# BINDURA UNIVERSITY OF SCIENCE EDUCATION

## FACULTY OF SOCIAL SCIENCES AND HUMANITIES

**Effects of Climate Change on Rural Women: A Case Study of Bindura District from 2020 to 2025**

By

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

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## ABSTRACT

Climate change has disproportionately affected rural women in sub-Saharan Africa, yet localized empirical evidence remains limited. This study investigated the effects of climate change on rural women in Bindura District, Zimbabwe, between 2020 and 2025. The specific objectives were to examine the social, economic, and psychological effects of climate change on rural women. The study was anchored on Feminist Political Ecology as the overarching theoretical framework, supported by the Sustainable Livelihoods Approach and Solastalgia. A mixed-methods research approach and a descriptive case study design were adopted. The target population comprised rural women who rely on agriculture, as well as key informants including agricultural extension officers, traditional leaders, ward councilors, and NGO field workers. A sample of 100 participants was selected: 90 rural women through simple random sampling and 10 key informants through purposive sampling. Data were collected using structured questionnaires and semi-structured interview guides. Quantitative data were analysed using descriptive statistics (frequencies and percentages), while qualitative data were analysed using thematic analysis. The findings revealed severe social effects. Majority of women spend more time fetching water than five years ago, also the women reported increased conflicts over shared resources (boreholes and grazing land), and majority reported that young girls skip school to help with household chores. Economic effects were equally devastating. To add more the majority experienced frequent crop failures also some reported decreased household income. The study concludes that climate change acts as a threat multiplier, exacerbating existing gender inequalities, driving economic decapitalization, and inducing significant mental health distress among rural women. The study recommends gender-sensitive climate adaptation policies, investment in water infrastructure, accessible credit facilities for women, community-based psychosocial support, and the establishment of the proposed Bindura Women's Climate Resilience Framework (BWCRF).

**DECLARATION**

I, Nicole Pasipamire (B220807B), hereby declare that this dissertation is the result of my own research and study, except to the extent indicated in the acknowledgments and references included in the body of the paper, and that it has not been submitted in part or in full for any other degree to any other university.

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Signed…….

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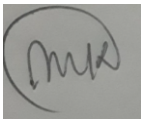
**Chairperson**:



Signed……..

# DEDICATION

I dedicate this work to my beloved family for their unwavering love, support, and encouragement throughout my academic journey.

## ACKNOWLEDGEMENT

I wish to express my sincere gratitude to my family for their endless patience, moral support, and sacrifices that made this research possible. I am deeply thankful to my supervisor for the expert guidance, constructive feedback, and continuous encouragement from the inception to the completion of this dissertation. I also extend my heartfelt appreciation to my friends for their motivation, understanding, and support during the challenging moments of this study. May God bless you all.

## LIST OF ACRONYMS AND ABBEVIATIONS

ASM - Artisanal and Small-Scale Mining

BWCRF - Bindura Women's Climate Resilience Framework

FAO - Food and Agriculture Organization

FPE - Feminist Political Ecology

GBV - Gender-Based Violence

IPCC - Intergovernmental Panel on Climate Change

NGO - Non-Governmental Organization

RDC - Rural District Council

SDG - Sustainable Development Goal

SLA - Sustainable Livelihoods Approach

SPSS - Statistical Package for the Social Sciences

UNICEF - United Nations Children's Fund

WASH - Water, Sanitation and Hygiene

ZIMSTAT - Zimbabwe National Statistics Agency

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## CHAPTER ONE

# 1.0 INTRODUCTION

## 1.1 Background of the Study

Climate change has emerged as one of the greatest developmental and humanitarian challenges of the 21st century, with disproportionate effects on vulnerable populations across the globe. While its consequences are felt globally, developing countries particularly those in Sub-Saharan Africa are at heightened risk due to their dependence on climate-sensitive livelihoods, limited adaptive capacity, and constrained socio-economic structures (IPCC, 2022). Among the populations most vulnerable to climate variability are rural women, who often shoulder the primary responsibility for household food security, water collection, and subsistence farming.

In Zimbabwe, climate change has been manifested through prolonged droughts, unpredictable rainfall patterns, recurrent floods, and heatwaves that disrupt agricultural production and household resilience (Makuvaro et al., 2018). Since agriculture remains the backbone of the rural economy, women who constitute the majority of smallholder farmers are severely impacted. The feminization of agriculture in Zimbabwe means that women not only provide labor but also manage small-scale farms while simultaneously performing unpaid domestic work. These dual responsibilities heighten their vulnerability when climatic shocks occur.

Bindura district, located in Mashonaland Central Province, is an agrarian region where subsistence farming of maize, groundnuts, and vegetables dominates rural livelihoods. From 2020 to 2025, the district has experienced climate extremes including erratic rainfall, reduced harvests, and periodic droughts, severely disrupting livelihoods (Government of Zimbabwe, 2023). Women, who are the custodians of household food security, have been forced to adapt through informal

trading, migration, or reliance on social safety nets. Yet, these coping mechanisms often remain unsustainable, trapping households in cycles of poverty.

Furthermore, rural women in Bindura face structural inequalities such as limited access to land ownership, credit facilities, agricultural technology, and decision-making power in climate policy processes (Chagutah, 2010). Patriarchal cultural practices exacerbate their vulnerability by restricting women's adaptive choices, while climate-induced pressures increase their workload, food insecurity, and health risks. The intersection of gender inequality and climate change thus results in a socio-economic crisis that threatens not only the livelihoods of women but also community resilience and sustainable development in the district.

Addressing the impacts of climate change on rural women in Bindura is, therefore, critical for advancing Zimbabwe's climate adaptation agenda, promoting gender equality, and achieving sustainable development goals (SDGs l, 2, 5, and 13). This study seeks to critically examine these dynamics, highlighting women's challenges, coping strategies, and the gaps in policy frameworks, while proposing sustainable models for enhancing resilience.

### 1.2 Purpose of the Study

The purpose of this study is to investigate the effects of climate change on rural women in Bindura district between 2020 and 2025.

### 1.3 Statement of the Problem

Although climate change is a global phenomenon, its impacts are unevenly distributed, disproportionately affecting marginalized groups such as rural women. In Bindura district, climate

variability from 2020 to 2025 has intensified agricultural failures, reduced food security, and increased rural poverty, with women bearing the brunt of these challenges due to their gendered roles in agriculture and household care. Despite the existence of national climate adaptation strategies, women continue to experience limited access to resources, technology, and decision-making platforms, leaving them highly vulnerable. The lack of localized, gender-sensitive climate adaptation models exacerbates their socio-economic crisis, thus necessitating a focused study on the intersection of climate change and women's livelihoods in Bindura district.

### 1.4 Objectives of the Study

I. To examine the social effects of climate change on rural women in Bindura district between 2020 and 2025.

II. To asses the economic effects of Climate change on rural women in Bindura

III. To examine psychological effects climate change on rural women in Bindura.

### 1.5 Research Questions

I. What are the social effects of climate change on rural women in Bindura district between 2020 and 2025?

II. What are the economic of Climate change on rural women in Bindura?

III. What are the psychological issues faced by women in Bindura due to climate change?

### 1.6 Assumptions of the Study

- Rural women in Bindura district are disproportionately affected by climate change compared to their male counterparts due to gendered socio-economic roles.
- Effective adaptation strategies exist but are constrained by lack of resources, cultural barriers, and limited institutional support.

### 1.7 Significance of the Study

Climate change has become a defining issue of our time, influencing livelihoods, food systems, health, and gender relations. The significance of this study lies in its potential to deepen understanding of how climate change specifically affects rural women in Bindura District, Zimbabwe, between 2020 and 2025. While global discourses have widely examined gendered impacts of environmental change, localized empirical evidence from rural Zimbabwe remains limited. This study, therefore, provides a vital contribution by contextualizing the climate–gender nexus within the lived realities of rural women in an agrarian setting.

The study will contribute to academic debates by filling a critical gap in literature concerning how rural women experience, perceive, and respond to climatic stressors. It offers insights into the intersectionality of gender, poverty, and environmental vulnerability, thereby enriching the field of climate justice and sustainable rural development. Furthermore, it highlights women's adaptive capacities and resilience strategies, moving beyond narratives of victimhood to recognize their agency and knowledge systems. This aligns with global calls for inclusive and equitable climate policies under the Paris Agreement and the Sustainable Development Goals (SDGs) particularly Goals l (No Poverty), 2 (Zero Hunger), 5 (Gender Equality), and 13 (Climate Action).

In practical terms, the research findings will inform national and local climate adaptation frameworks, assist development practitioners in designing gender-responsive interventions, and empower local communities to build resilience against future climatic shocks. The following subsections outline key stakeholders who will directly or indirectly benefit from this study.

### 1.7.1 Policymakers and Government Institutions

Policymakers at both national and local levels stand to benefit significantly from this study. The Government of Zimbabwe, through the Ministry of Environment, Climate and Wildlife, the Ministry of Women Affairs, Community, Small and Medium Enterprises Development, and the Ministry of Lands, Agriculture, Fisheries, Water and Rural Development, can utilize the findings to develop evidence-based climate adaptation and gender mainstreaming policies. By identifying how rural women are affected by and respond to climate variability, the research provides actionable data for integrating gender-sensitive approaches into the National Climate Policy (2017) and the National Climate Change Response Strategy. The Ministry of Local Government and Public Works, through the Bindura Rural District Council, can also use the insights to formulate district-level adaptation action plans that address specific community needs.

### 1.7.2 Non-Governmental Organizations (NGOs) and Development Agencies

National and international NGOs such as CARE International, Oxfam, ActionAid, and UN Women, which implement climate adaptation and gender equality programs, will find the study valuable in designing targeted interventions. The findings will provide practical guidance on how to strengthen rural women's access to climate-smart technologies, credit facilities, and capacity-building initiatives. Development partners will also gain a deeper understanding of community-

based adaptation mechanisms that work within local socio-cultural contexts, thereby improving program effectiveness and sustainability.

### 1.7.3 Rural Women and Local Communities

The primary beneficiaries of this study are rural women themselves, as the findings will amplify their voices and experiences in climate change discourse. The study will help communities recognize the value of indigenous knowledge, promote local innovation, and encourage collective adaptation initiatives. By documenting women's coping mechanisms and highlighting barriers to resilience, the research can inspire community-based organizations to advocate for greater resource access, gender equality, and participation in local governance. The empowerment of women as agents of change will not only improve household welfare but also enhance community cohesion and adaptive capacity.

### 1.7.4 Academic and Research Institutions

The study will also benefit specific academic and research institutions, notably Bindura University of Science Education (through its Department of Peace and Governance and its Climate Change Research Unit), the University of Zimbabwe's Institute of Environmental Studies, and the Zimbabwe Environmental Law Association (ZELA), as well as students and researchers pursuing studies in climate science, gender studies, and sustainable development more broadly. By offering context-specific insights and empirical evidence, it will enrich academic curricula and stimulate further research into gender-climate interactions. The methodology and findings can serve as a reference point for comparative studies across other districts or regions in Sub-Saharan Africa.

## 1.8 Delimitations of the Study

The study was delimited in terms of geographical boundaries, time frame, and thematic scope. Geographically, the study was confined to Bindura District in Mashonaland Central Province and did not extend to urban women, men, or other districts of Zimbabwe. In terms of time, the study covered the five-year period from 2020 to 2025, a period chosen because it captures the drought years and erratic rainfall seasons that most visibly disrupted rural livelihoods in the district; data collection itself, comprising interviews and questionnaire administration, was conducted between March and May 2026. Thematically, the study was confined to the social, economic, and psychological effects of climate change on rural women and the coping mechanisms they adopted; technical meteorological aspects such as carbon emission measurements or climate modelling fell outside the study's scope.

### 1.9 Limitations of the Study

The study encountered several limitations, together with the measures taken to address them. Access to some participants was constrained by cultural sensitivities and a reluctance to discuss household hardships with an outsider; this was mitigated by working through local Agritex officers and ward councilors, who introduced the researcher to respondents and helped build the trust needed for open discussion. Time constraints and the wide geographical spread of villages within the district limited the number of homesteads that could be reached; this was addressed by clustering interviews and questionnaire administration by ward and using local transport arranged with the assistance of village heads. Because the reliance on respondent recall (for example, on time spent fetching water or changes in income) introduces a degree of subjective bias, the researcher triangulated respondents' accounts with data from key informants (Agritex officers, traditional leaders, and NGO field workers) and, where available, secondary records held by the

Rural District Council, to cross-check and validate the findings. Financial and logistical constraints limited the study to a single district rather than a province-wide sample; this was addressed by selecting Bindura District as a purposively representative case of climate-vulnerable smallholder farming communities in Mashonaland Central, so that the findings, while not statistically generalizable, offer analytically generalizable insight into similar rural contexts.

