**BINDURA UNIVERSITY OF SCIENCE EDUCATION**

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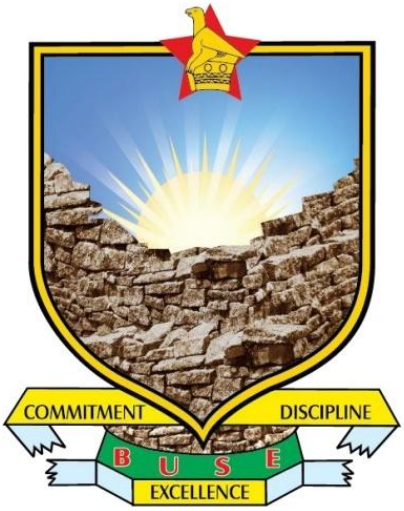


# The Impact Of Inadequate Access to clean water on human security : A case study of Ward 9, Karoi

By

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A Dissertation Submitted to the Department of Peace and Governance in Partial Fulfillment of the Bachelor of Science Honors Degree in Peace and Governance

Bindura, Zimbabwe

June 2026

## ABSTRACT

This study examined the impact of inadequate access to clean water on human security in Ward 9, Karoi, Zimbabwe. The research was motivated by persistent water shortages and their effects on the well-being of local communities, particularly vulnerable groups such as women and children. The study was guided by the Feminist Political Ecology framework, which highlights the gendered nature of environmental challenges. A qualitative case study design was adopted. The target population comprised residents of Ward 9, Karoi. A sample of 36 participants was selected using purposive and simple random sampling techniques. Data were collected through interviews, questionnaires, and focus group discussions, and analyzed using thematic analysis. The findings revealed that the majority of residents rely on unsafe water sources such as shallow wells and rivers due to limited access to clean and reliable water. The study established that water scarcity negatively affects multiple dimensions of human security, including health, food security, and personal safety. Women and girls were found to be disproportionately affected due to their primary role in water collection. Although some interventions exist, they are inadequate and unsustainable. The study concludes that inadequate access to clean water poses a serious threat to human security in Ward 9. It recommends investment in water infrastructure, gender-sensitive policies, and increased community participation in water management**.**

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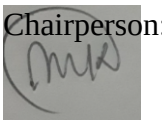
# DECLARATION FORM

I, Grannie Musochi, 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.

Student : Date 26August 2026

Supervisors : Date 29 August 2026

Chairperson: Date



## DEDICATION

This dissertation is dedicated to my family for their unwavering support, encouragement, and motivation throughout my academic journey. Your belief in me made this achievement possible.

## ACKNOWLEDGMENTS

I wish to express my sincere gratitude to Almighty God for His boundless grace, wisdom, and strength that sustained me throughout this research journey.

My profound appreciation goes to my supervisor for their invaluable guidance, constructive criticism, and unwavering patience throughout this study. Their scholarly insights and encouragement were instrumental in shaping this dissertation

I am deeply grateful to the residents of Ward 9, Karoi, who generously shared their time, experiences, and perspectives. Without their cooperation and openness, this research would not have been possible.

Special thanks to my family for their endless love, moral support, and financial assistance. Their belief in my abilities kept me motivated during challenging moments.

I also acknowledge the support of my friends and colleagues who offered encouragement, assisted with logistics, and provided emotional support throughout this academic endeavor.

Finally, I thank all the researchers whose works I have cited, their contributions provided a solid foundation for this study. May God bless you all abundantly

## LIST OF ABBREVIATION AND ACRONYMS

EMA – Environmental Management Agency

FPE – Feminist Political Ecology

NGOs – Non-Governmental Organizations

RDC – Rural District Council

SDGs – Sustainable Development Goals

UNICEF – United Nations Children's Fund

UNDP – United Nations Development Programme

WASH – Water, Sanitation and Hygiene

WHO – World Health Organization

ZINWA – Zimbabwe National Water Authority

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# CHAPTER ONE

# 1.0 INTRODUCTION

## 1.1 Background of the study

Despite global efforts to fight hunger, current data shows that 735 million people globally suffered from chronic food insecurity in 2022, primarily due to economic shocks, political unrest, and climate change (FAO, 2023). Climate variability, which affects rain patterns, water sources, and agricultural outputs, is a crucial issue that is harming the global food system. Since smallholder farmers rely on rain-fed agriculture for their livelihood, the rising frequency of droughts, floods, and storms has disrupted the plant and harvesting seasons, reducing their productivity.Goals 2 (Zero Hunger) and 13 (Climate Action) of the Sustainable Development Goals, which are part of the global agenda, emphasise how important it is for agriculture to change in order to become more resilient and sustainable. In order to improve food security, safeguard the environment, and strengthen the resilience of the vulnerable population, these models encourage integrated approaches, such as conservation farming and intelligent farming techniques (UNDP, 2023).

A fundamental human right, clean and safe water is essential for human security and has an impact on social, economic, health, and environmental well-being (United Nations Development Program, 2022). Disease risk increases, livelihoods are limited, and inequality increases when people lack access to water, sanitation, and hygiene (Climate Resilient Water, Sanitation and Hygiene | UNICEF Zimbabwe, 2025; Betera et al., 2025). Climate change, ageing infrastructure, and population expansion are the main causes of water insecurity in Zimbabwe, especially in Ward 9 of Karoi (Moyo & Chikozho, 2021). Ward 9 was selected for this study because it has a mix of rural and urban features, high levels of water insecurity, and water access

issues typical of many small towns in Zimbabwe. It is a noteworthy and representative case to study since its circumstances mirror both common and severe characteristics of water insecurity observed elsewhere in the nation. Reliance on hazardous sources, such as rivers and wells, restricts economic prospects and puts communities at risk for health issues (Reniko & Chingombe, 2017; Mutsaka, 2025; Assessment of Source Water Quality in Karoi, 2014).

According to Anashe (2024) and Nyoni (2020), climate change exacerbates water insecurity by changing rainfall patterns and intensifying droughts. Zimbabwe has seen severe and frequent droughts over the past 20 years, which have decreased the quantity and quality of water available (Sharara et al., 2022). According to the IPCC (2023), climate change is causing severe water stress in Southern Africa. Unpredictable rainfall can cause boreholes and wells to dry up, making it more difficult for farmers and people to obtain water (Climate Resilient Water, Sanitation and Hygiene, 2025; Anashe, 2024). The government of Zimbabwe and UNICEF are collaborating to increase access to sustainable and climate-resilient water, sanitation, and hygiene services, particularly for the most vulnerable. Long-term sustainability is supported by these initiatives, which boost water supply and lessen dependency on erratic electricity (From Scarcity to Sustainability: The Economic Power of Solar-Powered Boreholes in Zimbabwe, 2025; Solar-Powered Water Supply Systems in Zimbabwe, 2020).

In other regions of Latin America and Southern Africa, solar water initiatives have proven successful. For instance, the SRWSIHL project in Malawi reduced the number of disease cases by installing solar-powered boreholes and community water points (Solar-powered water gives hope to Machinga community in Malawi, 2025; African Development Bank, 2022). Rainwater collection increased water availability in Brazil, and solar pumps assisted small farms in Bolivia during dry spells (Barreto et al., 2025; World Bank, 2020). These examples demonstrate how

utilising technology in conjunction with community engagement can promote sustainable development and increase resilience (Improving Resilience to Weather Shocks and Climate Change, 2025; Solar-powered Boreholes to Improve Community Access to Water, 2023; CARE International's work in Zimbabwe, 2025).

According to research by Gumindoga et al., Zimbabwe's water systems are impacted by land-use changes brought about by urban growth, which has a substantial impact on water supplies in medium-sized catchments. These issues demonstrate the interdependence of human security, health, and water access (Factors influencing sustainability, 2016). Particularly for women and children who frequently gather water, a lack of clean water leads to poor hygiene, an increase in disease, and a decrease in productivity (Mutambara et al., 2020). Old infrastructure, corruption, and financial difficulties plague municipal services.Women and girls frequently travel great distances in search of water, which reduces community resilience and increases their risk of gender-based violence (Mutasa et al., 2023). A comprehensive strategy is needed to address water insecurity, including better infrastructure, solar-powered systems, more robust governance, and community engagement to guarantee consistent availability to water (Climate Resilient Water, Sanitation and Hygiene, 2025; Mundonde & Makoni, 2024).

This study illustrates how a shortage of clean water impacts community stability, safety, health, and money using a human security paradigm. According to UNDP (1994) and Tadjbakhsh and Chenoy (2007), the human security strategy encompasses health, food, economic, environmental, personal, community, and political security with the goal of safeguarding people's well-being. The framework will direct data collection and analysis in this study. Survey and interview questions will be created to capture the ways in which water insecurity affects different aspects of human security, and the results will be evaluated using these categories.The project will

offer a thorough knowledge of how water insecurity impairs everyday living and community resilience and will assist in identifying sustainable solutions by organising the findings across areas including health, economic wellbeing, community safety, and environmental threats.

### 1.2 Problem Statement

Despite efforts to improve water access in Zimbabwe, many communities continue to experience inadequate access to clean and safe water. In Ward 9, Karoi, residents rely heavily on unsafe water sources such as shallow wells and rivers due to limited and unreliable water infrastructure. This situation exposes the community to serious health risks, including waterborne diseases, and undermines overall human security. The majority of families use open water sources and hazardous wells, which raises the risk of illness (WHO, 2021). Municipal water services are under more strain as metropolitan areas and the population develop. This is particularly true for women and children, who have to collect water more frequently and deal with decreased productivity, safety, and education (Mutambara et al., 2020). Despite the installation of solar boreholes and minor repairs, persistent issues indicate that effective solutions are still desperately needed.Public health, economic stability, and community resilience are all weakened by water insecurity (Climate Resilient Water, Sanitation and Hygiene, 2025; Household water access and COVID-19 in Karoi town, Zimbabwe, 2021; Mwadzingeni et al., 2022; Horning, 2026). For instance, inhabitants of wards in Chinhoyi and Gweru face similar concerns due to frequent water outages and reliance on unreliable sources. This larger context emphasise the findings' broader applicability by showing that Ward 9's experiences are not unique but rather represent national trends of water insecurity.Furthermore, the impact of water scarcity is disproportionately felt by women and girls, who bear the primary responsibility for water collection, often travelling long distances and facing physical strain, safety risks, and reduced time for other socio-economic

activities.Therefore, this study seeks to examine the impact of inadequate access to clean water on human security in Ward 9, Karoi.

### 1.3 Purpose of the study

The purpose of this study is to critically analyse the impact of inadequate access to clean and safe water on human security in Ward 9, Karoi, by examining its health, economic, social, and gendered dimensions.

### 1.4 Research Objectives

1. To analyse the availability, accessibility, and quality of clean water in Ward 9, Karoi.

2. To examine the impact of inadequate access to clean water on human security, focusing on health outcomes, economic well -being and social stability.

3. To assess the gendered impacts of water scarcity, particularly on women and girls.

4. To evaluate the effectiveness of existing water interventions in improving water access and enhancing human security.

### 1.5 Research Questions

1. What is the present situation regarding access to clean and safe water in Ward 9, Karoi, and what causes its inadequacy?

2. How does restricted access to clean and safe water influence health, sanitation, and socio-economic wellbeing in the community?

3. What interventions, like solar boreholes and water rehabilitation projects, have been used to improve water access and build community resilience?

### 1.6 Assumptions

1. It is assumed that Ward 9 residents have different experiences with water access, which impacts various aspects of their human security, such as health, livelihoods, and education.

2. It is assumed that participants will answer honestly, though not every response may be fully accurate.

3. It is assumed that water access problems exist even if they are not precisely measured, and some influencing factors might go unnoticed or unmeasured in the study.

4. The study assumes that factors like poverty, population, and governance influence water access, even though it may not separately analyze each variable's impact.

