriculture, agroforestry, and rainwater harvesting improve resilience. In Zambia, mango-agroforestry systems increased household income by 40% while enhancing soil carbon stocks (Ajayi et al., 2011). However, adoption challenges persist, including high labour demands and lack of extension services. In Marymount, where drought is endemic, such practices could mitigate water scarcity, but only if tailored to local agro-climatic conditions (Kansanga et al., 2021). Connecting farmers to fair markets through cooperatives or digital platforms can enhance incomes. Rwanda's one cow per family initiative improved dairy production and nutrition but faltered due to inadequate veterinary support (Ansoms et al., 2020). Gender-focused interventions, such as India's Mahila Kisan Sashaktikaran Pariyojana (MKSP), empower women through training in sustainable farming, yet patriarchal norms often limit their impact (Singh et al., 2020).

Despite these efforts, many interventions prioritize technical fixes (e.g., hybrid seeds) over participatory approaches, sidelining local knowledge (Scoones et al., 2020). In Marymount, this could manifest as promoting drought-resistant maize without consulting farmers on preferred crop varieties. Projects often emphasize immediate yield gains over long-term resilience. For example, subsidies for

chemical fertilizers may boost production temporarily but degrade soils, worsening vulnerability to climate shocks (Taylor, 2018). National policies rarely integrate climate adaptation into agricultural planning. In Nigeria, rice promotion campaigns have encouraged wetland cultivation, increasing flood risks in delta regions (Ezeana, 2022).

Smallholder farmers in Marymount have several traditional strategies, coping mechanisms and existing interventions that they use during droughts which include growing short season variety crops, growing drought resilient crops like millet and sorghum and reducing their number of meals per day. In Africa, many smallholder farmers adapt and even prepare for climate extremes, minimizing crop failure through the use of agro ecological practices like soil management and water harvesting (Mbow et al. 2014a). However, they face challenges in keeping up with their strategies and coping mechanisms due to limited agricultural inputs, lack of access to funds and limited access to markets which affect the farmers' ability to respond to environmental stress and droughts (Mapedza et al, 2021).

For regions like Marymount, sustainable food security requires transformative adaptation a shift from coping to systemic resilience. This can be done through involving farmers in designing agro ecological practices that align with local ecological and cultural contexts. As O'Brien (2018) argues, food security in vulnerable regions depends not just on technological innovation but on equity, agency, and ecological stewardship. By using smallholders' knowledge and priorities, Marymount could pioneer a model of resilience that improve living conditions in drought vulnerable communities. Thus, this study seeks to examine the livelihood strategies, coping mechanisms and existing interventions used by farmers to address food insecurity.

2.3.3 The potential of agro ecological and climate smart agricultural practices to enhance food production

Drought-vulnerable communities, particularly in arid and semi-arid regions, face existential threats to food security as climate change intensifies rainfall variability and soil degradation. In response, scholars and practitioners increasingly advocate for agro ecological and climate-smart agricultural (CSA)practices as pathways to enhance food production, ecological resilience, and socioeconomic stability.

Agro ecology, defined as the application of ecological principles to agricultural systems, emphasizes biodiversity, soil health, and traditional knowledge. Scholars argue that its practices such as polyculture, agroforestry, and organic farming build resilience by mimicking natural ecosystems. For instance, In the Sahel, farmers practicing zai (small planting pits) and intercropping millet with nitrogen-fixing legumes like cowpea have revived degraded soils and increased yields by up to 50% during droughts (Zougmoré et al., 2018). Agro ecology's reliance on local resources and knowledge ensures affordability and cultural relevance. In Nicaragua, campesino farmers using seed-saving networks and composted manure maintained stable harvests during prolonged dry spells, whereas neighbouring conventional farms reliant on external inputs faced collapse (Holt-Giménez, 2006).

Climate-smart agriculture (CSA), a concept promoted by the FAO, combines three objectives which include increasing productivity, enhancing resilience, and reducing greenhouse gas emissions. Key practices include, conservation agriculture which is the minimal soil disturbance, crop rotation, and mulching preserve soil moisture and organic matter. In Zimbabwe, farmers adopting these techniques reported 20–30% higher sorghum yields compared to conventional tillage (Thierfelder et al., 2017). Water harvesting is a small-scale irrigation system such as sand dams and rooftop rainwater collection, mitigate water scarcity. In Kenya's Makueni County, sand dams increased household water access by 60%, enabling dry-season vegetable production (Lasage et al., 2015). Use of Drought-Resistant Crops the promotion of indigenous crops like drought-tolerant teff in Ethiopia and pearl millet in India ensures food availability despite erratic rains (Adhikari et al., 2021). Critically, CSA's technological innovations such

as weather-indexed insurance and drought-resistant seeds complement argo-ecological principles. For example, in Senegal, the combination of agroforestry and climate-informed advisories reduced crop failure risks by 40% (Tall et al., 2018).

Agro ecology prioritizes systemic transformation through decentralized, knowledge-intensive practices, whereas CSA often focuses on technological solutions scalable through top-down policies (Taylor, 2018). Nonetheless, synergies exist, In Niger, farmers regenerating native trees on cropland increased ground cover, reducing soil temperature and evaporation. This low-cost practice, rooted in traditional knowledge, boosted millet yields by 150–200% and sequestered 4.8 million tons of carbon annually (Reij et al., 2009). In East Africa, they do what is known as push-pull agriculture intercropping maize with desmodium (a pest-repelling legume) and planting drought-tolerant Napier grass on field borders reduced stem borer infestations by 80% and improved soil fertility (Khan et al., 2014).

Despite their potential, there is a challenge in their adoption as agro ecological methods require training in complex practices like composting and polyculture. In Marathwada, India, labour shortages during peak seasons hindered the adoption of System of Rice Intensification (SRI) techniques (Paliwal et al., 2021). Also, governments often prioritize industrial agriculture through subsidies for synthetic inputs. In Brazil, less than 2% of agricultural credit supports agro ecological transitions (Wezel et al., 2020). Agro ecological and climate-smart practices hold immense potential to transform food systems in drought-vulnerable communities. By enhancing soil health, water efficiency, and biodiversity, these approaches not only stabilize yields but also reduce dependence on fragile external inputs. However, their success hinges on context-sensitive implementation, participatory policymaking, and addressing structural inequities. For regions like Marymount, integrating traditional knowledge with climate science could forge a resilient future where food security and ecological sustainability coexist.

Regions prone to drought, which often host some of the most food-insecure populations globally, demand innovative and context-sensitive strategies to disrupt persistent cycles of poverty and environmental decline. Increasingly, scholars contend that centralized, technocratic interventions fall short in addressing the intricate socio-ecological realities of these communities. In contrast, there is growing support for locally driven frameworks that engage community members in designing resilience strategies grounded in agroecological principles, indigenous knowledge systems, and social inclusion. Accordingly, this research aims to investigate how agroecological and climate-smart farming practices can improve food production in drought-affected settings.

2.3.4 A community-based framework for building sustainable food security in drought vulnerable communities

Community-based frameworks prioritize local agency, recognizing that smallholder farmers and pastoralists possess intimate knowledge of their ecosystems and adaptive strategies honed over generations. As Chambers (1997) asserts, participatory development ensures interventions align with local priorities, reducing the risk of maladaptation. For instance, in Rajasthan, India, communities revived traditional johads (rainwater harvesting structures) to recharge aquifers, increasing water availability by 30% and enabling dry-season farming (Agarwal & Narain, 2019). Such successes underscore the value of blending indigenous practices with modern science. Community-based frameworks should include participatory planning, integration of agro ecology, social cohesion and policy linkages.