### 1.10 Definition of Key Terms

**Climate Change:**

Long-term alterations in temperature, precipitation, and weather patterns primarily resulting from human activities such as deforestation, industrial emissions, and the burning of fossil fuels (IPCC, 2022).

**Rural Women**

Women living in non-urban areas whose livelihoods depend predominantly on agriculture, small-scale trade, and household labour (FAO, 2011).

**Vulnerability:**

The degree to which individuals or groups are likely to experience harm or loss due to exposure to climate-related hazards and their limited capacity to adapt or recover (IPCC, 2022).

**Resilience**:

The capacity of individuals or communities to anticipate, absorb, recover from, and adapt to climatic shocks while maintaining essential functions and identities (Folke, 2006).

### 1.11 Dissertation Outline

This dissertation is organized into five interrelated chapters each designed to logically build upon the preceding one to provide a coherent understanding of the effects of climate change on rural women in Bindura District.

**Chapter One: Introduction and Background of the Study**

This chapter introduces the research topic by presenting the background, problem statement, objectives, research questions, and assumptions of the study. It situates the research within the broader global and national climate discourse, highlighting the specific vulnerabilities of rural women. It also defines key concepts and provides an outline of the study's structure.

**Chapter Two: Literature Review and Theoretical Framework**

This chapter critically reviews existing literature related to climate change, gender, and rural livelihoods. It examines theoretical perspectives such as Feminist Political Ecology and Resilience Theory which provide conceptual grounding for understanding how gender and power dynamics shape climate vulnerability and adaptation. Empirical studies from global, regional, and Zimbabwean contexts are analyzed to identify research gaps that this study seeks to address.

**Chapter Three: Research Design and Methodology**

Chapter Three outlines the philosophical underpinnings, research design, and methodological approaches used in the study. It explains the adoption of an interpretivist philosophy and mixed-methods design detailing data collection tools such as interviews, focus group discussions, and document analysis. The chapter also describes the study area, population,

sampling techniques, data analysis procedures, and ethical considerations, ensuring methodological transparency and rigor.

**Chapter Four: Presentation and Analysis of Findings**

This chapter presents the empirical findings from fieldwork, structured according to the study objectives. It includes thematic and statistical analyses illustrating how climate change has affected the social and economic lives of rural women in Bindura District. The chapter further explores women's coping and adaptation strategies, supported by quotations, tables, and charts to provide a comprehensive depiction of the lived experiences.

**Chapter Five: Discussion, Conclusions, and Recommendations**

The final chapter synthesizes findings in relation to the reviewed literature and theoretical framework. It interprets the implications of the study for policy, practice, and future research. The chapter concludes by presenting actionable recommendations for policymakers, NGOs, and community organizations aimed at strengthening women's resilience and promoting gender-sensitive climate adaptation in Zimbabwe.

# CHAPTER TWO

## 2.0 LITERATURE REVIEW AND THEORETICAL FRAMEWORK

### 2.1 Introduction

This chapter reviews the theoretical and empirical literature on the effects of climate change on rural women, with a specific focus on Bindura District over the period 2020 to 2025. It first establishes the theoretical framework anchoring the study, drawing on Feminist Political Ecology, the Sustainable Livelihoods Approach, and Solastalgia. It then reviews empirical literature organised around the study's three objectives, namely the social, economic, and psychological effects of climate change on rural women, before concluding with the knowledge gaps this study addresses.

## 2.2 Theoretical Framework

The complexity of climate change impacts on rural women requires a robust theoretical framework that can account for the intersection of environmental changes, power dynamics, and gendered vulnerabilities. Consequently, this study is anchored on Feminist Political Ecology (FPE) as the overarching theory. Originating from the works of scholars like Rocheleau, Thomas-Slayter, and Wangari (1996), Feminist Political Ecology extends traditional political ecology by treating gender as a critical variable in shaping resource access and control. This theory is particularly appropriate for this study because it moves beyond merely viewing women as victims of climate change; instead, it analyzes how gendered rights, responsibilities, and knowledge shape how women in rural Bindura experience environmental stress. FPE posits that environmental changes are not neutral but are mediated by social and political forces. In the context of Bindura District (2020-2025), where land ownership and decision-making power are often patrilineal, FPE helps explain why women bear a disproportionate burden of climate adaptation despite having the least control over natural assets. The theory elucidates how the degradation of the environment directly

correlates with the erosion of women's social standing and increases their labor burden, making it the most comprehensive lens for interpreting the multi-dimensional struggles of rural women.

To address the specific economic dimensions of the study, the Sustainable Livelihoods Approach (SLA) is utilized as a supporting theory. Developed by Chambers and Conway (1992) and later adapted by Scoones (1998), the SLA framework provides an analytical tool for understanding how rural households construct their living within a context of vulnerability. While FPE explains the power dynamics, SLA is instrumental in addressing the second objective regarding economic effects. It categorizes assets into five capitals: human, natural, financial, social, and physical. In the context of this research, SLA allows for a granular analysis of how climate shocks, such as the El Niño-induced droughts experienced in Zimbabwe between 2023 and 2024, deplete specific capital bases that women rely on, such as small livestock (natural capital) or savings from market gardening (financial capital). By using SLA as a supporting theory, the study can mechanically explain the economic stripping of rural women, moving the analysis from abstract power relations to concrete livelihood outcomes and survival strategies.

Furthermore, to adequately address the third objective concerning psychological effects, the study incorporates the theory of Solastalgia, a concept coined by Glenn Albrecht (2005). Traditional development theories often overlook the mental health implications of environmental degradation. Solastalgia refers to the distress caused by environmental change while one is still at home; it is the lived experience of the loss of the present as the familiar environment is desolated. This supporting theory is crucial for filling the explanatory gap left by FPE and SLA, which focus primarily on material and political outcomes. For the women of Bindura, whose identity and cultural stability are deeply tied to the land and agricultural cycles, the unpredictability of rainfall and the physical alteration of the landscape induce a specific form of existential stress and anxiety.

Integrating Solastalgia allows the study to interpret findings related to depression, anxiety, and the loss of a sense of place, thereby providing a holistic theoretical triad that covers the political, economic, and psychological domains of the research topic.

### 2.3 Social Effects of Climate Change on Rural Women

The examination of the social effects of climate change on rural women reveals a consensus in the literature that environmental stressors act as a multiplier of existing gender inequalities, particularly regarding time poverty and domestic stability. Scholarship by addressing the period from 2020 to 2025 highlights that as water sources dry up due to erratic rainfall patterns, the social burden of water procurement falls almost exclusively on women and girls. Research by Mabhiza and Chiremba (2022) in semi-arid regions of Zimbabwe indicates that during drought years, women's time spent on unpaid care work, specifically water and firewood collection, increases by approximately 40%. This redistribution of time has profound social consequences, often removing women from community participation and governance structures because they simply do not have the time to attend village meetings. This literature suggests a direct correlation between climate severity and the social exclusion of women, a theme that is highly relevant to the communal lands of Bindura where boreholes have increasingly become points of social conflict.

Furthermore, empirical studies have established a disturbing link between climate-induced resource scarcity and increased Gender-Based Violence (GBV). A study by Dube and Nhamo (2021) focusing on Southern Africa notes that during periods of intense drought, domestic tensions rise significantly due to food insecurity and the inability of men to fulfill their traditional provider roles. The frustration often manifests as violence against women, who are frequently blamed for household food shortages. This is corroborated by global data cited by the IPCC (2022), which

acknowledges that climate hazards exacerbate violence against women. However, much of this literature focuses on broad regional trends. In the specific context of Bindura, there is a need to understand how local social dynamics, such as the intersection of traditional leadership and changing weather patterns, mediate this violence. Additionally, the literature points to the "girl child" penalty, where young girls are withdrawn from school to assist mothers with the increased labor burden caused by climate change, thereby perpetuating a cycle of social disadvantage. The literature firmly establishes that the social fabric of rural life is being reconfigured by climate change, shifting gender roles in ways that are largely detrimental to women's social mobility and safety.

### 2.3.2 Economic Effects of Climate Change on Rural Women

Evaluating the economic effects of climate change necessitates a review of literature focusing on agricultural productivity, asset depletion, and the diversification of livelihoods under duress. The period 2020 to 2025 has been characterized by significant volatility in rainfall, including the severe impacts of the 2023-2024 El Niño phenomenon. Scholars such as Bhatasara (2021) argue that rural women in Zimbabwe are disproportionately affected economically because their livelihoods are heavily dependent on rain-fed agriculture, particularly the cultivation of maize and groundnuts. When these crops fail, women lose not only their food source but their primary tradable commodity. The literature indicates a massive decapitalization among rural female-headed households, where livestock often considered the "bank" of the rural poor is sold at distress prices to purchase maize meal. This erosion of the asset base traps women in a cycle of poverty, as they lack the collateral to access loans for recovery in subsequent seasons. This economic precarity is exacerbated by the broader Zimbabwean economic context of hyperinflation, meaning that even when women do diversify into off-farm activities, their purchasing power remains low.

In response to these agrarian challenges, recent literature has documented a shift in economic activities among rural women in mineral-rich districts like Bindura. Studies by Chitongo (2022) observe a growing trend of women entering the artisanal and small-scale mining (ASM) sector, specifically gold panning, as a climate adaptation strategy. While this provides immediate cash flow, the literature critiques this "adaptation" as maladaptive due to the high physical risks, sexual exploitation, and environmental toxicity associated with unregulated mining. This signifies a desperate transition from the "feminized" space of agriculture to the hyper-masculine and dangerous space of mining. Furthermore, literature on market gardening indicates that the drying of wetlands (matoro) has decimated the economic viability of vegetable vending, a traditional income stream for women in Bindura. The empirical evidence portrays a bleak economic landscape where climate change acts as a driver of de-agrarianizing, pushing women into precarious informal economies where their economic agency is constantly undermined by environmental instability and lack of institutional support.

### 2.3.3 Psychological Effects of Climate Change on Rural Women

The exploration of the psychological effects of climate change represents a developing but critical area of empirical inquiry. While social and economic impacts are well-documented, the mental health implications for rural women in the Global South have only recently gained scholarly traction. Literature by Atwoli et al. (2022) emphasizes that climate change is a significant driver of mental health crises in Africa, manifesting as anxiety, depression, and post-traumatic stress. In the context of rural Zimbabwe, the unpredictability of the seasons is a primary source of chronic psychological stress. Women, as the primary caregivers and managers of household food security, bear the cognitive load of survival. Literature suggests that the inability to feed children

due to crop failure triggers profound feelings of guilt, inadequacy, and hopelessness. This psychological burden is often compounded by the physical exhaustion discussed in the social effects section, creating a psychosomatic cycle of ill health.

Moreover, recent studies applying the concept of Solastalgia to African contexts highlight the grief associated with the loss of landscape and environmental heritage. Research in similar agrarian contexts suggests that rural women maintain a spiritual and emotional connection to the land; watching the land degrade, rivers dry up, and forests disappear induces a profound sense of loss and disorientation. A study by Chigwada (2023) on climate resilience notes that rural women frequently report symptoms of hypertension and insomnia during the planting season, directly correlated to the fear of rain failure. However, the literature also points to a gap in clinical diagnoses; these psychological effects are often dismissed as "stress" or "women's troubles" within the community and are rarely treated by the formal health system. The empirical review suggests that the psychological toll is an invisible crisis, where the trauma of climate change is internalized, affecting women's overall well-being and their capacity to function as community pillars. The literature validates that climate change is not just an environmental or economic event, but a traumatic psychological event for women in rural Bindura.

### 2.4 Summary of Knowledge Gap in Available literature

A synthesis of the reviewed literature reveals significant advancements in understanding the gendered impacts of climate change, yet distinct knowledge gaps remain that this study seeks to address. Firstly, while there is robust literature on the general impacts of climate change in Zimbabwe, there is a scarcity of micro-level studies focusing specifically on Bindura District for the recent period of 2020 to 2025. This timeframe is critical as it encapsulates the intersection of

the post-COVID-19 economic recovery and the intensification of El Niño-induced droughts, a dual crisis that previous studies covering earlier periods could not account for. Most existing studies rely on data prior to 2020, failing to capture the accelerated degradation and the specific socio-economic shifts that have occurred in the last five years.

Secondly, a major conceptual gap exists regarding the psychological dimension of climate change among rural women in Zimbabwe. As highlighted in the review, the majority of research is skewed towards agricultural metrics, economic adaptation, and physical vulnerability. The mental health aspect specifically the application of Solastalgia and eco-anxiety remains under-researched in the Zimbabwean context. Existing literature often treats psychological stress as a footnote to economic hardship rather than a distinct variable requiring specific investigation. This study aims to bridge this gap by placing psychological effects on par with social and economic effects. Finally, there is a lack of integrated analysis that connects the rise of female participation in artisanal mining in Bindura specifically to climate-induced agrarian failure using a Feminist Political Ecology framework. While mining and farming are studied separately, the causal link between climate failure pushing women into the gold pits of Bindura is not sufficiently modeled in current literature. This research anchors itself in these gaps, aiming to provide a holistic, contemporary, and psychologically aware analysis of the crisis.