### 1.7 Significance of the Study

In Ward 9, Karoi, where shortages, poor sanitation, and health hazards are associated with climate change, deteriorating infrastructure, and population increase, this study explores the significant relationship between poor water availability and human security (Zimmerman et al., 2025). Although UNICEF, CARE International, and the Zimbabwe Red Cross have made significant progress, access to clean water is still challenging, and solutions are not yet widely accepted or completely sustainable (UNICEF Zimbabwe, 2023; European Union, 2021). Developing solutions that achieve Sustainable Development Goal 6 requires an understanding of how these interventions impact community resilience (UNDP, 2022).

By concentrating on Ward 9, this study highlights community-led water security initiatives (Nyoni, 2020; Mazambani & Nhamo, 2021), provides evidence for policy and local action, and emphasises the dangers water insecurity poses to livelihoods, health, and dignity (Chikodzi et al., 2020; Makurira & Tumbare, 2014). Ward 9 was chosen because of its high levels of water insecurity, which have previously been reported in other Zimbabwean rural areas (Koyratty et al.,

2021). According to UNICEF studies, community-led initiatives to restore boreholes have been crucial, making Ward 9 typical of small communities of a similar nature . With a focus on interventions like solar borehole projects and community programs run by NGOs and local authorities, this study examines household water use, sanitation, and health and social consequences. It does not compare water use between districts or address large-scale industrial or agricultural water use. By focusing on the years 2015 to 2025, a time of notable infrastructure and climate change, the study seeks to offer evidence to direct workable solutions and policy for communities of a similar nature.

In addition, this study is significant as it provides a comprehensive understanding of how inadequate access to clean water affects human security in Ward 9, Karoi. The findings of this study will benefit several stakeholders in several ways which include:

Policy Makers and Government Authorities whereby the study will provide evidence-based insights to inform water governance policies and improve infrastructure development strategies aimed at achieving sustainable water access.

Non-Governmental Organisations (NGOs), such as UNICEF and CARE International will benefit from the findings by gaining a deeper understanding of community-specific desigApp targeted and sustainable interventions.

Local Communities, residents of Ward 9 will benefit indirectly through improved water management strategies and interventions informed by the study's findings.

Academics and Researchers will contribute to existing literature on water insecurity and humHow security, particularly from a gendered perspective and serve as a reference for future research.

Development Practitioners, the research will provide practical recommendations on how to integrate gender-sensitive approaches into water and sanitation programmes.

By identifying the gaps in current interventions and highlighting the lived experiences of affected populations, the study contributes to achieving Sustainable Development Goal 6 (Clean Water and Sanitation).

### 1.8 Delimitations of the Study

The study was conducted in Ward 9, Karoi Town, located in Mashonaland West Province, Zimbabwe. Ward 9 is a peri-urban area characterised by a combination of urban and rural features, with significant challenges related to water supply, infrastructure, and service delivery. The area was selected due to its high levels of water insecurity and its representativeness of similar small towns in Zimbabwe. The study focused specifically on domestic water use, sanitation, and the associated health and socio-economic impacts of inadequate water access on households. It excluded large-scale agricultural and industrial water use, as well as comparative analysis with other districts. The research was limited to the period between 2015 and 2025, a decade marked by significant climatic variability and infrastructural challenges affecting water availability. Additionally, the study concentrated on community-level interventions, including NGO-led initiatives, local authority programmes, and solar borehole projects aimed at improving water access.

### 1.9 Limitations of the Study

The extent and generalizability of this study's findings may be affected by several potential limitations. First, the study may be constrained by limited availability and reliability of local records, as some government agencies and local authorities face challenges in maintaining comprehensive records on water infrastructure, disease prevalence, and demographic information

(Chigumira et al., 2022). To reduce the impact of this limitation, the study used multiple sources of information, including interviews with key informants, household surveys, focus group discussions, and available official documents to cross-check and validate the collected data. Second, some respondents may provide inaccurate information or biased responses due to social desirability or fear of criticising public officials, particularly where water service provision is politically sensitive. To address this challenge, the researcher ensured confidentiality and anonymity of participants, explained the purpose of the study clearly, and created a safe environment that encouraged participants to provide honest responses. Furthermore, the geographical scope of the study was limited to Ward 9, Karoi, due to time and financial constraints, which may affect the transferability of findings to other communities. To minimise this limitation, the researcher provided detailed descriptions of the study area and participants' experiences to allow comparison with similar contexts. Seasonal variations in water availability could also influence respondents' experiences during the period of data collection. This was reduced by collecting data from participants with long-term experiences of water challenges and by incorporating information from different sources to capture broader patterns of water accessibility. Despite these limitations, the use of triangulation through interviews, focus group discussions, household surveys, and document analysis strengthened the credibility, reliability, and validity of the study findings.

### 1.10 Definition of Key Terms

**Human Security** refers to a people-centered approach that focuses on protecting individuals from critical and pervasive threats to their survival, livelihood, and dignity, including threats to health, economic stability, personal safety, and environmental conditions (UNDP, 1994).

**Clean Water** refers to water that is safe, accessible, and suitable for human consumption and domestic use without posing significant risks to human health as defined by the World Health Organization (WHO, 2017).

**Inadequate Acces**s is a condition where individuals or communities do not have sufficient, reliable, or affordable access to essential services or resources—in this case, clean water Gleick(1998).

**Water Scarcity** is the lack of sufficient available water resources to meet the demands of water usage within a region, either due to physical shortage or poor infrastructure UN-water (2021).

**Ward 9, Karoi**, is a local administrative area within Karoi Town, Zimbabwe, used in this study as a geographic unit for case-based research (Karoi Town Council, 2023).

**Waterborne Diseases** refers to illnesses caused by pathogens that are transmitted through contaminated water, including cholera, typhoid, and dysentery WHO (2019).

### 1.11 Dissertation outline

**Chapter One: Introduction**

Chapter one focused on the background of the study, purpose of the study, the statement of the problem, the significance of the study, definitions and limitations of the study, definition of key terms, and the chapter summary.

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

This chapter is going to focus on the theoretical frameworks, literature review, research gaps, scholarly views, critiques, and the chapter summary.

**Chapter Three: Research Design and Methodology**

This chapter focuses on outlining the methodology that the researcher is to apply, which is the qualitative research approach, research design, target population, research sample, data collection tools, document analysis, data presentation analysis, and ethical considerations.

**Chapter Four: Data Presentation, Analysis and Discussion of Findings**

This chapter presents, analyses, and discusses the research findings and compares them with findings from other related studies.

**Chapter Five: Summary, Conclusions, Recommendations and Areas of Further Research**

This chapter focuses on the summary of the whole project, conclusions, recommendations, and areas for further research

# CHAPTER TWO

# 2.0 LITERATURE REVIEW AND THEORETICAL FRAMEWORK

## 2.1 Introduction

This chapter reviews existing literature on the relationship between inadequate access to clean water and human security. It examines how climatic pressures, governance challenges, infrastructure limitations, and gender inequalities contribute to water insecurity, with particular attention to Zimbabwe and similar contexts. The chapter is guided by Feminist Political Ecology (FPE), which provides a framework for understanding the interaction between gender, environmental change, and unequal access to resources. The review covers the theoretical framework, conceptual discussions, sustainable development perspectives, empirical studies on water insecurity, and global, regional, and Zimbabwean experiences. It concludes by identifying gaps in existing literature that justify the need for this study in Ward 9, Karoi.

## 2.2Theoretical Framework: Feminist Political Ecology (FPE)

Feminist Political Ecology (FPE) provides the theoretical foundation for this study. FPE emerged as a response to the limited attention given to gender within traditional political ecology approaches, highlighting the importance of analysing environmental issues through the lens of social relations, power structures, and gender inequalities (Elmhirst, 2011). FPE integrates feminist theory with political ecology to demonstrate that environmental challenges are not only ecological problems but are also shaped by unequal social, political, and economic relations (Rocheleau et al., 1996). Unlike conventional political ecology, FPE highlights that men and women experience environmental changes differently due to socially constructed roles, responsibilities, and access to resources (Rocheleau et al., 1996). The framework further illustrates how gender power relations influence environmental governance and participation in decision-making processes (Sundberg,

2015; Elmhirst, 2015). Institutions such as water committees and government ministries may reproduce gender inequalities by limiting women's involvement in resource management decisions (Nightingale, 2006; Elmhirst, 2015). Such exclusion affects resource allocation, project planning, and the sustainability of interventions (Sithole et al., 2021). In Ward 9, Karoi, these dynamics are reflected in the division of responsibilities, where men often dominate formal leadership positions while women undertake most daily water collection activities (Tagutanazvo et al., 2015).

Gendered knowledge is a central concept in Feminist Political Ecology (FPE), which recognises the importance of women's lived experiences and environmental knowledge in understanding resource challenges (Warf, 2010). Through their daily interactions with water sources, women are often able to identify changes in water availability, quality, taste, borehole performance, and possible contamination. However, formal water planning and decision-making processes frequently overlook these forms of experiential knowledge, limiting the effectiveness and inclusiveness of water governance systems (Matindike & Musakwa, 2026; Koyratty et al., 2021). FPE argues that excluding local and gendered knowledge weakens environmental governance and contributes to the persistence of water insecurity by ignoring the experiences of those most affected (Adams et al., 2018; Smith et al., 2025).

Feminist Political Ecology (FPE) emphasises that access, rights, and control over resources are central to understanding environmental inequalities. The availability of infrastructure alone does not guarantee equitable access, as factors such as gender, social class, and income influence who benefits from environmental resources (Rocheleau et al., 1996). In Karoi, challenges such as long waiting times, high water costs, safety concerns, and social expectations affect households' ability to access reliable water supplies (Chara et al., 2022; Gondo & Kolawole, 2022). Women

and girls, particularly those living in densely populated areas, may face additional risks when collecting water during early morning or late evening hours, demonstrating that water insecurity is deeply shaped by gender relations (Matindike & Musakwa, 2025).

Feminist Political Ecology (FPE) highlights the political roots of environmental governance by demonstrating how environmental challenges are shaped by power relations, institutional structures, and decision-making processes. From this perspective, issues such as corruption, elite control, inadequate maintenance, and chronic underfunding are not viewed merely as technical failures but as outcomes influenced by broader political and social systems (Chikulo, 2020). By linking governance failures to gendered power relations, FPE reveals how institutional weaknesses can intensify the impacts of climate change, particularly for women who rely heavily on reliable water sources for household responsibilities. In Zimbabwe, political interference, unequal allocation of resources, and weak regulatory systems contribute to persistent water service challenges and uncertainty in communities such as Ward 9 (Siambale et al.,2026). The value of FPE lies in its ability to demonstrate that climate change, governance, gender inequality, and social exclusion are interconnected, revealing deeper causes of environmental challenges that may be overlooked by conventional policy approaches (Rocheleau et al., 1996).

### 2.3 Sustainable Development: Policy Context for Water Governance

Feminist Political Ecology (FPE) guides this study, while sustainable development provides the broader policy context for understanding water governance (Matamanda et al., 2025). Global development frameworks, including the Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs), seek to improve access to essential services such as clean water and sanitation (Zerai, 2017). Specifically, SDG 6 focuses on ensuring access to clean water

and sanitation for all, while SDG 5 promotes gender equality; both goals are closely interconnected in addressing water insecurity.

Despite these commitments, FPE scholars argue that many sustainable development interventions adopt a technocratic approach that prioritises physical infrastructure while overlooking the gendered power relations that shape access, participation, and decision-making (Elmhirst, 2015). For example, the rehabilitation of boreholes and implementation of solar-powered water systems in Zimbabwe represent important improvements. However, without inclusive governance structures and gender-responsive budgeting, such interventions may fail to adequately address the unequal burdens experienced by women. Zimbabwe's adoption of the 2013 Constitution and National Development Strategy 1 (2021–2025) demonstrates a commitment towards equitable water access; however, limited municipal capacity, financial constraints, and climate variability continue to challenge sustainable water governance outcomes (Mwadzingeni et al., 2022). FPE perspectives emphasise that sustainable development requires more than infrastructure provision; it requires the recognition of women's knowledge, equitable participation in decision-making, and transformation of institutional structures that exclude marginalised groups (Elmhirst, 2011; Adams et al., 2018).

