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FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCES

DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION



RESEACH PROJECT

**ASSESSMENT OF THE IMPACT OF ENHANCED RESILIENCE BUILDING
INITIATIVES AMONG VULNERABLE HOUSEHOLDS IN MANGWE DISTRICT,
ZIMBABWE. A CASE STUDY OF MANGWE DISTRICT**

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DEDICATION

I respectfully offer this dissertation dedication to my dear friends, my family, my committed supervisor, my loving parents, and the entire school community. Your unfailing love, unending support, and wise counsel has been the cornerstone of my path, keeping me going when the going became tough. I appreciate the valuable role that each of you has played in influencing my path, and I am incredibly grateful for this. To my friends, even the darkest times were made brighter by your constant faith in my ability and your hilarious study sessions. My achievements have been fueled by your everlasting faith and selflessness, my family. Your insight and guidance helped me explore new ground and realize my full potential.

ABSTRACT

The goal of this study was to evaluate the effects of improved resilience-building programs on vulnerable households in Mangwe District, Zimbabwe. The purpose of this study is to assess how successful resilience-building initiatives enhance the resilience and general well-being of households dealing with social, economic, and environmental issues. This study used a mixed-methods approach that integrated qualitative interviews with quantitative survey data. In order to complete the quantitative component, information from a representative sample of 100 district vulnerable households was collected, and their socioeconomic profiles, livelihood plans, and resilience levels were evaluated. To acquire a deeper understanding of the initiatives and their results, the qualitative component involved conducting in-depth interviews with key stakeholders, such as community members, local government officials, and project implementers. The study examined various resilience-building interventions implemented in the Mangwe District, such as agricultural training programs, access to improved water and sanitation facilities, livelihood diversification initiatives, and community-based disaster risk reduction measures. The study assessed the impact of these interventions on key indicators such as income generation, food security, access to basic services, social cohesion, and vulnerability reduction. The results of this study improved our understanding of programs aimed at enhancing resilience and how they worked to improve the lives of vulnerable households. With an eye on sustainability and scalability, this research offered evidence-based suggestions that could improve the planning and execution of future initiatives. Policymakers, development professionals, and local communities may properly allocate resources and make informed decisions to assist vulnerable households in strengthening their resilience and coping with recurring problems by having a thorough understanding of the effects of enhanced resilience building programs. This study also intended to add to the larger conversation about resilience-building tactics and sustainable development in the context of vulnerable communities.

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ABBREVIATION AND ACRONYM

AGRITEX	Agricultural Technical and Extension Services,
CA,	conservation agriculture
FAO	Food and Agriculture Organization of the United Nations
FDG	Focus Group Discussions
GDP	Gross Domestic Product (GDP)
ICT:	Information Communication Technology
MFED	Ministry of Finance and Economic Development
NAPF	National Agriculture Policy Framework
RESAKSS	Regional Strategic Analysis and Knowledge Support System
SADC,	the Southern African Development Community
Sustainable	Development Goals
SSA	sub-Saharan Africa
UNDAF:	United Nations Development Assistance Framework
ZAIP Zimbabwe	Agricultural Investment Program
ZimAsset	Zimbabwe's Agenda for Sustainable Socio-economic Transformation
ZIMSTAT	Zimbabwe Statistics Agency
ZimVAC	Zimbabwe Vulnerability Assessment Committee
UNDP	United Nations Development Program
SL	Sustainable livelihoods
FS	Food Security
FDGs	Focus Group Discussions
GDP	Gross Domestic Product

CHAPTER I

GENERAL INTRODUCTION

1.0. Introduction

The purpose of this chapter is to provide a general summary of the research challenge and the researcher's final objective. It explores the study's historical background, describes the issue statement, aims, and research questions, highlights the significance of the work, and defines important terminology. For readers, this chapter essentially acts as a roadmap for the entire research project, outlining exactly what to anticipate from the investigation. It identifies the research problem and conducts a detailed exploration of it by addressing particular research questions and meeting predefined goals.