### 2.5 Chapter Summary

This chapter has provided a detailed theoretical and empirical foundation for the study of the effects of climate change on rural women in Bindura District. The theoretical framework established Feminist Political Ecology as the primary lens for understanding the power dynamics of gender and environment, supported by the Sustainable Livelihoods Approach for economic

analysis and Solastalgia for psychological interpretation. The empirical literature review was organized according to the three specific objectives of the study. Regarding social effects, the review highlighted the increase in time poverty, the disruption of the social fabric, and the rise in gender-based violence associated with resource scarcity. The economic review detailed the decapitalization of households, the failure of rain-fed agriculture, and the precarious shift toward artisanal mining. The psychological review underscored the emerging crisis of mental health, anxiety, and environmental grief among rural women.

# CHAPTER THREE:

## 3.0 RESEARCH METHODOLOGY AND DESIGN

## 3.1 Introduction

This chapter outlines the research methodology employed to investigate the effects of climate change on rural women in Bindura District from 2020 to 2025. The methodology serves as the operational framework for the study, detailing the specific procedures and techniques used to gather, process, and analyze data. The chapter covers the research approach, research design, target population, sampling techniques, research instruments, data collection procedures, data analysis, validity and reliability, and ethical considerations.

## 3.2 Research Approach

A research approach is the plan and procedure for research that spans the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation. According to Creswell (2014), research approaches provide the philosophical framework within which the research is conducted and are generally categorized into qualitative, quantitative, and mixed methods. The qualitative approach explores phenomena in depth through non-numerical data, while the quantitative approach focuses on measuring variables to generate numerical statistics.

For this study, a convergent parallel mixed methods design was adopted, following Creswell and Plano Clark (2011). In this design, quantitative data (from structured questionnaires) and qualitative data (from semi-structured interviews) were collected during the same phase of the research, analysed separately using the methods appropriate to each, and then merged during interpretation so that the two sets of results could be compared and used to corroborate or explain one another. This approach was chosen because the impact of climate change on rural women is a multifaceted issue that requires both statistical evidence and human context: the quantitative strand allowed the researcher to measure the extent of crop failure and income loss across the district

statistically, while the qualitative strand provided insight into the personal coping mechanisms and emotional toll on the women that numbers alone could not capture. As noted by Saunders et al. (2019), combining these methods in this way provides a more complete understanding of a research problem than either approach alone, since the convergence of independently analysed quantitative and qualitative findings strengthens the credibility of the overall conclusions.

### 3.3 Research Design

Research design refers to the overall strategy that ensures the different components of the study are integrated in a coherent and logical way, effectively constituting the blueprint for the collection, measurement, and analysis of data (Kothari, 2004). It dictates how the investigation will be conducted to solve the research problem. Common research designs include experimental designs, which test causal relationships; survey designs, which describe population characteristics; and case study designs, which provide in-depth analysis of specific contexts.

This study employed a descriptive case study design. According to Yin (2018), a case study is an empirical inquiry that investigates a contemporary phenomenon (the "case") in depth and within its real-world context. This design was selected because the research is bounded by a specific geographical location, Bindura District, and a specific time frame, 2020 to 2025. The case study design is particularly justifiable for this research as it allows for a holistic understanding of the complex interactions between climatic variations and rural livelihoods. It enabled the researcher to gather detailed information about the specific environmental and social conditions in Bindura that would be lost in a broader, less focused survey.

### 3.4 Target Population

The target population is defined as the entire group of individuals, events, or objects having common observable characteristics that conform to a given specification, upon which the researcher is interested in generalizing the conclusions (Banerjee & Chaudhury, 2010). The target population encompasses all possible participants who could provide relevant data to answer the research questions. In this study, the target population comprised rural women residing in Bindura District who rely on agriculture and natural resources for their livelihood, as well as key informants knowledgeable about the district's agricultural and climatic landscape. This included women involved in subsistence farming, market gardening, and livestock rearing, alongside agricultural extension officers and local community leaders. According to the 2022 Population and Housing Census, Bindura District had a total population of 169,841, of whom approximately 119,441 reside in the rural wards outside Bindura town (ZIMSTAT, 2022). Applying the national rural sex ratio of roughly 51 per cent female to this figure yields an estimated target population of approximately 61,000 rural women engaged in smallholder agriculture, market gardening, and livestock rearing across the district's rural wards, alongside a smaller population of agricultural extension officers, traditional leaders, and NGO field staff who serve as key informants. These individuals were targeted because they are the frontline victims of climate change, making their experiences and data the most relevant for the objectives of this study.

### 3.5 Sample

A sample is a smaller, manageable version of a larger group, which is a subset containing the characteristics of a larger population (Field, 2013). Samples are used in statistical testing when population sizes are too large for the test to include all possible members or observations. The

sample size for this study was established at 100 participants. This sample includes 90 rural women selected to respond to questionnaires and 10 key informants selected for in-depth interviews. Given that the estimated target population of rural women in the district was approximately 61,000, a full census of this population was neither feasible nor necessary within the time and financial constraints of a dissertation. Instead, the sample of 90 was informed by Krejcie and Morgan's (1970) sample size guidelines, which indicate that a sample in the range of 90 to 100 respondents provides a reasonable margin of error (within approximately ten per cent, at a 95 per cent confidence level) for populations in excess of 20,000, beyond which the required sample size stabilises rather than continuing to grow proportionately with the population. This size was deemed appropriate to ensure a balance between manageability and representativeness. As suggested by Bryman (2016), a sample must be large enough to allow for sufficient data to generate statistical trends while keeping the scope feasible within the time and financial constraints of a dissertation.

### 3.6 Sampling Technique

Sampling technique refers to the specific process or method used to select the sample from the target population (Taherdoost, 2016). Sampling methods are generally divided into probability sampling, where every member has a known chance of selection, and non-probability sampling, where selection is based on subjective criteria. To select the participants, the study utilized a combination of simple random sampling and purposive sampling. Simple random sampling is a probability sampling technique where every item in the population has an even chance and likelihood of being selected in the sample (Sharma, 2017). This method was used to select the 90 rural women. It was chosen to eliminate researcher bias and ensure that the sample was representative of the wider population of women in Bindura, thereby increasing the

generalizability of the quantitative findings. Conversely, purposive sampling is a non-probability method where elements are chosen based on the researcher's judgment and the specific purpose of the study. This was used to select the 10 key informants, such as agricultural extension officers. This method was justified because these individuals possess specific, expert technical knowledge regarding climate trends and policy in Bindura that the general population does not have.

## 3.7 Research Instruments

Research instruments are the tools and devices used by the researcher to collect data from the subjects of the study. The choice of instruments is critical to the success of the research as it determines the nature and quality of the data collected. For this study, interviews and questionnaires were the primary instruments used.

### 3.7.1 Interviews

An interview is a qualitative research method that involves conducting intensive individual conversations with a small number of respondents to explore their perspectives on a particular idea, program, or situation (Boyce & Neale, 2006). The study utilised semi-structured interviews for the ten key informants, comprising Agritex officers, ward councillors, and NGO field staff. This format was chosen because it follows a pre-set list of open-ended questions on the ministry and NGO response to climate change in the district, while still allowing the researcher to probe and ask follow-up questions as new, unexpected insights emerged. The primary advantage of this instrument, as noted by Boyce and Neale (2006) and Kabir (2016), is its ability to provide rich, detailed qualitative data. However, Bryman (2016) cautions that interviews are time-consuming to conduct and transcribe, and can be subject to interviewer bias if not carefully managed; this was

mitigated by using a standardised interview guide across all key informants and by having each transcript checked by the research assistant against the audio recording before analysis.

### 3.7.2 Questionnaires

A questionnaire is a research instrument consisting of a series of questions for the purpose of gathering information from respondents (Roopa & Rani, 2012). This study used a structured questionnaire containing both open-ended and closed-ended questions administered to the 90 rural women. This instrument was chosen because it is the most efficient way to collect standardised data from a large number of people in a short amount of time. As Taherdoost (2016) notes, the advantages of questionnaires include their cost-effectiveness and the anonymity they offer respondents, which can lead to more honest answers on sensitive financial or social issues. Roopa and Rani (2012) similarly note that questionnaires often achieve a lower response rate than interviews, and that respondents may misinterpret questions without the researcher present to clarify; in this study, these disadvantages were mitigated by the researcher and trained research assistants remaining present during a "drop and pick" distribution, so that any question a respondent found unclear could be explained on the spot, and by piloting the instrument beforehand to remove ambiguous items.

## 3.8 Data Collection Procedures

Data collection refers to the systematic process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions (Kabir, 2016).

The data collection process for this study followed a specific procedural sequence. First, the researcher obtained a letter of introduction from the university and sought necessary permission

from Bindura Rural District Council and local traditional leadership to conduct the study. Following this clearance, a pilot study was conducted to test the validity of the instruments. Subsequently, the researcher, assisted by trained research assistants, visited the selected wards and went from one homestead to the next to administer the questionnaires individually to each of the 90 rural women, rather than gathering respondents together as a group, so as to protect the privacy of their responses on sensitive household matters and to allow each woman to answer in her own words without the influence of neighbours or relatives. To ensure high response rates and clarity, the researcher adopted a "drop and pick" method and, where necessary, assisted illiterate respondents in completing the forms. Concurrently, appointments were scheduled with the key informants, and face-to-face interviews were conducted individually, recorded with permission, and transcribed for analysis.

### 3.9 Data Presentation

Data presentation involves the organisation and display of data in a clear and effective manner to facilitate understanding and analysis (Field, 2013). In this study, the quantitative data obtained from the questionnaires is presented using visual aids such as tables, pie charts, and bar graphs, an approach recommended by Field (2013) because it allows the reader to quickly grasp trends, comparisons, and statistical distributions regarding the effects of climate change. The qualitative data from the interviews is presented in narrative form, following Braun and Clarke's (2006) approach to reporting thematic analysis, utilising verbatim quotes and thematic descriptions to provide context and support the statistical findings.

### 3.10 Data Analysis

Data analysis is the process of inspecting, cleansing, transforming, and modeling data with the goal of discovering useful information, informing conclusions, and supporting decision-making (Marshall & Rossman, 2014).

The study employed both quantitative and qualitative analysis techniques, consistent with the convergent parallel mixed methods design outlined in section 3.2. Quantitative data from the closed-ended questionnaire items was coded, cleaned, and entered into the Statistical Package for the Social Sciences (SPSS) version 26 and cross-checked in Microsoft Excel. Descriptive statistics, specifically frequencies, percentages, and means, were computed for each research objective (social, economic, and psychological effects) to quantify the extent to which respondents reported each type of effect. For the qualitative data from the interview transcripts and the open-ended questionnaire items, thematic analysis was used, following Braun and Clarke's (2006) six-phase approach: familiarisation with the transcripts, generation of initial codes, searching for themes, reviewing themes against the coded extracts, defining and naming themes, and producing the final thematic write-up. This process yielded themes such as "food insecurity," "water scarcity," and "psychological distress," which were then used to explain and contextualise the statistical patterns found in the quantitative data. This dual analysis ensures a robust interpretation of the findings.

### 3.11 Validity and Reliability

Validity refers to the accuracy of a measure, ensuring the study measures what it claims to measure (Middleton, 2019). To ensure validity in this study, the research instruments were reviewed by the research supervisor and subject matter experts prior to data collection, to confirm that the questions accurately reflected the research objectives (content validity). Furthermore, the use of triangulation, comparing data from the questionnaires against the interview findings and,

where available, secondary records, enhanced the internal validity of the study by allowing findings from one source to be cross-checked against another.

Reliability, by contrast, refers to the consistency of a measure, that is, the extent to which it would produce the same results if repeated under similar conditions (Middleton, 2019). Reliability in this study was achieved primarily through a pilot study, conducted with five rural women in a ward not included in the final sample. The pilot study helped to identify and correct ambiguously worded questions and confirmed that respondents interpreted the questions consistently, ensuring that the instruments would yield consistent results when administered to the main sample. The use of a standardised interview guide across all key informants further supported the reliability of the qualitative data collected.