Drawing from these critiques, FPE highlights the need for gender-responsive approaches to water governance. Policymakers and development practitioners should promote inclusive water governance structures that ensure meaningful participation of women in planning, decision-making, and resource management processes. In addition, water project budgeting should incorporate gender-responsive approaches to address the different needs and challenges faced by women and girls. Capacity-building initiatives can further enhance women's participation in

technical and leadership roles, while regular engagement platforms can enable the integration of women's experiential knowledge into water infrastructure design, monitoring, and maintenance. Such approaches demonstrate how FPE perspectives can be translated into practical strategies that promote both gender equality and sustainable water security (Elmhirst, 2011; Adams et al., 2018).

In Ward 9, Karoi, solar-powered boreholes introduced by development partners such as UNICEF and World Vision illustrate the potential of infrastructure-based interventions to improve water reliability. However, the long-term sustainability of such projects depends on effective community ownership, transparent management of resources, and the meaningful inclusion of women in decision-making processes related to planning, maintenance, and oversight.

### 2.4 Environmental and Climatic Effects

Environmental and climatic factors are major drivers of water scarcity across Sub-Saharan Africa (Leal Filho et al., 2022). In Zimbabwe, rising temperatures, declining groundwater levels, prolonged droughts, and unpredictable rainfall patterns continue to place pressure on water availability and reliability (Mazambani & Nhamo, 2021). In Karoi, recurring droughts and seasonal variations contribute to disruptions in municipal water supply, while electricity shortages further affect water pumping systems (Siambale et al., 2026). Consequently, many residents are forced to depend on alternative and sometimes unsafe water sources, including shallow wells and unprotected streams (Mangirazi, 2022).

#### 2.4.1 Public Health Implications

Poor water quality and inadequate sanitation directly contribute to the occurrence and spread of waterborne diseases (Betera et al., 2025). Zimbabwe has experienced recurrent cholera and typhoid outbreaks since 2008, with the 2023–2025 cholera outbreak affecting all ten provinces

(WHO AFRO, 2024). In Ward 9, households face increased health risks due to challenges such as intermittent water chlorination, damaged sewage infrastructure, and contamination of surface and groundwater sources, particularly during the rainy season (Gondo & Chingombe, 2017). From a Feminist Political Ecology perspective, these health burdens are not experienced equally, as women often carry greater responsibilities as caregivers and are required to manage additional domestic workloads when household members become ill (Siambale et al., 2026).

### 2.4.2 Socio-Economic and Livelihood Effects

Water scarcity negatively affects household productivity, local economic activities, and educational opportunities (Mwadzingeni et al., 2022). In Zimbabwe, women and girls often spend significant amounts of time collecting water, particularly when municipal supplies are interrupted or water systems fail (UN Women, 2025). This responsibility reduces their opportunities for education, income-generating activities, and employment, reflecting what Feminist Political Ecology (FPE) describes as time poverty (Matindike & Musakwa, 2025). In peri-urban communities such as Karoi, households may be forced to purchase water from vendors during shortages, placing additional financial pressure on vulnerable families (Gondo et al., 2020; Reniko et al., 2024).

Governance challenges, including corruption, inadequate infrastructure maintenance, and unequal resource allocation, continue to reinforce water insecurity (Mwadzingeni et al., 2022). Studies indicate that weaknesses in accountability and limited community participation contribute to the failure of many water projects in Southern Africa (AfDB, 2023). In Karoi, residents have raised concerns about transparency and accountability in the use of devolution funds, particularly

in relation to development projects, reflecting broader governance challenges affecting water service delivery in Zimbabwe (Mangirazi, 2021).

From an FPE perspective, water insecurity is fundamentally gendered because women often carry the physical and emotional responsibilities associated with water collection, household hygiene, and caring for family members affected by water-related illnesses (Mahnoor, 2024). Girls may also experience interruptions to their education due to inadequate water and sanitation facilities, particularly during menstruation (Ndlovu & Bhala, 2014). Furthermore, competition over limited water resources may contribute to household tensions and increase risks of gender-based violence (Chiwaya-Kamwendo, 2024). The dangers associated with collecting water during early morning or evening hours further expose women and girls to physical risks (Chiwaya-Kamwendo et al., 2024).

Beyond gender, water insecurity is also shaped by intersecting factors such as socioeconomic status, age, and disability. Low-income households may struggle to afford water from vendors or pay for infrastructure services, while elderly people and persons with disabilities may experience greater difficulties accessing distant or unsafe water sources. Young children from disadvantaged households are also vulnerable to health risks associated with poor water and sanitation conditions (Koyratty et al., 2020). This intersectional perspective demonstrates that improving water access requires attention not only to gender inequalities but also to the ways in which social and economic factors interact to produce unequal experiences of water insecurity.

The literature demonstrates that addressing water insecurity requires more than technical interventions; it requires governance reforms, gender-equitable institutions, and meaningful community participation (Shoko, 2022). Although solar-powered water projects and borehole rehabilitation can improve access, sustainable progress depends on inclusive governance systems that recognise and incorporate women's perspectives, knowledge, and rights.

## 2.5 Clean Water Crisis from Global, Regional, and Local Perspectives

### 2.5.1 Global Perspectives

Around the world, water insecurity is driven by multiple interconnected factors, including climate change, rapid population growth, weak governance systems, and social inequalities (Rumaldo et al., 2025). Changing rainfall patterns and rising temperatures have intensified water stress in many regions, threatening reliable access to water resources (UN-Water, 2020). From a Feminist Political Ecology (FPE) perspective, water crises are not viewed solely as environmental challenges but also as outcomes shaped by institutional decisions, governance practices, and unequal power relations (Resurrección, 2019; Siambale et al., 2026). Global examples such as the "Day Zero" crisis in Cape Town, the 2019 water emergency in Chennai, and the Flint water contamination crisis demonstrate how environmental pressures combined with governance failures can create severe water insecurity (Muller, 2018; Hanna-Attisha et al., 2016). These experiences show that marginalised populations, particularly low-income communities and women, often bear the greatest impacts of water insecurity.

### 2.5.2 Regional Context:

Southern Africa is among the world's most water-stressed regions, largely due to recurring droughts, limited institutional capacity, and rapid urbanisation (Adom & Simatele, 2024). El Niño events during 2015–2016 and 2023–2025 contributed to widespread water shortages across

Zimbabwe, Zambia, Malawi, and Namibia (WFP, 2024). Regional studies indicate that women's unpaid labour increases significantly during drought periods, reinforcing existing gender inequalities (UN Women, 2022). From a Feminist Political Ecology (FPE) perspective, these challenges are understood as the outcome of interconnected gender norms, climatic pressures, and institutional weaknesses (Siambale et al., 2026). Even in technologically advanced systems, such as Windhoek's potable water reuse scheme, questions of equity and accessibility remain, demonstrating that technological solutions alone cannot resolve deeply rooted social inequalities (Momba & Hoko, 2021).

Zimbabwe's water challenges reflect the combined effects of climate change, ageing infrastructure, economic instability, and governance weaknesses (Finn & Bandauko, 2024). Karoi Town reflects these broader national challenges, with studies showing that households experience intermittent municipal water supplies, electricity-related pumping disruptions, and increased dependence on unsafe water sources during shortages (Reniko et al., 2020; Gondo, 2022). Policy and environmental assessments further highlight gaps in governance and sustainable resource management in Zimbabwe and the wider region (Mdleleni et al., 2025). Water contamination risks are also intensified by inadequate sewage management and environmental degradation (Reniko, 2017). The vulnerability of Mashonaland West Province was further demonstrated during the 2023–2025 cholera outbreak, which affected communities across Zimbabwe (UNICEF, 2024).

FPE provides an important framework for understanding how these challenges disproportionately affect women and girls, who often carry primary responsibilities for water collection, household care, and managing the impacts of water-related illnesses (Resurrección,

2019; Siambale et al., 2026). Although development partners have introduced interventions such as solar-powered boreholes and piped water systems, their sustainability remains dependent on effective governance, community participation, and the meaningful inclusion of women in decision-making processes (World Vision Zimbabwe, 2022). These local realities reinforce FPE's argument that water insecurity is deeply gendered and shaped by unequal access to resources and decision-making power (Adams et al., 2018; Siambale et al., 2026).

### 2.6 Chapter summary

This chapter reviewed literature on inadequate access to clean water and its impact on human security using the Feminist Political Ecology framework. The review highlighted major themes such as water availability, accessibility, quality, and the resulting socio-economic and health implications.The literature consistently shows that water scarcity negatively affects human security by increasing disease burden, reducing productivity, and worsening living conditions. Furthermore, the review established that women and girls are disproportionately affected due to their roles in water collection, exposing them to physical, social, and economic challenges. Despite various interventions, gaps remain in sustainable and gender-sensitive water management.The reviewed literature also revealed a lack of focused studies on Ward 9, Karoi, thereby justifying the need for this research.

# CHAPTER THREE

# 3.0 RESEARCH METHODOLOGY AND DESIGN

## 3.1 Introduction

This chapter outlines the research design and methods used to examine the impact of limited access to clean water on human security in Ward 9, Karoi. The study analyzes the influence of climate change, governance, and gender roles on water access and their subsequent effects on health, economic stability, personal safety, and community security.

A mixed-methods approach rooted in Feminist Political Ecology captures both measurable data on water access and the lived realities of water insecurity. Integrating quantitative and qualitative data strengthens the analysis and leverages the strengths of each method (Zhang & Bhattacharjee, 2025, pp. 1-13). Quantitative data provide metrics on the frequency of water access, the time spent collecting water, and health outcomes. Qualitative data from interviews and focus groups uncover personal stories and social dynamics beyond the quantitative scope. In this study, integration of qualitative and quantitative data occurred at both the analysis and interpretation stages. Thematic findings from qualitative interviews and focus groups were compared with survey results, using joint matrices and comparative tables to identify areas of convergence and divergence. Data triangulation was applied to confirm patterns and increase the credibility of findings. This combination allows for a more thorough evaluation (Fatima, 2024).

This chapter covers the research philosophy, design, location, population, sampling methods, data collection and analysis, validity and reliability procedures, ethical concerns, and limitations. The approach blends quantitative data with qualitative insights, consistent with Feminist Political Ecology's focus on structural inequality and lived experience.

### 3.2 Research Approach: Qualitative Approach

Qualitative research is well-suited for exploring access to clean water in Ward 9, Karoi, as it focuses on individuals' lived experiences and the challenges they face in obtaining safe water. According to Caruso et al. (2025), it gathers detailed insights from community members, leaders, and other stakeholders through interviews, focus group discussions, and observations. This approach helps to clarify how residents access water, the barriers they encounter, and the social and environmental conditions influencing water availability. While a quantitative approach could have been used to measure variables such as water quality levels, distance to water sources, or frequency of access, it would not adequately capture the depth of personal experiences and perceptions of water insecurity. Qualitative research is therefore more appropriate for uncovering complex social realities and informing practical, context-specific recommendations to improve water access. It also highlights the broader impacts of water insecurity on health, livelihoods, dignity, and safety (Resurrección, 2019).

### 3.3Research Design: Case study

A case study approach is ideal for investigating limited access to clean water and its effects on human security in Ward 9, Karoi, enabling a deep analysis of community experiences. Case studies, as described by Yin (2018), reveal complex social issues within their context. This method emphasizes collecting qualitative data to assess how water scarcity impacts health, economic conditions, personal safety, and community security. The study also documents residents' coping strategies, such as rationing water and traveling to access boreholes, providing a comprehensive understanding.

### 3.4 Study Area

The research occurs in Ward 9, Karoi, Mashonaland West Province, Zimbabwe. Karoi is a semi-urban area experiencing population growth, overstretched infrastructure, unreliable municipal water, and increased climate variability (Gondo et al., 2023, pp. 82-94). The ward includes high-density neighborhoods and peri-urban zones, where residents use municipal pipes and boreholes and purchase water from informal vendors. Ward 9 was chosen for its frequent water supply disruptions, contamination risks, and heightened cholera threats in the province (Fragkou, 2024). The ward combines rural and urban challenges, changing governance, and climate stressors, making it an appropriate context for the Feminist Political Ecology framework.

