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SUSTAINABLE DEVELOPMENT
DEPARTMENT OF SUSTAINABLE DEVELOPMENT



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**ASSESSING THE IMPACT OF CLIMATE CHANGE ON WOMEN'S
LIVELIHOODS IN RURAL AREAS: A CASE STUDY OF, WARD 11 GWANDA
DISTRICT, MATABELELAND SOUTH PROVINCE, ZIMBABWE**

**A DISSERTATION SUBMITTED TO THE GEOGRAPHY DEPARTMENT AS A
REQUIREMENT IN PARTIAL FULFILLMENT OF
THE BACHELOR OF SCIENCE HONORS DEGREE IN DEVELOPMENT STUDIES**

APPROVAL FORM

The undersigned certify that they have read and recommended to the Bindura University of Science Education for acceptance of the dissertation entitled, **ASSESSING THE IMPACT OF CLIMATE CHANGE ON WOMEN'S LIVELIHOODS IN RURAL AREAS: A CASE STUDY OF WARD 11 GWANDA DISTRICT, MATABELELAND SOUTH PROVINCE, ZIMAMBWE**, submitted by **MITCHEL MAWONERA** in partial fulfilments of the requirements of the Bachelor of Science, Honours Degree in Development Studies and recommend that it proceeds for examination.

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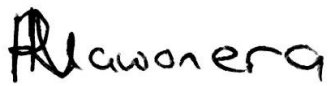
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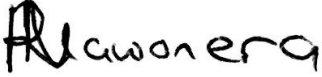
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DECLARATION

I, Mitchel Mawonera, declare that this dissertation titled “**Assessing the Impact of Climate Change on Women's Livelihoods in Rural Areas: A Case Study of Ward 11, Gwanda District Matabeleland South, Zimbabwe**” is my original work, done by me under the guidance and supervision of Dr Bowora, submitted in partial fulfilment of the requirements for the Bachelor of Science Honours Degree in Development Studies at Bindura University of Science Education. It has not been submitted before, in whole or in part, to any other institution for the award of any academic qualification.

This dissertation complies with the university’s regulations on academic integrity and ethical research.

Mitchel Mawonera

Signature: 

Date: 13 June 2025

DEDICATION

This dissertation is dedicated to my beloved parents, Peter Mawonera Nyarai Savanhu and my siblings Munyaradzi, Tatenda and Bliss, whose love, sacrifice, and unwavering support have guided every step of my academic journey.

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To my friends and family thank you for your love, patience, and constant motivation during the most challenging stages of this journey.

Finally, I thank God Almighty for granting me the strength, wisdom, and perseverance to complete this academic milestone.

ABSTRACT

This study examines the impact of climate change on women's livelihoods in rural Zimbabwe. The study was conducted in Ward 11 of Gwanda District in Matabeleland South. Climate change accelerates, its effects disproportionately affect vulnerable populations, particularly women who rely on agriculture and natural resources for their livelihoods. The sample size of the study was 85 and the participants were recruited using purposive sampling method. This study employed a mixed-methods approach, combining quantitative and qualitative methods with the use of research instruments which are questionnaires, key informant interviews and focus group discussions to assess how changing climatic conditions, such as increased temperatures and erratic rainfall patterns, influence agricultural productivity, food security, and economic stability for women in the region. Findings reveal that the key manifestations of climate change droughts, reduced rainfalls and rise in temperature significantly disrupts traditional farming practices, leading to reduced crop yields which result in food insecurity, increased labour burdens and health complications. The women employed some coping strategies to adapt to the climate change impacts which includes small scale trading, selling crafts, participating in local markets and they adopted climate resilient agricultural practices such as planting drought resilient crop varieties and employing rainwater harvesting techniques. There was also saving groups that emerged as a women coping strategy and NGO-led training programs. However, women face unique challenges, including limited access to resources, lack of decision-making power, and inadequate support systems. The study highlights the need for targeted interventions that empower women, enhance adaptive capacities, and promote sustainable agricultural practices. By providing a nuanced understanding of these dynamics, this research contributes to the broader discourse on gender and climate change, offering policy recommendations aimed at fostering resilience among women in rural Zimbabwe.

LIST OF ACRONYMS AND ABBREVIATIONS

CSO	Civil Society Organization
EMA	Environmental Management Agency
FGD	Focus Group Discussion
GBV	Gender Based Violence
IPCC	Intergovernmental Panel on Climate Change
MECTHI	Ministry of Environment, Climate, Tourism and Hospitality Industry
MWACSMED	Ministry of Women Affairs, Community, Small and Medium Enterprises Development
NGO	Non-Governmental Organization
SD	Sustainable Development
SDGs	Sustainable Development Goals
UNDP	United Nations Development Programme
GBV	Gender based violence
UN	United Nations
ZGC	Zimbabwe Gender Commission

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CHAPTER ONE: INTRODUCTION AND BACKGROUND OF STUDY

1.0 Introduction.

Climate change poses a significant challenge for rural communities in Zimbabwe, particularly in Ward 11 of the Gwanda district. This area was selected for study due to its high vulnerability, characterized by recurring drought and unpredictable precipitation that threaten agricultural productivity. The socio-economic conditions indicate a reliance on agriculture, with families depending on crop yields for their livelihoods. Environmental issues such as soil degradation and water scarcity exacerbate the challenges faced, especially by women. Women in rural Zimbabwe play a crucial role in agriculture, often responsible for planting, weeding, and harvesting crops while managing household duties. Despite their contributions, they encounter obstacles like limited access to land, financial resources, and education. Traditional gender norms hinder their participation in decision-making related to resource management and climate adaptation, leaving them disproportionately affected by climate change, food insecurity, and economic instability.

Various solutions are being implemented to address these challenges. Initiatives aimed at empowering women, such as educational programs in sustainable agricultural practices, equip them with necessary skills to adapt to changing conditions. Additionally, community organizations advocate for women's representation in local governance and decision-making regarding land and resource management. This effort seeks to break the cycle of marginalization and create an environment where women can influence policies affecting their lives and livelihoods. The main objective of this study was to explore the impacts of climate change on women's economic activities in Ward 11 and identify the management strategies they employ, focusing on gender dimensions to inform targeted interventions that enhance resilience and promote sustainable development in rural Zimbabwe.

1.1 Background of the Study

Globally, climate change has emerged as one of the most pressing challenges of the 21st century, affecting various socio-economic sectors and exacerbating existing inequalities. Recent studies by Vermeulen et al. (2012) and Nelson et al. (2009) highlight how climate change disproportionately impacts vulnerable populations, particularly women, who rely on agriculture and natural resources for their livelihoods. Jost et al. (2016) provides evidence on the intersection of gender and climate change, emphasizing the unique challenges faced by women in agricultural communities. The Intergovernmental Panel on Climate Change (IPCC,

2023) stresses the urgent need for gender-sensitive approaches to climate adaptation, recognizing women's pivotal roles in food security and resource management, which are often overlooked in policy frameworks. The absence of sustainable livelihoods and limited economic opportunities due to climate change and environmental degradation have increased the vulnerability of women and girls to sexual exploitation, with some resorting to prostitution (Baah-Ennumh and Forson, 2017; Manika, 2022).

In Africa, the effects of climate change are particularly pronounced, with rising temperatures and erratic weather patterns threatening agricultural productivity and water resources. Research by Ndhlovu et al. (2022) and Moyo (2024) indicates that rural women face heightened risks due to their dependence on subsistence farming, increasingly vulnerable to climate variability. These studies advocate for integrating women's voices in climate resilience strategies to enhance adaptive capacity and promote sustainable development. Global warming and the El Niño phenomenon have led to record high temperatures in Zimbabwe, with areas like Hwange, Gwanda, and Chiredzi recording temperatures as high as 37 degrees Celsius (Zhou et al., 2020). Frequent heatwaves pose risks to everyone, particularly women, the elderly, children, and low-income individuals lacking access to cooling measures (Mastrorillo et al., 2016). Women face unique risks, with studies linking each 1°C rise in maternal heat exposure to increased risks of stillbirth, preterm labour, and other health issues (Munyati and Mavhunga, 2022). Heatwaves have also led to the deaths of domestic and wild animals (Chikozho et al., 2019).

In rural Zimbabwe, women play a central role in household livelihoods, being primary actors in agricultural production, water collection, and caregiving (Kabeer, 2016). However, they are among the most vulnerable to climate change due to limited access to resources, structural inequalities, and traditional gender norms that restrict their decision-making power (Agarwal, 2010). In Gwanda District, recurrent droughts and erratic rainfall have significantly disrupted rural livelihoods, intensifying the challenges faced by women (Chagonda and Mukora, 2017). Recent findings by Chikozho (2021) and Dube (2023) reveal that rural women not only suffer disproportionately from climate change but also play crucial roles in managing household resources and implementing adaptive strategies, although their contributions are often undervalued in policy discussions.

There is increased out-migration of men seeking better economic opportunities places a significant burden on women left behind in rural areas. As men migrate to urban centres, women manage households and care for children and elderly family members, leading to

heightened physical and emotional strain (Das, 2019). This shift intensifies caregiving responsibilities and creates financial challenges, as women may need to find low-paying or informal work to support their families (Singh, 2018). Additionally, they face increased food insecurity due to difficulties in maintaining agricultural productivity, social isolation, and heightened vulnerability to gender-based violence (GBV) and sexual exploitation (Ndoro, 2024; Desai and Mandal, 2021). An exponential rise in GBV and child marriages has been linked to the effects of climate change (FAO, 2024 and UN, 2021). Water scarcity forces women and girls to travel long distances for water, exposing them to GBV. They are also vulnerable to exploitation by those in charge of community waterpoints, who may seek sexual favours in exchange for water (Mombe, 2021).

While the negative impacts of climate change are evident, it is essential to recognize the resilience strategies that women may already be employing. Women often diversify their income sources through small-scale trading or participating in community savings groups to buffer against financial instability caused by climate-related shocks. These strategies can enhance their adaptive capacity and contribute to household food security. This study focused on Ward 11 of Gwanda District, where women's livelihoods heavily rely on farming and livestock rearing. Understanding the specific impacts of climate change on women's livelihoods in this region is crucial for designing effective mitigation and adaptation strategies that promote gender equity and sustainable development (UN Women, 2020). Addressing the intersection of gender and climate change in rural Zimbabwe is imperative for fostering resilience among women, enhancing their adaptive capacity, and ensuring sustainable livelihoods. By integrating women's voices and experiences into climate adaptation strategies, we can work towards mitigating the adverse impacts of climate change while promoting gender equity and social justice.

1.2 Problem Statement

Climate change increasingly threatens the livelihoods of rural communities in Ward 11 of the Gwanda district in Zimbabwe, with women facing disproportionately severe impacts. Although women are responsible for agricultural production, including planting, harvesting, and managing household resources, they often lack access to critical resources such as land, loans, and climate information. This exclusion from decision-making processes exacerbates their vulnerability and limits their ability to adapt to changing environmental conditions. The degradation of natural resources, particularly due to deforestation and the decline of key

revenue sources like mopani worms, further restricts women's access to essential cooking and heating materials, increasing their workload and perpetuating cycles of poverty. Existing research often fails to disaggregate data by sex, making it difficult to assess how climate change specifically affects women compared to men. This gap in understanding hinders the development of targeted interventions that address the unique needs and contributions of women to community resilience.

If these inequalities and gaps persist, women's livelihoods will remain highly vulnerable, exacerbating poverty, food insecurity, and environmental degradation in Ward 11. In contrast, equitable access to resources and gender-responsive interventions could significantly strengthen women's adaptive capacities and promote sustainable rural development. Addressing this problem is urgent to ensure inclusive resilience in the face of climate change.

Consequently, there is an urgent need to explore the gendered impacts of climate change in this context. This study aims to investigate how climate change specifically affects women's livelihoods in Ward 11, the management and adaptation strategies they employ, and the role of government and local organizations in supporting their resilience. The research seeks to fill this critical knowledge gap to inform inclusive and effective policy interventions that promote sustainable development and enhance the adaptive capacities of women in rural Zimbabwe.

1.3 Aim of the study

To examine the manifestations of climate change in Ward 11, Gwanda District, focusing on its impact on women's livelihoods and their coping and adaptation strategies. It will assess how climate change affects agricultural productivity, access to natural resources, and economic stability for women. The research will explore the challenges they face, such as limited access to land and financial resources, and investigate the coping and adaptation strategies they employ. Additionally, the study will evaluate the role of government policies and local organizations in supporting women's resilience. Ultimately, this research aims to inform effective policy interventions that promote sustainable development and enhance women's livelihoods in the context of climate change.

1.3.1 Research Objectives

1. To examine the key manifestations of climate change on women's livelihoods in Ward 11, Gwanda District, Zimbabwe.

2. To assess the effects of climate change on women's livelihoods in Ward 11, Gwanda district Zimbabwe.
3. To explore the coping strategies employed by women to adapt to climate change in Ward 11, Gwanda district, Zimbabwe.
4. To recommend improved coping strategies for women to enable them to become more resilient to climatic changes in dry prone areas in Zimbabwe.

1.3.2 Research Questions

To achieve the stated objectives, the study seeks to answer the following research questions:

1. What are the main manifestations of climate change and their implications on rural livelihoods in Ward 11, Gwanda District?
2. How does climate change specifically affect women's livelihoods in the area?
3. What coping strategies are women employing to adapt to the impacts of climate change?
4. How can improved coping strategies enhance resilience among women in dry-prone areas of Zimbabwe in response to climatic changes?

1.4 Assumptions of the study

It is assumed that climate change affects women's livelihoods in Ward 11, Gwanda District, in distinct ways compared to men, primarily due to entrenched social, economic, and cultural inequalities. Traditional gender roles assign women primary responsibility for household tasks and caregiving, limiting their access to essential resources such as land and credit. This undermines their economic resilience, reducing opportunities for income-generating activities and market access compared to men. Educational disparities further restrict women's ability to adapt to climate change impacts, as they often spend significant time on domestic responsibilities, such as fetching water and preparing food. These burdens hinder their participation in training programs that could enhance their agricultural skills and climate adaptation knowledge.

Societal norms may also restrict women's mobility and involvement in local governance, making it difficult for them to voice their needs and influence decision-making processes. These barriers create a complex framework through which climate change impacts women's livelihoods differently than men's. However, women in Ward 11 are actively pursuing resilience strategies to cope with these challenges. Many engage in community groups focused on sustainable agricultural practices and participate in local training programs aimed at enhancing their adaptive capacities. Local organizations and NGOs increasingly recognize the importance

of empowering women through targeted interventions. Therefore, understanding the specific challenges faced by women in Ward 11 and the resilience strategies they employ is crucial for developing effective policies and programs that promote gender equity and enhance community resilience against climate change impacts.

1.5 Justification of the study

Women in Rural Communities

The dissertation is particularly important to women in Ward 11, Gwanda District, who are directly impacted by the effects of climate change. It examines the complex relationship between climate change and their livelihoods, while advocating for the protection of their rights and dignity (Dyer, 2016; Adger et al., 2001). The study proposes practical strategies that address both immediate needs and long-term resilience, grounded in principles of social justice and human rights (Schlosberg, 2009).

Policymakers

The research is valuable to policymakers as it provides insights into gender-specific vulnerabilities and adaptation needs in rural areas. It supports the development of inclusive, sustainable, and context-specific policies aimed at mitigating the effects of climate change on women's livelihoods. Recognizing that gender plays a central role in adaptation (Mastorillo et al., 2016), the study informs strategies that reflect the lived experiences of women (Oxfam, 2015).

Development Agencies and NGOs

This study is relevant to NGOs and development agencies working in climate resilience and gender equity. It offers practical knowledge derived from women lived experiences, supporting the creation of interventions that are both equitable and effective. The study's integrated approach addressing both environmental and socio-economic aspects (Mavura & Mutsvanga, 2017) ensures a comprehensive understanding of the challenges faced by women.

The Broader Community

The findings of this research contribute to raising awareness among community members about the gendered impacts of climate change. The study emphasizes the need for community-wide

inclusion of women in climate adaptation efforts, recognizing their vital roles in resource management and decision-making.

Academic and Research Communities

Finally, the study is of academic importance, particularly for scholars and researchers interested in gender, development, and climate change. It lays a foundation for future research on gendered impacts of climate change in Zimbabwe and similar contexts, contributing to the academic discourse on adaptation and resilience-building. The dissertation also aims to develop practical strategies that address both immediate needs and long-term resilience for women facing climate change (Kats and Parris, 2003).