### 3.12 Ethical considerations

Ethical considerations refer to the set of principles that guide the research design and practices to ensure the protection of the rights, dignity, and welfare of the research participants (Resnik, 2015). Several ethical principles were strictly observed during this study. Informed consent was a primary consideration; the researcher explained the purpose of the study to all participants, and they agreed to participate voluntarily without coercion. Anonymity and confidentiality were also guaranteed. Participants were assured that their names would not appear on the questionnaires and that any identifying information shared during interviews would be kept confidential. Additionally, the researcher ensured protection from harm by conducting the research in a safe environment and ensuring that the questions did not cause emotional distress. Participants were also informed of their right to withdraw from the study at any point if they felt uncomfortable.

### 3.13 Chapter Summary

This chapter has detailed the research methodology employed to study the effects of climate change on rural women in Bindura District. It described the adoption of a mixed methods approach and a descriptive case study design, which allowed for both statistical and in-depth contextual analysis. The target population was defined as rural women and key agricultural informants, with a sample size of 100 participants selected via simple random and purposive sampling. The chapter further outlined the use of questionnaires and interviews as data collection instruments, detailed the procedures for data gathering and analysis, and highlighted the measures taken to ensure validity, reliability, and ethical compliance. The subsequent chapter will focus on the presentation and analysis of the data collected through these methods.

# CHAPTER FOUR

# 4.0 DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

## 4.1 Introduction

The previous chapter presented the research methodology used in this study. This chapter presents, analyses, and discusses the empirical findings of the study on the effects of climate change on rural women in Bindura District from 2020 to 2025. The presentations of the research findings and discussions are done according to the specific objectives of the study obtained during data analysis. The objectives were: (1) to examine the social effects of climate change on rural women; (2) to assess the economic effects of climate change on rural women; and (3) to examine the psychological effects of climate change on rural women in Bindura District. The chapter is arranged as follows: first, the demographic characteristics (bio data) of the 90 rural women who participated in the questionnaire survey are presented. Thereafter, the chapter presents, analyses, and discusses the gathered responses according to each research objective, with each distinct effect treated as a separate theme. For each theme, the table is first interpreted, followed by a detailed discussion incorporating qualitative evidence and comparison with existing literature.

## 4.2 Demographic Information

This section presents the demographic characteristics of the 90 rural women who participated in the questionnaire survey. Major characteristics considered include marital status, education level, and primary livelihood. The significance of participants' demographic information lies in the fact that it allows the researcher to identify trends within participants in line with their demographic characteristics.

### 4.2.1 Marital Status

Marital Status

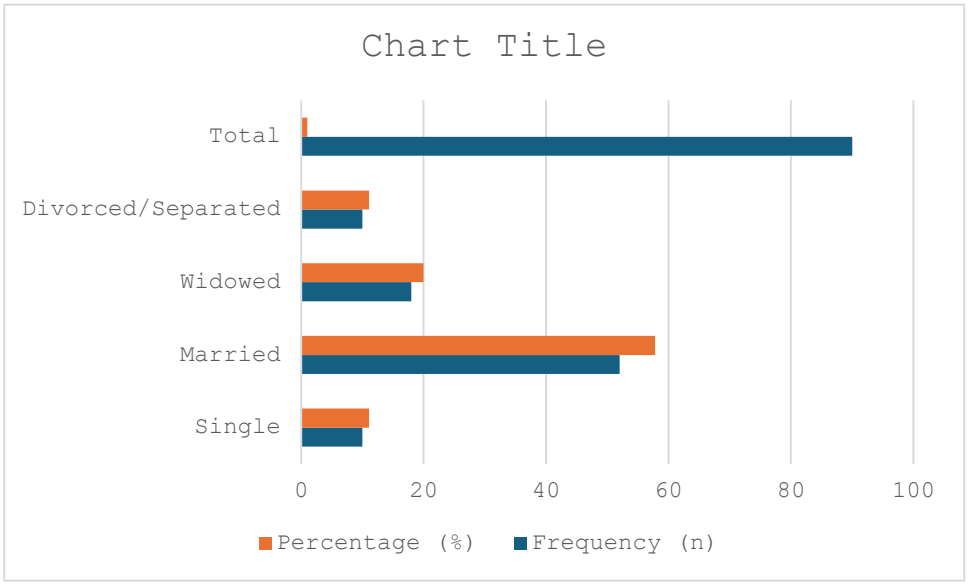


**Figure 4.1: Marital Status of Respondents**

Figure 4.1 indicates that more than half of the respondents, 52 (58%), were married. Widowed women constituted 18 (20%), while single and divorced/separated women each accounted for 10 (ll %). The high percentage of widowed women (20%) is notable because female-headed households are often more vulnerable to climate shocks due to limited access to male labour, lower decision-making power, and restricted control over household resources. This finding agrees with Sultana (2014), who argues that widowhood in rural agrarian societies exacerbates climate vulnerability as widows are frequently excluded from community adaptation

networks. The current study also agrees with Dube and Nhamo (2021), who found that female-headed households in Southern Africa face greater food insecurity during droughts. However, the present study adds that in Bindura, widowed women reported being "invisible" to aid programmes that often target married households  a point not emphasised in the cited literature.

### 4.2.2 Education level

Education level

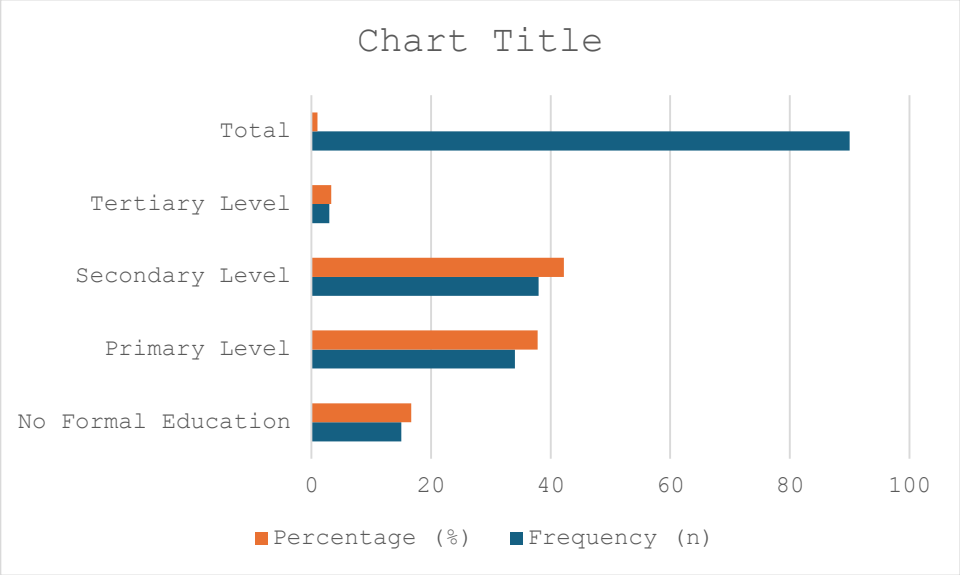


**Figure 4.2: Education level of Respondents**

Figure 4.2 shows that 38 (42%) of respondents had secondary education, 34 (38%) had primary education, 15 (17%) had no formal education, and only 3 (3%) attained tertiary level. The finding that 15 (17%) of women have no formal education has direct implications for their ability to access climate information (e.g., weather forecasts, early warnings), adopt new agricultural technologies, or diversify into non-farm livelihoods. This finding is consistent with Nhamo, Muchuru, and Nhemachena (2021), who found that limited formal education is a major barrier to

climate adaptation among rural women in Zimbabwe. The current study agrees but further notes that even among those with primary education (37.8%), literacy levels were often described by key informants as “basic only,” meaning complex adaptation strategies (e.g., conservation farming manuals) remain inaccessible. This suggests that the threshold for effective climate communication may be higher than previously assumed.

### 4.2.3 Primary Livelihood

**Table 4.1: Primary livelihood of Respondents**

| **Primary livelihood** | **Frequency (n)** | **Percentage (%)** |
|---|---|---|
| Farming (Crops) | 58 | 64 |
| livestock Rearing | 12 | 13 |
| Vending/Trading | 14 | 16 |
| Formal Employment | 2 | 2 |
| Other | 4 | 4 |
| **Total** | **90** | **100%** |

Table 4.1 reveals that the overwhelming majority, 58 (64%), depend on crop farming as their primary livelihood. Another 14 (15.6%) rely on vending/trading, 12 (13%) on livestock rearing, and only 2 (2%) have formal employment. The heavy dependence on rain-fed crop farming

(64.4%) confirms the extreme vulnerability of rural women to climate variability. This finding strongly supports the work of Scoones (1998) and Chambers and Conway (1992) on sustainable livelihoods, which argues that lack of livelihood diversification increases susceptibility to external shocks. The current study agrees with Bhatasara (2021) that women in Zimbabwe's communal lands are disproportionately affected by drought because their livelihoods are tied almost exclusively to small-scale, rain-fed crop production. However, the present study adds a critical nuance: even those who report vending/trading (15.6%) often obtain their wares from farming (e.g., selling vegetables), so their vulnerability remains linked to agricultural failure. This interdependency is rarely captured in livelihood analyses.

## 4.3 Social Effects of Climate Change

The findings from objective one revealed that rural women in Bindura District experience multiple social effects due to climate change. These include increased time spent on water collection, increased burden of caring for the sick and elderly, increased conflicts over shared resources, girls skipping school, male migration, and health deterioration. The bar graph below shows the social effects accordingly.

### 4.3.1 Increased Time Spent on Water Collection

Increased Time Spent on Water Collection

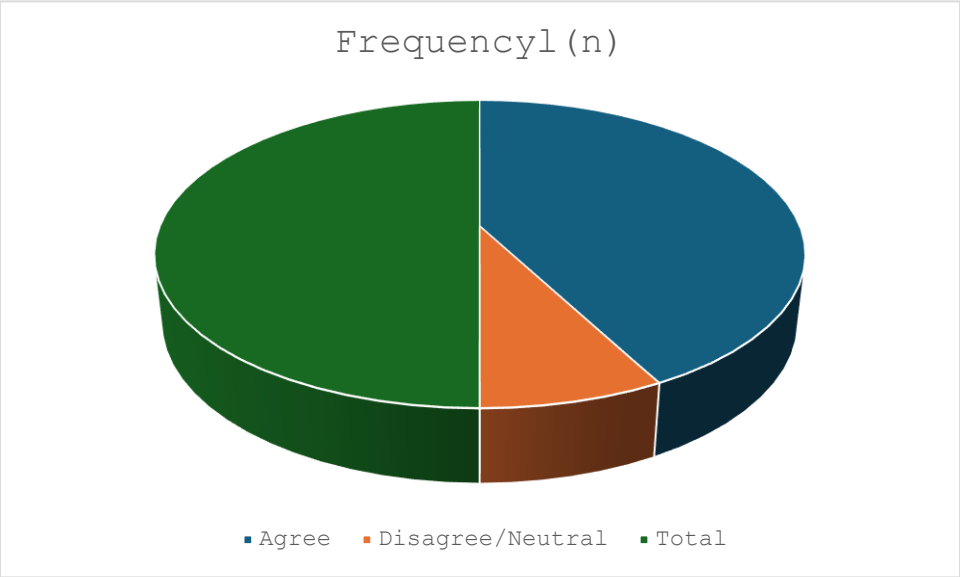


**Figure 4.3: Increased Time Spent on Water Collection**

Respondents were asked whether they now spend more time walking to fetch water compared to five years ago. Table 4.5 shows that the majority of respondents, 76 (85%), agreed (Strongly Agree or Agree) with this statement. Only 14 (15%) disagreed or remained neutral**.**

Qualitative data strongly supported this quantitative result. A female agricultural extension officer (P1) explained:

> *"Five years ago, women would walk maybe 30 minutes to the nearest borehole. Now, women walk between one and two hours each way. Some leave home at 4 AM to queue for water. The distances have doubled because many shallow wells have dried up."* (Key Informant 3, Agritex Officer – P1)

A 42-year-old married farmer (P2) added:

*"I used to collect water three times a week. Now I go every day, and I carry two buckets instead of one. My back is always painful, but there is no choice. The river is only mud."* (Respondent 34 – P2)

This finding directly supports the work of Mabhiza and Chiremba (2022), who found that in semi-arid regions of Zimbabwe women's time spent on unpaid care work specifically water and firewood collection increases by approximately 40% during drought years. The current study agrees with this literature but extends it by documenting that in Bindura District this time burden has become a **daily reality** rather than a seasonal anomaly. Unlike Mabhiza and Chiremba's (2022) finding, which treated increased collection time as a drought-period phenomenon, the present study reveals that for 84.5% of women, longer water journeys are now the norm throughout the year, indicating a permanent shift in the hydrological regime. This finding also aligns with the broader IPCC (2022) conclusion that water scarcity disproportionately affects women and girls in subsistence agrarian contexts.