Before designing interventions, communities must identify their unique risks and assets. Participatory Rural Appraisal (PRA) tools, such as seasonal calendars and resource mapping, enable households to articulate drought impacts on crops, livestock, and livelihoods. In Kenya's Turkana County, such assessments revealed that pastoralists prioritized restoring degraded grazing lands over external

fodder subsidies, leading to community-led reseeding programs (Mwangi & Crewett, 2019). Local initiatives gain traction when linked to supportive policies. In Brazil, the Landless Workers' Movement (MST) lobbied for land reform and agro ecological subsidies, securing government support for 1,200 community farms (Wittman, 2018). Partnerships with NGOs and research institutions also enhance technical capacity. For example, in Malawi, farmer field schools run by FAO and local cooperatives have trained 50,000 farmers in climate-smart practices (Katengeza et al., 2021).

Despite their promise, community-based frameworks face significant barriers local initiatives frequently rely on unstable donor funding. A study of 30 African agro ecology projects found that 70% collapsed after external support ended (Nyantakyi-Frimpong et al., 2023). A community-based framework for drought-vulnerable areas must balance ecological sustainability, social justice, and economic viability. By using local knowledge, fostering collective action, and advocating for supportive policies, such frameworks can transform subsistence-oriented systems into resilient foodscapes. However, success hinges on addressing power imbalances, securing long-term funding, and embracing adaptive governance. As Ostrom (1990) famously observed, communities are adept at managing shared resources when given the agency to do so. For regions like Marymount, this approach offers not just survival but a pathway to thriving in the face of climate uncertainty.

Aligning climate smart agricultural practices with local context, existing livelihood strategies and community-based institutions is important as it ensures the sustainability of effectiveness of food security in drought prone areas (Chandra et al, 2017).

Community-based adaptation (CBA) refers to grassroots and locally driven strategies that leverage social relationships and dynamics to address the challenges posed by climate change (Ayers & Forsyth, 2009). It focuses on identifying and supporting development initiatives that enhance the ability of smallholder farmers to cope with increasingly uncertain and hazardous climatic conditions, while

safeguarding their food security. According to Klenk et al. (2017), incorporating local knowledge into adaptation planning can improve decision-making and offer greater flexibility within government-supported research efforts. One example is the innovation in terrace farming in Latin America, which emerged from traditional coping practices and was embraced by local farmers as a climate adaptation strategy (Bocco & Napoletano, 2017). Clemens et al. (2015) highlight how learning alliances in Vietnam facilitated social learning and the exchange of ideas through inclusive dialogue platforms.

CBA relies on participatory methods that engage local communities, development practitioners, and disaster risk reduction experts in crafting adaptive solutions. The success of such approaches depends on strong collaboration, shared responsibility, and the availability of adequate resources and institutional support (Scott et al., 2017). This study, therefore, aims to design a community-based framework to promote sustainable food security in regions vulnerable to drought.

2.3 SUMMARY

The chapter focused on the theories used to support the study which are Sustainable Livelihood Approach and the Vulnerability Framework. It also reviewed the research overview of what other scholars have written on building food security in drought vulnerable communities from the global level to the national level. The researcher also noted on the research gap which the study is going to cover by answering the objectives of the study.

CHAPTER THREE

3.0 RESEARCH DESIGN AND METHODOLOGY

This chapter outlines the research methodology employed in a mixed methods study focused on enhancing food security in drought-prone communities, with a particular emphasis on Marymount in the Rushinga district. By integrating both qualitative and quantitative approaches, the study seeks to gain a comprehensive understanding of the challenges faced by residents in such vulnerable areas. The methodology supports the development of a community-driven framework aimed at fostering sustainable food security. The chapter provides a detailed discussion of the rationale behind this approach, along with an exploration of the research philosophy, methodological design, participant selection, data collection techniques, analytical strategies, and ethical considerations.

3.1 Research philosophy

The researcher adopted a pragmatic research philosophy due to its suitability for tackling practical issues such as food insecurity in drought-affected regions. As highlighted by Patton (2015), pragmatism supports methodological pluralism, enabling researchers to select approaches that best address their specific research questions. This adaptability is particularly valuable in the context of Marymount, where a nuanced understanding of food security requires diverse data collection and analysis methods. Pragmatism thus provides a solid foundation for integrating both qualitative and quantitative techniques, facilitating the application of theoretical insights to real-world challenges. This approach enhances the development of context-specific strategies aimed at promoting sustainable food security in vulnerable communities.

3.2 Research methodology

The research used mixed method research approach which is a combination of qualitative and quantitative techniques. According to Stake (2010), qualitative research is most fitting when you want to illuminate a phenomenon by drawing on individuals' own experiences within a particular context. In contrast, Creswell (2003) maintains that quantitative methods are best employed when the aim is to examine how one variable relates to another. The combination of these two helps to develop a comprehensive understanding of the problem and prospects for increasing food security in Marymount. Quantitative method gives a detailed description on building food security in drought-vulnerable communities like Marymount. Qualitative assisted in deepening the understanding of complicated social and human aspects in a way that might be understood with numbers, (Strydom,2011). This is important so as ensure that there are no gaps left leading to the validity of the information.

3.3 Research design

This study utilized a case study research design, focusing specifically on Marymount within the Rushinga District. This approach facilitated an in-depth exploration of the social, economic, and environmental factors that shape food security in the area. To ensure a comprehensive understanding of the issue, the researcher adopted a mixed-methods strategy, integrating both qualitative and quantitative techniques. This combination allowed for the collection of statistical data alongside detailed contextual insights, thereby enriching the analysis of food security dynamics in Marymount. As Creswell and Clark (2018) emphasize, mixed-methods designs are particularly effective for addressing complex research questions through diverse forms of evidence.

3.4 Sample size

The sample was drawn from a population of smallholder farmers, community leaders and extension officers. The sampling frame consisted of community leaders, farmers and extension who have knowledge about the community's food security challenges. Key informants were identified by contacting local authorities and community-based organizations. The sample size for survey is 30 smallholder farmers from 5 villages randomly sampling 6households per village.

3.5 Sampling methods

A combination of sampling methods was employed to conduct household surveys. Initially, purposive sampling was applied to select villages within Marymount, guided by criteria such as drought

vulnerability, agro-ecological characteristics, and logistical accessibility. Once the study sites were determined, simple random sampling was used to select 30 households from each village, ensuring a representative cross-section of the local population.

For qualitative data collection, both purposive and snowball sampling strategies were utilized. Key informants were deliberately chosen based on their relevance to the study, and these individuals subsequently referred additional participants, allowing the sample to expand organically through the snowballing process.

3.6 Data collection

To comprehensively explore food security and vulnerability among smallholder farmers in Marymount, the researcher employed a mixed-methods approach, integrating both quantitative and qualitative data collection techniques. This strategy enabled a nuanced understanding of the complex factors influencing agricultural resilience in drought-prone communities.

Primary data were gathered through household surveys, semi-structured interviews, and focus group discussions, while secondary data were sourced from government publications, academic literature, and project reports. The survey instrument used for quantitative data collection included a blend of multiple-choice items, rating scales, and open-ended questions. Adapted from a validated framework (FAO, 2017), the questionnaire was tailored to reflect the local context and pilot-tested with a small sample of households to ensure clarity and relevance. The survey captured key indicators such as household demographics, livelihood sources, food security status, and the adoption of agroecological and climate-smart agricultural practices. Each questionnaire was administered in person to either the household head or another responsible adult, ensuring accurate and context-sensitive responses.

Qualitative data were collected through semi-structured interviews with key stakeholders, including farmers, community leaders, and agricultural extension officers. These interviews provided deeper insights into local perceptions, lived experiences, and challenges related to food security. An interview guide with open-ended questions facilitated flexible yet focused discussions, allowing participants to articulate their views in their own words. The researcher also reviewed relevant secondary sources to triangulate findings and enrich the analysis.

To ensure the validity and reliability of the research instruments and findings, several measures were implemented. Validity, which refers to the degree to which an instrument accurately measures the intended constructs (Kerlinger & Lee, 2000), was addressed through multiple strategies. Face validity was established by consulting experts in food security and agricultural development, who reviewed the survey for relevance and clarity (Krejcie & Morgan, 1970). Content validity was reinforced through pilot-testing with 30 smallholder farmers in Marymount, ensuring that the instrument covered all critical aspects of the study (DeVellis, 2017). Construct validity was supported by grounding the survey in a conceptual framework informed by existing literature on food security, livelihood strategies, and climate-resilient agriculture (FAO, 2017).