### 3.5 Target Population and Sampling

The target population refers to the entire group of individuals or units that the study seeks to understand and draw conclusions about. In this research, the target population includes all households in Ward 9, Karoi, as well as key stakeholders such as local officials, water committee members, health workers, and community leaders who are directly or indirectly involved in water access and management. Recognizing that water insecurity affects individuals differently based on gender, income, and location, the sampling strategy is structured to reflect varied experiences across residential zones.

Sampling is the process of selecting a representative subset of the target population for study, allowing the researcher to make inferences about the larger group. For the quantitative component, a sample size is determined using a standard formula for household surveys recommended by Kothari (2004):

$$n = (Z^2 \times p \times q \times N) / (e^2 \times (N - 1) + Z^2 \times p \times q),$$

where n = sample size, N = total number of households in Ward 9 (estimated at 350) (2022 Population and Housing Census), Z = standard normal deviation at 95% confidence level (1.96), p = estimated proportion of households experiencing water insecurity (assumed as 0.5 to maximize variability), q = 1 – p, and e = margin of error (set at 0.08). Substituting these values yields a sample size of approximately 119.7, which is rounded up to 120 households. This sample size is considered sufficient to produce statistically reliable results and ensure representation of diverse subgroups within the community (Bolarinwa, 2020).

For the qualitative component, purposive sampling is used to deliberately select participants with direct experience and relevant knowledge of water access issues. These include women-headed households, adolescent girls, borehole committee members, municipal officials, and health workers. Selection is based on criteria such as place of residence, involvement in water collection or governance, and lived experience of water insecurity (Monti et al., 2024). The intended qualitative sample consists of approximately 30–35 participants, with the final number determined by data saturation—the point at which no new themes or insights emerge. Saturation is assessed continuously during interviews and focus group discussions, with recruitment continuing until responses become repetitive and key themes are fully explored.Key informants are identified through their roles within the community, with assistance from local leaders and organizations to ensure inclusion of marginalized groups (Vaghela, 2024). Participants are recruited through community meetings, door-to-door outreach, and snowball sampling. This approach aligns with the principles of Feminist Political Ecology, which emphasize the inclusion of marginalized voices and local knowledge.

Surveys are used to collect quantitative data on water access frequency, distance traveled, time spent collecting water, costs, coping strategies, and health outcomes. The survey also captures gender disparities, such as unequal time burdens, reflecting Feminist Political Ecology's focus on gendered experiences. These measures help assess how inadequate access to water affects household health, economic stability, and overall well-being (Koyratty et al., 2021).

### 3.6 In-Depth Interviews

Semi-structured interviews are conducted with selected women, local leaders, municipal officials, and health workers to gain in-depth insights into water access and governance. These interviews explore perspectives on governance, corruption, climate impacts, safety concerns, and participation in decision-making processes. The interview guide was developed through a comprehensive literature review on water insecurity and Feminist Political Ecology, alongside a review of existing instruments used in similar contexts and preliminary consultations with local stakeholders. Initial drafts of the guide were aligned with the research objectives and subsequently piloted with a small group of participants in a neighboring ward to assess clarity, cultural appropriateness, and content validity. Feedback from the pilot study informed revisions to question wording and sequencing, enhancing relevance and minimizing potential bias. Further validation was achieved through expert review by local academics experienced in qualitative research within Zimbabwe.

The interview guide is organized around key thematic areas to ensure alignment with the research objectives and the Feminist Political Ecology framework. These themes include access to water sources and decision-making authority; gender roles and responsibilities in water collection; experiences of water scarcity and coping strategies; perceptions of health, safety, and dignity in

relation to water insecurity; and the influence of governance structures and climate variability on local water systems. Sample questions explore how households access water and who is responsible for its collection, the primary challenges faced in securing adequate clean water, and the role of governance and community organizations in shaping water access. Additional questions examine coping strategies adopted during periods of scarcity, how these strategies vary by gender and age, and whether recent climate events have affected water availability and safety. These themes guide the interviews in generating rich, context-specific data relevant to the study's aims.

The use of open-ended questions allows participants to express their experiences in their own words, capturing the emotional, cultural, and social dimensions of water insecurity. This approach supports the principles of Feminist Political Ecology by emphasizing lived experiences and recognizing gendered forms of knowledge. Furthermore, the interviews provide insight into how inadequate access to water affects household safety, dignity, and overall well-being.

### 3.6.1Focus Group Discussion.

Focus group discussions are conducted separately with women and men to explore shared experiences related to water governance, gender roles, and climate stress. The separation of groups is intended to minimize power imbalances and encourage open and honest dialogue, particularly among women who may otherwise feel constrained in mixed settings. Participants are purposively selected based on their daily experiences with water-related challenges (Fragkou, 2025). These discussions provide insight into community dynamics by highlighting gendered responsibilities in water collection, common coping strategies, and potential sources of conflict. They also help to

clarify how water scarcity affects relationships, cooperation, and tensions within the community (Shoko, 2022).

Focus group discussions are particularly valuable for uncovering shared norms, collective experiences, and social interactions that may not emerge in individual interviews (Bryman, 2016). Through group engagement, the study is able to assess how water insecurity influences community security, including patterns of conflict, cooperation, and social cohesion.

In addition to primary data, secondary data sources are reviewed to complement and contextualize the findings. These include municipal reports, health statistics, NGO WASH reports, and devolution fund records (Olsen, 2004). Document analysis enables the verification of information obtained from interviews and focus groups while situating the study within broader policy and governance frameworks (Bowen, 2009). This approach strengthens the analysis by linking local experiences of water insecurity to wider human security concerns, particularly public health risks and challenges in water governance (Fragkou, 2024).

Qualitative data collected from interviews and focus group discussions are transcribed verbatim and analyzed using thematic analysis (Braun & Clarke, 2006). Themes are developed both inductively, emerging directly from the data, and deductively, guided by key concepts from Feminist Political Ecology such as gendered labor, access and control, governance, and climate vulnerability (Siambale et al., 2026). Quantitative findings are then integrated with qualitative

insights to provide a more comprehensive understanding of the research problem (Ritchie & Spencer, 2013).

### 3.6.2 Document Presentation

In this study, a concurrent triangulation mixed-methods design was employed, where qualitative and quantitative data were collected and analyzed in parallel. Integration strategies included joint analysis meetings where qualitative themes and quantitative trends were examined together to identify relationships, contradictions, and complementary findings. Points of convergence and divergence were systematically mapped using joint display matrices and comparative tables (Davis et al., 2019). Cross-referencing of datasets allowed for corroboration of results, where, for example, survey-measured water collection times could be interpreted alongside narratives from interviews describing daily routines and challenges.

## 3.7 Data Presentation

In addition, the study incorporated iterative feedback loops between qualitative and quantitative analysis stages. Emerging quantitative trends, such as disparities in access, helped to refine qualitative coding frameworks for further data collection. Likewise, salient themes from interviews and focus groups guided targeted secondary analysis of survey responses. To ensure analytic coherence and to synthesize findings from both approaches, the study uses data triangulation, in which themes and patterns are verified across qualitative and quantitative sources (Hussein, 2009, pp. 106-117). Additionally, joint matrices and comparative tables are utilized to align survey results with thematic categories emerging from interviews and focus groups (Davis et al., 2019). This integrated process enables identification of convergences and divergences in the data (O'Cathain et al., 2010). The analysis as a whole is guided by a human security framework that links water access to health, economic stability, personal safety, and community well-being

(Newman et al., 2023). For example, statistical evidence of increased time spent collecting water by women is interpreted in relation to personal security risks, health burdens, and economic productivity losses, as described in interview narratives (Harvey, 2026).

### 3.8 Validity and Reliability

Reliability refers to the consistency and stability of research instruments and procedures over time. In this study, quantitative reliability is ensured through the pretesting of questionnaires and the standardization of data collection procedures (González-Salgado et al., 2024). A pilot study is conducted in a neighboring ward to assess the clarity, consistency, and reliability of the survey instrument. Internal consistency is further evaluated to ensure that the items used in the questionnaire produce stable and consistent results. Standardized administration of questionnaires across all participants also minimizes variation and enhances the dependability of the data collected.

Validity refers to the extent to which the research accurately measures what it intends to measure. In this study, validity is strengthened through multiple strategies. For qualitative data, credibility is enhanced through member checking, where participants review and confirm the accuracy of the findings, and through prolonged engagement in the field to gain a deeper understanding of the context (Lincoln & Guba, 1985). Content validity is ensured by aligning research instruments with the study objectives and the Feminist Political Ecology framework. Furthermore, the use of a mixed-methods approach enhances overall validity through triangulation, allowing for cross-verification of findings across interviews, focus group discussions, surveys, and secondary data sources (Kristensen et al., 2008). This integration of multiple data sources improves the accuracy and trustworthiness of the research findings.

### 3.9 Ethical Considerations

Ethical approval for this research was granted by the appropriate institutional review board. All participants were provided with comprehensive information about the study's objectives, the voluntary nature of their participation, assurances of confidentiality, and their right to withdraw at any stage without penalty. Informed written consent was obtained prior to participation, in line with established ethical research standards (Creswell & Creswell, 2018). Given the sensitivity of topics such as domestic safety and gendered experiences, interviews with women were conducted in secure and private environments to ensure comfort and minimize potential harm (World Health Organization, 2016).

To maintain confidentiality, all identifying information was removed from datasets and replaced with pseudonyms. Digital data were stored on encrypted, password-protected devices, while hard copies were securely kept with access restricted to the research team (Bryman, 2016). Only aggregated data were reported to prevent identification of individual participants. During interviews and focus group discussions, participant well-being was prioritized by allowing individuals to choose comfortable settings and reminding them of their right to pause or withdraw at any time (Israel & Hay, 2006). Where sensitive issues emerged, appropriate support services and referral information were provided. Data anonymity was further ensured through strict data management procedures and controlled access, consistent with best practices in social science research ethics (Wiles, 2013).

### 3.10 Chapter Summary

This chapter has outlined the methodological framework and research methods employed to investigate the effects of limited access to clean water on human security in Ward 9, Karoi. Guided by the Feminist Political Ecology framework and a pragmatic research approach, the study prioritizes the lived experiences of community members while integrating both qualitative and quantitative methods. The chapter detailed the research design, target population, sampling strategies, data collection techniques, and approaches to data analysis, as well as considerations of reliability, validity, and ethical standards.By linking water access to human security, the methodology provides a comprehensive basis for examining how factors such as climate change, governance challenges, and gender inequality contribute to water insecurity. Overall, the chosen approach establishes a strong foundation for understanding the broader implications of inadequate access to clean water on health, livelihoods, safety, and well-being within the study area.

# CHAPTER FOUR

# 4.0 DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

## 4.1 Introduction

This chapter presents, analyses, and discusses the findings of the study on access to clean water in Ward 9, Karoi. The analysis is based on qualitative data, consistent with the case study research design outlined in Chapter 3. Findings are presented thematically and interpreted through the lens of Feminist Political Ecology (FPE), which emphasizes the interconnectedness of gender, power relations, environmental change, and governance structures. The chapter begins with an exploration of participants' demographic characteristics, followed by an analysis of water access patterns, gendered labor dynamics, climate-related impacts, governance perceptions, and the health and socio-economic consequences of water insecurity.

## 4.2 Demographic Characteristics of Participants

The study drew on responses from participants residing in Ward 9, Karoi, with women constituting the majority of respondents. This reflects both the sampling strategy and the social reality that women are primarily responsible for water collection and household water management. Their higher representation is therefore not incidental but closely linked to their daily involvement in water-related activities.

The predominance of female participants is analytically significant. Feminist Political Ecology (FPE) emphasizes that women's everyday interactions with natural resources position them as key knowledge holders in environmental management (Rocheleau et al., 1996). In Ward 9, women's availability and willingness to participate were strongly influenced by their central

role in water-related responsibilities, including cooking, childcare, sanitation, and maintaining household hygiene.

These findings are consistent with existing literature showing that women are disproportionately responsible for water collection and management across Sub-Saharan Africa (UN Women, 2022; Mazambani & Nhamo, 2021). FPE scholars further argue that while women play a critical role in managing natural resources, their contributions are often undervalued or excluded from formal governance structures (Rocheleau et al., 1996; Nightingale, 2006). The predominance of women in this study therefore not only reflects sampling patterns but also reinforces broader gendered dynamics documented in Zimbabwe and comparable contexts.