1.6 Location of the Study

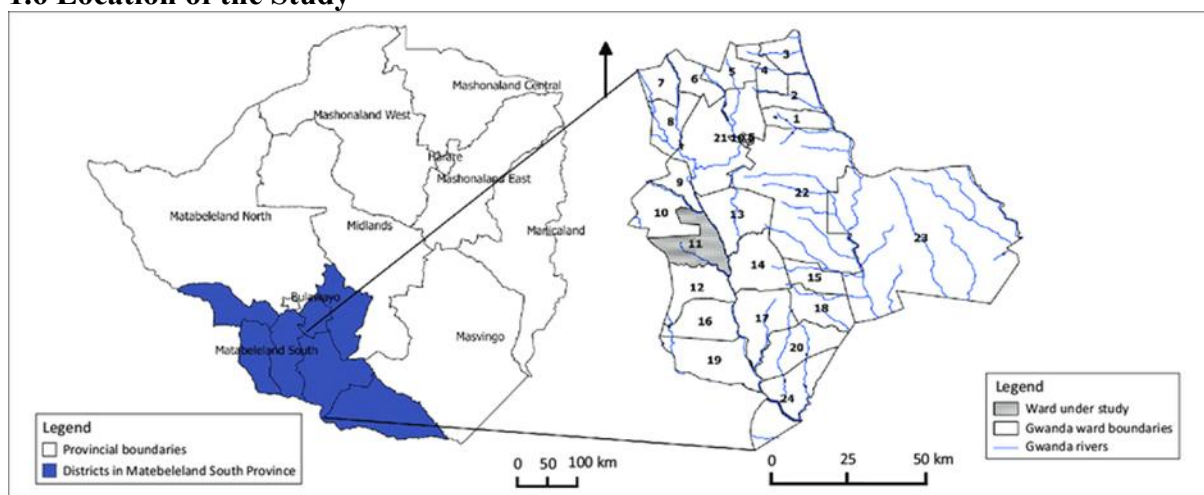


Figure 1.1 Area of study Map

(showing Gwanda district ward 11 depicted as a Google Earth Image)

The study was conducted in ward 11 in Gwanda South which lies in the south-western part of Zimbabwe. Gwanda is located in the hottest and driest region of the country, that is region five with Chiredzi, Beitbridge, Hwange, Malipati and Chirundu (Mujaya and Mereki, 2006). Ward 11 is located on the South of Gwanda town, with its furthest village, that is, Mandiwongola, located 91 km away from Gwanda town. It has seven villages namely, Ntalale, Mamsisi, Manayange, Nyambi, Tshongwe, Phumula and Mandiwongola. Gwanda rural has a population of 124,548 people according to the census of 2022. Ward 11 has a population of 4,606 with 2,172 male and 2,434 female which is almost 5% of the population of Gwanda rural, Manyeruke et al (2023). The study was carried out in an area where the temperatures are high, ranging from 22 to 30°C and low and erratic rainfall, averaging 350 mm annually is received

(Siamachira cited in the Sunday mail of 10 April 2011). The soils are generally poor, infertile, and sandy and associated with high seepage rates (Mandizvidza, 2006). According to Siamachira (2011), every five years, drought occurs for at least three years in Gwanda, where ward 11 is located and small-scale agriculture is the primary source of livelihood in the study area which is referred to as subsistence agriculture.

1.6.1 Delimitation of the study

The study is limited to the ward 11 in the district of Gwanda, the province of Matabeleland South, Zimbabwe. This focus allows in-depth examination of local questions, but may reduce the generalization of findings to other regions with various socio-economic and environmental contexts. Research specifically focuses on rural women involved in agricultural activities. Other demographics, such as men or urban populations, are not included, which may reduce insight into gender dynamics outside the female perspective. The study assesses the impact of climate change and adaptive strategies of women in a certain time frame with a focus on recent experiences rather than historical data. This approach can overlook long-term trends and changes. Research focused on the impact of climate change on living, specifically agriculture and resource management. Other related problems, such as impacts on health or economic changes, will not be explored in depth. The research primarily engaged women from the community, overlooking the perspectives of local government and NGOs. Additionally, it focused on current local or national policies, without analysing historical policies or international frameworks that could impact local conditions. The study will use qualitative research methods, including interviews and discussions on focus groups that can reduce the width of the collected data compared to quantitative approaches. This option is made to gain rich contextual knowledge. These delimitations provide a clear focus but also highlighted the constraints affecting the interpretation of results

1.7 Limitations of the study

Assessing the impact of climate change on women's livelihoods in Zimbabwe posed several limitations. The study was conducted during a period of significant climate variability, which heightened the community's stress and may have led to participants providing response influenced by their immediate survival concerns. To address this, the researcher emphasized her role as a student conducting academic research, hoping to encourage honesty in their responses. Some interviews had need to be translated from local languages into English. This led to small changes in meaning, which may affect how the information is understood and

interpreted. Another challenge was lack of reliable and current statistics, many participants, particularly the elderly struggled to recall specific details about their livelihoods, often relying on assumptions rather than precise data. This reliance on memory created difficulties in gathering accurate information. Additionally, logistical constraints, such as limited funding for transportation, hindered the researcher's ability to access more remote areas, as the wards were geographically dispersed. As a research student, the adjustments to practical research methodologies also presented a learning curve affecting the study's execution. Furthermore, the process of translating theoretical concepts into measurable factors was complex, leading the researcher seek guidance from experienced individuals in the field. Consequently, these challenges necessitated a focus on only one ward within the district, despite the ward containing approximately 20 villages, thereby limiting the breadth of the study.

1.8 Key words for the study

According to my study there are the following key words with their meanings:

Climate Change is the long-term alteration of temperature and typical weather patterns in a place, significantly affecting natural resources, agricultural productivity, and livelihoods, particularly in vulnerable communities, Bedeke (2023).

Gender refers to the social and cultural roles, behaviours, and expectations associated with being male or female, which influence how individuals experience and respond to climate change impacts on livelihoods, Gumucio et al (2020).

Women's Livelihoods refers to the means and activities through which women secure their economic well-being and support their families, encompassing access to resources, income-generating activities, and social networks, Chepkurui (2023).

Agriculture refers to the practice of cultivating soil, growing crops, and raising livestock for food, fibre, and other products, which is essential for sustaining livelihoods and food security, Sekaran et al (2021).

Sustainable Development is the process of meeting present needs while ensuring that future generations can meet theirs, emphasizing the balance between economic growth, environmental protection, and social equity, Hariram et al (2023), particularly in the context of enhancing the resilience and livelihoods of women in rural areas affected by climate change.

Resilience refers to the capacity of individuals, communities, or systems to anticipate, prepare for, respond to, and recover from adverse impacts, such as those caused by climate change, Linkov and Benjamin (2019). In the context resilience involves adapting agricultural practices,

accessing resources, and fostering social networks to withstand environmental challenges and maintain economic stability.

Adaptations refers to the process of making adjustments in social, economic, and environmental practices to cope with the impacts of climate change, Wise et al (2014). In the context adaptation includes implementing new agricultural techniques, diversifying income sources, and enhancing resilience to ensure food security and sustainable livelihoods in the face of changing climate conditions.

1.9 Chapter Layout

Chapter 1: Introduction

This chapter sets the stage for the research. It explains what climate change is, how it affects people especially women in rural Zimbabwe and why it is important to study its impact. It outlines the goals of the study, the research questions, and how the study is organized. It also explains why Ward 11 in Gwanda District was chosen as the case study and what the research hopes to achieve for the community and beyond.

Chapter 2: Literature Review

This chapter looks at what other researchers and writers have said about climate change, women, and rural livelihoods. It helps to understand how climate change affects women differently than men, especially in farming communities. The chapter also explains the coping strategies women use, such as growing drought-resilient crops or starting small businesses. It identifies gaps in current knowledge and shows how this study will contribute new insights, especially for Ward 11.

Chapter 3: Research Methodology

Here, the chapter describes how the study was done. It explains the research design (how the study was planned), the location of the research (Ward 11), who was involved (such as women or community leaders), and how information was collected (using interviews, surveys, and observations). It also discusses how the data was analysed and what steps were taken to protect participants and ensure ethical research.

Chapter 4: Presentation and Analysis of Findings

This chapter presents the actual results of the study. It shows what women in Ward 11 are experiencing due to climate change such as reduced crop yields, water shortages, or income

loss. It also presents the different ways women are coping. The information is organized clearly, using tables, graphs, and direct quotes to highlight important points and patterns.

Chapter 5: Discussion, Conclusions and Recommendations

This chapter explains what the results mean. It connects the findings from Ward 11 with the broader literature discussed in Chapter 2. It shows how the local experiences of women match or differ from other studies. It also looks at the reasons behind these findings and what they tell us about the challenges and resilience of rural women facing climate change. The final chapter summarizes the key findings of the research. It answers the research questions, reflects on what has been learned, and offers practical recommendations for women, communities, and policymakers. These may include suggestions for training, support programs, or policies that help women better adapt to climate change. The chapter also suggests areas for future research.

1.10 Chapter summary

This chapter has outlined the foundational aspects of the study by presenting the background, problem statement, research objectives, questions, assumptions, and justification for examining the gendered impacts of climate change on women's livelihoods in Ward 11, Gwanda District. It highlighted how women, despite their central role in rural agriculture and household sustenance, face unique vulnerabilities due to limited access to resources, entrenched gender norms, and increasing climate stressors. The discussion underscored the urgency of inclusive, gender-sensitive interventions that recognize and support women's adaptive capacities in the face of environmental change. The next chapter, delved deeper into existing scholarly work on climate change and gender, with a focus on sub-Saharan Africa and Zimbabwe in particular. It explored gaps in literature relevant to the intersection of climate change, rural livelihoods, and women's experiences, laying the conceptual and analytical foundation for the study.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter reviews literature on the impact of climate change on women's livelihoods in rural Zimbabwe, focusing on Ward 11 in Gwanda District. Guided by these objectives examining climate change manifestations, assessing effects on women's livelihoods, and exploring coping

strategies it highlights how climate change manifests through prolonged droughts, erratic rainfall, and land degradation, directly threatening rural livelihoods. The review explores socio-economic impacts, including reduced agricultural productivity, food insecurity, and increased care burdens. It also examines coping mechanisms employed by women, such as livelihood diversification, community networks, and adaptive farming practices, while noting the support and limitations of external interventions. This review provides a foundation for the study by identifying relevant themes, knowledge gaps, and the need for localized research in Ward 11.

2.1 Conceptual Framework

This study's conceptual framework integrates three complementary theoretical perspectives to explore the specific impact of climate change on women's livelihoods in Ward 11, Gwanda District: Sustainable Livelihoods Framework (SLF), Feminist Political Ecology (FPE), and the Climate Change Vulnerability and Adaptation Framework.

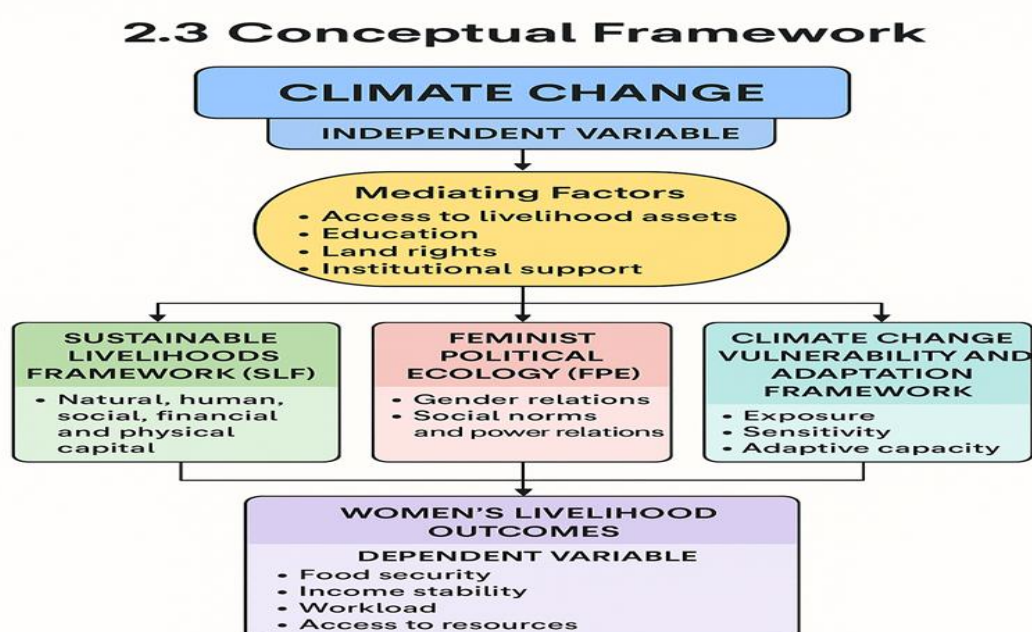


Figure 2.1 Conceptual framework

2.1.1 Sustainable Livelihoods Framework (SLF)

The Sustainable Livelihoods Framework, developed by Chambers and Conway (1992), provides a foundation for understanding how individuals and households access and utilize five types of capital: natural, human, social, physical, and financial. Women in rural Zimbabwe, particularly in semi-arid areas like Gwanda, often depend on natural capital land, water, and

forests for subsistence agriculture and household needs. Climate change erodes these capitals, reducing agricultural productivity and household food security (Scoones, 1998).

2.1.2 Feminist Political Ecology (FPE)

Feminist Political Ecology (Rocheleau et al., 1996) highlights how gender relations influence access to environmental resources and shape responses to ecological change. In patriarchal contexts such as Zimbabwe, women are often excluded from land ownership, decision-making processes, and access to climate adaptation technologies (Terry, 2009). This theory helps explain why climate change disproportionately affects women and how power dynamics contribute to their vulnerability.

2.1.3 Climate Change Vulnerability and Adaptation Framework

The Climate Change Vulnerability and Adaptation Framework, developed by the IPCC (2014), defines vulnerability as a function of exposure, sensitivity, and adaptive capacity. Women in Ward 11 are highly exposed to climate hazards such as droughts and heatwaves. They are also more sensitive due to their dependence on climate-sensitive resources, and often lack adaptive capacity due to limited access to credit, education, and institutional support (Ziervogel and Ericksen, 2010). This framework aids in identifying specific vulnerabilities and resilience factors affecting rural women.

2.1.4 Key Variables in the Conceptual Framework

Drawing from these theoretical foundations, the conceptual framework for this study positions climate change manifested through increased temperatures, erratic rainfall, and prolonged droughts as the independent variable. The dependent variable is women's livelihood outcomes, which include food security, income stability, workload, and access to resources (Chagutah, 2010; Mtambanengwe et al., 2012).

2.1.5 Mediating and Contextual Factors

Several mediating factors influence this relationship, including women's access to livelihood assets, education, land rights, social support networks, and institutional interventions. Using the SLF, the model identifies which livelihood capitals natural, human, social, financial, and physical are most affected. FPE guides the gender analysis by highlighting how social norms and power relations shape access to resources and increase vulnerability. The Climate Change

Vulnerability and Adaptation Framework supports an assessment of women's exposure, sensitivity, and adaptive capacity in the face of climate risks.

2.2 Objective one

2.2.1 Key Manifestations of Climate Change: Global Context

Climate change manifests globally through increased temperatures, erratic rainfall, and extreme weather events. IPCC (2021) highlights that these changes directly impact agricultural productivity, threatening food security and livelihoods, especially in vulnerable communities. One of the clearest illustrations of these global impacts can be seen in the Maldives, a low-lying island nation highly susceptible to sea-level rise. According to the IPCC (2021), the Maldives is one of the countries that are most at risk from climate change, with projections suggesting that sea levels could rise by over a meter by the end of the century. This highlights the urgency of global climate action, as the Maldives' survival is tied to broader international efforts to limit global warming and reduce emissions. Fossil fuel combustion, forest destruction, livestock and agricultural production, industrialisation, and mining are all practices that raise global temperatures and cause climate change. These activities have an impact on climate change because they release massive amounts of greenhouse gases into the atmosphere, which exacerbates the greenhouse effect and causes global warming. In light of this, it is evident that the primary cause of climate change is the greenhouse effect. According to the European Union, certain gases in the Earth's atmosphere capture the sun's heat and prevent it from seeping back into space, producing global warming. These gases function similarly to glass in a greenhouse.

Although the European Union maintains that the majority of greenhouse gases are naturally occurring, it also notes that human activity is increasing the atmospheric concentrations of certain gases, such as carbon dioxide (CO₂), methane, nitrous oxide, and fluorinated gases (EU 2020). The concentration of greenhouse gases, particularly carbon dioxide, which is thought to be the main cause of global warming, rises as a result of burning fossil fuels for energy and clearing rainforests. Because it causes unintended climate changes by significantly raising average temperatures, carbon dioxide is extremely harmful. These impacts have devastated the entire planet and, regrettably, are expected to worsen as the world's population grows and the demand to remove rainforests for agriculture and energy increases (EU 2020).