Reliability, defined as the consistency of measurement across time and contexts, was also rigorously assessed. Internal consistency was evaluated using Cronbach's alpha to determine the coherence of survey items. Test-retest reliability was confirmed by re-administering the questionnaire to a subsample of four households, checking for stability in responses over time. Inter-rater reliability was ensured through independent coding and thematic analysis of qualitative data by the researcher, minimizing bias and enhancing analytical rigor.

Together, these methodological steps ensured that the data collected were both credible and robust, providing a solid foundation for analyzing food security dynamics in Marymount and informing practical interventions for drought-affected communities.

3.8 Data presentation and analysis

The researcher employed both quantitative and qualitative techniques to analyse the data collected through surveys, interviews, and focus group discussions. Quantitative data were processed using the Statistical Package for Social Sciences (SPSS), version 26 (IBM Corp, 2019). Prior to analysis, the dataset was reviewed for completeness and accuracy, ensuring that it met the assumptions required for statistical testing.

Descriptive statistics were used to summarize key demographic variables such as age, gender, and household size, with means, standard deviations, and frequency distributions calculated for continuous and categorical data respectively (Braun, 2006; Clarke, 2006). These summaries provided a foundational understanding of the sample population.

To explore relationships between variables, inferential statistical methods were applied. Pearson's correlation coefficient was used to assess the strength and direction of associations between independent variables such as livelihood strategies, coping mechanisms, and climate-smart agricultural practices and the dependent variable, food security (Pearson, 2012). Further analysis involved multiple linear regression to identify significant predictors of food security among smallholder farmers in Marymount. Factor analysis was also considered to uncover underlying dimensions within the dataset.

Qualitative data obtained from interviews and observations were analyzed using thematic analysis, following the approach outlined by Braun and Clarke (2006). Responses were transcribed, coded, and organized into themes and sub-themes to reveal patterns and insights relevant to the study's objectives. This process allowed the researcher to capture nuanced perspectives on food security challenges and adaptive strategies within the community.

To enhance the credibility of the findings, a pilot study was conducted involving 30 smallholder farmers in Marymount. This helped refine the survey instrument and confirm its relevance and reliability. The integration of both qualitative and quantitative data strengthened the overall validity of the research, providing a comprehensive understanding of food security dynamics in drought-prone settings.

3.9 Pilot testing

To ensure the survey instrument was both valid and reliable, the researcher conducted a pilot test prior to full-scale data collection. This preliminary exercise was designed to evaluate the clarity, relevance, and effectiveness of the survey questions in capturing the necessary information. Thirty individuals from the Marymount community were randomly selected to participate, representing key stakeholder groups including smallholder farmers, community leaders, and agricultural extension officers. The questionnaire was administered directly, and responses were recorded for analysis. Insights gained from this pilot contributed to refining the research tools and deepening the understanding of food security challenges in drought-prone communities. These findings also offer valuable guidance for policymakers and practitioners working to strengthen food systems in similar contexts.

3.10 Ethical considerations

The researcher secured ethical approval from the university and obtained authorization from local community leaders before beginning the study. Throughout data collection, the researcher upheld key ethical principles ensuring that participation was voluntary, that informed consent was properly obtained, and that confidentiality was maintained. Following Frankfort-Nachmias and Nachmias (2008), participants received clear explanations of study procedures, an overview of foreseeable risks and benefits, an invitation to ask questions, and explicit assurance of their right to withdraw at any point. Consequently, every participant was fully briefed on the study's purpose and their freedom to leave the research at any time. All information gathered was treated as strictly confidential, and personal identities were safeguarded by assigning numeric codes to each respondent.

3.11 Summary

This chapter outlines the methodology used to address the research questions. It describes in detail the study's procedures, participant selection, data-collection methods, and the specific survey items, focus-group prompts, and interview questions employed. Adopting a mixed-methods design allows the researcher to gain a thorough understanding of food security in the drought-vulnerable Marymount community and to shape effective strategies for strengthening food security there and in comparable settings.

CHAPTER FOUR

4.0 DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

This chapter focuses on data presentation interpretation and analysis with the intention to present, interpret and analyse the acquired information on building food security in drought vulnerable communities using a case study of Marymount, Rushinga district. Attention is on the information obtained from the interviews and questionnaires that were used by the researcher for data collection. The presentation, interpretation and analysis of the data is guided by four research objectives and corresponding research questions.

Figure 4.1

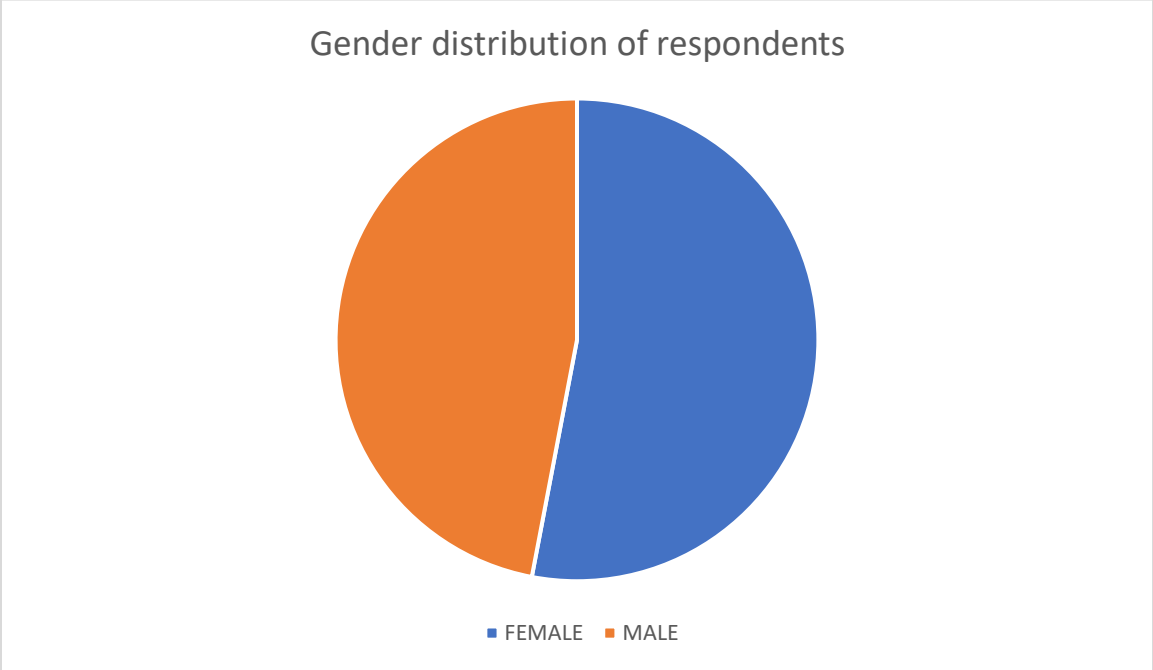


Figure 4.1 represent gender distribution that of respondents that participated in the interviews and the administration of questionnaires. The researcher intended to achieve gender balance amongst respondents which is, 15 females and 15 males as well as 4 extension officers. During data collection process, the researcher interviewed and administered questionnaires to all fifteen intended females plus 1 extension officer who turned out to be female. Hence the overall number of women who participated in the research was 16 (53%). However, the same number could not be obtained for males as only 12 male smallholder farmers participated instead of the intended 15, two male extension officers also participated to make a total of 14 (47%) males' respondents.