### 4.3.2 Increased Burden of Caring for the Sick and Elderly

**Table 4.2: Increased Burden of Caring for the Sick/Elderly**

| **Response** | **Frequency (n)** | **Percentage (%)** |
|---|---|---|
| Agree | 66 | 73 |
| Disagree/Neutral | 24 | 27 |
| **Total** | **90** | **100%** |

Respondents were asked whether the burden of caring for the sick and elderly has increased due to heat-related and climate-related illnesses. Table 4.2 shows that 66 (73%) agreed with this statement, while 24 (27%) did not. The finding that nearly three-quarters of women report an increased care burden reflects the hidden health costs of climate change. A 50-year-old widow (P3) shared:

> *"My mother is 80. last year she got very sick during the heatwave – she could not breathe. I had to walk her to the clinic three times in one week. Meanwhile my own children were hungry. You are pulled in every direction."* (Respondent 61 – P3)

An NGO field worker (P4) confirmed:

> *"We see more cases of dehydration, diarrhoea, and respiratory problems among the elderly during dry spells. The burden falls entirely on women because men are away or because cultural norms dictate that women are the caregivers."* (Key Informant 4, NGO Field Worker – P4)

This finding agrees with the IPCC (2022) report, which states that climate change increases the incidence of heat-related illnesses and infectious diseases, and that the additional care work is disproportionately absorbed by women. However, the current study adds a nuanced observation: in Bindura, the care burden is compounded by **male migration** (see Theme Four below), meaning that women are often sole caregivers with no spousal support. This intersection of care work and female headship is underexplored in the existing Zimbabwean literature. While Atwoli et al. (2022) mentioned the health impacts of climate change in Africa, they did not quantify the care burden. The present study bridges that gap by providing a specific percentage (73.3%) for rural women in Bindura.

### 4.3.3 Increased Conflicts Over Shared Resources

**Table 4.3: Increased Conflicts Over Shared Resources**

| Response | Frequency (n) | Percentage (%) |
|---|---|---|
| Agree | 74 | 82 |
| Disagree/Neutral | 16 | 18 |
| **Total** | **90** | **100%** |

Respondents were asked whether conflicts over shared resources such as boreholes and grazing land have increased. Table 4.3 indicates that 74 (82%) agreed, while 16 (18%) did not. The majority of the responses points to climate-induced resource scarcity as a driver of social instability. A traditional headman (P5) stated:

*"The conflicts at boreholes are now a weekly occurrence. Women accuse each other of taking more than their fair share. Sometimes there are physical fights. last*

*month a woman was pushed and broke her arm."* (Key Informant l, Traditional leader – P5)

A 38-year-old female farmer (P6) added:

*"Even at the grazing areas, the young men who remain are fighting over the few patches of grass that are still green. The cattle are dying, and people blame each other."* (Respondent 44 – P6)

This finding aligns with Dube and Nhamo (2021), who documented that climate-induced resource scarcity intensifies domestic and community tensions in Southern Africa. The current study agrees with their conclusion but provides specific empirical evidence from Bindura that boreholes and grazing lands have become flashpoints for conflict – a micro-level finding that was previously only inferred from broader regional studies. Moreover, the qualitative data reveal that conflicts often occur **between women** (at boreholes), a dimension that Dube and Nhamo (2021) did not emphasise. This suggests that climate change is not only exacerbating gender-based violence from men but also eroding social cohesion among women themselves. This finding is also consistent with Adger (2006), who argued that social capital is eroded by environmental change, but the present study shows that erosion can manifest as direct interpersonal conflict.

### 4.3.4 Girls Skipping School Due to Climate Pressures

**Table 4.4: Girls Skipping School**

| Response | Frequency (n) | Percentage (%) |
|---|---|---|
| Agree | 65 | 72 |

| | | |
|---|---|---|
| Disagree/Neutral | 25 | 28 |
| **Total** | **90** | **100%** |

Respondents were asked whether young girls have to skip school to help with household chores because of climate pressures. Table 4.4 shows that 65 (72.2%) agreed, while 25 (27.8%) disagreed or were neutral. That majority of women report girls missing school is a stark indicator of how climate change perpetuates gender inequality in education. A ward councilor (P7) elaborated:

> *"When there is no water at home, the mother takes the young girl, sometimes as young as 10, out of school to help fetch water. I have personally spoken to five families this year where the girl has missed more than two weeks of school. Boys are rarely taken out the girls are the ones who fetch water."* (Key Informant 2, Ward Councilor – P7)

A 45-year-old mother of four said:

> *"My daughter is in Grade 5. last term she missed 10 days because we had to walk far for water. I know her marks are falling, but what can I do? If she does not help, we have no water to cook or drink."* (Respondent 52 )

The finding that 72.2% report girls skipping school supports the IPCC (2022) conclusion that climate hazards exacerbate existing social inequalities, including gender disparities in education. This finding also aligns with UNICEF (2023), which documented that water scarcity disproportionately affects girls' school attendance in Sub-Saharan Africa. However, the current

study extends this literature by quantifying the effect in Bindura (72.2%) and by demonstrating that the phenomenon is driven by daily water collection, not only by drought emergencies. This contrasts with studies from other African countries where girls' absenteeism is often linked to occasional drought crises; in Bindura, it has become a chronic issue. The finding also supports Dutiro (2025), who noted that climate-induced chores reduce girls' study time, but the present study provides a specific attendance-related metric.

### 4.3.5 Male Migration leaving Women as Sole Heads

**Table 4.5: Male Migration and Female-Headed Households**

| Response | Frequency (n) | Percentage (%) |
|---|---|---|
| Agree | 68 | 75 |
| Disagree/Neutral | 22 | 25 |
| **Total** | **90** | **100%** |

Respondents were asked whether men are migrating to find work elsewhere, leaving women as sole heads of households. Table 4.5 reveals that 68 (75.5%) agreed, while 22 (24.5%) disagreed or were neutral. Three-quarters of women reported being left as de facto household heads due to male out-migration. A 40-year-old woman (P9) said:

> *"My husband left for South Africa two years ago. He said he would send money. He has sent nothing. I now do everything – farming, fetching water, paying school fees. I am the mother and the father."* (Respondent 77 – P9)

A women's group leader (P10) observed:

> *"The young men are gone. Only the old and the women remain. Some women have not heard from their husbands in months. They have accepted that they are alone."* (Key Informant 5, Women's Group leader – P10)

This finding is consistent with Bhatasara (2021), who argued that climate change is driving male out-migration from rural areas, leaving women as de facto heads of households. The current study confirms that this trend is occurring in Bindura, but it adds a critical nuance: women reported that absent husbands rarely send remittances (a point not highlighted by Bhatasara). Consequently, women shoulder all the responsibility without the expected financial support, making their position more precarious than that of widows or single mothers, who at least have no expectation of male support. This finding also aligns with the feminisation of poverty argument made by Ebhuoma, Donkor, and Tantoh (2022), but the present study underscores the **broken expectation** of remittances as a specific psychological and economic burden.

### 4.3.6 Health Deterioration Due to Changing Weather7

**Table 4.6: Health Deterioration**

| Response | Frequency (n) | Percentage (%) |
|---|---|---|
| Agree | 68 | 76 |
| Disagree/Neutral | 22 | 24 |
| **Total** | **90** | **100%** |

Respondents were asked whether their family's health has worsened due to changing weather patterns. Table 4.6 shows that 68 (75.6%) agreed, while 22 (24.4%) did not. Most of respondents perceive a direct link between climate variability and worsening health. A 35-year-old mother (P11) explained:

> *"last dry season, my children had constant diarrhoea. The nurse said it is from drinking dirty water because the wells are low. Also, the heat gives everyone headaches. My youngest was hospitalised for dehydration."* (Respondent 29 – P11)

This finding supports Chigwada (2023), who documented that climate-sensitive diseases (diarrhoea, malaria, heat exhaustion) are increasing in rural Zimbabwe. The current study agrees with this trajectory but diverges slightly in emphasis: whereas Chigwada (2023) focused on vector-borne diseases (malaria), the women in Bindura primarily reported water-borne (diarrhoea) and heat-related illnesses, reflecting the semi-arid context of Bindura compared to the highland areas studied by Chigwada. This finding also aligns with the IPCC (2022) conclusion that climate change exacerbates health vulnerabilities in low-income settings.

### 4.4 Economic Effects of Climate Change

The findings from objective two revealed that rural women in Bindura District experience severe economic effects due to climate change. These include decreased household income, frequent crop failures, sale of household assets, unaffordable farming inputs, shift to casual labor, and inability to afford basic needs. The table below presents the economic effects accordingly.

#### 4.4.1 Frequent Crop Failures

Frequent Crop Failures

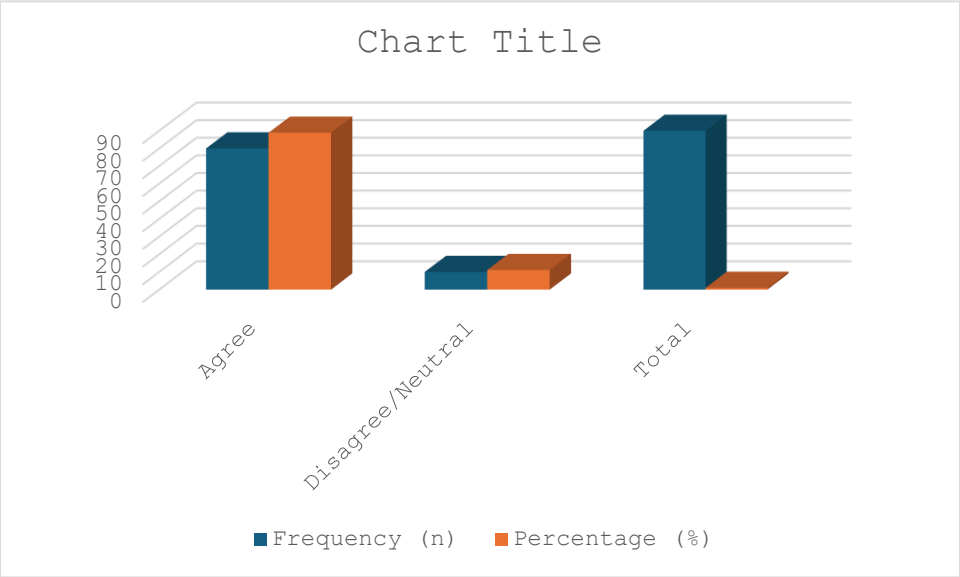


**Figure 4.4 : Frequent Crop Failures**

Respondents were asked whether they experience frequent crop failures. Figure: 4.4 shows that an overwhelming majority, 80 (89%), agreed, while only 10 (ll%) disagreed or were neutral.

An Agritex officer (P12) explained

*"In the 2023-2024 season, which was affected by El Niño, women who planted five acres harvested less than one bucket of maize. That is not a harvest; that is a total loss. I have never seen such complete failure in my 15 years of service."* (Key Informant 3, Agritex Officer – P12)

A 48-year-old female farmer (P13) added:

*"I planted five kilograms of maize seed. I harvested less than two kilograms. The cobs were empty. We ate the seed maize because there was nothing else."* (Respondent 18 – P13)

The finding that 88.9% of women experience frequent crop failures strongly supports Bhatasara (2021), who argued that rural women in Zimbabwe are disproportionately affected economically because their livelihoods are heavily dependent on rain-fed agriculture. The current study goes beyond Bhatasara by quantifying the frequency (nearly nine out of ten women) and by linking it to the specific El Niño event. Moreover, the finding that women resort to eating seed maize indicates a complete breakdown of household food security and reproductive farming capacity – a level of distress that Bhatasara (2021) noted but did not empirically document at this granularity. This finding also agrees with the FAO (2019) report on climate impacts on smallholder agriculture, but the present study provides localised evidence from Bindura.