**Fig 4.1:Gender Distribution of Respondents in Ward 9, Karoi**



As shown in Figure 4.1, the majority of participants were women with 75% reflecting their central role in household water management and collection.

A significant proportion of women which is 75%,fell within the economically active age group, indicating that the study captured individuals directly involved in household management and livelihood activities. A smaller proportion of 10% of elderly participants reported experiencing greater physical strain when collecting water, particularly during periods of scarcity, highlighting age-related vulnerabilities in accessing water resources.

Household structures varied across the study area, with a notable proportion of female-headed households. These households reported greater challenges in coping with water shortages, particularly where limited financial resources restricted their ability to access alternative water sources such as private vendors. In some households, children were also involved in water collection, which affected the time available for school-related activities and other responsibilities.

Educational attainment among participants varied, with participants having different levels of formal education. The findings showed that educational attainment did not appear to determine access to water, as participants across different educational levels reported experiencing challenges related to water availability and accessibility. These challenges were mainly associated with infrastructural deficiencies and governance-related factors.

A significant proportion of women were engaged in informal economic activities, including vending. Water shortages disrupted these livelihoods, as time spent collecting water reduced the time available for income-generating activities. This finding supports Mazambani and

Nhamo (2021), who argue that water insecurity in Zimbabwe disproportionately constrains women's economic participation by increasing unpaid labour burdens and limiting time available for productive wor

### 4.3 Household Water Sources, Access Patterns and Gendered Labour Dynamics

Findings from the study indicate that communal boreholes are the primary source of water for most households in Ward 9. As shown in Figure 4.2, the majority of respondents 75% reported relying on communal boreholes as their main water source. Although municipal piped water infrastructure exists, it was widely perceived as unreliable and inconsistent, with only a small proportion of households 25% indicating regular access. Some households reported access to private boreholes, while others resorted to purchasing water from vendors during prolonged shortages.

Qualitative responses further support these findings.

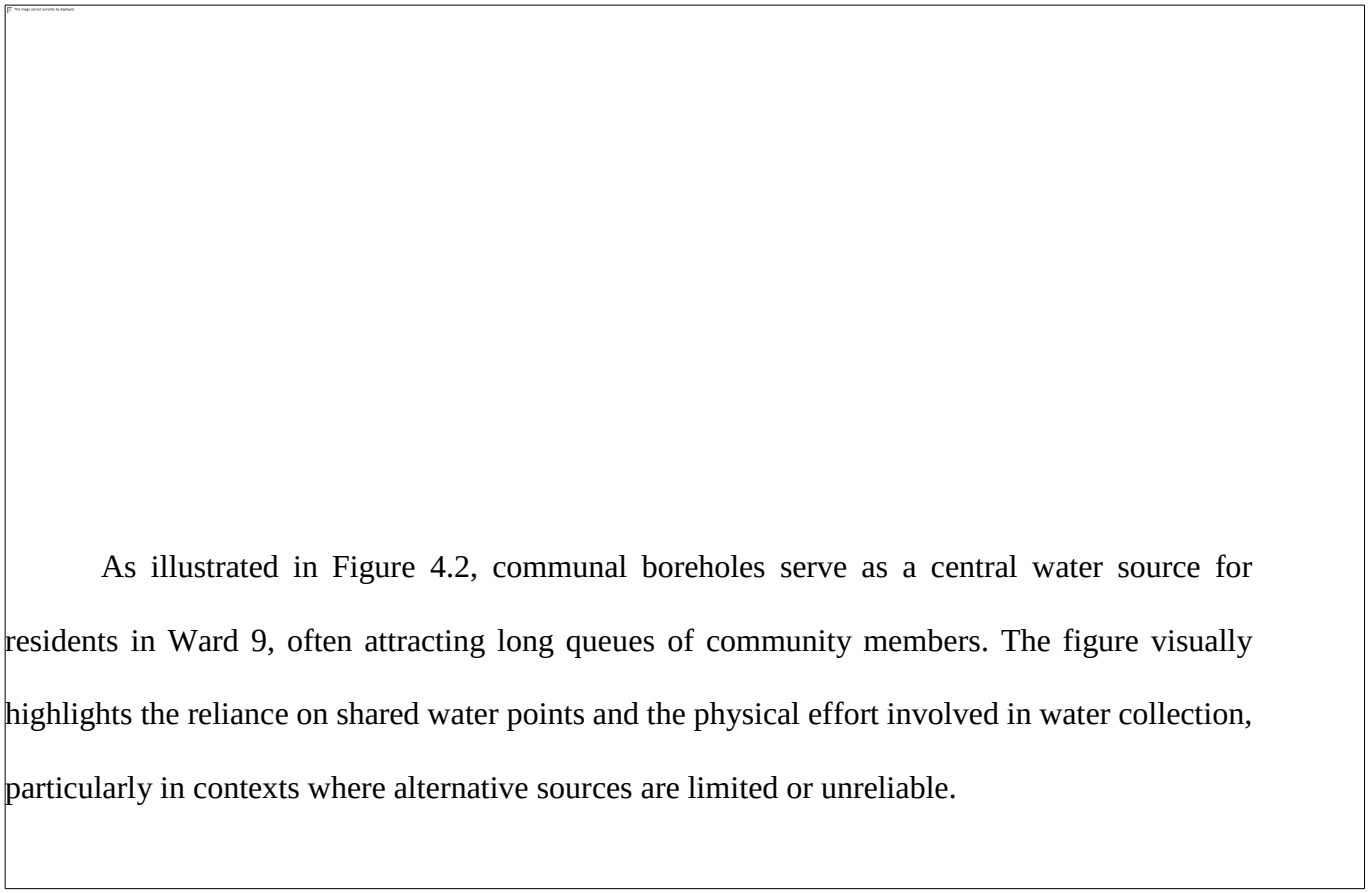
One woman aged 25 noted,

"We only get tap water occasionally, so we depend on the borehole most of the time." Another respondent explained,

"When the borehole breaks down, we are forced to buy water, which is expensive."

These findings are consistent with studies in Zimbabwe which show that households rely heavily on communal boreholes due to unreliable municipal water systems (Gondo, 2022). Similar patterns have been observed across Southern Africa, where infrastructural deficiencies and power outages disrupt consistent water provision (AfDB, 2023).

**Fig 4.2: Community members collecting water form a communal borehole**



As illustrated in Figure 4.2, communal boreholes serve as a central water source for residents in Ward 9, often attracting long queues of community members. The figure visually highlights the reliance on shared water points and the physical effort involved in water collection, particularly in contexts where alternative sources are limited or unreliable.

Findings from the study indicate that water access is highly unpredictable, with many households experiencing irregular supply. Participants especially women, reported spending extended periods collecting water, with time burdens increasing significantly during drought conditions or periods of infrastructure breakdown. In addition, the distance to water sources further intensifies the physical demands associated with water collection.

Water collection responsibilities were found to be highly gendered. Women were overwhelmingly responsible for collecting water, with girl children frequently assisting, particularly during times of scarcity. Men's involvement was minimal and often perceived as socially unconventional.

Qualitative responses further illustrate how deeply embedded these gender roles are within the community.

One man, aged 40 noted,

“Water is our duty. Even if a man is at home, people will say he is weak if he carries buckets.”

And a woman highlighted the unpredictability of access, stating,

“Sometimes you wake up at 4 a.m. because you hear the water has come. If you delay, it disappears again.”

These findings demonstrate that water collection is not only physically demanding but also shaped by entrenched social norms and expectations. From a Feminist Political Ecology perspective, such patterns reflect how gender roles and power relations structure access to resources, reinforcing inequalities in labour distribution and everyday experiences of water insecurity.

### 4.4 Climate Variability, Governance and Institutional Power

Participants consistently reported that water shortages worsen during dry seasons and have become more severe over time. Rainfall was described as increasingly unpredictable, with boreholes yielding less water during prolonged dry periods.

One man aged 28 explained:

"These days the rains no longer come as they used to. Even the borehole dries faster when the season is hot."

Another respondent similarly noted:

"In the past, water would last longer, but now during droughts we struggle because the boreholes cannot supply enough water for everyone."

These accounts indicate a perceived link between climate variability and declining water availability at the community level.

Participants further emphasized that governance failures significantly exacerbate these challenges. Several respondents highlighted delayed responses to infrastructure breakdowns and poor maintenance of water systems.

One old man stated:

"When the pipes burst, it can take weeks before anyone comes to fix them. We are left to depend on boreholes."

Another added:

"Even when there is infrastructure, it does not function properly because there is no maintenance. Sometimes there is no electricity to pump water."

These findings suggest that while climate variability contributes to water scarcity, institutional inefficiencies and weak service delivery intensify the problem.These experiences are supported by existing literature which indicates that climate change in Zimbabwe has led to declining rainfall patterns, prolonged droughts, and reduced groundwater recharge (Mazambani & Nhamo, 2021). Across Southern Africa, El Niño-induced droughts have further intensified water shortages, exposing already vulnerable communities (WFP, 2024).

**Figure 4.3: Evidence of infrastructural challenges affecting water supply**

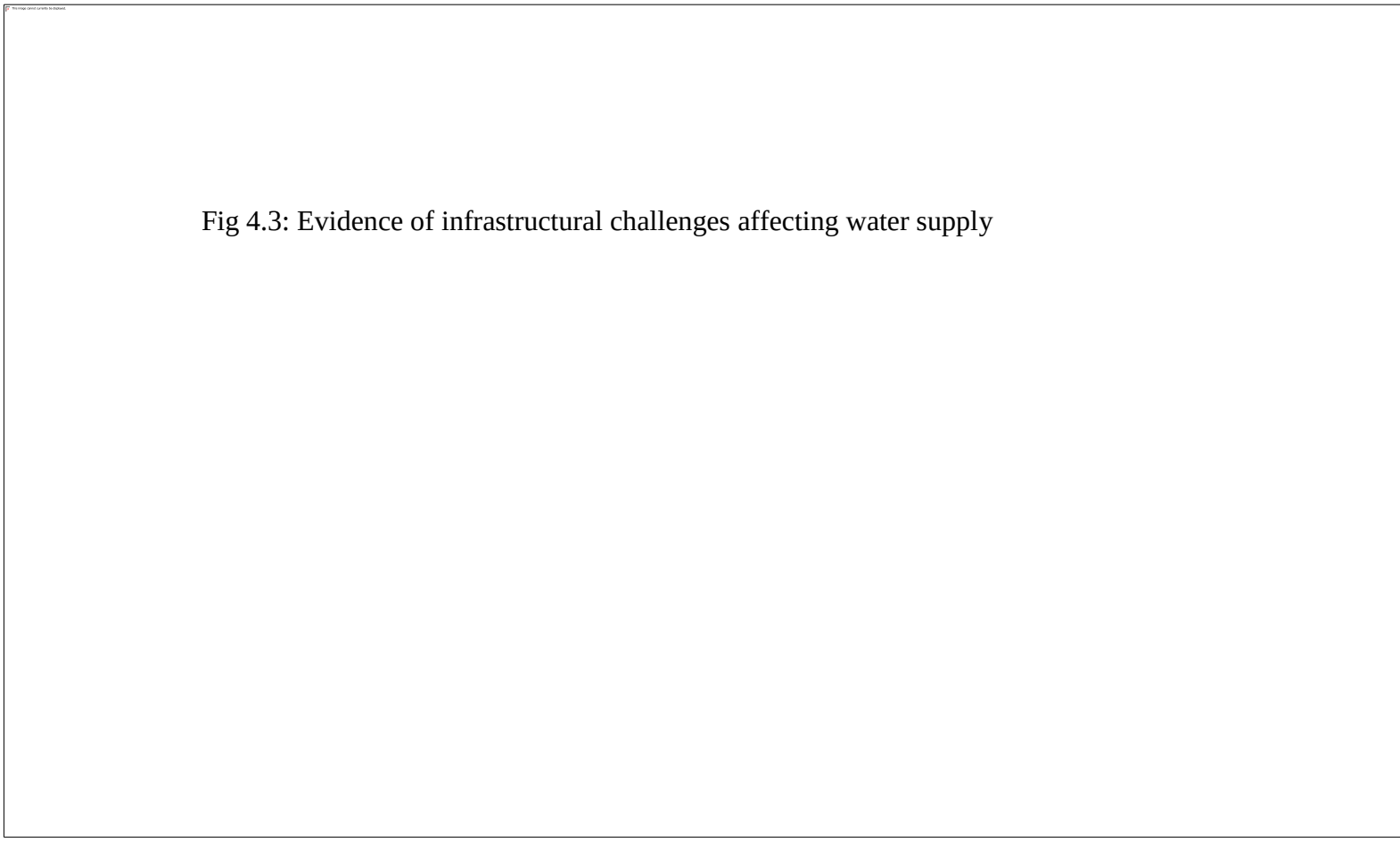


Fig 4.3: Evidence of infrastructural challenges affecting water supply

One man explained:

“It is not only the rain. Even when there is water, pipes burst and they take long to fix.”