Table 4.1: Distribution of Respondents by age

Age	**Frequency**	Percentage
20-30	6	20%
31-40	8	27%
41-50	12	40%
51-60+	4	13%
Total	30	100%

Figure 4.3: **Level of education for respondents**

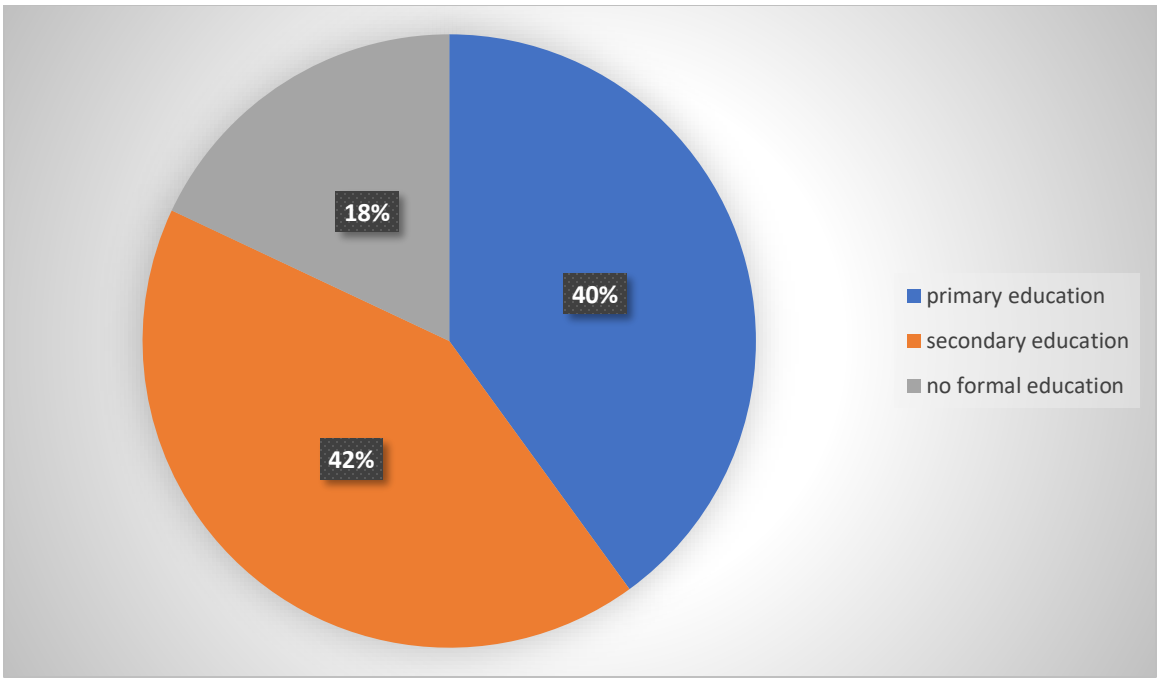


Figure 4.3 represents respondents according to their level of education 40% had primary education, 42% had secondary education and 18% did not have any formal education at all.

Figure 4.4

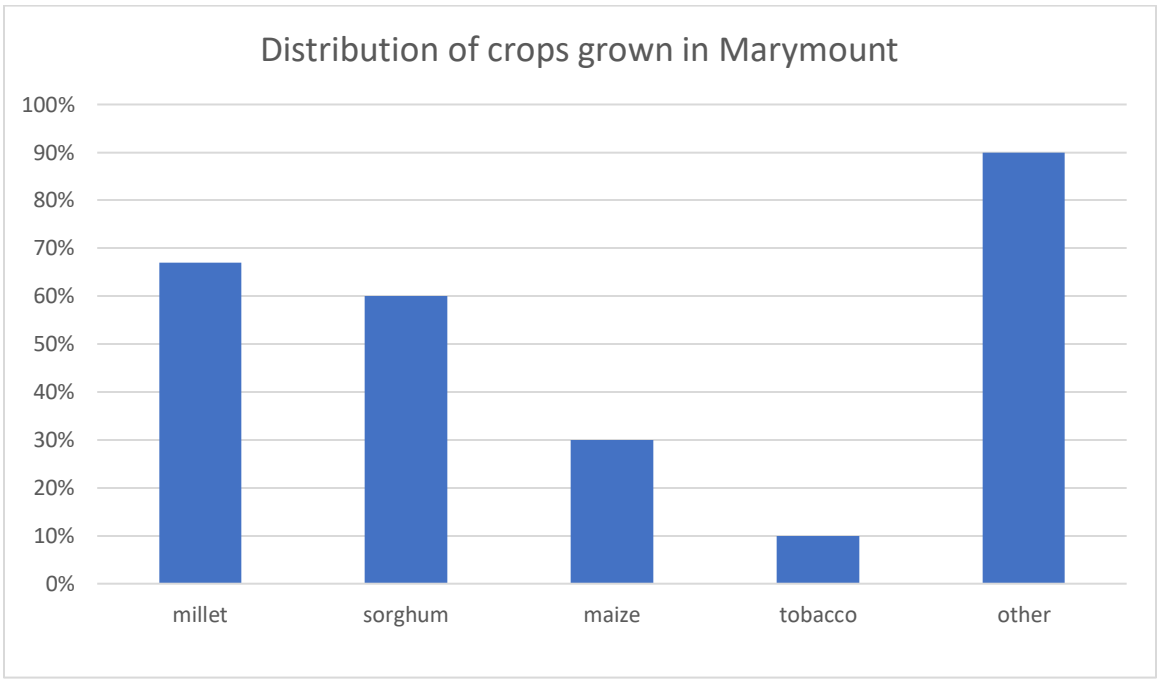
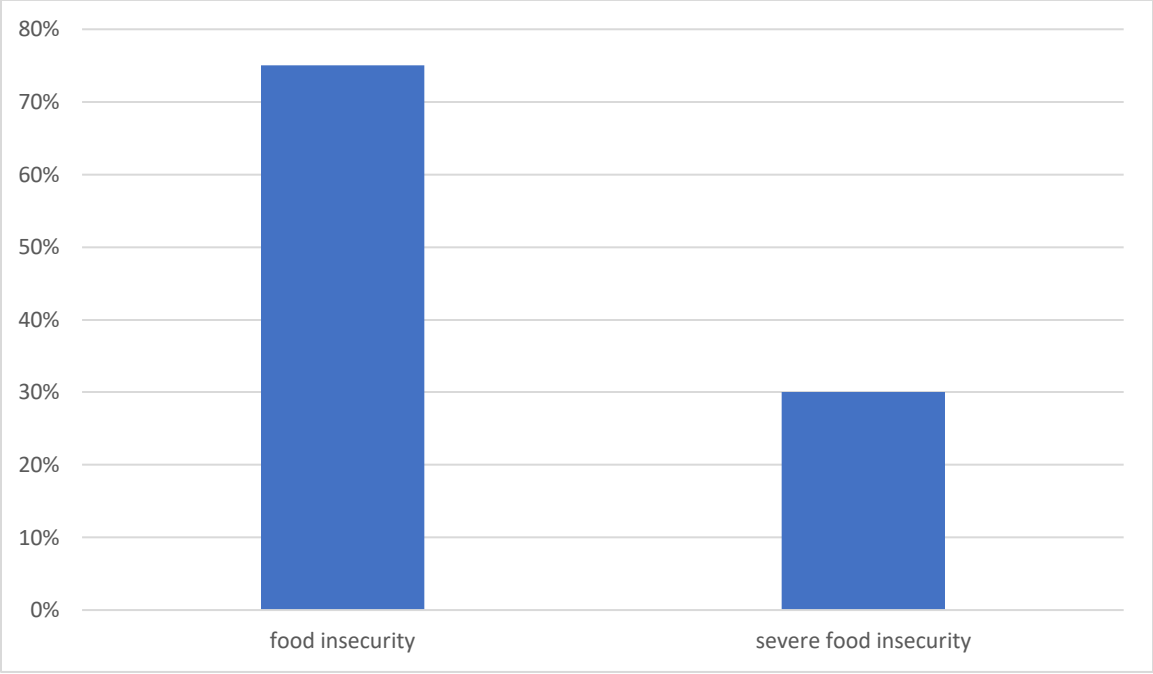


Figure 4.4 illustrates the distribution of crops grown in Marymount as a way to curb food insecurity with accordance to the number respondents. 67% of smallholder farmers in Marymount grow millet, 60% grows sorghum, maize is grown by 30% ,10 % grow tobacco and 90 % grow other crops. Other crops that are grown in Marymount include ground nuts, cow peas and round nuts. Extension officers noted that they encourage the growing of seeds like Kamoza (maize seed), pell millet, sorghum and tumbe and talcomon which are ground nut seeds. They argued that these seeds are suitable for this area as they do not want much water and they need 90 days or less to be ready for harvest.