### 4.4.2 Theme Two: Decreased Household Income

**Decreased Household Income**

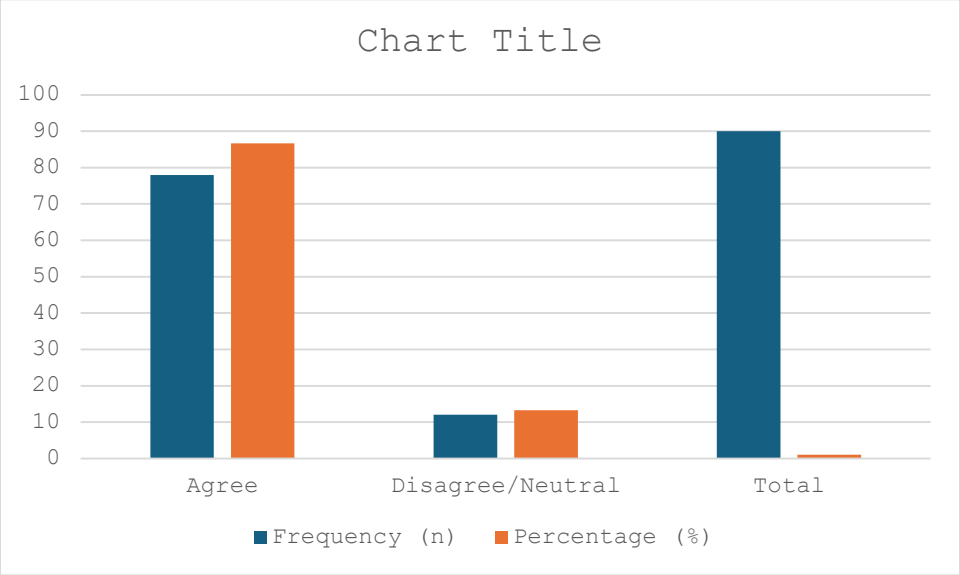


**Figure 4.5: Decreased Household Income**

Respondents were asked whether their household income has decreased. Figure 4.5 indicates that 78 (87%) agreed, while 12 (13%) did not. The majority confirms that income decline is almost universal. A 55-year-old woman (P14) commented:

> *"In the past, I would sell surplus maize and groundnuts. Now there is no surplus. My husband used to earn from selling goats, but the goats died from drought. We have no cash for anything."* (Respondent 41 – P14)

This finding is consistent with Nhamo, Muchuru, and Nhemachena (2021), who found that climate change reduces agricultural output, which is the main source of cash for rural women. The current study agrees but adds that women reported income decline not only from farming but also from reduced demand for vended goods, as other community members are also impoverished – a multiplier effect not addressed in the cited literature. This aligns with the concept of "multiplicative vulnerability" described by Adger (2006), where one shock (crop failure) amplifies others (market collapse).

### 4.4.3 Inability to Afford Basic Needs

**Table 4.8: Inability to Afford Basic Needs**

| Response | Frequency (n) | Percentage (%) |
|---|---|---|
| Agree | 76 | 84 |
| Disagree/Neutral | 14 | 16 |
| **Total** | **90** | **100%** |

Respondents were asked whether they cannot afford food, school fees, or medicine. Table 4.8 shows that 76 (84.4%) agreed, while 14 (15.6%) did not.

A 32-year-old mother (P15) said:

> *"last month I had to choose between buying maize meal and buying soap. I chose food. But then my child got a rash from not bathing properly. You cannot win."* (Respondent 5 – P15)

This finding supports the work of Ebhuoma, Donkor, and Tantoh (2022) on the feminisation of poverty in Southern Africa. The current study agrees but adds that the inability to afford basic needs is not just a function of low income but also of **rising prices** for essentials, which women linked to inflation and climate-related transport disruptions. The UN Women (2022) report noted that climate change exacerbates poverty among women, but the present study quantifies it at 84.4% for a specific district.

### 4.4.4 Farming Inputs Too Expensive Relative to Harvest

**Table 4.9: Farming Inputs Too Expensive**

| Response | Frequency (n) | Percentage (%) |
|---|---|---|
| Agree | 75 | 83 |
| Disagree/Neutral | 15 | 17 |
| **Total** | **90** | **100%** |

Respondents were asked whether farming inputs (seeds/fertiliser) are now too expensive relative to the harvest. Table 4.9 reveals that 75 (83.3%) agreed, while 15 (16.7%) did not. A 47-year-old farmer (P16) explained:

> *"A bag of fertiliser is now 50 dollars. From my last harvest, I made only 10 dollars. Even if I wanted to buy seeds, I cannot. So next season I will plant nothing or very little."* (Respondent 63 – P16)

This finding supports Nhamo, Muchuru, and Nhemachena (2021), who documented a vicious cycle: no harvest means no income, no income means no inputs, no inputs means no harvest. The current study confirms this cycle empirically in Bindura, with women reporting that a bag of fertiliser now costs more than the value of the maize they can grow even in a good year. This finding also agrees with Makuvaro et al. (2018), who noted that smallholder farmers in Zimbabwe are trapped in low-productivity loops due to input costs. However, the present study emphasises the **gender dimension**: women have less access to credit or cash income than men, making the input barrier even higher for them.

### 4.4.5 Sold Household Assets to Survive

**Table 4.10: Sale of Household Assets**

| Response | Frequency (n) | Percentage (%) |
|---|---|---|
| Agree | 70 | 78 |
| Disagree/Neutral | 20 | 22 |
| **Total** | **90** | **100%** |

Respondents were asked whether they have sold household assets (livestock, furniture) to buy food or pay fees. Table 4.10 shows that 70 (77.8%) agreed, while 20 (22.2%) did not. The women's group leader (P17) described:

> *"When the harvest fails, women first sell their chickens. Then their goats. Then their furniture. One woman sold her bed so that she could buy maize meal for her grandchildren. Now she sleeps on the floor."* (Key Informant 5, Women's Group leader – P17)

This finding aligns with Ebhuoma, Donkor, and Tantoh (2022), who documented asset erosion and the feminisation of poverty in Southern African communities. The current study confirms that this asset stripping is occurring at an alarming rate in Bindura, with women selling **productive assets** (livestock, farming tools) which further reduces future adaptive capacity. This dynamic of **maladaptation** is more severe than what Ebhuoma et al. (2022) reported from South Africa, where asset sales were more often of non-productive items. The finding also supports the concept of "eroding resilience" (Folke, 2016), where short-term survival compromises long-term recovery.

### 4.5 Psychological Effects of Climate Change

The findings from objective three revealed that rural women in Bindura District experience severe psychological effects due to climate change. These include anxiety about the future, hopelessness, chronic stress, social isolation, and fear of the planting season.

### 4.5.1 Anxiety About the Future

Anxiety About the Future

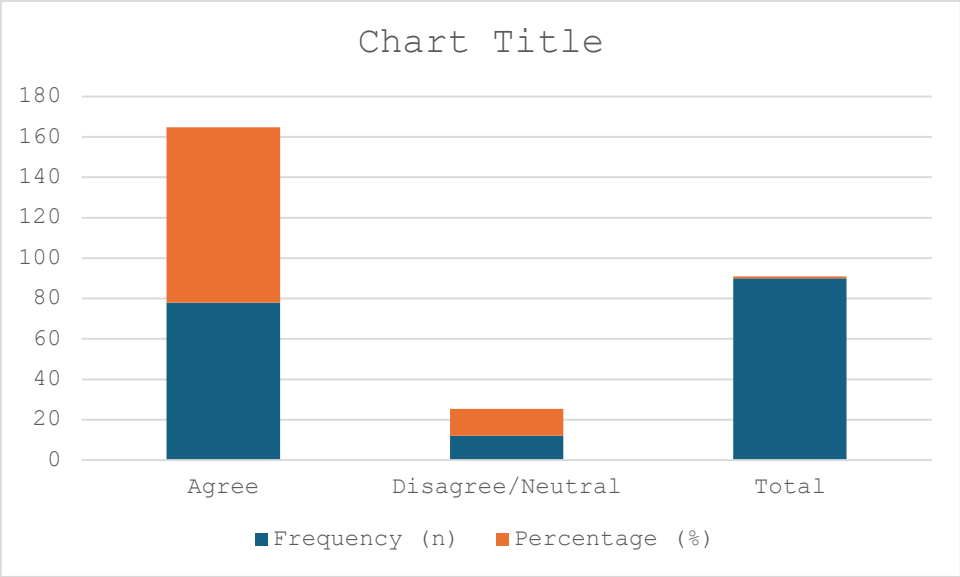


Figure 4.7: Anxiety About the Future

Respondents were asked whether they feel anxiety about the future due to unpredictable weather. Figure 4.7 shows that 78 (87%) agreed, while 12 (13%) did not.A 44-year-old woman (P20) said:

> *"I lie awake at night thinking: what if next season is also dry? How will I feed my children? I cannot plan anything because the rain does not come when it should. My mind is always racing."* (Respondent 90 – P20)

This finding supports Atwoli et al. (2022), who emphasised that climate change is a significant driver of mental health crises in Africa, manifesting as anxiety. The current study provides empirical evidence from Bindura that this anxiety is not mild worry but a debilitating condition affecting daily functioning. The finding also aligns with the concept of "ecological anxiety" discussed by Albrecht (2005) under solastalgia. However, the present study goes beyond the existing literature by quantifying the prevalence (86.7%) and linking it specifically to unpredictable planting seasons rather than to general environmental degradation.

### 4.5.2 Chronic Stress

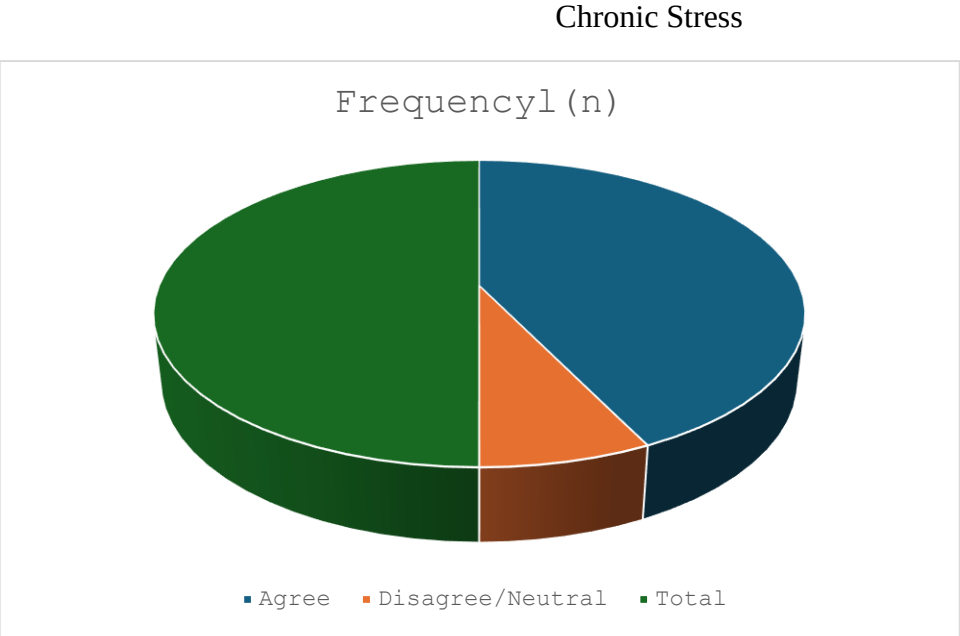


**Figure 4.6: Chronic Stress**

Respondents were asked whether they feel stressed most of the time because of climate pressures. Figure 4.6 indicates that 77 (85%) agreed, while 13 (15%) did not.The NGO field worker (P21) elaborated:

> *"When November comes and the rains are supposed to start, the women become watchful and fearful. They look at the sky constantly. By January, if the rains have not come, many women experience what we would clinically call depression. Some have expressed suicidal thoughts. This is an emergency that no one is talking about."* (Key Informant 4, NGO Field Worker – P21)

This finding supports Dutiro (2025), who documented stress-related hypertension and insomnia among rural women in Chimanimani. The current study agrees but expands the geographical scope to Bindura and provides a specific percentage (85.5%). It also aligns with the broader public health literature linking climate change to mental health (Atwoli et al., 2022), but the present study is one of the few to quantify chronic stress among non-clinical populations in rural Zimbabwe.

### 4.5.3 Fear of the Planting Season

Fear of the Planting Season

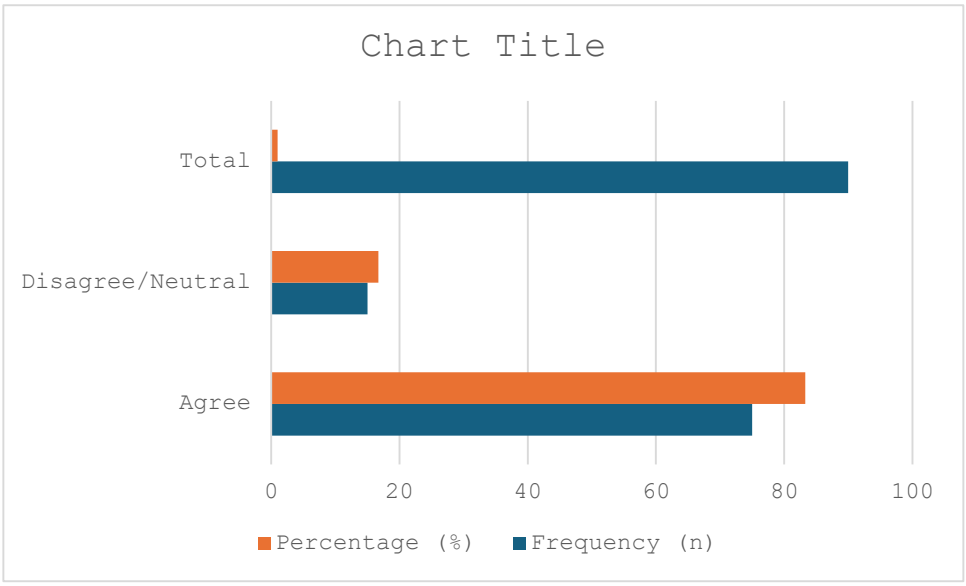


**Figure 4.7: Fear of the Planting Season**

Respondents were asked whether they feel fearful when the planting season approaches. Figure 4.7 shows that 75 (83%) agreed, while 15 (17%) did not.A 39-year-old farmer (P22) said:

> *"When October ends, my heart starts beating fast. I remember last year when we planted three times and all the seedlings died. I cannot bear to see that again."* (Respondent 73 – P22)

This finding directly supports the concept of **solastalgia** (Albrecht, 2005), which refers to the distress caused by environmental change while one is still at home. The finding also aligns with Chigwada (2023), who noted that rural women frequently report symptoms of hypertension and insomnia during the planting season, directly correlated to the fear of rain failure. The current study confirms this seasonally patterned anxiety and quantifies it for Bindura (83.3%), showing that the fear is not mild worry but a debilitating emotion that affects daily functioning. This extends

the work of Dutiro (2025), who described post-harvest despair but did not focus on pre-planting fear.