2.2.2 Key Manifestations of Climate Change: African Context

In Africa, climate change exacerbates existing vulnerabilities among women. Mastrorillo et al. (2021) note that rural women often rely on agriculture for their livelihoods, making them particularly susceptible to climate variability. The African Development Bank (2022) underscores the need for gender-sensitive climate policies to mitigate these impacts. Climate change manifests in multiple, interlinked ways across Africa, posing severe challenges to both ecosystems and livelihoods, particularly in rural settings. Among the most visible manifestations are increasing temperatures, irregular rainfall patterns, prolonged droughts, and extreme weather events such as floods and cyclones. Rural women in Africa are heavily dependent on rain-fed agriculture, natural water sources, and biomass for fuel (UN Women, 2021). As such, climate variability has a direct impact on their ability to secure food, water, and energy for their households. According to Mastrorillo et al. (2021), this dependence makes rural women particularly vulnerable to even slight climatic shifts. Declining crop yields due to erratic rainfall and frequent droughts force women to spend more time on subsistence activities, limiting their capacity for income generation, education, or participation in community decision-making.

In East Africa, pastoralist communities have witnessed the collapse of traditional coping mechanisms due to frequent droughts, leading to food insecurity and increased gender disparities in access to resources (FAO, 2021). For instance, in Kenya's Turkana region, prolonged droughts have decimated livestock herds, which form the economic backbone of pastoralist societies. Women, often responsible for securing water and managing household food supplies, must walk longer distances to find water, sacrificing time and personal safety. Moreover, the Intergovernmental Panel on Climate Change (IPCC, 2021) highlights that Southern Africa, including Zimbabwe, is among the regions most affected by climate change due to its high exposure and low adaptive capacity. This is compounded by socio-economic and cultural factors that limit women's access to land, credit, technology, and extension services, which are critical for climate adaptation. These structural inequalities mean that while women are often the first to experience the effects of climate shocks, they are typically excluded from developing or benefiting from resilience-building interventions.

The African Development Bank (AfDB, 2022) emphasizes the urgent need for gender-sensitive climate policies and investments. This includes supporting women's access to climate-smart agricultural inputs, early warning systems, and green technologies. Additionally, initiatives that

strengthen women's land rights and participation in climate governance are essential for ensuring inclusive adaptation strategies. In regions like the Sahel and Horn of Africa, climate-induced scarcity of water and pasture has led to increased migration and conflict, further endangering women's security and well-being (Raleigh, 2020). Women and girls often face heightened risks during displacement, including gender-based violence and exploitation.

2.2.3 Key Manifestations of Climate Change Zimbabwean Context

Zimbabwe faces severe climate challenges, including droughts and floods. According to Mavhunga et al. (2023), these events have intensified in rural areas, leading to significant agricultural losses. Women, who often manage household food production, are critically affected, as highlighted by Ndlovu et al. (2022). Zimbabwe is particularly susceptible to climate change, with significant rises in temperatures and erratic rainfall patterns (Zhou et al., 2020). The El Niño phenomenon has intensified these effects, leading to record high temperatures, particularly in regions like Gwanda, where temperatures have reached 37 degrees Celsius. In Zimbabwe, studies by Mtambanengwe et al. (2012) and Manatsa and Mukwada (2012) reveal that climate change has led to more frequent droughts and reduced crop yields, especially in semi-arid regions such as Matabeleland South. Women, who make up the majority of smallholder farmers in these areas, are heavily affected as they rely on rain-fed agriculture and have limited alternative income sources.

Drought remains the most persistent and damaging climate threat in Zimbabwe. Mavhunga et al. (2023) note that recurrent droughts particularly in semi-arid regions like Matabeleland South have led to extensive crop failure, livestock deaths, and chronic food insecurity. These droughts are not isolated events but part of a broader trend of climatic unpredictability. As a result, rural livelihoods that depend on consistent weather patterns are becoming increasingly untenable.

Women are disproportionately affected by these climatic changes due to their socially prescribed roles and limited access to resources. As highlighted by Ndlovu et al. (2022), women in rural Zimbabwe are primarily responsible for household food security, including small-scale farming, food preparation, and water collection. When agricultural productivity declines due to climate stressors, it is women who must find alternative means of sustenance, often under increasingly difficult conditions. Water scarcity forces women and girls to walk longer distances to access clean water, reducing time for education, economic activities, or rest.

Moreover, the effects of floods in low-lying areas such as parts of the Zambezi and Save River basins have led to the destruction of homes, displacement, and outbreaks of waterborne diseases. These events exacerbate the vulnerability of already marginalized groups. During floods, women and children are often the most affected due to their limited mobility, caregiving responsibilities, and exclusion from emergency decision-making processes (Chagutah, 2010). Another critical manifestation is the reduction in biodiversity and degradation of natural resources. Forests, which many women rely on for fuelwood, wild fruits, and medicinal plants, are declining due to a combination of climate stress and human pressures. The degradation of these resources increases women's labour burdens and undermines their coping mechanisms in times of stress (Aluko, 2009).

The interplay of these climate-induced stressors and entrenched gender inequalities calls for urgent policy responses. While Zimbabwe has developed a National Climate Policy (2017) and Climate Change Response Strategy, implementation remains weak, particularly in gender integration. Climate adaptation programs must therefore prioritize women's voices, strengthen access to climate-resilient agricultural technologies, and enhance women's control over land and productive assets.

2.3 Objective two

2.3.1 Effects of climate change on women's livelihoods: Global Context

Globally, climate change impacts women's livelihoods through reduced agricultural yields and increased labour burdens. In sub-Saharan Africa and parts of South Asia, where subsistence farming is common, prolonged droughts and shifting growing seasons have led to significant drops in crop productivity. Women, disproportionately employed in agriculture and natural resource management, face declining income and food insecurity as a result (FAO, 2018). UN Women (2020) reports that women are often responsible for gathering water and firewood, tasks made more challenging by climate change. In regions like the Sahel, women now walk several additional kilometres daily due to dried-up water sources and deforestation. This added burden reduces time available for education, income-generating activities, and rest. Women, especially in developing countries, face heightened health risks due to climate change-related disasters. They often have less access to healthcare and are more exposed to disease vectors (for example, malaria, dengue and dengue). Climate change can exacerbate reproductive health issues. For instance, extreme weather events can disrupt maternal health services, leading to higher maternal and infant mortality rates (Schwartz et al., 2019).

In Bangladesh, for example, flooding has disrupted healthcare infrastructure, limiting access to prenatal and postnatal care. Women in flood-prone areas have reported miscarriages linked to stress and physical strain during evacuations. Women often have limited access to land, credit, and technology, which hinders their ability to adapt to climate change. Studies show that empowering women in these areas can lead to more resilient agricultural practices (Doss, 2018). In Nepal, climate adaptation programs that included training and microcredit access for women farmers led to improved yields and more efficient water use, demonstrating the importance of inclusive strategies. Women are underrepresented in climate decision-making processes. Their exclusion can result in policies that do not address their specific needs, thereby exacerbating inequalities (UN Women, 2020). However, in parts of India, village-level climate committees that integrated women's voices created more equitable water-sharing strategies during drought periods. Women often play crucial roles in community resilience and disaster response. Research indicates that communities with strong female leadership are more effective in managing climate risks (Agarwal, 2010). In the Philippines, women-led disaster preparedness groups have successfully reduced casualties during typhoons by organizing early warnings and community drills. Women are more likely to be displaced by climate-related events, facing greater risks of violence and exploitation during migration (Schwerdtle et al., 2018). For example, in Central America, women fleeing drought-induced crop failures often end up in urban slums or refugee camps, where security is limited.

Rapid urbanization due to climate impacts can lead to increased vulnerability for women, particularly those living in informal settlements with inadequate access to services (Satterthwaite, 2016). In Nairobi's informal settlements, climate-induced migration has overwhelmed infrastructure, leaving women with little access to sanitation or safe housing. The stress and trauma associated with climate disasters can have severe mental health impacts on women, who may already be facing social and economic pressures (Cunsolo Willox et al., 2012). In northern Canada, for instance, Indigenous women have reported depression and anxiety linked to environmental changes affecting traditional food systems. Climate change can strain community relationships, impacting social support networks that are crucial for women's well-being (Mastrorillo et al., 2016). In regions where migration divides families and communities, women are often left with additional caregiving roles and fewer social ties for support.

2.3.2 Effects of climate change on women's livelihoods: African Context

In the African context, Oyekale et al. (2021) found that climate change leads to decreased crop yields, resulting in heightened food insecurity for women. The study emphasizes the need for gender-responsive adaptation strategies to support rural women's livelihoods. In Malawi, where the majority of women are engaged in small-scale farming, erratic rainfall and prolonged droughts have severely impacted maize and groundnut production the primary sources of both income and food. Many women now rely on emergency food aid and are forced to adopt unsustainable coping strategies, such as selling productive assets or reducing meal frequency.

Research by Ndhlovu et al. (2023) highlights that women face heightened responsibilities as men migrate to urban areas seeking better opportunities. As men leave for urban centres, women become responsible for household management, leading to increased physical and emotional strain who must manage households while facing increased food insecurity (Munyati and Mavhunga and Mavhunga, 2022). The loss of male labour often results in women seeking low-paying informal jobs, exacerbating financial challenges.

Women in Africa are more susceptible to climate-related health issues due to their roles as caregivers. Changes in climate can lead to the spread of vector-borne diseases such as malaria and dengue fever. Research indicates that rising temperatures and altered rainfall patterns can increase the prevalence of these diseases, disproportionately affecting women (Patz et al., 2005). In Malawi's flood-prone districts like Chikwawa, waterborne illnesses spike after storms, placing a heavier caregiving burden on women already facing food and income insecurity. Climate change impacts access to healthcare facilities, particularly during extreme weather events. Women face higher maternal mortality rates in regions affected by climate disasters, as disruptions can hinder access to prenatal and emergency care (Schwartz et al., 2019). During recent cyclones, washed-out roads and damaged clinics in southern Malawi left pregnant women without access to skilled birth attendants. Many African women rely on subsistence farming. Climate change, through droughts and unpredictable rainfall, threatens crop yields and food security. Studies show that women's agricultural productivity is significantly affected by climate variability, leading to increased poverty and reduced economic opportunities (FAO, 2018). Cultural and structural barriers often restrict women's access to land, credit, and technology needed for adaptation. Empowering women in agriculture has been shown to enhance food security and improve resilience against climate impacts (Doss, 2018). Women are often excluded from decision-making processes related to climate policies. This

lack of representation can result in inadequate responses to their specific needs and vulnerabilities. Research emphasizes the importance of including women in climate governance for more effective policies (UN Women, 2020).

Women play critical roles in local communities, particularly in resource management and disaster response. Evidence suggests that communities with active female leadership are more resilient in the face of climate challenges (Agarwal, 2010). In Malawi, female-led farmer cooperatives have implemented water conservation and crop diversification strategies that have reduced losses during dry spells. Increasingly severe climate events, such as floods and droughts, lead to displacement. Women face heightened risks of violence and exploitation during migration, and their needs are often overlooked in humanitarian responses (Schwerdtle et al., 2018). As rural areas become less viable due to climate impacts, many women migrate to urban areas. This can lead to increased vulnerability, as they often settle in informal, unregulated areas lacking essential services (Satterthwaite, 2016). The stress associated with climate-related disasters can severely impact women's mental health. Isolation, loss of livelihood, and increased caregiving burdens contribute to mental health issues among women in affected communities (Cunsolo Willox et al., 2012). Climate change can disrupt social networks and community ties, which are vital for women's support systems. Research indicates that weakened community bonds can adversely affect women's well-being (Mastrorillo et al., 2016).

2.3.3 Effects of climate change on women's livelihoods: Zimbabwean Context

In Zimbabwe, climate change has led to increased food scarcity, pushing women into more precarious economic conditions. Chikozho (2023) notes that rural women face heightened risks of poverty and malnutrition due to climate-induced agricultural challenges. Women in Matabeleland South are particularly vulnerable to diseases exacerbated by climate change, such as malaria and cholera. Changes in rainfall patterns can create breeding grounds for disease vectors, while inadequate access to clean water increases the risk of waterborne diseases (Mugabe et al., 2020). Extreme weather events can disrupt healthcare services, particularly maternal health care. Women may face higher maternal mortality rates due to complications arising from inaccessible healthcare during climate-related disasters (Gonzalez et al., 2019). The majority of women in Matabeleland South are engaged in subsistence farming. Climate change contributes to reduced agricultural productivity through prolonged droughts and erratic rainfall, threatening food security and household income (Moyo et al., 2018). For example, the

prolonged droughts between 2018 and 2021 decimated harvests in districts such as Gwanda and Beitbridge, forcing women to rely on food aid and informal trading to survive. Women often have limited access to land, credit, and agricultural technology, which hampers their ability to adapt to climate change. Empowering women with these resources can enhance their resilience and improve agricultural outputs (Doss, 2018).

Women in Matabeleland South are often excluded from local decision-making processes regarding climate adaptation and resource management. This exclusion can lead to inadequate responses to their needs and vulnerabilities (UN Women, 2019). Women play crucial roles in community resilience, especially in managing natural resources and responding to climate-related shocks. Evidence suggests that including women in local governance improves community-level climate resilience (Agarwal, 2010). In Ward 15 of Insiza District, a women-led savings groups successfully mobilized resources to install a solar-powered borehole, easing the burden of water collection during dry spells and improving food security. Increasingly severe droughts and food insecurity can lead to the displacement of families. Women face heightened risks of violence and exploitation during migration, and their specific needs are often overlooked in humanitarian responses (Schwerdtle et al., 2018). As rural livelihoods become untenable due to climate impacts, many women migrate to urban areas in search of better opportunities. This migration can lead to increased vulnerability in urban settings, where access to services may be limited (Satterthwaite, 2016). For instance, many women who migrated to informal settlements around Bulawayo reported experiencing poor sanitation and a lack of access to reproductive healthcare.

The stress and trauma associated with climate change impacts, such as loss of livelihood and community can lead to significant mental health challenges for women. The burden of caregiving during crises can exacerbate these issues (Cunsolo Willox et al., 2012). Climate change can strain social networks, which are vital for women's support. Research indicates that stronger community ties can enhance resilience, but climate-induced stresses can weaken these bonds (Mastrorillo et al., 2016). The intersection of climate change and socio-economic stressors in Zimbabwe has also led to increased incidents of gender-based violence (GBV) and early child marriages. As families face economic hardships due to climate impacts, women and girls become more vulnerable to exploitation. Displacement and migration often exacerbate these vulnerabilities, leading to higher rates of GBV as women find themselves in precarious living conditions where they lack protection (Schwerdtle et al., 2018). Moreover, the economic

pressures resulting from food scarcity can compel families to marry off their daughters at an early age, viewing this as a means to ensure economic stability or reduce the financial burden on the household. Early child marriages can have devastating effects on young girls, limiting their education and economic opportunities and perpetuating cycles of poverty (UNICEF, 2021). These trends highlight the urgent need for targeted interventions that address the specific vulnerabilities of women and girls in the context of climate change. Empowering women through education, access to resources, and participation in decision-making processes can mitigate the risks of GBV and early marriages, ultimately fostering resilience against climate impacts

2.4 Objective three

2.4.1 Coping Strategies employed by women to adapt to climate change: Global Context

Women around the world employ a variety of coping and adaptation strategies to respond to the challenges posed by climate change. In South Asia, particularly in Nepal and Bangladesh, women diversify their income sources to mitigate risks associated with climate variability. They combine agricultural activities with small-scale enterprises such as poultry farming, tailoring, and craft-making, which provide a safety net during crop failures (Mastrorillo et al., 2016). In countries like India, women have adopted agroecological practices that enhance biodiversity and soil health, allowing them to grow a variety of crops that are more resilient to climate impacts (Altieri, 2018). Women often focus on planting drought-resilient and climate-adapted crop varieties. For example, in sub-Saharan Africa, women are increasingly using indigenous seeds that are well-suited to local climatic conditions (Wang et al., 2018). These seeds, preserved through community seed banks in countries like Ethiopia, are enabling women to maintain food production despite changing rainfall patterns. Practices such as contour farming, agroforestry, and organic farming are employed by women to improve soil quality and conserve water, thus enhancing agricultural productivity under changing climate conditions (Pretty et al., 2018). In the Philippines, women-led agroforestry groups plant nitrogen-fixing trees alongside crops to combat soil erosion and improve land productivity.

Women in arid regions often implement rainwater harvesting techniques. For instance, in parts of Kenya, women have constructed water catchment systems to ensure a reliable supply of water for agriculture and household use (Oduor et al., 2018). In the Thar Desert region of India, self-help groups led by women-built rooftop rainwater harvesting tanks, significantly reducing the burden of water collection during dry months. The adoption of efficient irrigation techniques, such as drip irrigation, helps women manage water resources more effectively,

especially in regions prone to drought (Davis et al., 2018). Women farmers in Morocco have used solar-powered drip irrigation systems funded by women's cooperatives to cultivate previously barren land. Women often engage in community groups to share resources and knowledge. In Bangladesh, women's groups have successfully organized to implement community-based disaster risk reduction initiatives, enhancing their resilience to climate-induced disasters (Schwerdtle et al., 2018). These groups operate early warning systems and coordinate flood response efforts.