4.1 FOOD SECURITY IN RUSHINGA DISTRICT

Figure 4.5: Food security state in Marymount



The graph illustrates the food security state of respondents in Marymount. All the respondents, that is, 30 agreed that there is food in security in Marymount 75% of the respondents are experiencing food insecurity, with 30% experiencing severe food insecurity security. The main reasons contributing to

food insecurity include drought, lack of access to resources and technology, poor soil quality and lack of access to markets.

4.2 FOOD SECURITY IN MARYMOUNT

According to the respondents they have been experiencing food shortages that they have to sell firewood, do piece jobs, sell their livestock, look for wild fruits and go to Mazowe River for mining and water to irrigate their gardens. The respondents noted that they have to search for firewood so that they can sell it to the nurses, teacher and at a boarding school nearby. The little money which is $5 per cart that they get is what they use to buy food for their families. However, this is not an everyday business since only a few people buy firewood, thus, they have to do other piece jobs. These include doing laundry and fetching water for the nurses and teachers. This aligns with what was recorded by Mashamba (2020), asserting that inadequate adaptation measures have led to increased food insecurity.

According to the community leaders most smallholder farmers had to sell their livestock for them to feed their families. Community leaders further argued that individuals had to go in the forest to look for baobab fruits and masau for them to sell. The extension also noted that villagers have to walk about 6-7 kilometres to Mazowe River for them to start gardens. The officers also added that they had to go and dig for gold in Mazowe River, however, they might dig for only $5-$10 a day. The community leaders noted that they usually get help from the government and non-governmental organizations. However, the previous year non-governmental organizations could not help throughout the year and the government helped with wheat.

4.3 DROUGHT

Drought has been the main cause of food insecurity in Marymount. According to the extension officers' people in Marymount have always been experiencing low rainfall. However, they further argued that, the rainfall that was received during the 2023-24 was 250mm which was enough for plant growth however, it was received in a short period. Hence, drought is a major reason why smallholder farmers in Marymount are very vulnerable to food insecurity as they highly rely on rain-fed agriculture. If their plants do not do well, they will experience high shortage of food. This relates with previous research by Moyo (2020) which noted that, drought increases poverty as reduced agricultural production reduces income and access to food.

4.4 LACK OF ACCESS TO RESOURCES

The respondents forwarded that lack of access to resources is also another reason why smallholder farmers in Marymount are vulnerable to drought. Some of the resources that they do not have include inputs and irrigation facilities. According to the smallholder farmers they receive inputs from the government but those inputs are limited as they have to share, a bag of fertilizer it will be shared by 2 families. The community leaders also noted that the villagers can only receive inputs if they pay for transportation of the input despite the fact that most of them do not go to work. The extension officers also added that most smallholder farmers in Marymount cannot afford to buy inputs for themselves or start irrigation systems because they rely on farming which does not give them much. According to Moyo (2020) and Mashamba (2020), smallholder farmers in drought vulnerable communities receive limited agricultural inputs, lack financial support and credit facilities, lack adequate infrastructure like irrigation and lack access to information on weather patterns. Lack of these resources hinders the ability of smallholder farmers to produce sufficient food, improve agricultural technology, their decisions and their ability to respond to drought.

4.5 LACK OF ACCESS TO MARKETS

Lack of access to markets is another reason why smallholder farmers in Marymount are facing food insecurity as noted by the respondents. According to the respondents there are no nearby markets, thus, the have to board a bus to Harare and sell their crops. They further argued that this is expensive for them as they have to pay $20 bus fare from and back home plus $1 per each bag of ground nuts. The extension officers noted that most smallholder farmers end up selling their ground nuts with sick money to black market buyers. They added that if they sell small grains to GMB their payments are received late and sometimes the money will only buy inputs for the next season. Findings by Barret (2008) have it that lack of access to markets affect the ability of smallholder's ability to sell their produce which leads to lower incomes. Jones (1997) further argued that, limited access to markets limit smallholder farmers' ability to benefit from agricultural grow.

Building food security in drought vulnerable communities goes on line with previous researches which were done in Madagascar by scholars like Harvey how found out that smallholder farmers are highly vulnerable to drought due to lack of resources, lack of technology and prolonged dry spell. However, building food security is not a unique goal of Africa but a goal of the world at large. This illustrates that building food security is a major concern in drought vulnerable communities as have been a case in Marymount, Rushinga district.

4.6 LIVELIHOOD STRATEGIES

The researcher found out that the respondents used various strategies to address food insecurity which include farming, livestock production and other off farming activities.

Fig 4.6 distribution of respondents by farming method

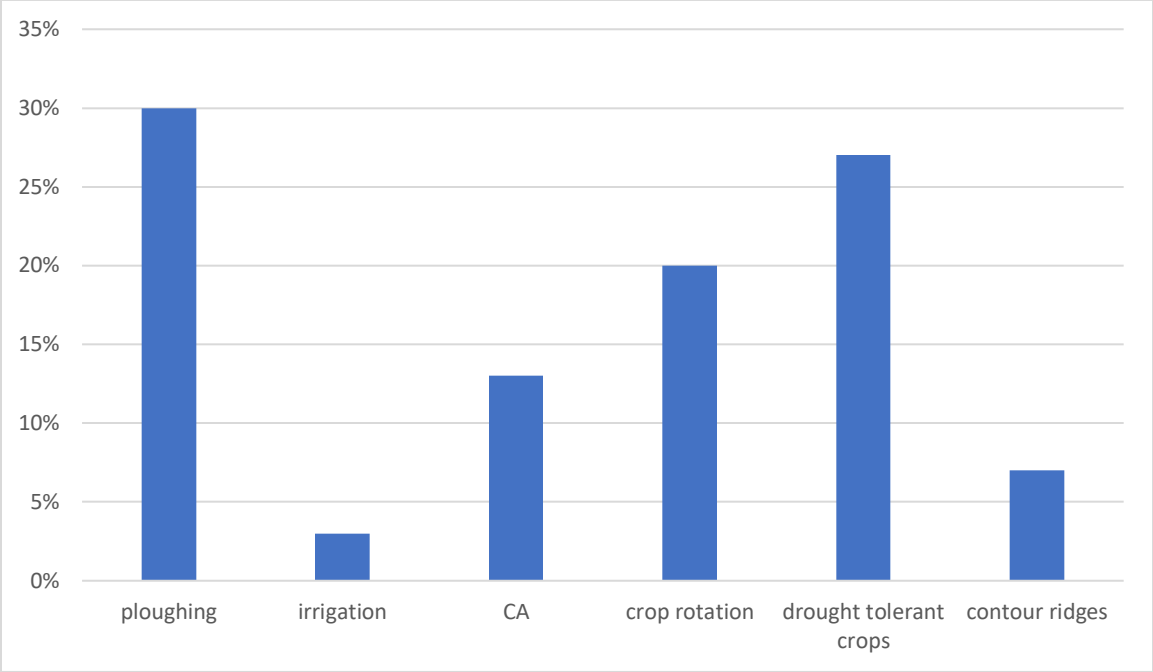


Figure 4.6 illustrates the distribution of smallholder farmers according to the number of respondents who belong to certain group according to the farming way they use to ensure food security. 30% of smallholder farmers in Marymount use ploughing, 3 % use irrigation, 13% uses conservation agriculture, 20% uses crop rotation, while 27 % uses drought tolerant crops and 7% contour ridges. This distribution therefore shows two major ways that are used to ensure food security in food security in Marymount as well as other methods that they use although they are not common in the area. The overall percentage of major ways to ensure food security in drought vulnerable communities like Marymount compared to the overall percentage of other ways, is 57% while that of other ways is 43%.