Another noted:

“When electricity goes, water stops. There is no backup.”

These findings suggest that water insecurity is shaped by both environmental and institutional factors. While climate variability reduces water availability, governance capacity determines how effectively these challenges are managed.

From a Feminist Political Ecology perspective, this reflects the idea that environmental scarcity is socially mediated and shaped by power relations rather than purely natural factors (Rocheleau et al., 1996). Institutional weaknesses amplify vulnerability, and their impacts are unevenly distributed across different social groups (Cleaver & Hamada, 2010).

Women are disproportionately affected because they bear primary responsibility for managing water shortages. Service disruptions therefore translate directly into increased labour, longer waiting times, and reduced economic opportunities (UN Women, 2022; Mazambani & Nhamo, 2021).

The governance challenges identified in this study are consistent with findings that many water systems in Africa fail due to weak institutional capacity, inadequate maintenance, and limited accountability mechanisms (African Development Bank [AfDB], 2023). Feminist Political Ecology scholars argue that such governance failures are not merely technical issues but reflect deeper political and power inequalities that shape access to and control over natural resources (Chikulo, 2020; Nightingale, 2011).

### 4.5 Health and Socio-Economic Impacts of Water Insecurity

Water insecurity in Ward 9 has significant health and economic implications. Participants reported that reliance on alternative or unsafe water sources during shortages often resulted in illness within households.

This finding aligns with evidence linking inadequate water access to outbreaks of waterborne diseases such as cholera and typhoid in Zimbabwe (WHO AFRO, 2024). Poor sanitation and reliance on unsafe water sources have been identified as key drivers of these public health crises (UNICEF, 2024).

**Fig 4.4: Women  collecting water from dam**



Figure 4.4: Alternative unsafe water sources used during shortages in Ward 9, karoi

One woman stated:

"When the children get sick, it is because we were forced to use unsafe water."

Economically, households are often compelled to purchase water, placing additional strain on limited financial resources. Women engaged in informal livelihoods reported loss of income due to time spent collecting water.

As one woman respondent explained:

"If I spend hours fetching water, I cannot sell. But without water, there is no cooking at home."

These findings highlight the interconnected nature of water insecurity, health, and livelihoods. From an FPE perspective, these impacts are gendered. Women not only manage water collection but also bear responsibility for caregiving, increasing their overall burden.

Water insecurity therefore contributes to time poverty, reduced economic participation, and heightened vulnerability among women.

The economic impacts observed in this study reflect what FPE scholars describe as "time poverty," where women lose productive hours due to unpaid labour responsibilities (UN Women, 2025). Similar findings across Sub-Saharan Africa show that water insecurity significantly reduces women's participation in income-generating activities (Mazambani & Nhamo, 2021).

### 4.6 Community Participation and Decision-Making Power

Findings reveal limited community participation in water governance structures. Although some participants were aware of meetings or committees, active involvement was generally low, particularly among women.

Participants expressed concerns about lack of transparency and limited responsiveness from authorities. Decision-making processes were perceived as centralized, with minimal community input.

One female participant stated:

"We fetch the water every day, but when meetings are called, we are not informed."

Another added:

"Even if women attend, their voices are not taken seriously."

These responses indicate a disconnect between those most affected by water insecurity and those responsible for decision-making.

From a Feminist Political Ecology perspective, this reflects unequal power relations within environmental governance systems. Women, despite their central role in water management, remain underrepresented in decision-making processes.

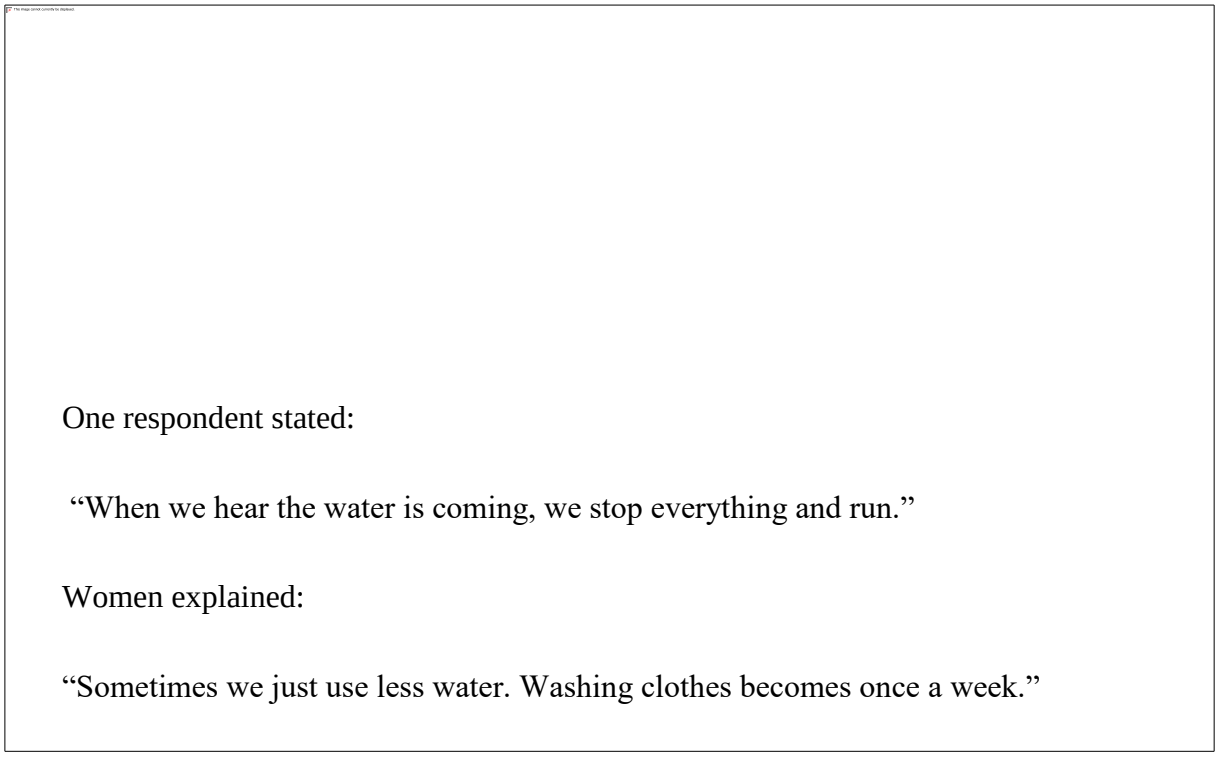
This imbalance reinforces structural inequality and limits the effectiveness of water management strategies.

These findings are consistent with literature indicating that women are often excluded from water governance structures despite being primary users of water resources (Nightingale, 2006). Studies in Zimbabwe also highlight that limited community participation and centralized decision-making reduce the effectiveness and sustainability of water projects (World Vision Zimbabwe, 2022). From an FPE perspective, this exclusion reinforces structural inequalities and limits the integration of local knowledge into decision-making processes.

### 4.7 Coping Strategies and Household Adaptation Mechanisms

Households in Ward 9 employ various coping strategies during water shortages. These include spending long hours queueing, storing water when available, purchasing from vendors, reducing water usage, and occasionally relying on unsafe sources.These strategies are largely managed by women, who adjust daily routines to cope with scarcity. Participants described waking early or even during the night to access water when it becomes available.

Fig 4.5 Household water storage practices during shortages



One respondent stated:

"When we hear the water is coming, we stop everything and run."

Women explained:

"Sometimes we just use less water. Washing clothes becomes once a week."

These coping mechanisms demonstrate resilience but also highlight the burden placed on households, particularly women.

From a Feminist Political Ecology perspective, such strategies reflect adaptation to structural constraints rather than long-term solutions. They often reinforce existing inequalities by shifting responsibility from institutions to households.

Reliance on unsafe water sources further illustrates how coping under constrained conditions can create additional risks.

Similar coping strategies have been documented in other water-scarce regions, where households resort to water storage, rationing, and reliance on informal markets (UN-Water, 2020). However, FPE critiques argue that such strategies shift the burden of adaptation from institutions to households, particularly women, thereby reinforcing existing inequalities (Elmhirst, 2015).

### 4.8 Chapter Summary

This chapter presented and analysed the findings of the study on the effects of inadequate access to clean water on human security in Ward 9, Karoi. It presented the demographic characteristics of participants and examined findings related to household water sources, availability and accessibility of water, gender roles in water collection, climate variability, governance challenges, and coping strategies adopted by households.The chapter also analysed these findings through the lens of Feminist Political Ecology, highlighting how the relationship between environmental conditions, institutional structures, and social factors influences experiences of water insecurity. Qualitative responses, figures, and supporting evidence from participants were presented to illustrate the experiences and challenges faced by the community.The next chapter discusses these findings in relation to existing literature and the theoretical framework guiding the study.

# CHAPTER FIVE

## 5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS, AND AREAS FOR FURTHER RESEARCH

### 5.1 Introduction

This chapter reviews key findings, draws conclusions, and suggests ways to improve access to clean water in Ward 9, Karoi. Conclusions are based on the results of Chapter 4 and the Feminist Political Ecology (FPE) framework (Siambale et al., 2026, pp. 1-15). The study used a mixed-methods approach for credibility, including household surveys, interviews, and focus groups. Data came from a representative sample, showing numerical trends and personal experiences (Siambale et al., 2026).

### 5.1.2 Summary of the project

This study examined the impact of inadequate access to clean water on human security in Ward 9, Karoi, Mashonaland West Province, Zimbabwe. The study was motivated by persistent challenges associated with unreliable water supply, ageing infrastructure, climate variability, and governance limitations that affect households' ability to access safe and adequate water. The research sought to understand how water insecurity influences different dimensions of human security, including health, livelihoods, safety, and overall well-being.The study was guided by Feminist Political Ecology (FPE), which provided a framework for examining how environmental challenges are shaped by social relations, power structures, and gender inequalities. The framework was useful in analysing how women and girls experience water insecurity differently due to their socially assigned responsibilities in household water management and their limited participation in formal water governance processes.

A mixed-methods research approach was adopted to obtain a comprehensive understanding of the research problem. The study combined household surveys, semi-structured interviews, focus group discussions, and document analysis. The target population included households in Ward 9, community leaders, water committee members, local authorities, and other relevant stakeholders. Quantitative data provided information on patterns of water access, while qualitative data captured the lived experiences and perceptions of community members.The study was structured around four main objectives: assessing the availability, accessibility, and quality of water in Ward 9; examining the effects of inadequate water access on human security; analysing the gendered impacts of water insecurity; and evaluating existing interventions and governance mechanisms aimed at improving water access.The findings presented in Chapter 4 provide evidence on the relationship between water insecurity, climate variability, institutional challenges, and gendered experiences within the community. This chapter builds on those findings by summarising the key results, drawing conclusions, and providing recommendations aimed at improving water security and promoting inclusive governance in Ward 9, Karoi.