1.1. Background of the study

Climate change casts a long shadow across the globe, disrupting weather patterns and threatening food security, particularly in developing countries. From the scorching heat waves withering crops in East Africa (Ethiopia - agriculture GDP down 7% since 2015) to rising sea levels inundating coastal communities in Southeast Asia, the effects of climate change are a harsh reality for millions. For countries heavily reliant on agriculture for both national income and household sustenance, the impact is particularly devastating. For instance, India, where erratic monsoon seasons since 2018 have threatened staple crops, impacting not only food security but also national income, as agriculture contributes significantly (around 18%) to India's GDP.

Global food security is being threatened by climate change. Food shortages and malnutrition result from agricultural productivity disruptions caused by rising temperatures and unpredictable rainfall patterns. Because they have less means for adaptation and rely mostly on rain-fed agriculture, developing nations are especially vulnerable. Just a couple of the many problems developing countries face are Ethiopia, where millions have been uprooted by droughts, and India, where unstable monsoon seasons endanger vital crops.

Zimbabwe's economy is heavily dependent on agriculture, contributing significantly to GDP, exports, and raw materials for industry. However, over the past decade, the nation has witnessed a worrying rise in food insecurity at both the household and national levels. Lower crop

productivity is attributed to a complex interplay of factors: climate change, socio-political developments, and a lack of a comprehensive agricultural policy framework.

Mangwe District, located in Zimbabwe's Matabeleland South Province, exemplifies the challenges faced by rural communities. With an annual rainfall average of less than 500mm, frequent crop failures are a harsh reality (Gukurume, 2013). This, coupled with limited access to irrigation and the absence of drought-resistant crops like small grains, further intensifies food insecurity (Lunga & Musarurwa, 2016). An estimated 5.5 million people in rural Zimbabwe, including those in Mangwe, experienced food insecurity in 2019 (ZimVAC, 2019). During the 2019-2020 lean season, 3.8 million Zimbabweans required food assistance, highlighting the severity of the situation (USAID, 2021).

Despite ongoing government and NGOs efforts to implement sustainable livelihood programs, food insecurity in Zimbabwe continues to rise. These programs often lack effectiveness due to factors such as rising food prices, limited access to land and water, and the exclusion of women from agricultural decision-making processes. This highlights the need for a more holistic approach that considers not only climate change but also socioeconomic factors that contribute to food insecurity.

The case of Zimbabwe underscores the urgent need for developing countries to adapt their agricultural policies. Investing in drought-resistant crops, capacity building and extension services, promoting irrigation, incorporating climate-smart initiatives and empowering rural communities, particularly women, are crucial steps toward building resilience and achieving food security in the face of a changing climate. Only through a multi-pronged approach can Zimbabwe and other vulnerable nations ensure a future where everyone has safe and nutritious food.

1.2. Problem Statement

An estimated 5.5 million people in rural Zimbabwe, including those in Mangwe, experienced food insecurity in 2019 (ZimVAC, 2019). Low and erratic rainfall (250-450mm) makes agriculture, the primary source of food and income for Mangwe households, highly unreliable. Because of these erratic rains, crop production on dry land has been low compared to those farmers using irrigation schemes. Low rainfall reduces crop yields, leading to food shortages and malnutrition. The entire district is classified as drought-prone, further amplifying the risk of crop failure and food insecurity. Unfavorable soil and climate conditions restrict crop variety

and limit overall agricultural productivity. Farmers are forced to rely on drought-tolerant crops that may have lower nutritional value or market prices compared to other options. Low rainfall volumes restrict water availability for livestock rearing, domestic use, and irrigation, impacting another potential source of food and income. The socio-economic and environmental issues that vulnerable households in the Mangwe District face are numerous, intricate, and interconnected, seriously jeopardizing their standard of living and general well-being. These difficulties include a lack of essential services, poor infrastructure, food insecurity, unpredictable weather patterns, and extreme poverty. The district has implemented some resilience-building programs to improve the adaptive capacity and resilience of vulnerable households considering the seriousness of these problems.