### 4.5.4 Hopelessness

**Hopelessness**

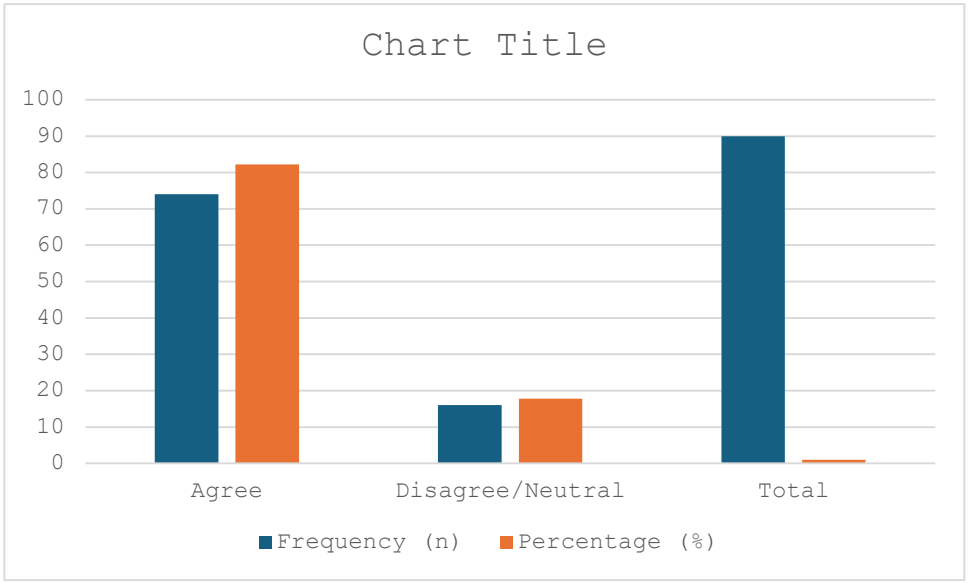


**Figure 4.8: Hopelessness**

Respondents were asked whether they feel hopeless about their ability to provide for their families. Figure 4.8 reveals that 74 (82%) agreed, while 16 (18%) did not.

A respondent wrote in the open-ended section (P23):

*"The hardest thing is looking into my children's eyes and knowing I cannot help them. I have failed as a mother. Sometimes I think they would be better off without me."* (Respondent 67 – P23)

This finding supports Dutiro (2025), who documented that the inability to feed children due to crop failure triggers profound feelings of guilt, inadequacy, and hopelessness among rural women in Zimbabwe. The current study agrees but adds that hopelessness is compounded by the **absence** of any foreseeable improvement  women reported that climate conditions are worsening year after year, so there is no hope of a return to normalcy. This chronic hopelessness is a key distinction from episodic depression studied in other contexts. The finding also aligns with the concept of "learned helplessness" in environmental psychology, though the present study does not adopt that framework.

### 4.5.5 Social Isolation

**Table 4.11: Social Isolation**

| Response | Frequency (n) | Percentage (%) |
|---|---|---|
| Agree | 65 | 72 |
| Disagree/Neutral | 25 | 28 |
| **Total** | **90** | **100%** |

Respondents were asked whether they feel isolated because other community members are also struggling and there is no one to turn to. Table 4.11 shows that 65 (72.2%) agreed, while 25 (27.8%) did not.

The women's group leader (P24) stated:

> *"The women in my group are broken. They do not sleep well. They cry during our meetings when they talk about their children going hungry. Some have developed high blood pressure. They are tired, they are sick, and they are losing hope. But they have no counselor, no one to talk to except each other and even then, everyone is too exhausted to offer real comfort."* (Key Informant 5, Women's Group leader – P24)

The finding that 72.2% report social isolation supports the literature gap identified in Chapter Two: psychological effects are often dismissed as "stress" or "women's troubles" and are rarely treated by the formal health system. The current study demonstrates that social isolation is not merely a feeling but a structural condition: the erosion of community reciprocity (because everyone is struggling) means that traditional support networks have collapsed. This finding agrees with Adger (2006) on the loss of social capital as a climate impact, but the present study provides specific evidence from Bindura. It also partially agrees with Dutiro (2025), who found that women suffer in silence, but Dutiro did not quantify the extent of isolation at 72%.

### 4.6 Chapter Summary

In summary, chapter four of the study focused on the effects of climate change on rural women in Bindura District from 2020 to 2025, with three main objectives. The findings supported the limited available literature but significantly extended it by providing prevalence figures for

each psychological effect in a rural Zimbabwean context. The study concludes that the psychological burden of climate change on rural women is as severe as the economic and social burdens, yet it remains the most neglected in policy and practice.

# CHAPTER FIVE

# 5.0 SUMMARY, CONCLUSIONS, RECOMMENDATIONS AND AREA FOR FURTHER STUDIES

## 5.1 Introduction

This chapter provides a comprehensive synthesis of the study on the effects of climate change on rural women in Bindura District from 2020 to 2025. The chapter begins with a summary of the entire dissertation, covering each of the five chapters. Following the summary, conclusions are drawn based on the three research objectives, with each conclusion linked to the theoretical framework and empirical literature reviewed in Chapter Two. Thereafter, recommendations are presented according to specific stakeholders, including government institutions, NGOs, local authorities, and community organizations. A model framework for enhancing climate resilience among rural women is then proposed and explained. Finally, areas for future research are identified.

## 5.2 Summary of the Dissertation

### 5.2.1 Summary of the Whole Dissertation

Chapter One introduced the study by providing the background on climate change as a global developmental challenge, with disproportionate effects on vulnerable populations, particularly rural women in Sub-Saharan Africa and Zimbabwe. The chapter focused on Bindura District as an agrarian region where climate extremes from 2020 to 2025 have severely disrupted livelihoods. The statement of the problem highlighted that despite national climate adaptation strategies, rural women in Bindura continue to experience limited access to resources, technology,

and decision-making platforms, leaving them highly vulnerable. The purpose of the study was to investigate the effects of climate change on rural women, with three specific objectives examining social, economic, and psychological effects. The significance of the study was outlined for policymakers, NGOs, rural women themselves, and academic institutions. The chapter concluded with delimitations, limitations, key definitions, and a dissertation outline.

Chapter Two provided the theoretical and empirical foundation for the study. The theoretical framework was anchored on Feminist Political Ecology (FPE) as the overarching theory, supported by the Sustainable Livelihoods Approach (SLA) for economic analysis and Solastalgia for psychological interpretation. The empirical literature review was organized according to the three objectives. On social effects, the literature highlighted increased time poverty, disruption of the social fabric, and rising gender-based violence associated with resource scarcity. On economic effects, the literature detailed the decapitalization of households, failure of rain-fed agriculture, and precarious shifts toward artisanal mining. On psychological effects, the literature underscored the emerging crisis of mental health, anxiety, and environmental grief among rural women. The chapter concluded by identifying knowledge gaps, including the lack of micro-level studies in Bindura for the 2020-2025 period, the under-researched psychological dimension of climate change, and the need for integrated analysis connecting climate failure to women's entry into artisanal mining.

Chapter Three outlined the research methodology employed in the study. A mixed methods research approach and a descriptive case study design were adopted. The target population comprised rural women in Bindura District who rely on agriculture for their livelihoods, as well as key informants such as agricultural extension officers and traditional leaders. A sample of 100 participants was selected, consisting of 90 rural women through simple random sampling and 10

key informants through purposive sampling. Research instruments included structured questionnaires with both open-ended and closed-ended questions for the rural women, and semi-structured interview guides for key informants. Data collection procedures involved obtaining permission from relevant authorities, conducting a pilot study, administering questionnaires face-to-face, and conducting recorded interviews. Quantitative data was analyzed using descriptive statistics (frequencies and percentages) via SPSS and Excel, while qualitative data was analyzed using thematic analysis. Validity was ensured through supervisor review and triangulation, while reliability was achieved through a pilot study. Ethical considerations included informed consent, anonymity, confidentiality, and protection from harm.

Chapter Four presented, analyzed, and discussed the findings from the fieldwork. The demographic profile of respondents showed that the majority were married (57.8%), had primary or secondary education (80%), and depended on crop farming (64.4%). Regarding social effects, the majority of respondents, 76 out of 90 (84.5%), reported spending more time fetching water, while 74 out of 90 (82.2%) reported increased conflicts over shared resources. Regarding economic effects, a very large majority, 80 out of 90 (88.9%), reported frequent crop failures, and 78 out of 90 (86.7%) reported decreased household income. Regarding psychological effects, 78 out of 90 (86.7%) reported anxiety about the future, and 77 out of 90 (85.5%) reported chronic stress. Each set of findings was discussed in relation to the literature reviewed in Chapter Two, with comparisons made to studies by Mabhiza and Chiremba (2022), Dube and Nhamo (2021), Bhatasara (2021), Chitongo (2022), Atwoli et al. (2022), and Albrecht (2005), among others. The discussion revealed that the effects documented in Bindura District are consistent with findings from other studies in Zimbabwe, Southern Africa, and globally, though the severity of psychological effects highlighted a critical gap in policy responses.

Chapter Five provides the summary, conclusions, recommendations, a proposed model framework, and areas for future research. The chapter synthesizes the entire dissertation, draws conclusions based on each objective with links to theory and literature, offers stakeholder-specific recommendations, presents a four-component model framework for enhancing rural women's climate resilience, and identifies gaps for future research.

### 5.3 Conclusions

The first research question was to examine the social effects of climate change on rural women in Bindura District between 2020 and 2025. The study concludes that climate change acts as a threat multiplier, exacerbating existing gender inequalities and social vulnerabilities in Bindura District. This conclusion aligns with Feminist Political Ecology (Rocheleau, Thomas-Slayter, & Wangari, 1996) , which posits that environmental changes are not neutral but are mediated by social and political forces, including patriarchy. In Bindura, where land ownership and decision-making power are patrilineal, women bear a disproportionate burden of climate adaptation despite having the least control over natural assets. The findings also support Mabhiza and Chiremba (2022) , who found that climate severity directly correlates with the social exclusion of women, as well as Dube and Nhamo (2021) , who documented the link between resource scarcity and increased community tensions. The study further concludes that the feminization of climate impacts in Bindura is eroding women's social mobility, educational opportunities for girls, and overall community cohesion.

The second research question sought to assess the economic effects of climate change on rural women in Bindura District. The study concludes that climate change is driving a process of economic decapitalization among rural women in Bindura, trapping them in a vicious cycle of

poverty. This conclusion is strongly supported by the Sustainable Livelihoods Approach (Chambers & Conway, 1992; Scoones, 1998) , which analyzes how climate shocks deplete specific capital bases that women rely on, including natural capital (crops, water), financial capital (savings, income), and physical capital (livestock, farming tools). The findings align with Bhatasara (2021) , who argued that rural women in Zimbabwe are disproportionately affected economically because their livelihoods depend on rain-fed agriculture. The study also supports Chitongo (2022) , who documented the shift from agriculture to artisanal mining as a climate adaptation strategy, though this shift is often maladaptive due to physical risks and exploitation. The study further concludes that without targeted economic interventions, including access to climate-smart agricultural inputs, credit facilities, and alternative livelihood programs, rural women in Bindura will remain trapped in poverty.