## 5.2 Summary of Key Findings

### 5.2.1 Water Access and Infrastructure Reliability

Findings presented in Chapter 4 revealed that households in Ward 9 largely depend on communal boreholes as their main source of water, while municipal water supply was reported to be unreliable and inconsistent. Survey findings showed that respondents experienced frequent interruptions in water availability, particularly during dry seasons and periods of infrastructure failure. Participants also identified electricity shortages, delayed repairs, and ageing water infrastructure as major factors affecting reliable water provision.Qualitative findings further illustrated the challenges faced by households. One participant explained, “There are weeks when

the taps are dry for days, and we queue at dawn at the borehole." These experiences demonstrate that inadequate infrastructure and unreliable service delivery contribute significantly to household water insecurity.The findings confirm that water insecurity in Ward 9 is not only associated with climate variability but also with institutional and infrastructural challenges affecting water service delivery. Similar studies in Zimbabwe have shown that communities increasingly rely on alternative sources such as communal boreholes due to challenges associated with municipal water systems (Gondo & Kolawole, 2022).The study found a clear gender gap in water collection. Women are mainly responsible, and girls help during shortages. Men rarely help, often due to cultural expectations. Water scarcity increases women's workload, causing physical strain and less time for income. These findings show water insecurity affects men and women differently. (The invisible burden: heat amplifies gender inequality in Zimbabwe, 2026) (Water and Gender, n.d.)

### 5.2.2 Gendered Division of Labour in Water Collection

Findings presented in Chapter 4 revealed a clear gendered pattern in water collection and household water management in Ward 9, Karoi. Women were identified as the primary individuals responsible for collecting water, managing household water use, and ensuring domestic activities such as cooking, cleaning, and childcare continue during periods of shortage. Girls were also reported to assist with water collection, particularly when water sources were distant or when shortages increased household demands.

The findings further showed that water insecurity increased women's workload by extending the time and physical effort required to secure water for households. Participants indicated that long queues, early morning collection, and repeated trips to communal water points

reduced the time available for income-generating activities, education, and rest. One female participant explained, “Water is our responsibility. Even when a man is at home, people expect women to go and look for water.”

These experiences demonstrate that water insecurity is not experienced equally by all members of the community. From a Feminist Political Ecology perspective, environmental challenges are shaped by existing social relations and gender norms that determine who performs resource-related labour and who participates in decision-making processes (Rocheleau et al., 1996; Elmhirst, 2015).The findings correspond with broader evidence from Zimbabwe and Sub-Saharan Africa, where women and girls continue to carry the greatest responsibility for household water provision (UN Women, 2022). Feminist Political Ecology scholars argue that these responsibilities are socially constructed rather than natural, and they often remain undervalued within formal resource governance systems (Nightingale, 2006; Elmhirst, 2015). Therefore, the gendered division of labour observed in Ward 9 reflects wider inequalities in access, responsibility, and participation in water management.

### 5.2.3 Health and Economic Impacts

Findings presented in Chapter 4 showed that inadequate access to clean water affected both household health and economic well-being in Ward 9. Participants reported that unreliable water supply forced some households to rely on alternative sources, including unprotected sources during periods of severe shortages. Such practices increased concerns about water quality and exposure to water-related health risks. Participants also highlighted challenges associated with maintaining household hygiene and sanitation when water was unavailable. The study further revealed that water insecurity created significant economic burdens for households. During

prolonged shortages, some families were required to purchase water from vendors, placing additional pressure on already limited household resources. Women were particularly affected because the time spent collecting water reduced their ability to engage in income-generating activities. One participant explained, “When water is not available, I spend most of the day looking for water instead of doing my small business.”

These findings demonstrate that water insecurity extends beyond a shortage of a physical resource and affects broader dimensions of human security, including health, livelihoods, and household economic stability. From a Feminist Political Ecology perspective, the unequal distribution of water-related responsibilities means that women experience greater social and economic consequences when water systems fail.The findings are consistent with existing research showing that water insecurity increases health risks and places additional economic and labour burdens on vulnerable households, particularly women (Koyratty et al., 2021; UN Women, 2022). Studies in Zimbabwe also indicate that unreliable water services contribute to increased household expenditure and reduce women's opportunities for productive activities (Mazambani & Nhamo, 2021).

### 5.2.4 Coping and Adaptation Strategies

Households employed various coping mechanisms, including extended queuing, water storage, rationing, purchasing water, and occasionally using unsafe sources. These strategies were largely managed by women, reflecting the privatization and feminization of adaptation, where responsibility is shifted to households, particularly women. While these mechanisms demonstrate resilience, they also reinforce unequal labour burdens and fail to address underlying structural causes of water insecurity.

## 5.3 Conclusions

The study concludes that water insecurity in Ward 9 is not solely a product of climate variability or infrastructural decay. Rather, it is socially and politically mediated through governance performance and entrenched gender norms. Climate stress interacts with institutional fragility and patriarchal labour structures to produce layered and unequal vulnerability.

Feminist Political Ecology provides a useful analytical lens for understanding these dynamics. The evidence demonstrates that environmental risk is unevenly distributed and that women bear disproportionate physical, economic, and emotional burdens. Moreover, the exclusion of women from meaningful participation in water governance reproduces inequalities and limits accountability.

These findings are consistent with existing literature, which highlights that water insecurity in developing contexts is shaped by the interaction of climate variability, weak governance, and social inequalities. The study therefore reinforces arguments presented in Chapter 2 that access to clean water is both a human security concern and a fundamental human right. The continued lack of reliable access to clean water in Ward 9 represents a violation of the basic human right to water, as recognized in international human rights frameworks.

Water insecurity in Ward 9 therefore reflects broader structural challenges within environmental governance systems, where climate variability, energy instability, economic constraints, and gendered power relations intersect.

## 5.4 Recommendations

Based on the findings of this study, several recommendations are proposed to address water insecurity in Ward 9, Karoi.

**Strengthening Water Infrastructure and Energy Reliability**

The study found that households frequently experience unreliable water supply due to ageing infrastructure, electricity challenges, and delayed maintenance of water systems. Therefore, Karoi Town Council, in collaboration with relevant government agencies and development partners, should prioritize the rehabilitation and regular maintenance of water infrastructure. Investment in alternative energy solutions, such as solar-powered pumping systems, should also be expanded to reduce dependence on unreliable electricity supplies and improve the continuity of water provision.

**Improving Institutional Transparency and Accountability**

Findings revealed concerns regarding delayed responses to infrastructure breakdowns and limited community involvement in water management processes. Local authorities should strengthen transparency and accountability mechanisms in water projects, including clear reporting on the use of funds allocated for water infrastructure. Community monitoring committees should be empowered to participate in tracking projects, reporting faults, and ensuring timely responses to service disruptions.

**Promoting Gender-Responsive Water Governance**

The study established that women bear the greatest responsibility for water collection while having limited participation in water-related decision-making. Water governance structures should therefore promote meaningful inclusion of women through gender-balanced representation in water committees and planning processes. Capacity-building programmes should also support women's leadership and participation in technical and managerial aspects of water management.

**Reducing the Economic and Time Burdens of Water Collection**

The findings showed that water shortages increase women's unpaid labour and reduce opportunities for education and income-generating activities. To address this challenge, additional water points should be established in areas experiencing high demand to reduce walking distances and waiting times. During periods of severe shortages, measures should be introduced to support vulnerable households that cannot afford alternative water sources.

**Integrating Climate Adaptation into Water Planning**

The study found that climate variability, including droughts and changing rainfall patterns, contributes to increased pressure on local water resources. Water management plans should therefore incorporate climate adaptation measures such as groundwater monitoring, drought preparedness strategies, protection of water sources, and long-term planning to strengthen community resilience.

## 5.5 Areas for Further Research

Future research could explore long-term climate and water trends in peri-urban Zimbabwe. Compare wards or towns and examine how ideas of masculinity shape environmental work. Key questions include: How do climate changes affect water security in peri-urban areas? What differences exist in water access and management between wards or towns, and what causes them? How do views on masculinity affect water management and home tasks? Future studies should use mixed methods, participatory, or ethnographic research to understand these trends.

## 5.6 Final Reflection

This study demonstrates that water insecurity in Ward 9, Karoi is a complex human security challenge shaped by the interaction of climate variability, institutional weaknesses, infrastructure limitations, and gendered social relations. The findings show that inadequate access to clean water affects not only physical health but also livelihoods, dignity, safety, and household well-being, with women and girls experiencing a disproportionate share of the burden due to their responsibilities in water collection and household management.Using Feminist Political Ecology, the study highlights that water insecurity is not simply an environmental or technical problem but is also influenced by power relations, governance structures, and unequal participation in decision-making processes. Addressing water challenges therefore requires approaches that combine infrastructure development with inclusive governance, recognition of local knowledge, and meaningful involvement of affected communities, particularly women.Sustainable solutions for Ward 9 require long-term investments in reliable water systems, climate adaptation strategies, accountable institutions, and gender-responsive policies. Ensuring equitable access to clean water is not only necessary for improving living conditions but also represents a fundamental human right and an essential component of human security.

**REFERENCES**

African Development Bank. (2022). *Sustainable rural water and sanitation infrastructure for and livelihoods project: Malawi completion report.* African Development Bank.

Betera, S., Nyamandi, V., & Nunu, W. N. (2025). Exploring water, sanitation, and hygiene status and health outcomes in Zimbabwe: A scoping review. INQUIRY: *The Journal of Health Care Organization, Provision, and Financing,* 62, 1–11 Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journa*l, 9(2), 27–40.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101.

Centers for Disease Control and Prevention. (2018). Cholera outbreak—Lusaka, Zambia, 2017–2018. *Morbidity and Mortality Weekly Report, 6*7(19), 545–548.

Chiwaya-Kamwendo, T. (2024). Water scarcity and gender inequality in Southern Africa: Feminist perspectives on resilience. *Gender and Development Studies Journal,* 18(3), 78–95.

Chigumira, E., Ncube, M., & Mupedziswa, R. (2022). Urban water governance in Zimbabwe: Challenges and opportunities. Zimbabwe Environmental Law Association

Chikozho, C. (2021). Water governance and transboundary challenges in Southern Africa. *African Journal of Environmental Policy and Practice*, 5(2), 45–61.

City of Harare. (2024). Karoi residents demand transparency on devolution funds for water projects. City of Harare.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research (3rd ed.). Sage.*

Delgado, C., Robles, A., & Medina, P. (2022). Water scarcity and infrastructure governance in Mexico City. *Urban Water Journal*, 19(2), 105–120.

Elmhirst, R. (2015). Feminist political ecology. *In The Routledge handbook of gender and environment.* Routledge.

Food and Nutrition Council. (2023). *Hurungwe district profile (Mashonaland West).* Government of Zimbabwe.

Gondo, R. (2022). Household water access and COVID-19 in Karoi Town, Zimbabwe. *PLOS Global Public Health.*

Government of Zimbabwe. (2013*). Constitution of Zimbabwe Amendment (No. 20)*. Government Printers.

Government of Zimbabwe. (2021). *National development strategy* 1 (2021–2025). Government Printers.

Hoko, Z., & Momba, M. N. (2021). Water reuse in Windhoek, Namibia: *Resilience through technology. International Journal of Water Resources Development*, 37(5), 712–726.

Hulme, M. (2016). Weathered: *Cultures of climate*. Sage.

Intergovernmental Panel on Climate Change. (2023). *Climate change 2023: AR6 synthesis report.* IPCC.

Kothari, C. R. (2004). R*esearch methodology: Methods and techniques.* New Age International.

Marengo, J. A., Alves, L. M., & Soares, W. (2016). Water crisis in São Paulo: Drought and governance failures in Brazil's largest metropolis. *Environmental Research Letters,* 11(12).

Mazambani, D., & Nhamo, G. (2021). Climate change adaptation and water governance in Zimbabwe: A gender perspective. *Journal of Environmental Management,* 287, 112–126.

Muller, M. (2018). Cape Town's drought: Don't blame climate change. *Nature,* 559(7713), 174–176.

Mutambara, J., Ndlovu, M., & Ncube, M. (2020). Gender, water, and sanitation: The role of women in rural Zimbabwe. *African Review of Gender Studies*, 18(1), 56–72.