In order to close the current information vacuum, a comprehensive evaluation of the effectiveness of these resilience-building programs among disadvantaged households in Mangwe District is being conducted in this study. By identifying best practices and offering evidence-based recommendations to improve the design and execution of future resilience-building projects, the findings shed light on the efficacy and results of present interventions. Policymakers, development professionals, and local communities can create sustainable strategies to support vulnerable households and guarantee their long-term resilience by knowing the advantages and disadvantages of these interventions. They can also make informed decisions and determine how best to allocate resources.

1.3. Objectives of the study

1.3.1. Main Objective

To assess the impact of resilience building initiatives on vulnerable households in Mangwe District, Zimbabwe.

1.3.2. Specific Objectives

The Specific Objectives of the research are as follows:

1. To characterize the resilience building project implemented in Mangwe District.
2. To assess the challenges faced by vulnerable households participating in resilience building projects in Mangwe District.
3. To compare the resilience scores of beneficiaries and non-beneficiary participants of the project

4. To analyze factors affecting the resilience of vulnerable households in Mangwe District.

1.4. Research questions

1. What are the characteristics of the resilience building projects implemented in the Mangwe District?
2. What are the challenges faced by vulnerable households participating in resilience building projects in Mangwe District?
3. How do resilience scores differ between beneficiary and nonbeneficiary participants?
4. Factors affecting household resilience in Mangwe District.

1.5. Significance of the study

This study is important because it will provide valuable insights into the effectiveness of resilience building interventions and this will inform future programing and policy making efforts. By studying the impact of resilience building initiatives, researchers and practitioners can assess whether these interventions improve the living standards of residents in Mangwe District and identify areas where improvements can be made. This study will also provide evidence for advocacy and resource mobilization efforts. In this case, by having documented data and success stories, different stakeholders can make a stronger case for increased investment and support from the government, development partners, and agencies.

Therefore, this can lead to greater financial resources being allocated toward resilience building initiatives and benefiting vulnerable households in the Mangwe District. Studying the impact of enhanced resilience can shed light on the broader socio-economic implications as the interventions also seek to improve livelihoods and promote sustainable development through the implementation of National Development Strategy 1 (NDS 1). This study will demonstrate the connection between different sectors, such as agriculture, health, and education, thus highlighting the importance of addressing vulnerability.

1.6. Scope of the study

The study focus specifically on the Mangwe District and the study will concentrate on vulnerable households within the Mangwe District and they will be defined by criteria such as income level and access to resources. The research will explore the enhanced resilience for vulnerable household's project, which is aimed at enhancing the resilience of vulnerable households in the district. The study will likely involve collecting data through surveys and

interviews with community members and stakeholders. The data collected would be analyzed to identify trends and patterns that can be used to assess the impact of the interventions on communities in the district.

The study also focuses on key indicators of resilience, such as economic stability, food security, and access to basic needs. Additionally, the scope of the study could include a review of the policy and regulatory environment to identify factors that may have influenced the success or failure of resilience building initiatives.

Overall, the study aims to provide a comprehensive assessment of the impact of enhanced resilience building initiatives among vulnerable households in Mangwe District, with the ultimate goal of informing future interventions and policies to support and strengthen resilience in the district.

1.7. Limitations of the study

The study has some limitations, namely, it relies on self-reported data from participants, which could introduce biases. In this case, self-reporting can cause respondents to exaggerate their living conditions with the thought that they will receive assistance from the researcher. In order to resolve this issue, the researcher informed the participants that the information collected was solely for academic purposes and that no financial compensation was provided for participating in the research. The unique characteristics and context of Mangwe District may limit the generalization of the findings to other regions or settings. Another limitation of the study is the sample size. The study was limited to a few communities or households, which could affect the generalization of the findings to a larger population. In some cases, the sample size was small, thereby affecting the study's statistical power and confidence in the results.