According to the respondents ploughing and use of drought tolerant crops are mostly used because they are cheap and easy. This way is cheap and easy in the sense that when ploughing they use their and also it is fast considering that the area experience high temperature. The respondents added that ploughing increases the quantity of crops they grow as it covers a lot of space in a short time. Use of drought tolerant

crops is cheap as they do not have to buy seeds because seeds they use circulate in their communities. According to the extension officer's smallholder farmers uses ploughing and drought tolerant crops until the lead farmers of the community have been successful in producing yield with other farming methods.

Smallholder farmers argued that other ways that are used to ensure food security are time consuming, expensive and they are not familiar with them. They argued that use of contour ridges and conservation agriculture are time consuming as they need measurements and have to be done manually. They also noted that irrigation is expensive in the sense that it needs infrastructure. Smallholder farmers asserted that they cannot practice much crop rotation as they do not have variety to rotate.

However, according to the extension officers when doing conservation agriculture smallholder farmers do not dig standard hole or use required fertilizers (organic) are more effective. Also ploughing is easy but it damages their soils and seeds and plants are washed away by rains or left uncovered. More so, the respondents were of the view that the reason why smallholder farmers are vulnerable to drought is lack of exposure to modern ways because they are in remote areas. The respondents noted that they keep small indigenous livestock which include goats, sheep and road runner. The reason why they keep these livestock is that they do not need much water as they can survive with little water. The extension officers also recommended the keeping of rabbits and broilers as they do not need much water.

4.7 COPING MECHANISMS

Coping mechanisms used by respondents include selling asserts, reducing portion or meal and migrating to others areas. Respondents had to sell their asserts for them to feed their families and these asserts are cattle goats. The respondents had to reduce food portions and meals per so that they can survive. They also noted that reducing meals helped them to save and sustain their food. The respondents

claimed that, some of the family members had to migrate to South Africa, Mozambique, Harare and other places so that their families can have something to eat. Some had to go to a place known as Kwadzenga that is between Zimbabwe and Mozambique to do mining and boarder jumping to buy things to sell which include fish, carpenter, kitchen utensils and bell of clothes and shoes.

4.8 EXISTING INTERVENTIONS

For the past years 90 % of the respondents have been receiving support from the government and non-governmental organizations which include seeds, fertilizers, food and training. They get support from organizations like Camfed, BIZ and COMTEC. The respondents claimed that they receive inputs from the government every year which include maize seed, sorghum, fertilizers and food usually maize. According to the respondents Camfed provides training to the smallholder farmers by organizing works shops for smallholder farmers under a program known as agriculture guide. They also argued that Camfed gave them seeds and it does feed programs in secondary school. According to the extension officers BIZ have been helpful in encouraging farmers not to use herbicides as they damage soils by giving prices to farmers who have not been using herbicides. COMTEC have been giving the respondents food and money for them to feed their families which include cooking oil, beans and maize or rapoko. However, according to the respondents these interventions have not been sustainable as it has promoted depends among smallholder farmers and the food, they get is not enough for them to survive till they get another one.

4.9 AGROECOLOGICAL AND CLIMATE SMART AGRICULTURAL PRACTICES

Conservation agriculture is the main agro ecological practice that is being used in Marymount as noted by the respondents. They have been practicing CA since 2017 when pfumvudza was introduced by

the government. However, according to the extension officers' smallholder farmers in Marymount have not been able to do CA properly as recommended, as they have not been digging standard holes as per the type of fertilizers they will be using. Also, the extension officers noted that smallholder farmers in Marymount have not been mulching as recommended considering that the area receives little rainfall accompanied by high temperatures. Hence farmers in Marymount practice CA but it is not properly implemented due to lack of technology and grass for mulching. Adoption of agro-ecological practices provides resilience for future shocks and reduce the impacts of drought (Niles et al, 2018.

4.10 COMMUNITY BASED FRAMEWORK FOR BUILDING SUSTAINABLE FOOD SECURITY

The study proposes a community-based framework for building food security in drought vulnerable communities like Marymount. The framework includes promoting agro ecological and climate smart agriculture practices, enhancing access to markets, credits and resources, capacity building on risk management and supporting livelihood diversification. Promoting agro ecological and climate smart agriculture practices can be done through training lead farmers. According to the extension officers most smallholder farmers in Marymount adopt a farming method after it have been successfully implemented by a lead farmer in that community, therefore training lead farmers on agro ecological and climate smart agriculture will help promote it in Marymount. Enhancing access to markets, credits and resources will help farmers to sell their crops easy, help them buy inputs on their own through credits and promotes food security. Capacity building on risk management will help farmers to reduce the effects of drought on food security. Supporting livelihood diversification will help farmers to do other things that can give them income. Aligning climate smart agricultural practices with local contexts is important as it ensures sustainability of food security in drought prone areas (Chandra et al ,2017.

Summary

Chapter 4 presents and analyzes data from Marymount, revealing that smallholder farmers face severe food insecurity due to recurrent drought, limited access to inputs, poor market infrastructure, and reliance on rain-fed agriculture. Coping strategies include selling assets, reducing meals, and informal migration, while interventions from NGOs and government remain short-term and insufficient. Although climate-smart practices like conservation agriculture have been introduced, adoption is low due to technical and resource barriers. The findings underscore the need for a community-based framework that enhances resilience through training, diversified livelihoods, and improved access to resources.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSIONS, RECOMMENDATIONS AND AREAS FOR FURTHER RESEARCH

This chapter presents a synthesis of findings from the investigation into food security challenges in drought-affected communities, with particular emphasis on Marymount in Rushinga District. It examines the multifaceted effects of drought on agricultural output, socio-economic stability, and household food access. Drawing on both qualitative insights from interviews with local farmers and quantitative data related to crop performance, the study reveals key vulnerabilities and highlights the adaptive strategies adopted by community members to mitigate the impacts of recurring drought conditions.

The chapter is structured to provide a concise summary of the main findings aligned with each research objective. It also offers conclusions based on the evidence gathered and outlines practical recommendations aimed at strengthening food security and resilience in Marymount and similar contexts.

5.1 SUMMARY

This research aims to shed light on building food security in drought vulnerable communities using a case study of Marymount, Rushinga district. Smallholder farmers employ various livelihood strategies and coping mechanisms so as to reduce food insecurity related to climate related droughts, these include farming, off farming activities and reducing meals and food portions. However, these livelihood strategies

and coping mechanisms are inadequate due to factors like limited access to resources, limited access to agricultural inputs, lack of access to technology and lack of access to climate related information. In recent years, there has been a growing recognition of climate related droughts especially in Africa. However, limited research has been conducted specifically in the context of Marymount, Rushinga district. This study fills that gap by focusing on building food security in this specific community, providing valuable insights that can inform future interventions and policies.

5.1.1 Chapter 1

In the first chapter of the dissertation, the focus was on introducing the topic and providing background information on building food security in drought vulnerable communities specifically in the context of Marymount, Rushinga district. The chapter highlighted the significance of the study, its objectives, and research questions.

5.1.2 Chapter 2

The second chapter delivers an in-depth literature review on enhancing food security in communities prone to drought. It surveys existing research, theoretical models, and established frameworks relevant to the topic. The review uncovers key findings on food-security challenges under drought conditions, local coping and livelihood strategies, agroecological and climate-smart farming techniques, and the design of community-driven frameworks. It also pinpoints gaps in current scholarship, laying the groundwork for the study's own contributions.

5.1.3 Chapter 3

Chapter 3 presents the study's methodology, detailing the overall research design, defining the target population, and explaining the sampling strategies for selecting participants in Marymount, Rushinga district. It also outlines the data-gathering techniques interviews, surveys, and observations—and describes the ethical safeguards and analytical procedures that ensure the research's validity and reliability.

5.1.4 Chapter 4

The fourth chapter presented the findings of the study based on the data collected from community leaders, extension officers and smallholder farmers. The chapter provided a detailed analysis of various ways the employ to ensure food security, including ploughing, irrigation, conservation agriculture, drought tolerant crops and use of contour ridges. It also highlighted the support systems available to them and explored their coping mechanisms. The findings were presented in a clear and organized manner, using quotes and narratives to enhance understanding.