Women utilize indigenous knowledge in managing natural resources sustainably. This knowledge, passed down through generations, is vital for adapting to changing environmental conditions (Berkes, 2018). For instance, in the Andean highlands, women apply centuries-old terracing techniques and crop rotation systems that retain moisture and prevent soil degradation. Access to education and training enables women to implement innovative farming techniques and adapt to climate change. Programs aimed at educating women about climate change impacts and sustainable practices have been effective in various contexts, such as in rural Mexico (Gonzalez et al., 2019). These programs have improved women's ability to use organic pesticides and composting to maintain soil fertility. Women often participate in awareness campaigns that focus on climate adaptation strategies, helping to spread knowledge within their communities (UN Women, 2018). In Indonesia, female climate ambassadors are trained to educate peers about disaster preparedness and environmental conservation. Women increasingly rely on microfinance to invest in climate-resilient practices. For example, in South Asia, microfinance programs targeted at women have facilitated investments in sustainable agricultural technologies (Kumar and Singh, 2019).

Some women engage in crop insurance schemes that provide financial protection against losses due to climate-related events, allowing them to recover more quickly after shocks (Mastrorillo et al., 2016). In Kenya, participation in mobile-based insurance platforms has enabled female farmers to receive timely payouts after droughts, helping them reinvest in farming inputs. Women are increasingly involved in local and national policy dialogues regarding climate change. Their participation ensures that gender-specific needs and perspectives are included in climate policies (Agarwal, 2010). Women's organizations advocate for policies that support women's rights to land, resources, and decision-making power, which are crucial for effective adaptation (Schwerdtle et al., 2018). In Bolivia, women's collectives have lobbied for communal land titles and succeeded in securing farming plots for climate-resilient agriculture.

Women often rely on social networks for support during climate-related stress. These networks can provide emotional support, share resources, and foster resilience (Cunsolo Willox et al., 2012). Programs that address mental health issues related to climate stressors are increasingly recognized as important for women's overall resilience (Cunsolo Willox et al., 2012).

2.4.2 Coping Strategies employed by women to adapt to climate change: African Context

In Africa, Kumar et al. (2021) highlight community-based adaptation practices, such as group farming and shared resources. These strategies empower women and enhance resilience against climate impacts. Women in Africa employ a variety of coping and adaptation strategies to respond to the challenges posed by climate change, leveraging their unique knowledge and roles within their communities. In Uganda's Teso region, where unpredictable rainfall and extended dry periods have impacted agriculture, women have adopted income diversification to reduce dependence on climate-sensitive sectors. For example, in Uganda, women engage in both agriculture and small-scale trading to buffer against crop failures (Mastrorillo et al., 2016). Women in this region also engage in beekeeping and soap-making cooperatives to support their households when harvests fail.

In many African countries, women practice mixed farming, integrating crops and livestock. This approach enhances food security and provides multiple sources of income (Wanyama et al., 2020). For example, in Ethiopia's Amhara region, women cultivate sorghum alongside small ruminants like goats to balance food production and income sources across different climatic seasons. Women actively seek out and cultivate drought-resilient and early-maturing crop varieties. In Kenya, women farmers have adopted indigenous seeds, which are better adapted to local climate conditions (Kelley et al., 2015). Local women's groups in Machakos County run seed exchange programs that preserve and promote resilient local seed varieties. Many women participate in agroecological farming, which emphasizes biodiversity, organic farming, and soil health. This approach not only enhances resilience but also promotes sustainable land use (Altieri, 2018). In Senegal, women-run community gardens implement composting and intercropping methods to reduce erosion and maintain soil fertility.

In arid regions like northern Nigeria, women have implemented rainwater harvesting techniques to secure water for household and agricultural use (Oduor et al., 2018). Techniques include building surface water storage ponds and rooftop rain catchment systems to manage scarce water supplies. Women increasingly adopt efficient irrigation methods, such as drip

irrigation and furrow irrigation, to manage water scarcity effectively (Davis et al., 2018). In Zimbabwe's Chiredzi district, women-led farming groups use treadle pumps for controlled water use, maximizing limited water resources. Women often engage in community groups to share knowledge and resources. In Malawi, women's groups have organized collective farming initiatives that enhance resilience to climate impacts (Chinsinga, 2012). Through pooled labour and shared tools, these groups ensure farming continues during crises such as floods or droughts.

Many local organizations involve women in participatory decision-making processes regarding resource management, ensuring their voices are heard in adaptation strategies (Mastrorillo et al., 2016). In Burkina Faso, women's cooperatives take part in village planning meetings where land use and conservation projects are discussed. Access to education and training in sustainable practices enables women to adapt to climate change. In Tanzania, training programs on climate-smart agriculture have equipped women with necessary skills (Mastrorillo et al., 2016). These include instruction on planting calendars, pest management, and composting. Women participate in community awareness campaigns focused on climate change impacts and adaptation strategies, helping to disseminate knowledge within their communities (UN Women, 2018). In Rwanda, women-led climate clubs in schools and villages conduct drama and storytelling events to spread awareness. Women increasingly access microfinance to invest in climate-resilient agricultural practices. In Ghana, microfinance initiatives have enabled women to purchase improved seeds and fertilizers (Kumar and Singh, 2019). These funds have also supported irrigation equipment and poultry farming ventures.

Crop insurance programs help women mitigate risks associated with climate-related shocks, providing financial security in the face of adverse conditions (Mastrorillo et al., 2016). In Malawi, smallholder women farmers enrolled in index-based insurance have received compensation after drought seasons, enabling faster recovery. Women actively participate in local and national dialogues regarding climate policies. Their involvement ensures that gender-specific needs and perspectives are integrated into climate action plans (Agarwal, 2010). In Kenya, women's advocacy groups have influenced government support for rural women's adaptation initiatives. Women's organizations advocate for policies that secure women's rights to land and resources, which are vital for effective adaptation to climate change (Schwerdtle et al., 2018). In Zambia, women's legal networks work to ensure joint land titles are issued in both spouses' names.

Women often draw on traditional ecological knowledge to manage natural resources sustainably. This knowledge includes practices that enhance soil fertility and water conservation, which are crucial in adapting to climate variability (Berkes, 2018). In Lesotho, traditional rotational grazing systems maintained by women reduce land degradation and preserve biodiversity. Women play a key role in preserving cultural practices that promote community resilience, such as communal farming and seed saving, which enhance food security (Wanyama et al., 2020). In Cameroon, women's cultural associations maintain community seed banks and ritual planting practices that align with seasonal cycles. Women often rely on social networks for support during climate-related stress. These networks provide emotional support and facilitate resource sharing in times of need (Cunsolo Willox et al., 2012). In South Sudan, women's informal lending groups provide essential mutual aid during floods and food shortages. Women participate in community resilience programs that focus on collective responses to climate challenges, fostering social cohesion (Mastrorillo et al., 2016).

2.4.3 Coping Strategies employed by women to adapt to climate change: Zimbabwean Context

In Zimbabwe, women are increasingly adopting climate-smart agricultural practices. Mlambo (2024) discusses how local organizations support women in training programs to enhance adaptive capacity and improve livelihoods. In Matabeleland South, an arid and drought-prone region, women have taken the lead in implementing various adaptation strategies to respond to the impacts of climate change. Women diversify their income through various activities, such as small-scale agriculture, trading, and crafts. This diversification helps buffer against crop failures due to climate variability. For example, many women engage in horticulture alongside traditional farming to ensure a steady income (Chikozho, 2019). In drought-prone areas such as Gwanda and Beitbridge, women have formed cooperatives to grow vegetables using small irrigation schemes, selling the produce at local markets for supplementary income. In Matabeleland South, women often keep small livestock, such as goats and chickens, which provide food and income, particularly during droughts (Dube et al., 2020). Livestock not only serve as a fallback during poor harvests but also function as financial assets that can be sold during emergencies.

Women increasingly cultivate drought-resilient crops, such as sorghum and millet, which are better suited to the arid conditions of the region. This practice enhances food security and resilience (Wakora et al., 2020). Local agricultural extension services and NGOs have been

instrumental in distributing seed varieties tailored for low rainfall environments. Many women adopt conservation agriculture techniques, such as minimum tillage and crop rotation, to improve soil health and conserve moisture. These practices help mitigate the impacts of climate change on agricultural productivity (Moyo et al., 2016). On communal plots, women-led farming groups apply mulching and staggered planting calendars to maximize crop survival under erratic rainfall. Women implement rainwater harvesting techniques to capture and store water for agricultural and household use. This is especially important in drought-prone areas of Matabeleland South (Mhlanga et al., 2018). Small tanks and rooftop catchment systems have become common features in homesteads, especially where piped water is unavailable.

In collaboration with local NGOs, women often advocate for the construction of boreholes and community wells to secure reliable water sources for irrigation and domestic use (Mtetwa et al., 2020). In Umzingwane district, community-led initiatives have successfully lobbied for borehole drilling, easing the burden of walking long distances for water. Women participate in community farming groups that pool resources and share knowledge about sustainable practices. These groups enhance resilience by providing support and improving access to markets (Dube et al., 2020). Through shared savings, these collectives are able to bulk-buy inputs and transport produce collectively, increasing bargaining power. Women leverage traditional ecological knowledge to adapt to climate challenges. This includes using indigenous seeds and practices that have been effective in local contexts for generations (Moyo et al., 2016). Elders play a critical role in transmitting techniques such as pest control using local plants and water-preserving planting layouts. NGOs and local organizations often provide training in climate-smart agricultural practices. Such programs empower women with the knowledge and skills necessary for effective adaptation (Chikozho, 2019). Trainings typically cover sustainable water use, composting, and integrated pest management. Women participate in community awareness campaigns that educate households about climate change impacts and adaptation strategies, fostering a collective response (UN Women, 2018). These campaigns often use local languages and storytelling methods to engage broader community participation.

Women often join savings and credit groups, which provide access to microloans for investing in climate-resilient agriculture. These financial resources enable women to purchase improved seeds and inputs (Mhlanga et al., 2018). In Insiza district, women's groups have used savings to invest in shared irrigation equipment and solar-powered pumps. Some women engage in crop insurance schemes that offer financial protection against losses due to adverse weather

conditions, enhancing their ability to recover from climate shocks (Dube et al., 2020). Pilot insurance projects introduced by local NGOs in partnership with banks have begun reaching female-headed households. Women actively participate in local governance structures to advocate for policies that address their specific needs in climate adaptation. Their involvement ensures that gender considerations are included in climate action plans (Mtetwa et al., 2020). In Tsholotsho, women have been appointed to ward climate committees that coordinate response planning and resource allocation.

Women's organizations collaborate with NGOs to influence policy decisions related to climate change, land rights, and resource management, amplifying their voices in decision-making processes (Chikozho, 2019). These alliances have pushed for legal recognition of women's land ownership and equitable access to communal resources. Women rely on social networks for support during climate-related stress. These networks facilitate resource sharing and provide emotional support (Mhlanga et al., 2018). Informal rotating savings groups (marounds) provide a cushion during lean periods, while church and community groups offer psychosocial support. Women often engage in community resilience programs focused on building collective strategies to cope with climate challenges, fostering social cohesion and mutual support (Dube et al., 2020). These programs involve training, emergency response coordination, and knowledge sharing to strengthen community-wide adaptation.

2.5 Research gap

While there is a growing body of literature on the gendered impacts of climate change in sub-Saharan Africa and Zimbabwe, there remains a significant gap in localized, community-level research that captures the lived experiences of women in specific rural areas like Ward 11, Gwanda. Most studies, such as those by FAO (2018), Agarwal (2010), and Munyati and Mavhunga (2022), provide a regional or national perspective, which may overlook the nuanced, context-specific challenges faced by women in different socio-ecological settings. This research intends to fill that gap by offering an in-depth, empirical case study that reflects the specific vulnerabilities, coping strategies, and adaptation needs of women in this under-researched ward.

Additionally, existing literature often treats women as a homogenous group, failing to account for intra-gender differences shaped by age, marital status, education, household roles, and socio-economic status. By applying an intersectional lens, this study will explore how such

factors influence women's vulnerability to climate change and their adaptive capacities, thereby building on and extending the work of scholars like Berkes (2018) and Cunsolo Willox et al. (2012) who emphasize the importance of social and cultural contexts in resilience studies. Another gap lies in the evaluation of the effectiveness of local coping mechanisms. While previous research identifies various adaptation strategies employed by rural women (Altieri, 2018; Mastrorillo et al., 2016), few studies assess their long-term viability, especially in semi-arid regions with minimal institutional support. This study will contribute to the literature by not only documenting these strategies but also analysing their sustainability and potential for replication.

Lastly, there is limited understanding of how rural women engage with existing climate policies and adaptation programs. Studies by UN Women (2020) and the African Development Bank (2022) advocate for gender-sensitive policy design but acknowledge weak implementation on the ground. By assessing the gap between policy and practice in Ward 11, this research will generate insights that can inform more inclusive and responsive climate adaptation frameworks.

2.6 Chapter summary

This chapter explores the key manifestations of climate change globally and in Africa highlighting increased temperatures, erratic rainfall and extreme weather events. It emphasizes the severe impact on women, particularly in agriculture, as the face heightened vulnerabilities and food insecurity. In Zimbabwe, women experience significant challenges due to climate variability, including health risks and economic pressures. The chapter also discusses coping strategies women employ, such as income diversification and sustainable farming practices, showcasing their resilience and critical role in adaptation efforts. The next chapter outlined the research methodology and methods used to gather data for this study, providing a framework for understanding the findings discussed later.

CHAPTER THREE: RESEARCH METHODOLOGY AND METHODS USED

3.0 Introduction

This chapter defined the methodology and research methods used to assess the impact of climate change on the livelihood of women in rural Zimbabwe, specifically in the ward 11 district of Gwanda, in the province of Matabeleland South. The aim of this investigation was to provide a nuanced understanding of socio-economic challenges that women face and adaptive capacities of women in the face of climate variability. Using the approach of mixed methods, research integrates quantitative and qualitative data to ensure a comprehensive examination of the subject. This chapter described in detail the philosophy of research, design, population, sampling procedures, tools, data analysis and ethical considerations, which is essential to ensure the strictness and validity of the research process.

3.1 Research Philosophy

The study was grounded in the interpretivist research paradigm, which emphasizes the exploration of how individuals subjectively experience and make sense of their world (Creswell and Poth, 2020). This approach particularly is relevant in social research, as noted by scholars like Thorne (2020), who argue that such perspectives allow for a richer exploration of lived experiences. Interpretivism acknowledges that social reality is constructed through interpersonal interactions and cultural contexts, allowing research to capture the complexity of how climate change affects the livelihood of women in a rural environment. This philosophy was suitable for this study because it seeks to explore how climate change affects the livelihood of women through their live experience and perception. In the context of this study, it enabled the researcher to explore how women in ward 11, Gwanda district interprets and respond to climate change based on their lived experiences, cultural settings, and socio-economic positions. Interpretivism also accommodates multiple realities, recognizing that each

participant's experience with climate change may differ. As such, it aligns with the study's objective to explore the diverse impacts and coping strategies employed by women, acknowledging that reality is socially constructed and context-bound (Schwandt, 2020).

3.2 Philosophical Assumptions

Several key assumptions underpinned the interpretivist philosophy guiding this study which is subjectivity of social reality, context dependent knowledge and role of the researcher. It assumes that social realities are constructed through individual experiences and interactions, validating women's perceptions of climate change as significant (Schwandt, 2020). This assumption posits that knowledge is subjective and influenced by specific contexts, necessitating qualitative methods to capture the complexities of women's livelihoods in rural Zimbabwe (Mason, 2020). The research acknowledged that the researcher plays an active role in shaping the research process, highlighting the importance of reflexivity (Finlay, 2020). These assumptions justify the use of qualitative tools such as interviews and focus group discussions, which allow for rich, nuanced data to be collected in context.

3.3 Research Design

The study adopted a mixed-methods research design, integrating both qualitative and quantitative methodologies. Creswell and Poth (2020) assert that mixed-methods designs offer a comprehensive understanding of research problems by leveraging the strengths of both qualitative and quantitative approaches. This was done to obtain the appropriate data and the results of all research goals. Using the two methods was useful for the purposes of triangulation and ensuring credibility and reliability of the findings (McKim, 2016). The quantitative aspect involves structured questionnaires administered to selected beneficiaries and women in the community to gather statistical data on women's livelihoods and their perceptions of climate change impacts, while qualitative elements include interviews and focus group discussions with local leaders, men, and other stakeholders aimed at exploring personal narratives and community dynamics.