1.8. Delimitation of the study

This study targeted specific demographics or types of vulnerable households within the Mangwe district, such as those facing food insecurity and extreme poverty, thereby limiting the generalizability to a broader population. The study also specifically focuses on the Mangwe District, and its findings may not directly generalize to other districts or regions with different socioeconomic, environmental, or cultural characteristics.

The study was delimited by time frame. The research focused on the impact of resilience-building initiatives implemented within a specific time frame, such as those implemented in the past five years, to ensure that researchers are collecting up-to-date information.

Another limitation is the focus on specific resilience-building initiatives. This study was limited to specific interventions implemented by aid organizations and government entities. For example, the study focused on the impact of interventions aimed at improving food security, sanitation income generation, and economic stability in vulnerable households. By focusing on specific initiatives, the researchers collected more detailed information about the effectiveness of the interventions.

1.9. Organization of the report

There are five chapters in this work. An overview of the study and background information are given in Chapter 1. Chapter 2 thoroughly reviews the topic and examines current information is examined. In order to set the scene for the inquiry, Chapter 3 discusses the subject region, research methodology, and research approach. Analyzing the outcomes and their consequences, Chapter 4 summarizes and discusses the findings. Ultimately, Chapter 5 provides a thorough summary of the thesis by summarizing the findings of the research, making recommendations, and considering how the findings may affect policy.

CHAPTER II

LITERATURE REVIEW

2.0. Introduction

This chapter aims to advance knowledge on how increased resilience building activities have been implemented and assessed within the setting of vulnerable households by examining the body of research that has already been conducted.

The definitions and ideas of vulnerability and resilience are explored at the beginning of the chapter followed by an examination of the conceptual framework of vulnerability and resilience. This study explores the theoretical foundations of resilience by referencing important theoretical stances and frameworks that have influenced conversations on resilience-promoting interventions. This study also examines several aspects of vulnerability, such as social, economic, and environmental aspects, which are important for comprehending the unique difficulties that vulnerable households face.

2.1. Concepts and definitions of terms

Vulnerability

Anderson, L., and Smith, B. (2018), stated that vulnerability is the term used to describe how susceptible or exposed people, groups, institutions, or organizations are to risks, harm, or adverse effects. It is associated with the existence of elements or circumstances that make negative outcomes more likely or compromise one's capacity to manage and recover from shocks or stresses. There are different factors that can make someone vulnerable, such as social, economic, environmental, and health issues.

Vulnerable Households

Households that are vulnerable are those who are more likely to experience negative effects because they are less able to handle and bounce back from stressors or challenges, as defined by Smith, J., & Johnson, A. (2021). These households are more vulnerable to injury and find it more difficult to adjust when faced with a variety of socioeconomic obstacles, such as poverty, limited social support networks, poor access to resources, and a disadvantaged social position.

Resilience

The capacity of individuals, groups, systems, or organizations to adjust to and overcome shocks, challenges, or stressors to preserve or restore their well-being, stability, and functionality is known as resilience, as defined by Smith, J., & Johnson, A. (2020). It is the ability to face and overcome adversity and continue growing or developing in spite of disruptive occurrences like natural disasters, economic downturns, and personal obstacles.

Resilience Building Initiatives

Initiatives for building resilience are deliberate attempts, plans, or actions meant to improve the ability of people, groups, institutions, and organizations to grow and fortify resilience (Johnson, R., & Smith, C. (2019). These programs often include tactics and exercises that encourage the development of abilities, assets, and support systems to more effectively face, cope with, and recover from hardships or stressful situations. Johnson, R., & Smith, C. (2019) stated that initiatives to increase resilience may focus on a variety of topics, including community development, improving food security, mental health, organizational resilience, and catastrophe preparedness. These initiatives may include capacity building, skill development, social support networks and resource allocation aimed at strengthening individuals' ability to cope with and recover from adversity.

2.2.Theoretical framework

A theoretical framework is a conceptual structure or collection of guiding principles that serves as a basis for comprehending and evaluating a certain phenomenon or issue and guides the course of research. The design, methods, and interpretation of the study results are guided by a range of known ideas, concepts, and information.