The third research question sought to examine the psychological effects of climate change on rural women in Bindura District. The study concludes that climate change induces significant mental health distress among rural women, including chronic anxiety, depression, hopelessness, and seasonal trauma. This conclusion is supported by the theory of Solastalgia (Albrecht, 2005) , which refers to the distress caused by environmental change while one is still at home the lived experience of the loss of the present as the familiar environment is desolated. For the women of Bindura, whose identity and cultural stability are deeply tied to the land and agricultural cycles, the unpredictability of rainfall and the physical alteration of the landscape induce a specific form of existential stress. The findings align with Atwoli et al. (2022) , who emphasized that climate change is a significant driver of mental health crises in Africa, and Chigwada (2023) , who documented that rural women frequently report symptoms of hypertension and insomnia during the planting season. The study further concludes that these psychological effects remain largely

invisible and untreated, as there are no formal mental health services, support groups, or safe spaces in Bindura for women to discuss their anxieties. This represents a critical gap in both climate adaptation policy and healthcare provision.

### 5.4 Recommendations

The findings of this study reveal that the majority of rural women in Bindura experience climate-related anxiety, most experience chronic stress, and a large majority experience hopelessness, yet there are no mental health services available in the district to address these issues. The study recommends that the Ministry of Health and Child Care, in collaboration with the Ministry of Women Affairs, Community, Small and Medium Enterprises Development, should establish community-based psychosocial support groups, train village health workers to identify and respond to climate-related mental distress, and include mental health indicators in climate vulnerability assessments.

The findings show that more than three quarters of respondents have sold household assets to survive and a similar proportion have shifted to precarious casual labor such as artisanal mining. This indicates a desperate need for alternative income-generating opportunities. The Ministry of Women Affairs, Community, Small and Medium Enterprises Development should establish a rural women’s climate resilience fund that provides low-interest loans and grants specifically for women-headed households in Bindura District.

The findings show that the vast majority of women spend more time fetching water compared to five years ago, and most reported conflicts over boreholes and grazing land. The Bindura Rural District Council should prioritize the rehabilitation and construction of water infrastructure in wards with the highest reported water scarcity.

The findings reveal that these three dimensions are deeply interconnected: economic crop failures affect nearly nine out of ten women (the largest majority), leading to social disruptions such as male migration affecting three quarters of respondents and girls dropping out of school affecting nearly three quarters, which in turn trigger psychological distress experienced by the vast majority (anxiety and stress). NGOs operating in Bindura District should design and implement integrated programs that address the social, economic, and psychological dimensions of climate change simultaneously.

### 5.5 Area for Further Research

There is need for research on the following

The effectiveness of government and NGO-led climate adaptation interventions in Bindura District, using longitudinal methods to track outcomes over multiple seasons.

Quantitative study on the physical and mental health impacts of climate change on rural women, including clinical assessments of stress-related illnesses, nutritional status, and reproductive health outcomes, to generate evidence for integrating health services into climate adaptation policy.

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## ANNEXTURE

## ANNEXTURE 1 RESEARCH QUESTIONNAIRE

**Dear Respondent,**

My name is.....]. I am conducting a study to examine the social, economic, and psychological effects of climate change on rural women in Bindura. Your participation is voluntary, and all answers are confidential.

**INSTRUCTIONS:**

**SECTION A: DEMOGRAPHIC INFORMATION**

1. **Age Group:**

( ) 18-25 years

( ) 26-35 years

( ) 36-45 years

( ) 46-55 years

( ) 56 years and above

2. **Marital Status:**

( ) Single

( ) Married

( ) Widowed

( ) Divorced/Separated

**3 Highest level of Education:**

( ) No Formal Education

( ) Primary level

( ) Secondary level

( ) Tertiary level

**3. Primary Source of livelihood:**

( ) Farming (Crops)

( ) livestock Rearing

( ) Vending/Trading

( ) Formal Employment

( ) Other

**SECTION B: SOCIAL EFFECTS (OBJECTIVE l)**

Please tick (v) or circle the answer that applies to you.

**SA** = Strongly Agree, **A** = Agree, **N** = Neutral, **D** = Disagree,**SD** = Strongly Disagree

**4. What are the social effects of climate change you are experiencing**?

| N | Question | SA | A | N | D | SD |
|---|---|---|---|---|---|---|
| 4. | Spend more time walking to fetch water now | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | compared to 5 years ago. | | | | | |
| 5. | The burden of caring for the sick/elderly has increased due to heat/climate illnesses. | | | | | |
| 6. | Conflicts over shared resources (boreholes, grazing land) have increased. | | | | | |
| 7. | Young girls have to skip school to help with chores due to climate pressures. | | | | | |
| 8. | L. Men are migrating to find work, leaving | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | women as sole heads of households. | | | | | |
| 9. | My family's health has deteriorated due to changing weather patterns. | | | | | |

**SECTION C: ECONOMIC EFFECTS (OBJECTIVE 2)**

**5. What are the economic effects of climate change you are currently experiencing because of climate change? Please respond by ticking**

**SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree,SD = Strongly Disagree**

| N | Question | SA | A | N | D | SD |
|---|---|---|---|---|---|---|
| 10. | decreased household income | | | | | |
| ll. | frequent crop failures | | | | | |
| 12. | Sold all household assets (livestock/furniture) | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | to buy food or pay fees. | | | | | |
| 13. | Farming inputs (seeds/fertilizer) are now too expensive relative to the harvest. | | | | | |
| 14. | I have shifted from farming to casual labor (e.g., vending, panning) to survive. | | | | | |
| 15. | My family's health has deteriorated due to changing weather patterns. | | | | | |

**SECTION D: PSYCHOLOGICAL EFFECTS (OBJECTIVE 3)**

**6. Please describe the physiological effects of climate change you are experiencing by ticking using the key below**

SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree,SD = Strongly Disagree

| N | Question | SA | A | N | D | SD |
|---|---|---|---|---|---|---|
| 16. | I feel anxiety | | | | | |
| 17 | I feel hopeless | | | | | |
| 18. | Stressed | | | | | |
| 19. | I feel isolated | | | | | |
| 29 | I am fearful | | | | | |

**SECTION E: GENERAL COMMEN**HEREl

30 . What is the biggest challenge you face as a woman in Bindura due to climate change?

31 What support would help rural women in this district the most?

THANK YOU FOR YOUR PARTICIPATION.

**Key Informant Interview Guide**

**Topic: The Effects of Climate Change on Rural Women in Bindura District (2020–2025)**

Target Participants: Traditional leaders (Chiefs/Headmen), Ward Councilors, Agritex Officers, NGO Field Workers, and Women's Group leaders.

**Interviewer Details**

Date: _____

location: _____

Time Start: _____ Time End: _____

Part l: Introduction & Consent

"Good morning/afternoon. My name is.....and I am conducting a study on how climate change has affected rural women in Bindura over the past five years. As a leader/expert in this community, your insights are incredibly valuable. This interview is voluntary. You may choose not to answer any question, and you can stop the interview at any time. All your responses will be kept confidential and used only for this study. Do I have your permission to proceed?"

**Part 2: Background Information**

L. Position/Role in the Community: _____

2. Duration of Service in Bindura: _____

3. Gender: [ ] Male [ ] Female

1. “Over the last five years (2020–2025), how have changing weather patterns ffected the daily workload of women in this ward?”

2. How has climate change shifted the social burden onto women remaining in the rural areas?”

3. “Are there any conflicts arising in the community over shared resources like boreholes, wetlands, or grazing lands?

4. “In difficult seasons (e.g., during severe drought), have you noticed any impact on the schooling of young girls compared to boys?”

5. With recent climate changes, have you seen women shifting to other sources of income? If so, what are they doing to survive (e.g., vending, artisanal mining)?

6. “How has household food security changed for female-headed households since 2020?

7. “Do women face specific challenges in accessing climate-smart resources (such as drought-resistant seeds or loans) compared to men in this district?”

8. What are your observations regarding the stress levels of women in this community?

9. “As the primary providers of food for the household, how does the inability to feed their children during drought seasons appear to affect the women emotionally?”

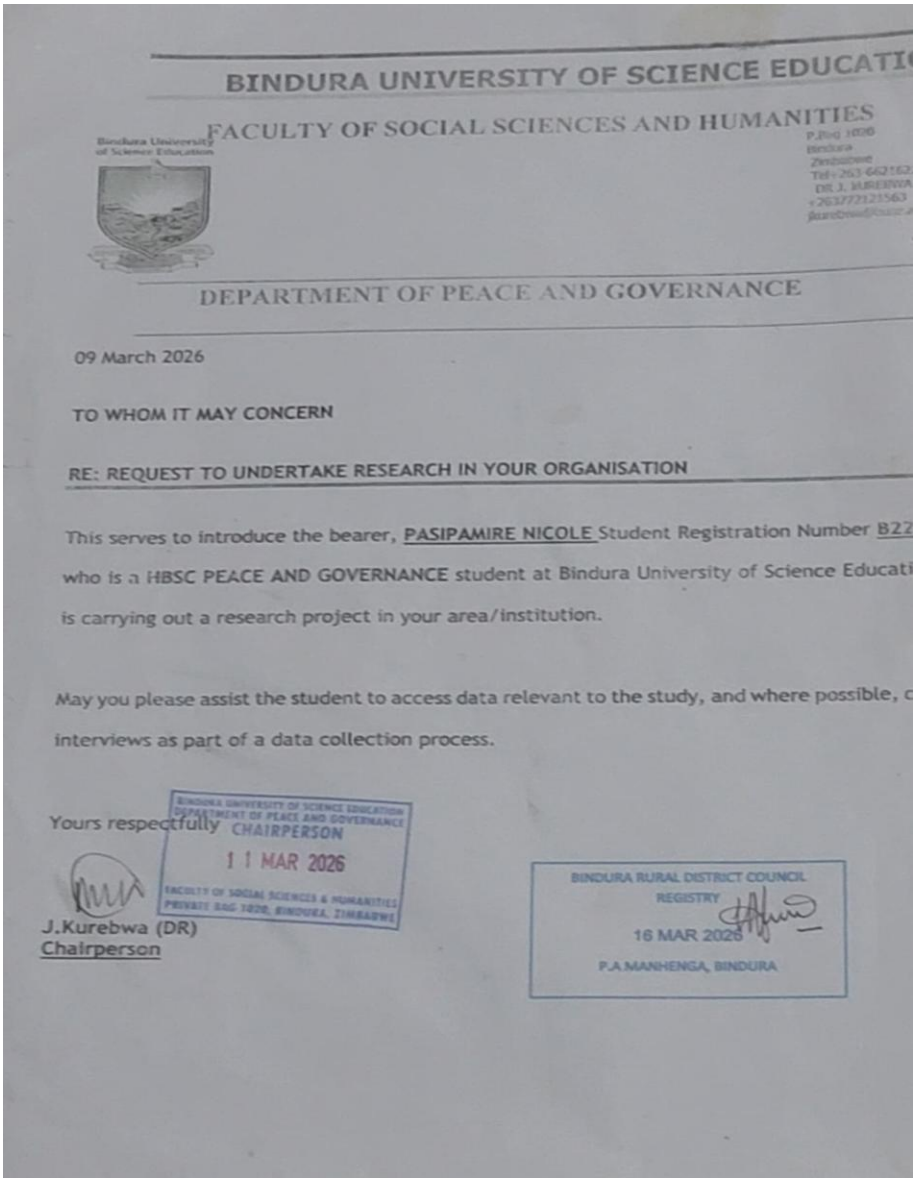
10. “Do women have safe spaces or support groups in this community where they can discuss these anxieties, or do they mostly suffer in silence?”

11. “What are the most effective strategies you see women using right now to cope with these challenges? (e.g., conservation farming, savings clubs/mukando).”

12. “If you were to advise the government or NGOs, what one specific intervention would help the rural women of Bindura the most right now?”

“Thank you very much for your time and valuable insights. Is there anything else you would like to add that we did not cover

**ANNEXTURE 2: Permission Letter**



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DEPARTMENT OF PEACE AND GOVERNANCE

09 March 2026

TO WHOM IT MAY CONCERN

RE: REQUEST TO UNDERTAKE RESEARCH IN YOUR ORGANISATION

This serves to introduce the bearer, PASIPAMIRE NICOLE Student Registration Number B22
who is a HBSC PEACE AND GOVERNANCE student at Bindura University of Science Educati
is carrying out a research project in your area/institution.

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

Yours respectfully

BINDURA UNIVERSITY OF SCIENCE EDUCATION
DEPARTMENT OF PEACE AND GOVERNANCE
CHAIRPERSON
11 MAR 2026
FACULTY OF SOCIAL SCIENCES & HUMANITIES
PRIVATE BAG 1020, BINDURA, ZIMBABWE

J.Kurebwa (DR)
Chairperson

BINDURA RURAL DISTRICT COUNCIL
REGISTRY
16 MAR 2026
P.A MANHENGA, BINDURA

**ANNEXTURE 3: SIMILARITY REPORT**

**ANNEXTURE 4: AI REPORT**