3.4 Research Methodology

Primary data collection methods consisted of field questionnaires and interviews. Questionnaires were administered to a sample of women, collecting data on demographic characteristics, activities for living and perception related to climate change. In -depth interviews provided rich qualitative data, while the discussion of the focus group will facilitate

collective dialogue between women, allowing you to explore shared experience and management strategies. This methodological triangulation enhanced the validity and reliability of the findings (Denzin, 2021). Focus group discussions promote collective reflections and peer-supported dialogue among women. The research process was participatory, incorporating voices from various stakeholders, which strengthens the applicability of findings to real-world contexts.

3.5 Target Population of the Study

The target population of this study included women and other important groups of people which is 85 that are based in the ward 11 Gwanda district that will provide important information to the study. This demographic group was selected because of their direct involvement in livelihood activities, which are particularly prone to climate change, such as agriculture, water collection and resource management. The target population of this study included women aged 18 and over in the Gwanda district in ward 11. The priority was devoted to the capture of changes in socio-economic state, education and marital status. The population reflects the diverse socio-economic background, enriches the collected data, and allows a comprehensive analysis of the impact of climate change on women's livelihood.

3.6 Sampling Procedure

A purposive sampling method was utilized to select participants who meet specific criteria relevant to the research objectives. This technique allowed for the intentional selection of individuals who can provide valuable insights into the study's focus. As the study integrates qualitative and quantitative data, purposive sampling supports information-rich case selection (Patton, 2015). This method is particularly effective for rural studies where generalized random sampling is impractical due to geographic and logistical constraints.

3.6.1 Sample Size Requirements

Although the total population of Ward 11 in Gwanda District is approximately **4,606**, this figure encompasses the entire community, most of whom are not directly relevant to the objectives of this study. The research specifically focuses on stakeholders whose experiences, roles, and responsibilities are directly tied to the impacts of climate change on women's livelihoods. These stakeholders include, women involved in climate-sensitive livelihoods (e.g., smallholder farming, informal trading), NGOs operating in the area, government officials and agricultural extension officers, community leaders, educators, and other key informants with contextual

knowledge of Ward 11. According to Creswell (2014), defining a manageable and relevant target population allows for more precise and focused data collection. Based on community records, development agency registers, and consultations with local leaders, a total of 110 individuals fitting the above criteria were identified as the target population. To determine the appropriate sample size from this target population, Yamane's (1967) formula was applied:

$$n = \frac{N}{1 + N(e^2)}$$

- n=sample size
- N=population size (110)
- e=margin of error (0.05)
- $n = \frac{110}{1 + 110(0.05^2)} = \frac{110}{1 + 0.10} = \frac{110}{1.275} = 86$

Table 3. 1 Sample size requirements

Target group	Number of participants	Rationale
Women in the community	55	Core participants with firsthand experience of climate stress on livelihoods. Increased to provide more comprehensive insights on their experiences and coping strategies.
Community leaders	4	Offer insights into governance, traditions, and community organization. Slightly increased to capture more perspectives on community dynamics.
Local NGOs and Activists	6	Provide knowledge on climate adaptation and development interventions. Ensures a broader understanding of local initiatives and challenges.
Government officials (MECTHI, ZGC MWACSMED, EMA)	4	Represent institutional responses and policy frameworks. Maintained for essential policy insights.
Health workers	4	Retained to focus on health impacts related to climate change.
Men in the community	5	Kept to provide additional perspectives on gender dynamics.

Agricultural extension officers	4	Provide their experiences and also strategies they are implementing
Vulnerable groups	3	To share the challenges that they are also facing
Total	85	

3.7 Research Instruments

On the study to assess the impact of climate change on women livelihoods in rural Zimbabwe in ward 11 Gwanda district Matabeleland South, three data collection instruments were used, questionnaires, focus group discussions and key informant interviews. These instruments provided an understanding of the impacts and strategies towards climate change on women.

3.7.1 Questionnaire

A structured questionnaire was developed to collect quantitative data from 55 women those who are farmers and also who depend on other sources of living, about their livelihoods, impacts of climate change and how they are adapting or strategies they are using. This instrument featured both closed and open-ended questions to capture a range of responses and also it allowed for the collection of standardized data that could be statistically analysed. Sections had to cover demographics (age, education, income), livelihood sources and changes, climate perceptions, impacts and coping mechanisms. Recent studies emphasize the importance of carefully designed questionnaires in achieving reliable data (Fowler, 2020).

3.7.2 Key Informant Interviews

Key informant interviews were conducted with 4 local leaders, 6 NGOs, 5 men, 4 health workers, 4 agricultural extensions, 4 government officials and 3 other people living with different abilities to gain insights based on their experience and knowledge on climate change key manifestations, impacts and the coping strategies adopted. These interviews aimed to gather expert insights into the broader impacts of climate change on women's livelihoods and the effectiveness of local adaptation strategies (Kumar, 2021).

3.7.3 Focus Group Discussions

Focus group discussions were organized to facilitate dialogue among women, enabling them to share their experiences and coping strategies collectively. Two focus group discussions were conducted and each consisted of 10 members. These provided a qualitative perspective, which allowed women participants to discuss their experiences and also opinions in groups which allowed to have a deep understanding of the dynamics in the community outlining the key

manifestations of climate change, impacts and the coping strategies that people adopted. This method encouraged interaction, yielding richer qualitative data and allowing participants to discuss and reflect on their shared challenges (Krueger and Casey, 2020).

3.7.4 Validity and Reliability of Research Instruments

To ensure the validity and reliability of the research instruments, a pilot study was conducted. The validity and reliability of the instruments were increased through the use of three instruments to collect data to reduce bias. Feedback from this pilot will be used to refine the questionnaires and interview guides, enhancing clarity and relevance (Yin, 2021). Additionally, expert reviews were sought to improve the content validity of the instruments.

3.8. Data Analysis and Presentation

Quantitative data that was generated using questionnaires was analysed using an electronic data analysis package that is called excel. Qualitative data will be thematically analysed to extract key themes and narratives, following the approach advocated by Braun and Clarke (2021). The findings were to be presented using tables, graphs, and narrative descriptions, facilitating a clear understanding of the data.

3.9 Ethical Considerations

The four critical ethical considerations that guided this research were informed consent, confidentiality, voluntary participation and cultural sensitivity. These principles ensure that the research is done in a fair, respectful, and responsible way, especially when working with vulnerable groups such as rural women.

3.9.1 Informed consent

Participants were required to provide informed consent before participating in the study, ensuring they understand the purpose and nature of the research (Beauchamp and Childress, 2020). This means that women were be told, in a language they understand, what the study is about, why it is being done, what their role will be, and what will happen with the information they provide. They were also informed about any possible risks or benefits of participating. Only those who freely agree will be included in the study.

3.9.2 Confidentiality

The anonymity and confidentiality of participants was maintained throughout the research process, with data reported in aggregate form to protect individual identities (Creswell, 2021). This means that the names of the participants were not be used in the final report or shared with anyone outside the research team if the owner of the details do not want. Any personal information was kept private, and responses will be grouped together so that no individual can be identified. All data was stored securely, and access was be restricted to the researcher and supervisors.

3.9.3 Voluntary participation

Participation in the study was voluntary, allowing women to withdraw at any time without repercussions, adhering to ethical standards for conducting research with human subjects (Diener and Crandall, 2019). No one was forced or pressured to take part in the research. Women were informed that they have the right to say no, or to stop participating at any stage of the study, without being punished or losing any benefits. This was important to ensure that their participation is based on free choice.

3.9.4 Cultural sensitivity

The study respected local customs, language, and gender dynamics to avoid coercion or misrepresentation. An ethics clearance was be obtained from a recognized Institutional Review Board (IRB) before commencing fieldwork. The researcher had to make sure that she approached participants in a respectful way that fits with the cultural norms of the community. For example, meetings were arranged at convenient times and in safe, comfortable environments for women. If needed, local interpreters or community leaders were involved to help with communication and trust-building. The study avoided any behaviour or questions that could be seen as disrespectful or intrusive.

3.10 Chapter Summary

This chapter has outlined the research methodology and methods used to assess the impact of climate change on women's livelihoods in rural Zimbabwe. By employing a mixed-methods approach, the study captures both quantitative and qualitative data, providing a comprehensive understanding of the challenges faced by women in Ward 11. The sampling procedures, research instruments, and ethical considerations discussed herein establish a strong foundation for the subsequent data collection and analysis phases of the research. The methodological rigor

demonstrated in this chapter was essential for producing credible and reliable findings that can inform policy and practice in addressing the impacts of climate change on women's livelihoods. The next chapter focused on the presentation of findings from the research and analysis of the data that was collected using qualitative and quantitative methods.

CHAPTER FOUR: PRESENTATION OF FINDINGS AND ANALYSIS

4.0 Introduction

This chapter presents and analyses the primary data collected on the impact of climate change on women's livelihoods in Ward 11, Gwanda District. Data were gathered through questionnaires, interviews, and focus group discussions, yielding a robust response rate of 90.6%. The chapter first outlines the response rate and demographic profiles including age, marital status, primary livelihood, work experience, and education to establish the context of the respondents. The analysis is organized around the four objectives of the study: manifestations of climate change, effects on women's livelihoods, coping and adaptation strategies and recommend improved coping strategies. Both quantitative and qualitative data are triangulated with scholarly literature. It then examines key themes that are: the observable manifestations of climate change, its effects on agriculture, food security, income, workload, and health, as well as the coping and adaptation strategies employed by the community.

4.1 Response Rate

This section presents the rate at which people responded during the focus group discussions, questionnaires and the key informant interviews. The response rate is a crucial metric that indicated the proportion of participants who completed the survey relative to the total number invited. The table below is showing the sample size, the number of interviews and focus group discussions conducted and also the number of questionnaires answered.

Table 4. 1 Response rate

Instrument	Target group	Sample size	Distributed/c onducted	Completed	Response rate
Questionnaires	Women farmers and others with different livelihoods	55	55	50	90.9%

Focus Group Discussions	Women (younger and elderly groups)	2	2	2	100%
Key Informant Interviews	NGO, extension, local leaders, health workers, government officials, men and other vulnerable people.	30	27	27	90%

Source: field work 2025

Out of the 85 targeted participants, 77 successfully responded in the study, resulting in an overall response rate of 90.6%. of these, 50 women completed structured questionnaires used for quantitative analysis. The remaining 27 and also some who were part of the 50 women contributed through qualitative methods, including focus group and key informant interviews. In social science research, a high response rate is generally seen as a critical indicator of data reliability and the degree to which the findings may be considered representative of the target population (Babbie, 2010). Out of the 55 questionnaires distributed to women, 50 were returned fully completed, reflecting a response rate of 90.9%. In addition to the questionnaires, qualitative data was gathered through two focus group discussions (FGDs) and 27 of the targeted 30 key informant interviews with various stakeholders, including NGO officials, agricultural extension officers, local leaders, male household members, government officials from ZGC, EMA, the MWACSMED and also the MECTHI, health workers, and other vulnerable groups of people.

4.2 Representation of Respondents by Sector

The pie chart below shows the key informants who participated in questionnaires, interviews and FGDs:

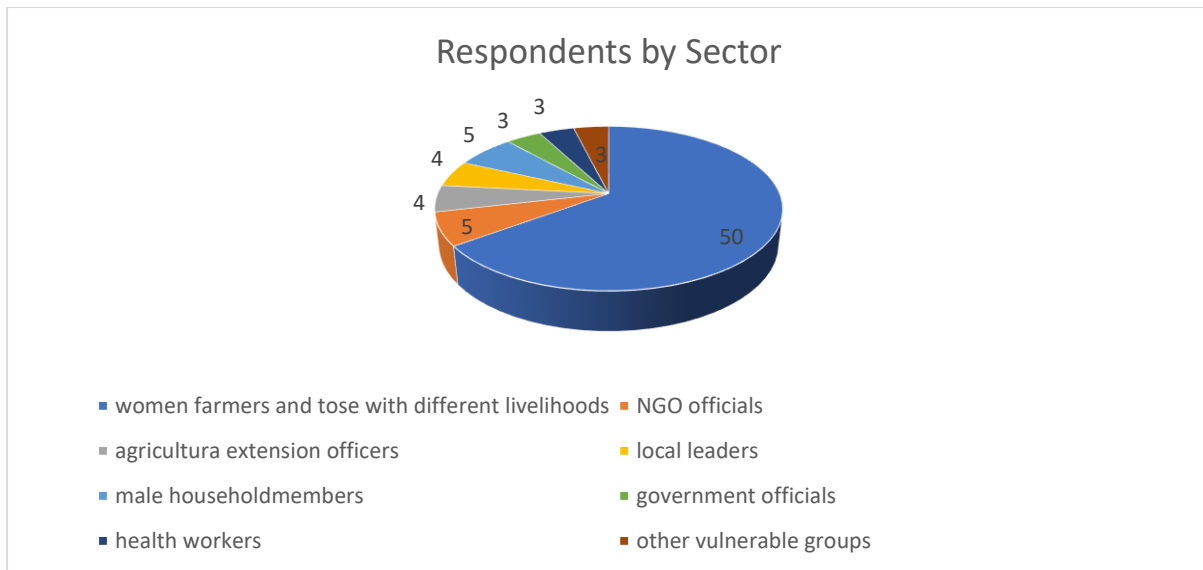


Figure 4. 1 Representation of respondents by sector

Source: field work 2025

The majority of respondents (65%) are women in the community who are farmers and also those who rely on other livelihoods, aligning well with the focus of the dissertation. This ensures that the voices of those directly experiencing the impact of climate change on agricultural livelihoods are adequately represented. NGO officials (5.5%) and male household members (5.5%) offer important complementary perspectives. NGOs often facilitate climate resilience programs, while male members provide insight into household-level decision-making and gender dynamics. Agricultural extension officers (4%) are key informants due to their technical knowledge of farming and adaptation strategies promoted by government or NGOs. Local leaders (4%) contribute authority-based perspectives and offer insight into policy implementation and community-level governance. The smaller proportions of government officials (4%), health workers (3%), and other vulnerable groups of people (3%) offer more specialized or niche insights. Health workers may provide evidence on climate-related health effects (e.g., malnutrition, disease), while other vulnerable groups of people (e.g., widows, the elderly, or disabled) bring attention to intersectional vulnerabilities.

4.3 Demographic Information

This section shows demographic information of the respondents which includes age, education level, marital status, working experience and primary livelihood.

4.3.1 Age Group of Respondents

Table 4. 2 Age group of respondents

Age group	Frequency	Percentage
18–30 years	14	30.4%
31–45 years	18	39.1%
46–60 years	10	21.7%
Above 60 years	4	8.8%

Source: field work 2025

The dominant age group is 31–45 years (39.1%), which likely reflects the most economically active and agriculturally engaged women. This group is typically at the heart of family responsibilities and food production, making them a crucial demographic in analysing livelihood impacts. The 18–30 age group (30.4%) comprises younger women, many of whom may be involved in agriculture through family or communal activities. This group may also have more access to education and technology, potentially influencing their adaptation strategies. The 46–60 age group (21.7%) includes women with long-term farming experience and intergenerational knowledge. Their perspectives are vital for understanding traditional coping strategies and the evolution of local climate perceptions. Only 8.8% of respondents are above 60 years, a group likely to be more vulnerable due to age-related limitations. However, their insights provide a valuable long-term view on climate variability and community resilience.

4.3.2 Marital status

Table 4. 3 Marital status

Status	Number	Percentage
Married	27	58.7%
Single	10	21.7%
Widowed	6	13.0%
Divorced	3	6.5%

Source: field work 2025

The married people have a percentage of 58.7%, the single has 21.7%, followed by the widowed who have 13% and the least are the divorced who have 6.5%. Marital status significantly influences access to resources and decision-making power in households. Married women often report greater involvement in agricultural decisions, while widowed participants face additional challenges in resource access and social support, as indicated by recent studies

(Mastrorillo et al., 2020). Married women often have more access to land through spousal connections, while widowed and divorced participants reported higher exclusion from decision-making and resource access. As one widowed woman noted:

"Since my husband passed away, no one in the village committee considers my voice. It's hard to farm without help." said one of the women during a focus group discussion.

4.3.3 Primary Livelihood

Table 4. 4 Primary livelihood of women

Livelihood	Number	Percentage
Crop Farming	19	41.3%
Livestock Rearing	10	21.7%
Small-scale Business	9	19.6%
Remittances	5	10.9%
Other	3	6.5%

Source: field work 2025

The primary income sources include subsistence farming (41.3%), livestock rearing (21.7%), small scale business (19.6%) and remittances (10.9%) and others (6.5%). An income distribution chart visualizes the economic dependence on climate-sensitive activities. The reliance on subsistence farming makes these women particularly vulnerable to climate variability, as supported by findings from Moyo and Hove (2019) that emphasize the critical role of agriculture in rural women's livelihoods. The average household size is six members, with 85% of participants reporting they are the primary income earners. This underscores the role of women as central to household economic stability, as emphasized in studies by Chikozho (2021) that highlight women's contributions to food security and household welfare during climate stress.