5.1.5 Chapter 5

The final chapter of the dissertation summarized the key findings from the study and drew conclusions based on the research objectives. Recommendations were provided to contribute to food security in drought vulnerable communities, including the need for improved access to climate related information, establishment of community resilient networks, and financial assistance. The chapter emphasized the importance of integrating national policies and community-based views.

5.2 CONCLUSIONS

This study aimed to contribute to the building of food security in drought vulnerable communities particularly in the context of Marymount, Rushinga district. Through interviews and surveys, various ways to curb food insecurity were given which include farming, livestock production, off farming activities, receiving food aid and temporary migration. The findings revealed that these measures were not very effective as they were accompanied by drought and other factors like limited access to agricultural inputs, lack of access to funds and resources and lack of access to climate related information. The vulnerability of agricultural practices to drought can be further addressed through targeted interventions, including the implementation of technology. for drought monitoring and irrigation management, as well as enhanced agricultural education. Additionally, recognizing the role of local knowledge and communal practices in adaptation strategies promotes a more inclusive approach to building food security, ensuring that local voices are heard in developmental policymaking processes.

5.2.1 The current state of food security and the vulnerability context of smallholder farmers

The study aimed to assess the current food security state and the vulnerability context of smallholder farmers in Marymount. Through interviews and surveys with participants, there have been a realization that smallholder farmers in Marymount are very vulnerable to drought due to factors like reliance to rain fed agriculture and being in marginalized areas where they experience difficulties in accessing resources. Thus, there is need for comprehensive solutions to food insecurity and ways to reduce vulnerabilities in drought vulnerable communities.

5.2.2 The livelihood strategies, coping mechanisms and existing interventions used by smallholder farmers to address food insecurity.

The research findings indicate that smallholder farmers in Marymount employ various livelihood strategies and coping mechanisms. The research findings indicate that, they use various ways to address food insecurity which include doing off farming activities and reducing food portions an meals per day. NGOs and the government have also been helping with agricultural inputs, food, money and capacity building. However, these livelihood strategies, coping mechanisms and interventions have not been that effective. Thus, there is need for more sustainable solutions that can complement the existing strategies and interventions.

5.2.3 The potential of agro-ecological and climate smart agricultural practices to enhance food production and resilience in Marymount.

The study aimed to explore the potential of agroecological and climate smart agriculture to enhance food security and resilience in Marymount. The research findings highlighted that, smallholder farmers in Marymount only know conservation agriculture amongst the agroecological practices. However, they are not practising it as recommended by agricultural experts, leading to reduced yield. Hence, there is need for strong capacity building on agroecological and climate smart agricultural practices so that smallholder farmers in drought vulnerable communities are able to adapt to climate related droughts.

5.2.4 A community-based framework for building sustainable food security in drought-vulnerable areas.

The research aimed to contribute to the development of community-based framework for building sustainable food security in drought-vulnerable areas. The framework includes promoting agro ecological and climate smart agriculture practices, enhancing access to markets, credits and resources and capacity

building on risk management. However, one might face challenges in implementing this framework as smallholder farmers can adopt if only their lead farmers have successful in using these solutions, thus, there is need to put lead farmers in front so achieve better results.

5.3 RECOMMENDATIONS

5.3.1 To the Ministry of Land, Agriculture, Fisheries, Water and Rural Development

There is need for a significant investment in sustainable irrigation systems to reduce dependence on rain-fed agriculture. Establishing community-managed irrigation systems could enhance water management and provide a reliable source for crops, especially during dry spells.

5. 3.2To the Agricultural Extension Services

There is need for Agricultural extension services to focus on the promotion and dissemination of drought-resistant crop varieties suitable for the local climate, thus enhancing resilience amongst farmers. There is also a necessity for initiatives aimed at educating farmers on sustainable agricultural practices, water conservation techniques, and modern agricultural technologies are crucial. Training programs could enhance community capacity to adapt to changing environmental conditions and optimize production.

5.3.3 To Local Governments

Local governments need advocate for policies that support drought mitigation measures, including financial assistance for vulnerable communities, access to credit facilities, and insurance schemes to

protect against crop failures. This should be complemented by active engagement with NGOs and international organizations that specialize in food security initiatives.

5.3.4 To the community leaders

Community leaders need to establish community resilience networks that harness collective knowledge and resources, enabling communities to share strategies and support each other in preparing for and responding to drought conditions.

5.4 Areas for further research

While this study has focused on building food security in drought vulnerable communities particularly in the context of Marymount, Rushinga district, there are several areas that warrant further research. One area of further research could focus on examining the ways to improve access to modern technology in marginalized communities. This is important because marginalized communities a prone to disasters due to lack of information. Additionally, further research could explore the socio-economic impacts of drought on young people especially girls. This is essential as there is high rate of child marriages especially during droughts.

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APPENDIX 1

QUESTIONNAIRE GUIDE

Household Questionnaire

1. Have you experienced food shortages in the past year? If so, how did you cope?

   A. Yes, bought food from the market
   B. Yes, received food aid
   C. Yes, reduced food portions
   D. Other (specify)
   E. No, I did not experience food shortages

2. How do you assess your household's vulnerability to droughts and other climate-related shocks?

   A. Very vulnerable
   B. Somewhat vulnerable
   C. Not very vulnerable
   D. Not at all vulnerable

3.What factors contribute to your household's vulnerability?

   A. Lack of rainfall
   B. Poor soil quality
   C. Limited access to credit
   D. Limited access to markets
   E. Other (specify)

4. What are your primary sources of income?

A. Agriculture
B. Livestock
C. Formal employment
D. Informal employment
E. Other (specify)

5. Do you engage in any agricultural activities? If so, what kind?

A. Yes, I engage in agricultural activities
B. No, I do not engage in agricultural activities

6. What other livelihood strategies do you use to support your household?

A. Livestock production
B. Formal employment
C. Informal employment
D. Other (please specify)

7. What coping mechanisms do you use to deal with food insecurity?

A. Received food aid
B. Reduced food portions
C. Other (specify)

8. Have you received any support or assistance from government or non-governmental organizations to help you address food insecurity?

A. Yes, I have received support

B. No, I have not received any support

9. What kind of support did you get?

A. Food aid

B. Agriculture inputs

C. Capacity building

D. Other (Specify)

10. What types of crops do you grow?

A. Maize

B. Cotton

C. Tobacco

D. Other (specify)

11. What agricultural practices do you use to manage your farm?

A. Conservation agriculture

B. Organic farming

C. Irrigation

D. Crop rotation

E. Other (specify)

12. Have you adopted any climate-resilient agricultural practices? If so, which ones?

A. Yes, I have adopted drought-tolerant crops

B. Yes, I have adopted agroforestry

C. Yes, I have adopted conservation agriculture

D. Yes, I have adopted irrigation

E. Other (specify)

F. No, I have not adopted any climate-resilient practices

13. Are you familiar with agro-ecological and climate smart agricultural practices?

A. Yes, I am familiar

B. No, I am not familiar

APPENDIX 2

INTERVIEW GUIDE FOR THE SMALLHOLDER FARMERS

My name is Halima. N Chimusoro, a student at Bindura University of science Education. I am currently towards attaining a BSc Hons Degree in Peace and Governance. I am carrying out research which reads: Building food security food security in drought vulnerable community. A case study of Marymount, Rushinga District.I kindly ask for your assistance in providing answers to my research inquiry. Responses given will be treated with confidentiality and all information provided will be used strictly for academic purposes. Participation in this research is voluntary. You may not include any personal information such as names, phone numbers and national identity numbers.