Mwadzingeni, L., Mugandani, R., & Mafongoya, P. L. (2022). Socio-demographic, institutional and governance factors influencing adaptive capacity of smallholder irrigators in Zimbabwe. *PLOS ONE*, 17(8),

Nyoni, T. (2020). Climate change, drought, and water scarcity in Zimbabwe. *Sustainability in Southern Africa,* 8(4), 98–114.

Reniko, G. (2017). An assessment of source water quality in Karoi. J*ournal of Water Management Modeling,* 25(1), 144–157.

Rocheleau, D., Thomas-Slayter, B., & Wangari, E. (Eds.). (1996). *Feminist political ecology: Global issues and local experiences*. Routledge.

*Southern African Development Community. (2024). Regional drought response and water policy update.* SADC Secretariat.

Transparency International. (2021*). Corruption and the water sect*or. Transparency International.

UNICEF Zimbabwe. (2022). *Solar-powered piped water schemes help urban Zimbabwe amid water scarcity and climate change*. UNICEF.

*UNICEF Zimbabwe. (2023). Rural WASH programme: Annual progress report 2023*. UNICEF.

UN Women. (2022*). Women, water and climate resilience in Southern Africa*. UN Women.

UN Women. (2025). *Policy brief: Mainstreaming gender equality in water resource management*. UN Women.

UN-Water. (2015). *Millennium Development Goals report: Lessons and the post-2015 agenda.* United Nations.

UN-Water. (2020). *The United Nations world water development report 2020: Water and climate change*. UNESCO.

United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development.* United Nations.

United Nations Department of Economic and Social Affairs. (2023). *Sustainable Development Goals report 2023*. UN DESA.

United Nations Development Programme. (2022). *Human development report 2022: Uncertain times, unsettled lives*. UNDP.

Weathering Risk. (2023). *Climate and security risk assessment for Southern Africa*. Adelphi Institute.

World Bank. (2020a*). Water and sanitation program in Africa: Challenges and opportunities.* World Bank.

World Bank. (2020b). *Water and sanitation program in Latin America: Lessons from community-based systems*. World Bank.

World Bank. (2023). *Global water security and resilience repor*t. World Bank.

World Food Programme. (2024). *El Niño and Southern Africa drought impact report.* WFP.

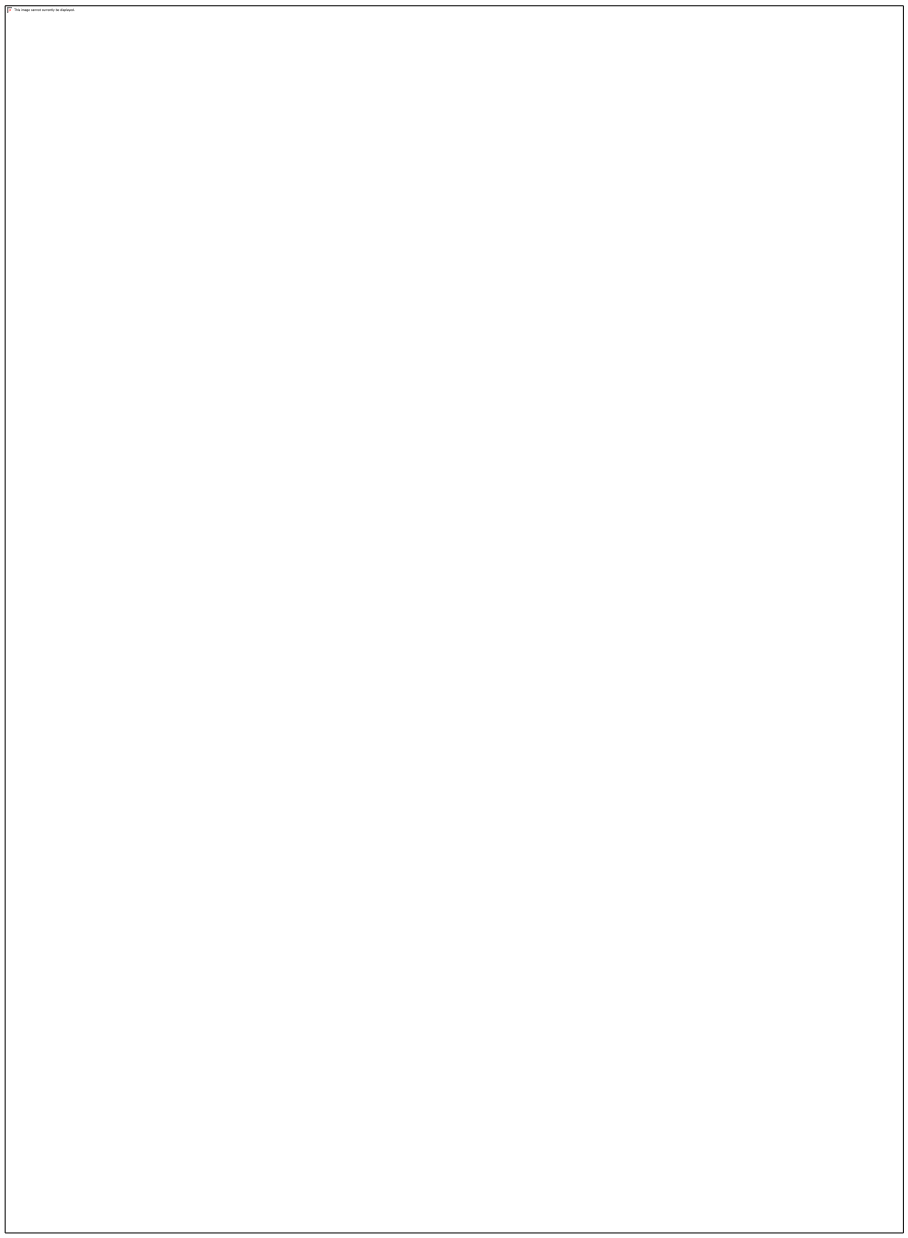
World Health Organization. (2021). *Zimbabwe cholera and typhoid situation report*. WHO.

World Health Organization Regional Office for Africa. (2024). *Cholera situation report: Zimbabwe outbreak 2023–2024.* WHO AFRO.

World Health Organization, & UNICEF. (2023). *Progress on household drinking water, sanitation and hygiene (2000–2022): Special focus on gender*. WHO

World Vision Zimbabwe. (2022). *World Water Day 2022: Making the invisible visible*. World Vision Zimbabwe.

## Appendix 1: Permission letter



**Appendix 2: (Household Survey Questionnaires)**

I am Grannie Musochi, a student at Bindura University of Science Education conducting research on the examination of access to clean water in Ward 9, Karoi. This research is in partial fulfillment of my Bachelor's degree in Peace and Governance. You are invited to participate in a research study examining access to clean water in Ward 9, Karoi. This study seeks to understand how climate change, governance systems, and gender roles influence water access and household experiences in this community. The findings may contribute to improved water management and more equitable service delivery.

1. Please describe your daily routine in relation to water collection and use.

2. How was water access changed over the past few years?

3. How water shortages affect your household responsibilities?

4. Do you feel safe when collecting water? Please explain.

5. How are decisions about water management made in this community?

6.Are women included in water governance meetings? How meaningful is their participation?

7. How do droughts or climate changes affect your access to water?

8. What improvements would you recommend for better water management?

**Appendix 3 ( Focus Group Discussions)**

I am Grannie Musochi, a student at Bindura University of Science Education conducting research on the examination of access to clean water in Ward 9, Karoi. This research is in partial

fulfillment of my Bachelor's degree in Peace and Governance. You are invited to participate in a research study examining access to clean water in Ward 9, Karoi. This study seeks to understand how climate change, governance systems, and gender roles influence water access and household experiences in this community. The findings may contribute to improved water management and more equitable service delivery.

1. How would you describe the water situation in Ward 9?

2 .How have climate patterns affected water availability?

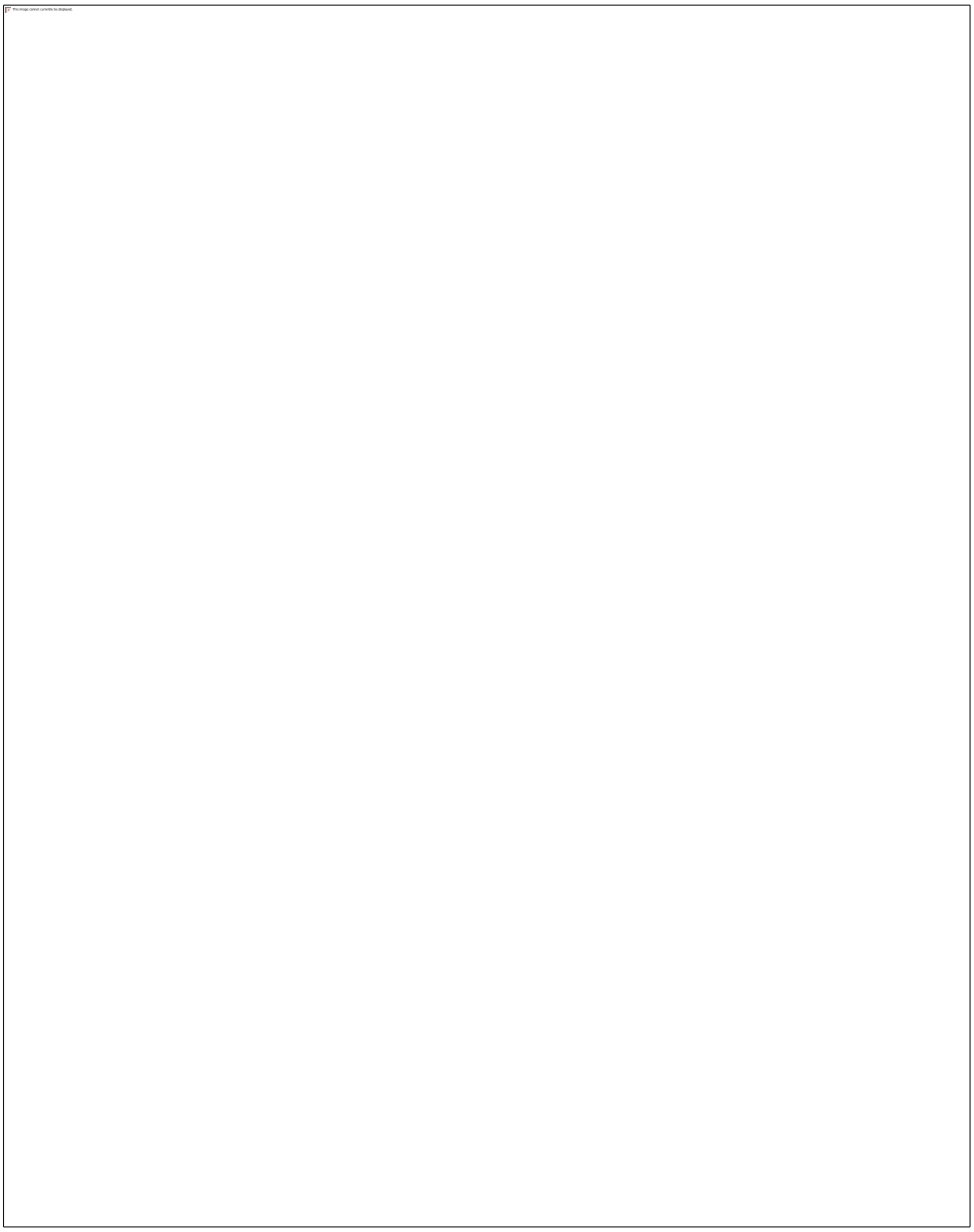
3 .Who is responsible for water collection in most households? Why?

4. Are water governance structures inclusive? Explain.

5.What coping strategies does the community use during shortages?

6.What changes are needed to improve access and fairness?

## Appendix 4: (officials, KTC Permission letter)



1. How is water infrastructure managed in Ward 9?

2. What are the main challenges affecting water supply?

How are devolution funds allocated for water projects?

3. Are gender considerations integrated into water planning?

4. How do climate shocks affect municipal water systems?

5. What measures are in place to ensure transparency and accountability?

6.What long-term strategies are planned for improving water access?

Thank you for your cooperation.

Appendix:4 AI report