"I feed my children and send them to school with my garden produce, but when the rains fail, everything falls apart," said a 37-year-old mother.

4.3.4 Respondents' Working Experience

Table 4. 5 Working experience

Years of Experience	Frequency	Percentage
0–5 years	12	26.1%
5–10 years	18	39.1%

10–15 years	10	21.7%
More than 15 years	6	6%

Source: field work 2025

The majority of respondents (39.1%) have 5 to 10 years of experience. This suggests a moderate level of familiarity with local climate trends and livelihood challenges over time. Those with 0–5 years of experience form the second-largest group (26.1%). This cohort likely includes younger or newer community members or stakeholders. 21.7% of the participants reported 10–15 years of experience, indicating a more seasoned group with potentially deeper knowledge of long-term changes. Only 13% have over 15 years of experience. These long-term participants provide valuable historical perspectives, though they represent a smaller fraction of the population. The dominance of mid-level experience (5–10 years) suggests that the findings of this study largely reflect experiences over the past decade a critical period during which climate variability has intensified in southern Zimbabwe (IPCC, 2021 and Mhembwe, 2025).

4.3.5 Education Background

Table 4. 6 Education background

Education Level	Frequency	Percentage
No Formal Education	8	17.4%
Primary Education	14	30.4%
Secondary Education	18	39.1%
Tertiary Education	6	13.0%

Source: field work 2025

The largest proportion of respondents (39.1%) attained secondary education, suggesting a reasonably educated group capable of engaging in discussions around environmental change, livelihood shifts, and policy recommendations. 30.4% have completed primary education, indicating a significant group with basic literacy and numeracy skills, which are important for understanding climate adaptation messaging and engaging with NGOs or government initiatives. 17.4% of respondents reported no formal education, which could be a barrier to accessing information on climate change and government or NGO programs. A small minority (13.0%) have attained tertiary education, possibly representing community leaders, extension workers, or teachers, who are more likely to access climate change research and policy information. Educational attainment impacts adaptive capacities and climate literacy, as those

with higher education levels are more likely to adopt innovative farming practices and access information on climate adaptation strategies (Khan et al., 2021).

4.4 Presentation and Analysis by Objectives

4.4.1 Objective one: Key manifestations of climate change on women livelihoods

The study found that respondents identified multiple signs of climate change affecting their livelihoods. There was use of quantitative and qualitative methods to answer these manifestations. The questionnaire administered to women in the community that are into farming, vendors and others with different livelihoods and the key informants to different stakeholders including the government, NGOs, local leaders and many others. Quantitative data was collected and presented in the graph 4.2 below:

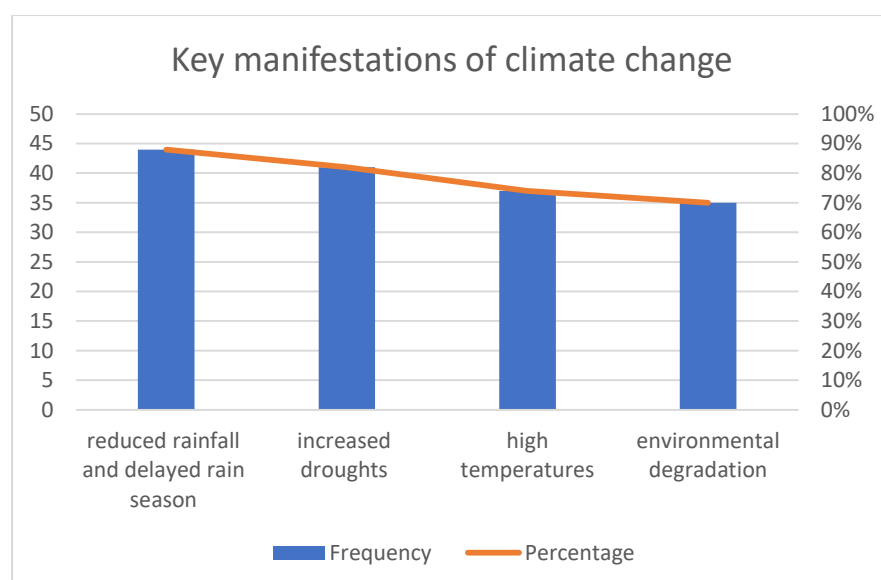


Figure 4. 2 Perceptions of Climate Change Manifestations (n=50)

(source: field work 2025)

Respondents reported significant shifts in rainfall patterns, including delayed onset and early cessation of rains, leading to shortened growing seasons. Climate variability in has led to increased drought occurrences, adversely affecting agricultural productivity. A 43-year-old farmer from Mamsisi village remarked,

“Rain used to come in October, but now it comes late in December or January and disappears quickly. It is difficult to plan for farming these days.”

"Yes, Gwanda has seen a 20% reduction in rainfall and an increase in average temperatures by 1.5°C." a response from the government MECTHI.

Notably, 88% of respondents reported a shortened rainy season, unpredictable rainfall, and “false starts” to the rainy season, resulting in crop failure. An overwhelming majority (74%) of women reported noticeable increases in daytime temperatures, resulting in heat stress for both crops and livestock, leading to reduced yields and increased livestock mortality. Chidakwa et al. (2020) corroborate these findings, highlighting that elevated temperatures exacerbate water scarcity and negatively impact agro-based livelihoods. A 28-year-old mother of three shared,

“It’s too hot. Our borehole dries up by September. We have to walk to the river, which is also dry most times.”

Such testimonies align with national temperature rise trends, causing severe stress on local water access and health. Participants also noted significant environmental degradation, including deforestation and soil erosion, which have diminished the availability of natural resources essential for women's livelihoods. Studies in Ward 11 indicate that environmental degradation reduces the viability of on-farm livelihood strategies, threatening food security. A widowed participant expressed,

“Every year I fear what will come. The hunger makes us angry and tired.”

Approximately 82% of participants indicated that droughts have become more frequent and prolonged over the past decade. An elderly woman from Tshongwe stated,

“We used to have one drought every four or five years. Now it feels like every year is a drought year.”

A local leader added, *“God is punishing us, maybe for our sins. These droughts are a sign.”* Furthermore, 52% of women reported having to reduce the size of their fields due to repeated crop failure.

4.4.2 Discussion

The findings from the survey conducted in Zimbabwe indicate significant shifts in climate patterns, particularly in rainfall and temperature, aligning closely with the literature review. For instance, respondents reported a 20% reduction in rainfall and an increase in average temperatures by 1.5°C, corroborating the data presented by Zhou et al. (2020) and Mavhunga et al. (2023) regarding Zimbabwe's climate variability. The qualitative testimonials, such as the farmer's account of delayed rains, resonate with Mastrorillo et al. (2021), highlighting the direct impact of climatic changes on agricultural practices and food security. The literature emphasizes that rural women in Africa are particularly vulnerable to climate variability due to their reliance on rain-fed agriculture (UN Women, 2021). This is reflected in the qualitative

responses from the survey, where 88% of respondents noted unpredictable rainfall patterns leading to crop failures. The challenges faced by women in securing food and water, as mentioned in the literature, are echoed in the farmers' experiences of increased labour and reduced yields. Both the survey findings and the literature review stress that droughts have become more frequent and prolonged. Approximately 82% of participants reported that droughts have intensified over the past decade, a situation supported by the studies from Mtambanengwe et al. (2012) and Ndlovu et al. (2022). The qualitative accounts of increased drought frequency not only align with current scientific assessments but also highlight the emotional and physical toll on women, which is a significant point made in the literature. Moreover, the environmental degradation observed in the survey deforestation and soil erosion mirrors findings from Aluko (2020) regarding the degradation of natural resources essential for women's livelihoods. This degradation exacerbates their vulnerability, as they depend on these resources for fuel and food.

4.4.3 Objective two: Effects of climate change on women's livelihoods

The second objective sought to analyse the effects on women's livelihoods. To answer the objective, quantitative and qualitative methods were employed. The quantitative data was collected and presented on the graph 4.3 below

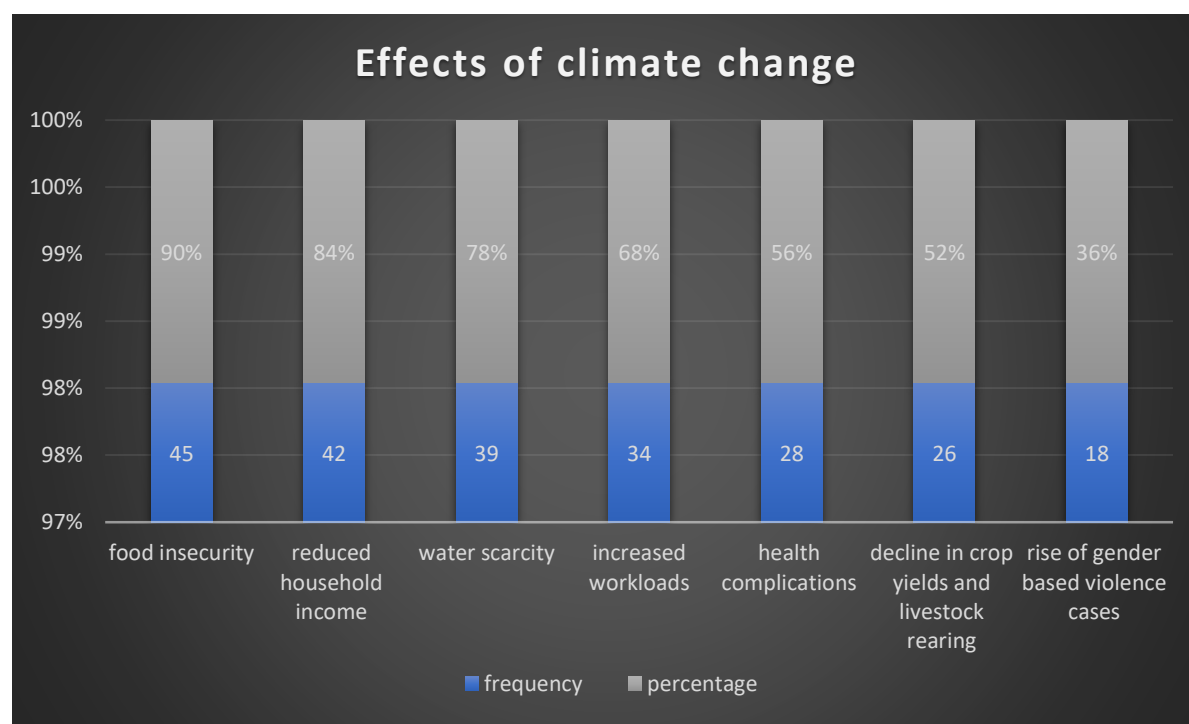


Figure 4. 3 Effects of Climate Change on Livelihoods (n=50)

(source: field work 2025)

The majority of women (52%) reported substantial declines in crop yields, particularly for maize and sorghum, due to erratic rainfall and increased pest infestations. Livestock losses were also significant, with diseases such as anthrax and foot-and-mouth becoming more prevalent during drought periods.

"I harvested only two bags of maize from a whole acre. Before, I would get ten or more. Now I can't feed my family for even three months," lamented a woman from Ntalale village.

Focus groups noted a dramatic decline in livestock productivity:

"Our cattle die because there's no grazing." "I used to grow enough maize and beans. Now, I can only harvest enough for two months," shared a respondent.

"It is severe; women and children suffer the most. Hunger is increasing, and water sources are drying up," said one of the community leaders.

Approximately 90% of households experienced food shortages, leading to reduced meal frequencies and nutritional deficiencies. The frequency of meals dropped from three to one per day in 50% of households during peak drought seasons. Most women reported reducing meals to two or even one per day during drought periods during FGDs which helped in collecting qualitative data.

"Sometimes we eat porridge in the morning and go to bed without supper. I try to save for the children, but it's not always possible," said a widowed woman with four dependents.

"We used to eat three times. Now we eat once and save food for the children," said a 45-year-old woman.

Women (84%) engaged in small-scale trading reported a reduction in profits due to decreased agricultural output and community purchasing power. Many respondents diversified into non-farm activities, such as basket weaving, though returns remained marginal. With agriculture failing, many women resort to informal trade or migration, and this was noted through qualitative method. Several others reported selling firewood or charcoal, which has long-term environmental consequences.

"When farming fails, I sell brooms at the border. But it doesn't always bring much," said one respondent.

Women (68%) reported increased time spent on domestic chores, such as fetching water and firewood, due to resource scarcity. Qualitative method also helped to collect insights from people on increased workload they experienced.

"Fetching water takes me three hours now. I leave early in the morning and return when the sun is up. I don't even have time to do my garden," said a participant.

"Women work harder in the fields and are good at managing food. They adapt faster and are more consistent," said the men in an interview.

"Women are working harder than ever. You see them selling tomatoes, walking far to fetch water, taking care of children. They are trying everything," a male community leader observed.

The combination of increased workload, nutritional deficiencies, and exposure to extreme weather conditions has led to health issues among women, including fatigue and susceptibility to diseases. Increased water scarcity led to a 56% rise in reported cases of diarrhoea and malnutrition in children. The intersection of climate change and public health is critical, as water stress directly affects hygiene and nutrition, which are vital for child development (WHO, 2022). The qualitative data was collected on health workers who also commented in interviews on the implications of climate change on people.

"There has been a rise in climate-sensitive diseases like malaria and diarrhoea, especially during prolonged dry seasons. Women bear the burden of caregiving, which adds to their stress since these will also affect children," interview Insight (Health Worker).

Challenges in obtaining water, fuelwood, and agricultural inputs were exacerbated by environmental changes, as reported by 78%. There has been a rise in GBV cases due to this because they are being attacked when they travel to look for resources, and also there is a number of school dropout girls. Women often travel long distances to source these essentials, which affects their time and energy available for income-generating activities, as noted by Kamwendo (2021). The lack of adequate farming inputs, such as seeds and fertilizers, further exacerbates their vulnerability to climate change (Nyamwanza et al., 2021). Focus group participants, especially women farmers, expressed distress, and men commented on the challenges that women are facing due to climate, saying on what help they may need, which helped to gather qualitative data.

"I walk four hours for water and I can't do anything else in a day. We need more boreholes, irrigation schemes, and training centres for both men and women," said a 32-year-old woman.

"When there is no rain, we can't grow anything. We end up buying food, but we don't have money because our only income was from our crops," lamented a woman from Manayange village.

"School attendance among girls drops during drought seasons because they are required to help with household chores and fetching water," a teacher noted.

"Women are the most affected because they manage both food production and household chores. They are at the frontline of climate impact," said a man from Phumula.

“My daughter had to drop out from school so that she can help me with house chores and look for water and firewood, and at one point she was attacked by two men on her way,” cried an old lady in Ntalale.

4.4.4 Discussion

The majority of women (52%) reported substantial declines in crop yields, particularly for maize and sorghum, due to erratic rainfall and pest infestations. This aligns with the literature, which highlights that in sub-Saharan Africa, prolonged droughts have led to significant drops in crop productivity (FAO, 2018). The qualitative data collected supports this, with testimonies indicating that women are struggling to provide food for their families, which resonates with the reported experiences of women in Malawi facing similar agricultural challenges (Oyekale et al., 2021). Approximately 90% of households experienced food shortages, and meal frequencies dropped significantly. This is consistent with findings in the literature indicating that climate-induced food insecurity disproportionately affects women, who are primarily responsible for household food provision (Mhembwe, 2025). The qualitative accounts of reduced meal frequencies reveal a troubling trend that aligns with global reports of increased food insecurity due to climate impacts (UN Women, 2020).

Women (84%) engaged in small-scale trading reported reduced profits due to decreased agricultural outputs. This supports the literature's assertion that women face heightened financial challenges as men migrate for better opportunities, leaving women to manage households under increased strain (Ndhlovu et al., 2023). The qualitative data reflects a broader trend of women diversifying their income sources in response to climate shocks, a strategy echoed in Agarwal's (2020) work on resilience-building in rural economies. The findings indicate that women (68%) are experiencing increased workloads due to resource scarcity, which aligns with the literature asserting that climate change exacerbates women's responsibilities, limiting their time for economic opportunities (Chidakwa et al., 2020). Qualitative insights highlight the physical and emotional toll this increased workload has on women, consistent with global studies that emphasize the triple burden faced by rural women (UNDP).