QUESTIONS

1. What types of food do you typically consume?
2. Do you engage in any agricultural activities? If so, what kind?
3. What other livelihood strategies do you use to support your household?
4. What coping mechanisms do you use to deal with food insecurity?
5. Are you familiar with agro-ecological and climate smart agricultural practices?
6. Have you adopted any of these practices on your farm? If so, which ones?
7. Are you involved in any community-based initiatives aimed at improving food security

APPENDIX 3

INTERVIEW GUIDE FOR THE COMMUNITY LEADERS

My name is Halima. N Chimusoro, a student at Bindura University of science Education. I am currently towards attaining a BSc Hons Degree in Peace and Governance. I am carrying out research which reads: Building food security food security in drought vulnerable community. A case study of Marymount, Rushinga District. I kindly ask for your assistance in providing answers to my research inquiry. Responses given will be treated with confidentiality and all information provided will be used strictly for academic purposes. Participation in this research is voluntary. You may not include any personal information such as names, phone numbers and national identity numbers.

QUESTIONS

1. Can you describe the current food security situation in your community?
2. What existing interventions or support systems are in place to address food insecurity in your community?
3. How effective are these interventions, and what are the gaps or challenges?
4. Are you aware of any agro-ecological and climate smart agricultural practices being promoted or adopted in your community?
5. What role do you think these practices can play in enhancing food production and resilience?
6. What are your thoughts on developing a community-based framework for building sustainable food security?

7. How can community leaders and members be involved in the development and implementation of such a framework?

APPENDIX 4

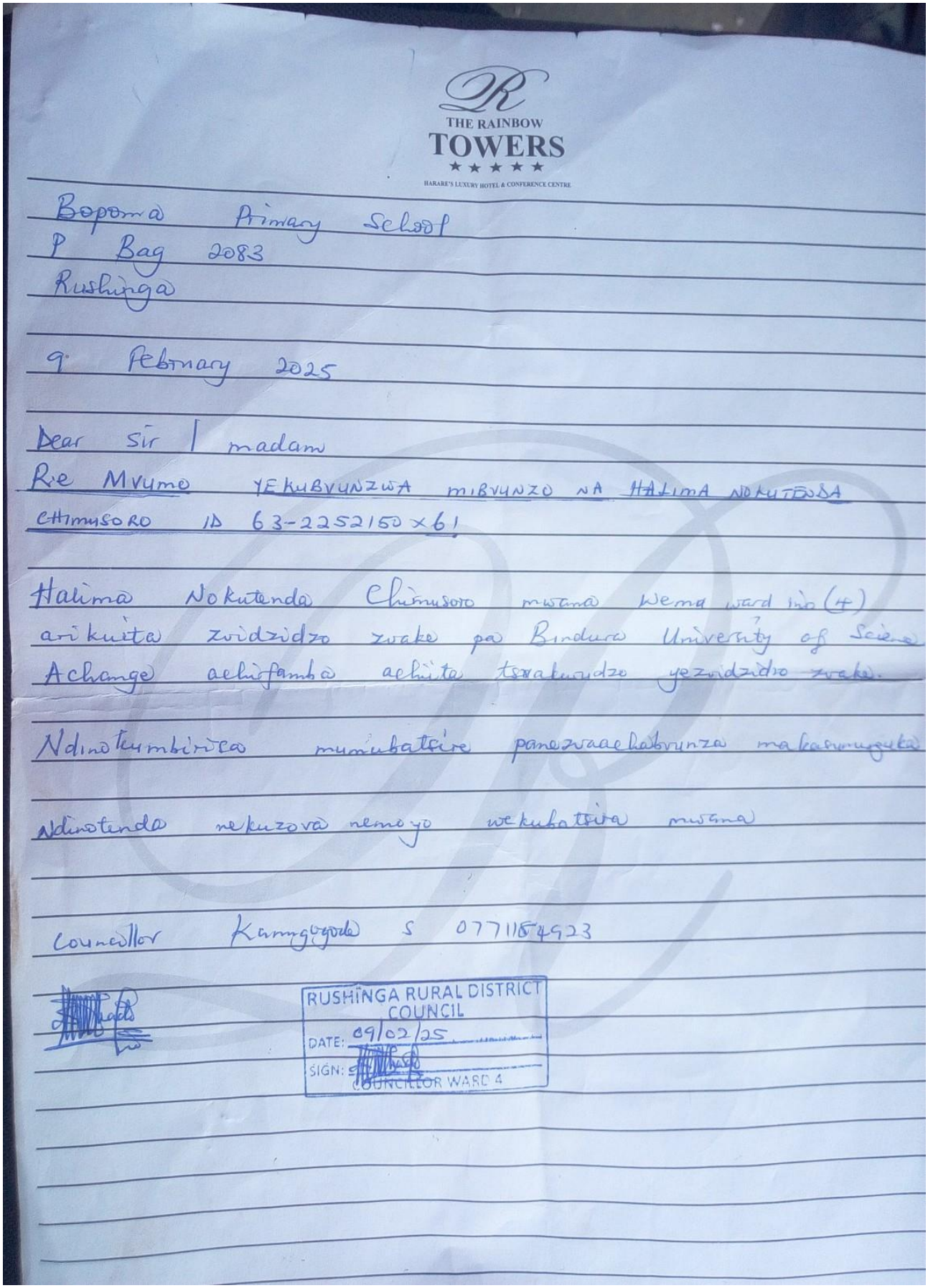
INTERVIEW GUIDE FOR THE AGRICULTURAL EXPERTS

My name is Halima. N Chimusoro, a student at Bindura University of science Education. I am currently towards attaining a BSc Hons Degree in Peace and Governance. I am carrying out research which reads: Building food security food security in drought vulnerable community. A case study of Marymount, Rushinga District.I kindly ask for your assistance in providing answers to my research inquiry. Responses given will be treated with confidentiality and all information provided will be used strictly for academic purposes. Participation in this research is voluntary. You may not include any personal information such as names, phone numbers and national identity numbers.

QUESTIONS

1. What agro-ecological and climate smart agricultural practices would you recommend for smallholder farmers in Marymount?
2. What are the benefits and challenges of adopting these practices?
3. How can agro-ecological and climate smart practices enhance food production and resilience in Marymount?
4. What role can community-based initiatives play in promoting agro-ecological and climate smart practices?
5. How can agricultural experts support community-based initiatives?
6. What policy and support systems are needed to promote agro-ecological and climate smart practices in Marymount?
7. How can agricultural experts advocate for these policies and support systems?

APPENDIX 5



THE RAINBOW TOWERS
★★★★★
HARARE'S LUXURY HOTEL & CONFERENCE CENTRE

Bopoma Primary School
P Bag 2083
Rushinga

9 February 2025

Dear Sir / madam

Re Mvume YEKUBVUNZWA MIBVUNZO NA HALIMA NOKUTENDA CHIMUSORO ID 63-225150 x 61

Halima Nokutenda Chimusoro muvana wema ward iyo (4) arikuita zvidzidzo zvake pa Bindura University of Science Achange achifamba achiita tsvakurudzo yezvidzidzo zvake.

Ndinotumbirira mumubatsire panezvaanobvunza makasvuruguka

Ndinotenda nekuzova nemvo yekumubatsira muvana

Councillor Kamgegede S 0771184923

RUSHINGA RURAL DISTRICT COUNCIL
DATE: 09/02/25
SIGN:
COUNCILLOR WARD 4

APPENDIX 6

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SOCIAL SCIENCES AND HUMANITIES

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of Science Education

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DEPARTMENT OF PEACE AND GOVERNANCE

28 November 2024

TO WHOM IT MAY CONCERN

RE: REQUEST TO UNDERTAKE RESEARCH IN YOUR ORGANISATION

This serves to introduce the bearer **..Halima Nokutenda Chimusoro…..,** Student Registration Number **……B213558B……**who is a **HBSC PEACE AND GOVERNANCE** student at Bindura University of Science Education and is carrying out a research project in your area/institution.

May you please assist the student to access data relevant to the study, and where possible, conduct interviews as part of a data collection process.

Yours respectfully

[redacted]

J.KUREBWA (DR)
Acting Chairperson

BINDURA UNIVERSITY OF SCIENCE EDUCATION
PEACE
28 NOV 2024
FACULTY OF SCIENCE EDU.
PRIVATE BAG 1020 BINDURA, ZIMBABWE