The research shows a rise in health issues among women, including increased cases of diarrhoea and malnutrition in children, reflecting findings in the literature that climate change can exacerbate health risks for women, particularly in regions prone to vector-borne diseases

(Patz et al., 2005). The qualitative data from health workers corroborates these findings, emphasizing the burden of caregiving during health crises linked to climate change (WHO, 2022). The survey indicated that 78% of women faced challenges in obtaining essential resources, leading to increased incidents of gender-based violence (GBV). This aligns with literature highlighting that women are at heightened risk of violence during resource shortages (Schwerdtle et al., 2018). The qualitative accounts of women experiencing violence while seeking resources further underscore the vulnerabilities exacerbated by climate impacts.

4.4.5 Objective three: Coping strategies employed by women to adapt to climate change

The third objective was to assess on the coping and adaptation strategies that people employed and women in Ward 11 have adopted various coping mechanisms in response to climate change. There was use of quantitative and qualitative to collect data from people. Quantitative data was collected and then presented on the pie chart 4.4 below:

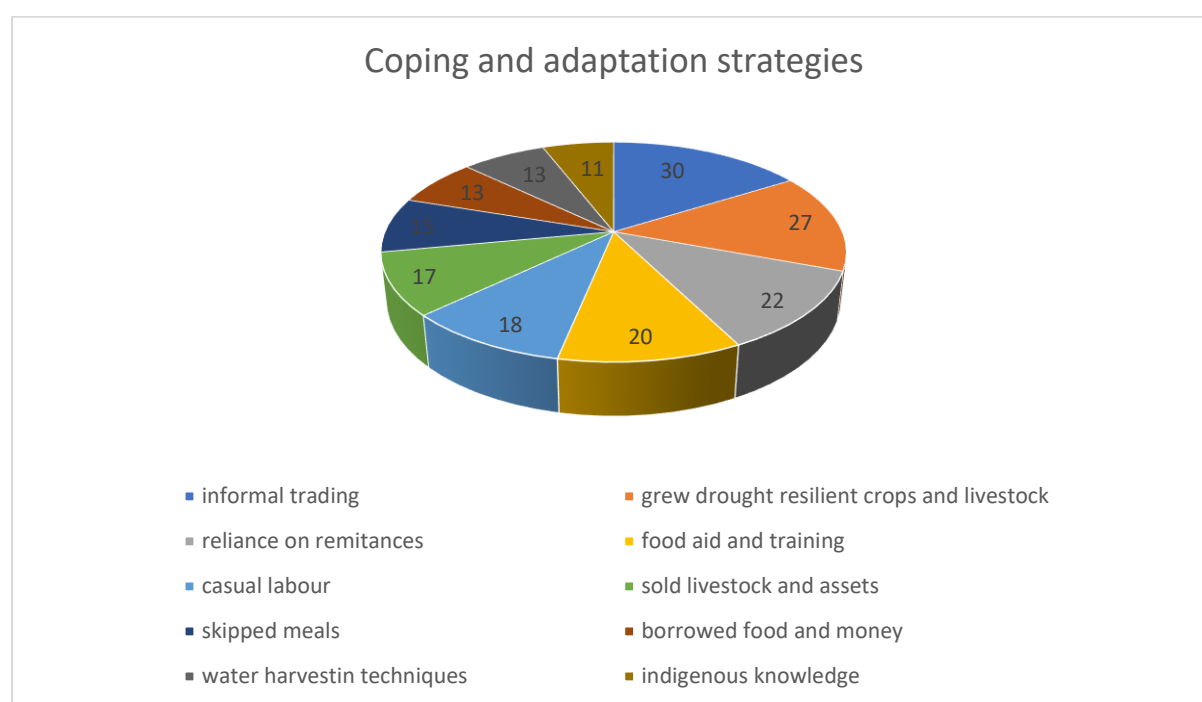


Figure 4. 4 Coping Strategies Employed (n=50)

(source: field work 2025)

There is noticed food aid and training on drought resilient crops and livestock. NGOs like CARE and World Vision provided seeds, training, and access to microfinance. These programs have strengthened adaptive capacities; for instance, training on sustainable agricultural practices has been linked to improved food security outcomes (Ndlovu, 2022). There is also

conservation agriculture adopted techniques like mulching and intercropping aiming to enhance resilience to climate change. Some women have adopted climate-smart agricultural practices, such as drought-resilient crops. This included the planting of sorghum, millet, and cowpeas. Some of the NGOs also provided people with food in the villages that had been experiencing more droughts, although the food had been said not to be enough. Qualitative method was used to collect information from people through FGDs and interviews on people from the government and also those from NGOs.

"We were taught to use mulching and dig planting basins. It helps the soil retain water," shared a woman trained by an NGO working in the area.

"NGOs provide food aid and training in climate-smart agriculture. Government extension officers also visit sometimes," said one of the community leaders.

"We run community gardens, seed distribution for drought-tolerant crops, and water harvesting projects. Information on early warning systems is shared by us too. We also distribute food aid in crisis years," an NGO representative explained.

"We now grow sorghum instead of maize, and sometimes we dig small ponds to collect rainwater." FGD Insight (Younger Woman).

"We have policies in place, but implementation is inconsistent due to limited funding and logistical challenges." Interview Insight (Government Official from MECTHI).

Women have adopted various strategies to diversify their income sources, including engaging in vending and cross-border trade, producing and selling items such as baskets and pottery, and working on other farms or in local businesses. Participants also identified small businesses and informal work as key coping mechanisms, selling goods at bus stops or border posts, selling livestock and household assets to purchase food, gardening near wetlands, and informal savings clubs (stokvels). 26% of participants reported borrowing food or money from relatives and neighbours. Seasonal migration by some family members in search of employment was noted by some respondents. These coping strategies reflect the immediate responses women employ to navigate crises, which are often reactive rather than proactive. People ended up relying on remittances after those who have migrated send money back to their families to support their needs. Insights from FGDs and interviews helped to gather qualitative data.

"My daughter had to go to South Africa to work as a maid. She sends money, but it's not regular," said one respondent during a focus group discussion.

"I started selling tomatoes and onions from a small garden near the river. It helps buy salt and soap," said a 35-year-old married woman.

"We sold our goats last year just to buy mealie meal and also we are even borrowing money and food from neighbours and relatives who are better," one respondent shared.

Community savings groups (locally called amalima or stokvels) were mentioned in all focus group discussions as a major resilience mechanism. These social networks have been instrumental in enhancing community resilience. Success stories illustrate resilience, such as one participant who stated, *"By saving together, we can afford better seeds."* However, barriers such as lack of funds and technical knowledge remain significant challenges (Binns et al., 2021). These networks foster community resilience and provide a platform for collective action. The potential for scalability and sustainability of these initiatives is significant, as highlighted by recent studies on community-led adaptation (Khumalo, 2021). The people also adapted by growing drought-resilient crops and keeping drought-resilient crops. Government programs, such as food aid and subsidies for agricultural inputs, were noted. However, gaps in outreach and implementation often hinder their effectiveness. Reports indicate that many women are unaware of available programs, exacerbating their vulnerability (Masuka et al., 2021). However, the government mentioned what they are doing to help women who are facing effects of climate change. In this study, qualitative method was used to collect information and people expressed their views.

"Our church helps us during drought. We collect food and share it among the neediest families," said one respondent.

"By listening more, sharing ideas, and helping with labour. Men should also attend training sessions," said one man in an interview.

"We implement the National Climate Policy and promote the Pfumvudza/Intwasa conservation farming program," said one of the government officials from EMA.

"Through Rural District Development Committees, joint planning meetings, and information sharing platforms," said a woman from the MWACSMED.

Some women reported using traditional knowledge, such as adjusting planting times based on local weather patterns and signs from nature, like wind direction and animal behaviour. This indigenous knowledge plays a significant role in local adaptation strategies, but its effectiveness is limited by the increasing unpredictability of climate patterns. Qualitative method also helped to get information from local leaders.

"We have used granaries to store surplus, and early warning signs from elders like animal behaviour and wind direction," said a community leader during an interview.

Despite their efforts, women face many barriers to effective adaptation. The challenges include gender-based barriers, inadequate government support, limited climate knowledge, poor irrigation infrastructure and financial support. Government officials interviewed noted that while there are policies aimed at supporting climate adaptation, their implementation is often inconsistent due to funding and logistical constraints.

"Resources rarely reach grassroots women. Most programs are urban-focused or end up in the hands of a few community elites." an NGO staff member lamented

"They bring seeds, but sometimes only a few of us receive them," said one woman.

4.4.6 Discussion

The literature review directly aligns with the information that people provided during the interviews, focus group discussions and questionnaires. In Zimbabwe, women increasingly adopt climate-smart agricultural practices, supported by local organizations (Mlambo, 2024). Women diversify their income through various activities, including small-scale agriculture and trading (Chikozho, 2019). This reflects a broader trend seen globally and across Africa, emphasizing the importance of income diversification. The adoption of conservation agriculture techniques and rainwater harvesting is prevalent among Zimbabwean women (Mhlanga et al., 2018). This mirrors practices in other African contexts, where women implement similar techniques for water conservation and soil health. Furthermore, community farming groups in Zimbabwe enhance resilience by pooling resources and knowledge, consistent with findings from other regions where women engage in collective farming initiatives (Chinsinga, 2012). Women in Zimbabwe participate in community awareness campaigns that educate households about climate change impacts and adaptation strategies, fostering a collective response (UN Women, 2018). This is similar to initiatives in other regions where women-led groups conduct awareness campaigns to disseminate knowledge about climate adaptation. Women also access microfinance to invest in climate-resilient agriculture, a strategy seen in other contexts, such as Ghana (Kumar and Singh, 2019). In Zimbabwe, women's groups utilize savings for irrigation equipment, reinforcing the importance of financial resources in enhancing adaptive capacity. Also, women actively participate in local governance structures to advocate for policies addressing their specific needs in climate adaptation (Mtetwa et al., 2020). This aligns with global trends where women's organizations

influence policy decisions related to climate change, ensuring that gender considerations are integrated into climate action plans.

4.4.7 Objective four: Recommended coping strategies for improved resilience

The study sought to recommend improved coping strategies for women in Ward 11 to enhance their resilience to climate change in a dry-prone area. Qualitative and quantitative methods were employed in the study. Women respondents, key informants, and focus group participants offered insights on what adaptive measures could be strengthened or introduced to support sustainable livelihoods under changing climatic conditions. Quantitative data was collected and presented in the table 4.5 below

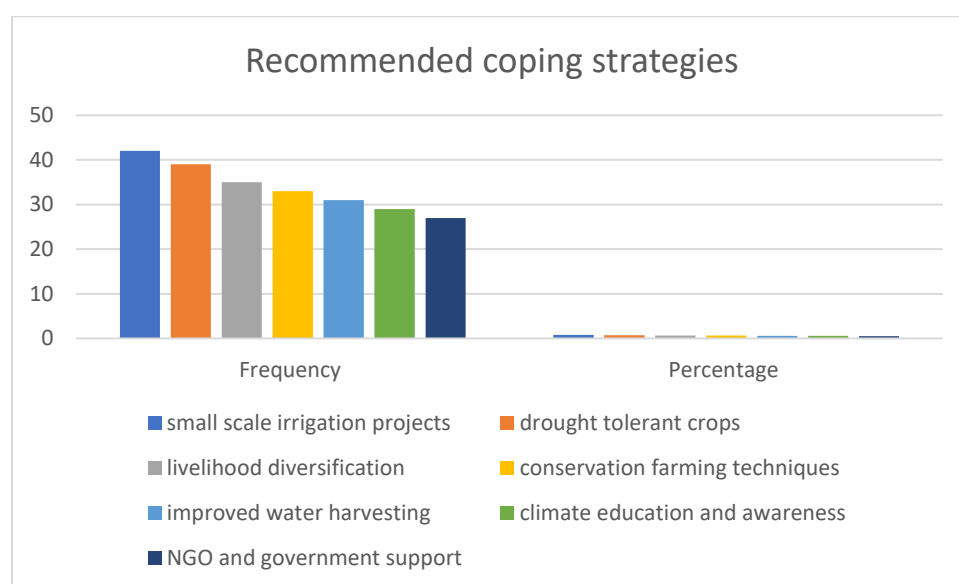


Figure 4. 5 Recommended Coping Strategies by Women (n=50)

(source: field work 2025)

An overwhelming 84% of women recommended small-scale irrigation schemes and improved water harvesting systems as priority strategies. Respondents from FGDs and interviews also highlighted the unreliability of rainfall and suggested that access to irrigation could enable year-round farming. Agricultural extension officers also emphasized this, suggesting community-managed irrigation projects as a sustainable solution. This helped to collect qualitative data.

“Our gardens dry up because we depend on rain. We need solar-powered boreholes and irrigation pipes,” said a 36-year-old woman from Mandiwongola.

“Simple drip systems or even bucket irrigation, combined with training, can go a long way,” said one officer from the Ministry of Agriculture.

These views align with research by Ndlovu (2022), who argue that irrigation increases productivity and resilience in arid regions of Zimbabwe. 78% of respondents proposed that farming systems should shift from maize to drought-tolerant crops like sorghum, millet, and cowpeas. NGO officers indicated they have piloted some of these interventions with success in nearby wards.

“Maize always fails and millet is becoming our best friend. We want seeds for crops that survive the heat,” shared a female farmer in Tuli village.

Studies by FAO (2021) support the cultivation of traditional grains in dry regions for their resilience and low water requirements. 70% of women advocated for diversification into non-farming activities such as poultry, soap making, and craftwork. Women felt this would reduce dependency on agriculture and create income even during drought years.

“Even if the rains fail, I can sell my chickens,” said a young woman entrepreneur.

This strategy is widely supported in resilience literature, with Moyo (2024) noting that income diversification is a key pillar in climate adaptation frameworks for rural women. 66% of the participants stressed the need for more training on some conservation agriculture practices such as mulching, zero tillage, and contour farming. Focus group discussions revealed that while some training has been provided, it remains limited and poorly resourced.

“Our soil is tired. We need to learn more on how to farm without losing it and last year only five women were trained, we all want to learn,” said a farmer from Matshetsheni. “

Researches shows that conservation agriculture increases yields by up to 30% in semi-arid regions of Zimbabwe. 58% of women requested more frequent workshops and community dialogues on climate change. Many believed that better awareness could help them plan proactively. Additionally, 54% emphasized that government and NGO support, especially in terms of seed distribution, water infrastructure, and training, is essential for long-term adaptation.

“Some of us still plant maize in October out of habit. We need knowledge to change our ways,” said an elderly widow.

Interviews with local leaders and development stakeholders underscored the importance of integrating indigenous knowledge with modern techniques. They also highlighted the importance of working together to develop strategies to cope with the effects of climate change.

“We must blend what our grandmothers taught us with what science says,” said a village headman. Extension officers and NGO staff advocated for collaborative efforts, particularly through women’s groups and cooperatives.

“When women come together, they share ideas and support each other. This is key to resilience,” explained a local development officer.

4.4.7 Discussion

The study revealed that 84% of women prioritize small scale irrigation and improved water harvesting to combat unreliable rainfall. Agricultural extension officers support community managed irrigation projects as sustainable solutions. 78% respondents recommend shifting from maize to drought tolerant crops like sorghum and millet, aligning with successful NGO initiatives. Diversification into non farming activities, advocated by 70% of women, can reduce reliance on agriculture and provide alternative incomes. A call for enhanced training in conservation agriculture was made by 66% of participants, emphasizing the need for more workshops on practices like mulching and zero tillage. Lastly integrating indigenous knowledge with modern techniques emerged as crucial, with local leaders stressing the importance of collaboration among women’s groups to strengthen community resilience. Overall, these strategies advocate for a comprehensive approach to adapting climate change.

4.7 Chapter summary

This chapter provided a comprehensive analysis of the quantitative and qualitative data on the impact of climate change on women's livelihoods in Ward 11. Key findings show that women are highly aware of climate changes, suffer disproportionately from its effects, and use a mixture of traditional and modern adaptation strategies. However, their capacity is hindered by limited access to resources, education, health services, and formal government support. The inclusion of health workers and government officials revealed additional layers of vulnerability and emphasized the need for integrated, multisectoral responses. There were also the coping strategies that were outlined that women were using and also the new ones they recommended. The next chapter is going to focus on the summary of the research, conclusion and also the recommendations.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presents a synthesis of the key findings discussed in Chapter Four and draws overarching conclusions from the study. It also offers actionable recommendations aimed at enhancing the adaptive capacity and resilience of women in rural Zimbabwe, with specific focus on Ward 11, Gwanda District. The chapter is structured into three sections: a summary

of the study, the main conclusions drawn from the findings, and practical recommendations for policy, practice, and future research.

5.1 Summary of Key Findings

This study set out to assess the impact of climate change on women's livelihoods in Ward 11, Gwanda District. The research was guided by four key objectives: to examine the manifestations of climate change, to assess the effects of climate change on women's livelihoods, to explore coping and adaptation strategies employed by women and to recommend improved coping strategies for women to become more resilient. A mixed-methods approach was used, combining quantitative data from 50 structured questionnaires and qualitative insights from 27 interviews and two focus group discussions.

5.1.1 Manifestations of Climate Change

Data collected showed a rise in temperatures over the past decade, leading to heat stress among crops and livestock. Rainfall has become increasingly erratic, with both prolonged dry spells and sudden, intense downpours. This unpredictability has disrupted traditional planting and harvesting schedules. The frequency and duration of drought conditions have increased, severely impacting agricultural productivity. Women reported a 40% reduction in maize yields over the last five years. Erosion and nutrient depletion have worsened, exacerbated by both climate change and unsustainable farming practices. This has led to decreased soil fertility, further threatening food security. These climatic changes have led to a shortened rainy season, "false starts" to rains, and a growing unpredictability that undermines agricultural planning and productivity. Testimonies from women and local stakeholders affirm that these trends are consistent with broader climate data for southern Zimbabwe.

5.1.2 Effects on Women's Livelihoods

Women, who are primarily responsible for food production, face heightened food insecurity. Many households reported relying on less nutritious food sources, which has led to increased malnutrition, especially among children. With diminished agricultural yields, women's income has significantly decreased, limiting their ability to invest in health, education, and other essential areas. Many women have reported a drop in household income by up to 30%. Women are taking on additional responsibilities, including seeking alternative sources of income, which often involves more labour-intensive activities such as fetching water or engaging in informal trading. Women, as primary caregivers and income earners in many households, face

increased pressure due to the compounded effects of climate shocks. The decline in subsistence farming productivity has led to reliance on alternative, less stable income sources such as informal trade, remittances, and firewood collection. The climate change is also having effects on health implications due to shortage of water which result in people having water borne diseases.

5.1.3 Coping and Adaptation Strategies

Despite the numerous challenges, women in Ward 11 have demonstrated considerable resilience by adopting a range of coping strategies. Women have begun to diversify their income sources by engaging in small-scale trading, selling crafts, and participating in local markets. While this strategy has provided some relief, it is often not enough to replace lost agricultural income. Some women have adopted climate-resilient agricultural practices, such as planting drought-resilient crop varieties and employing rainwater harvesting techniques. However, access to training and resources for these practices remains limited. Participation in NGO-led training programs and local savings groups has emerged as a crucial coping strategy, enabling women to pool resources and provide mutual support during times of crisis. However, these strategies are often constrained by limited access to resources, knowledge gaps, poor infrastructure, and institutional support weaknesses.

5.1.4 Recommended improved coping strategies

There is a need for targeted educational programs that equip women with the skills necessary to adapt to climate change. This includes training in sustainable agricultural techniques and financial management. Women require improved access to agricultural inputs, credit facilities, and technology. Partnerships with NGOs and government bodies can facilitate this access. Some women also recommended scale irrigation and water harvesting so that they will be able to irrigate their agricultural products. People in the community also emphasized on the diversification of livelihoods so that they do not only depend on agriculture.

5.2 Conclusion of findings

The section presents the conclusion findings of the study looking at every objective

5.2.1 Conclusion objective one: Key Manifestations of Climate Change

The findings reveal that climate change has significantly altered the environmental landscape, with respondents identifying key indicators such as prolonged dry spells, erratic rainfall, and

rising temperatures. The overwhelming majority of participants reported experiencing unpredictable rainfall patterns and increased drought occurrences, corroborating scientific literature and highlighting the urgent need for adaptive strategies in agricultural planning. These manifestations not only threaten food security but also exacerbate environmental degradation, underscoring the vital importance of addressing climate change impacts on local livelihoods.

5.2.2 Conclusion objective two: Effects on Women's Livelihoods

Women bear a disproportionate burden from climate change impacts, as evidenced by increased food insecurity, reduced household incomes, and heightened workloads. The data indicates that many women have experienced significant declines in agricultural productivity, further compounded by limited access to resources. The intersection of climate change with socio-economic factors has led to severe health complications, highlighting the urgent need for targeted interventions. The challenges faced by women in this context reflect broader systemic issues that necessitate comprehensive policy responses to mitigate the adverse effects of climate change on vulnerable populations.

5.2.3 Conclusion objective three: Coping and Adaptation Strategies

The study illustrates that women in Ward 11 have adopted various coping strategies to navigate the challenges posed by climate change. These strategies, which include informal trading, reliance on remittances, and community support networks, reveal resilience and adaptability in the face of adversity. However, the effectiveness of these strategies is often hindered by limited access to resources and training. The findings suggest that enhancing community-led initiatives and integrating indigenous knowledge with modern techniques can significantly bolster adaptive capacities, promoting sustainable livelihoods in changing climatic conditions.

5.2.4 Conclusion objective four: Recommended Coping Strategies for Improved Resilience

In response to the challenges identified, participants emphasized the need for small-scale irrigation projects, the promotion of drought-resilient crops, and diversification of livelihoods as key strategies for enhancing resilience. Women's calls for improved climate education and institutional support reflect a desire for more proactive approaches to adaptation. The recommendations provided by respondents highlight a collective understanding of the need for

sustainable practices and community collaboration, which are essential for building resilience against the ongoing impacts of climate change.

5.3 Recommendations

In light of the study's findings, the following recommendations are made to improve women's resilience to climate change in rural Zimbabwe:

- **Integrate gender into climate policies and programs:** Climate change adaptation frameworks should mainstream gender, ensuring that women's specific vulnerabilities and capacities are adequately addressed. Local authorities in rural areas must be empowered and resourced to implement community-based climate resilience projects, with women actively involved in decision-making.
- **Promote climate-resilient agriculture:** Government and NGOs should scale up training in conservation agriculture, agroecology, and use of drought-resilient seed varieties tailored to semi-arid environments like Gwanda. Subsidized inputs, irrigation schemes, and structured markets will enable women to transition from survival farming to sustainable agri-businesses.
- **Diversify income-generating opportunities:** Support small businesses through micro-financing schemes, vocational training, and women's cooperatives to reduce dependence on climate-sensitive sectors.
- **Invest in climate literacy:** Awareness campaigns and community training should be launched to improve understanding of climate change and available adaptation options, especially among women with limited formal education. Long-term resilience begins with access to education. Empowering girls with knowledge and skills increases their future adaptive capacity.
- **Improve water access infrastructure:** Investment in boreholes, solar-powered pumps, and rainwater harvesting systems is crucial to reduce time burdens and ensure clean water availability. Food assistance programs, school feeding initiatives, and healthcare subsidies can cushion the most vulnerable households during climate-induced crises.

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Appendix 1

Questionnaires for women

Assessing the impact of climate change on women's livelihoods in rural areas: A case study of ward 11 Gwanda district, Matabeleland South, Zimbabwe.

Introduction

My name is Mitchel Mawonera an undergraduate student at Bindura University of Science Education. I am conducting a research project on the impacts of climate change on women's livelihoods in rural areas in Gwanda district focusing on ward 11. I kindly request you to help me during my research by answering my research questions and please note that your responds will be treated with confidentiality and only serve the intended purpose.

SECTION A: Demographic and Socio-economic Information

Age:

Marital status:

☐ Single ☐ Married ☐ Widowed ☐ Divorced

Education level:

☐ No formal education ☐ Primary ☐ Secondary ☐ Tertiary

Household size:

Number of dependents (children/elderly):

Primary source of livelihood:

☐ Crop farming ☐ Livestock rearing ☐ Small-scale business (e.g., vending, tailoring)

☐ Domestic work ☐ Remittances ☐ Other (please specify):

.....
.....

Monthly household income range:

☐ Below USD 50 ☐ USD 51–100 ☐ USD 101–200 ☐ Above USD 200

SECTION B: Manifestations of Climate Change

Have you noticed any of the following changes over the past 10–20 years? (Tick all that apply)

☐ Reduced rainfall ☐ Increased drought frequency ☐ Delayed start of the rainy season

☐ Early end to the rainy season ☐ Increased temperatures ☐ Crop failure

☐ Decreased pasture for livestock ☐ More frequent strong winds/storms

How long have these changes been noticeable?

☐ Less than 5 years ☐ 5–10 years ☐ Over 10 years

How predictable are the seasons now compared to 10 years ago?

☐ More predictable ☐ About the same ☐ Less predictable

What do you think is causing these changes?

.....
.....

SECTION C: Effects on Women's Livelihoods

Have you experienced a decline in crop yields in the past 5 years? ☐ Yes ☐ No

Have any of the following livelihood activities been negatively affected? (Tick all that apply)

- ☐ Crop farming ☐ Livestock rearing ☐ Food processing or preservation
- ☐ Home-based businesses ☐ Craft production

Have you or any family members been forced to migrate for work due to climate conditions?

☐ Yes ☐ No

Has water availability (for domestic or farming use) decreased? ☐ Yes ☐ No

Do you face more difficulty in performing any of these tasks now due to climate change? (Tick all that apply)

- ☐ Collecting firewood ☐ Fetching water ☐ Cooking/food preparation ☐ Childcare

Have food shortages in your household become more frequent? ☐ Yes ☐ No

Have you experienced increased conflict over resources (land, water, etc.)? ☐ Yes ☐ No

How has climate change affected your personal health or emotional well-being?

.....
.....

SECTION D: Coping and Adaptation Strategies

Which coping mechanisms have you used during drought or climate shocks? (Tick all that apply)

- ☐ Selling livestock or assets ☐ Skipping meals or eating less ☐ Sending children to relatives
- ☐ Borrowing food or money ☐ Using food aid ☐ Income diversification (e.g., vending, piece jobs)
- ☐ Water harvesting ☐ Growing drought-resilient crops

Do you belong to any of the following groups?

- ☐ Village savings and loans groups ☐ Farmer cooperatives ☐ Women's groups
- ☐ Church or faith-based groups ☐ None

Have you received any training or education in the following areas? (Tick all that apply)

- ☐ Climate-smart agriculture ☐ Livelihood diversification ☐ Water conservation techniques
- ☐ Disaster preparedness ☐ None

Which of the following sources have supported your adaptation efforts? (Tick all that apply)

- ☐ Government extension services ☐ NGOs/Donors ☐ Church/faith-based groups

☐ Local leadership/traditional leaders ☐ Family or diaspora support

Do you use any indigenous or traditional knowledge to cope with changing climate? ☐ Yes ☐ No

If yes, please describe briefly:

SECTION E: Recommendations and Perceptions

In your opinion, what kind of support is most needed to help you adapt to climate change?
(Rank top 3)

☐ Access to water ☐ Food aid ☐ Farming inputs ☐ Livestock restocking

☐ Drought-resilient seeds ☐ Access to credit or loans ☐ Skills training or education ☐ Market access

Do you feel that government policies consider the needs of rural women affected by climate change?

☐ Yes ☐ No ☐ Not sure

What would you like to say to policymakers about women's struggles with climate change in your area?.....
.....

Any additions?

Thank you for your cooperation and time.

Appendix 2

Focus group discussion Guide

Assessing the impact of climate change on women's livelihoods in rural areas: A case study of ward 11 Gwanda district, Matabeleland South, Zimbabwe.

1. Target Participants

- 10- 14 rural women per group (conduct 2 groups)
- Stratified by age or livelihood type (e.g., small-scale farmers, vendors)

2. Discussion Guide

Welcome and thank you for participating in this focus group discussion. The purpose of this session is to gather valuable insights and experiences from community members regarding the impacts of climate change on women and how they are coping. Your perspectives will help us

understand and develop recommendations for improvements. Please feel free to share your thoughts openly, there is no right or wrong answers.

3. Guiding Questions

Climate Change Manifestations

- How has the weather in this area changed over the years?
- What signs do you use to tell that the climate is changing?
- Have you noticed changes in rainfall timing, flooding, droughts, or heat?
- Are traditional farming calendars still useful?

Effects on Women's Livelihoods

- How have these changes affected your farming, livestock, and other sources of income?
- Have you had to change the types of crops you grow or the animals you rear?
- Has the workload for women increased due to climate issues? How?
- Are there impacts on children's education or family health?
- Do men and women experience these challenges differently? If so, how?

Coping and Adaptation Strategies

- What do you do when the rains are poor or there's a drought?
- Have you received any help from government or NGOs? What kind?
- Are there local women's groups that provide support or training?
- What traditional or indigenous methods do you rely on to survive tough seasons?
- Are there any practices you have adopted recently that are working well?

Perceptions and Recommendations

- What kind of support do you think would be most helpful for women?
- What training, tools, or resources would improve your ability to earn a living despite climate issues?
- What message would you give to decision-makers about climate change and women's challenges?

Thank you for your valuable participation and for sharing your insights.

Appendix 3

Interview guide for stakeholders

Assessing the impact of climate change on women's livelihoods in rural areas: A case study of ward 11 Gwanda district, Matabeleland South, Zimbabwe.

1. Interview Guide

My name is Mitchel Mawonera an undergraduate student at Bindura University of Science Education. I am conducting a research project on the impacts of climate change on women's livelihoods in rural areas in Gwanda district focusing on ward 11. I kindly request you to help me during my research by answering my research questions and please note that your responds will be treated with confidentiality and only serve the intended purpose.

Section A: General Information

Name:

Sex:

Marital status:

Role in the community:

Years of experience:

Section B: Interview Questions

Key manifestations of climate change

What climatic changes have been observed in Ward 11 over the past 10–20 years?

Are there changes in rainfall patterns, temperatures, droughts, or floods?

How do these changes impact farming, water access, and daily life?

How do you monitor or track climatic changes in this area?

Are there local knowledge systems or traditional indicators that align with these changes?

Effects on Women's Livelihoods

In your opinion, how are women's livelihoods being affected by these climate changes?

Which economic activities by women have been most affected (farming, vending, caregiving)?

Have you observed an increase in gender-based vulnerabilities due to climate change (e.g., food insecurity, health impacts)?

How have women's roles in households and the community changed in response to climate stress?

Coping and Adaptation Strategies

What types of strategies are women using to cope or adapt to these changes?

Are there any training programs or workshops for women on climate resilience?

What role have external organizations (NGOs, government) played in supporting adaptation?

Are there cultural or traditional practices helping or hindering adaptation?

Recommendations

What are the major gaps in support for rural women in climate-affected areas?

What policy or programmatic changes would you recommend to improve climate resilience in Ward 11?

Any additional comments?

Thank you for your valuable participation and for sharing your insights.

Appendix 4

Forms and Turnitin report

SCHOOL OF GEOLOGICAL SCIENCES, DISASTER & DEVELOPMENT
SUSTAINABLE DEVELOPMENT DEPARTMENT



BINDURA, ZIMBABWE
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E-mail: jbowora@buse.ac.zw

BINDURA UNIVERSITY OF SCIENCE EDUCATION

CHAIRPERSON'S OFFICE

Thursday 03 April 2025

TO WHO IT MAY CONCERN

Dear Sir or Madam

RE: RESEARCH SUPPORT LETTER FOR SUSTAINABLE DEVELOPMENT STUDENT

I am writing on behalf of the Sustainable Development Department requesting your collaboration on the research of our fourth-year student, MITCHEL MAWONERA **REGISTRATION NUMBER B2+i 638B**.

The student is studying for a 4-year Bachelor of Science (Honours) Degree in Development Studies (HBSc.DG). During the fourth year of study, students are required to do field research which require them to do their data collection for research purposes.

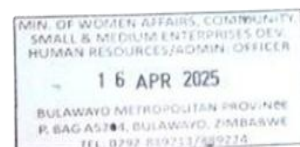
We will be highly obliged to furnish you with additional information about the research project **if** our request meets your favorable consideration.

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'J. Bowora'.

Dr. J. Bowora
(Chairperson)

CHAIRMAN
GEOGRAPHY DEPARTMENT
FACULTY OF SCIENCE





**Zimbabwe
Gender
Commission**

**1st Floor, Pax House
89 Kwame Nkrumah Ave,
Harare
Tel: +263 242 701101/ 250296
www.zgc.org.zw**

19 May 2025
.....
.....
.....

Dear Sir/ Madam

REF: APPROVAL TO CONDUCT RESEARCH, MITCHEL MAWONERA B213638B

This letter serves to authorize and permit Rumbidzai T Rimawo to undertake research on **ASSESSING THE IMPACT OF CLIMATE CHANGE ON WOMEN'S LIVELIHOODS IN RURAL AREAS: A CASE STUDY OF, GWANDA DISTRICT, MATABELELAND SOUTH PROVINCE, ZIMBABWE.**

Permission is granted **STRICTLY** on condition that the research is for academic purposes only in pursuit of your Bachelor of Science Honors Degree in Development Studies (HBSc.DG). The data collected should not be shared to third party.

May you please assist her.

Yours Faithfully

C. Matizha
Director Gender Equality Promotion



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