The theoretical framework for this study includes two key perspectives: vulnerability theory and the Risk and Protective Factors Framework. These frameworks provide a comprehensive understanding of the factors contributing to vulnerability and resilience among households facing adversity and the factors aimed at strengthening resilience.

Vulnerability Theory

When it comes to resilience-building programs for vulnerable homes, vulnerability theory (Cutter et al., 2003) focuses on identifying the characteristics that leave people or households open to shocks and stresses from the outside world. It attempts to pinpoint and resolve the underlying weaknesses that support their disadvantageous status and impede their capacity to adjust, deal with, and bounce back from adversity. An important aspect of vulnerability theory is social vulnerability. It entails observing the social elements that affect how vulnerable families are to danger and how well they can absorb shocks and recover from them. This comprises elements including socioeconomic standing, social networks, resource accessibility, and the degree of social assistance that disadvantaged households have access to (Cutter et al., 2003).

Economic vulnerability is another crucial factor to consider. It speaks about monetary means, possibilities for living, and economic systems that influence households' resilience. Economic vulnerability can be caused by various factors, including income levels, work status, credit and insurance availability, and the overall economic environment in which families operate (Adger, 2006).

Another important aspect of vulnerability theory is environmental vulnerability, as described by (Adger, 2006). It includes all environmental and physical variables that put homes at risk. This entails evaluating the impact of environmental degradation on vulnerable families, as well as their vulnerability to natural dangers, the standards of housing and infrastructure, and their

In this particular context, social vulnerability is an important notion to consider because it includes the social aspects that affect a household's susceptibility to external threats and its capacity to manage them. It is crucial to evaluate the effects of households' socioeconomic position, social networks, and availability of resources and social assistance on their vulnerability and resilience, for instance, in the Mangwe District (Cutter et al., 2003).

Framework of Risk and Protective Factors

Factors that increase the probability of unfavorable outcomes or increase household vulnerability are referred to as risk factors. Some examples of these factors include socioeconomic disadvantages (such unemployment, poverty, or low levels of education), restricted access to resources (like clean water, infrastructure, or healthcare), social exclusion or social isolation, exposure to environmental risks, and systemic and historical disparities.

Because these risk variables directly define vulnerabilities experienced by households, resilience projects must understand and address them.

Conversely, protective variables are those attributes or circumstances that lessen the influence of risk factors and increase household resilience. These variables may include having access to social networks that are encouraging, having a strong sense of social cohesiveness and community involvement, having access to reasonably priced and high-quality healthcare services, having opportunities for education and skill development, having efficient government and community institutions, and having access to safety nets and financial resources. By using these safeguards, resilience projects can increase susceptible households' ability to endure shocks and pressures and recover.

The application of the Risk and Protective Factors Framework to resilience projects entails the identification and mitigation of particular risk factors that exacerbate vulnerability in households in Mangwe District. It also entails being aware of the protective variables that are already in place and can be enhanced or used to improve resilience. Resilience programs can improve vulnerable households' well-being and ability to adapt by addressing the underlying causes of vulnerability and strengthening protective factors through focused interventions.

2.3. Conceptual framework

A conceptual framework is a methodical way of organizing theories, concepts, and ideas that direct an inquiry or research project. It functions as the "blueprint" that shows how different variables or constructs in a study or inquiry might be related to one another.

In order to "synthesize results and develop a coherent explanation of the phenomena under study," a conceptual framework is helpful, according to Miles and Huberman (1994). Similarly, a conceptual framework is described as a "scaffolding" that aids in the creation of a research project by Ankra et al. (2013)

According to Miles et al. (2020) and Ravitch and Riggan (2016), in the context of assessing the impact of enhanced resilience building initiatives among vulnerable households in Mangwe District, a conceptual framework can provide a structured approach to understanding the complex relationships and dynamics involved. In the words of Creswell and Creswell (2018) and Yin (2018), the conceptual framework serves as a foundation for organizing theories, concepts, and ideas that guide inquiry or research projects.

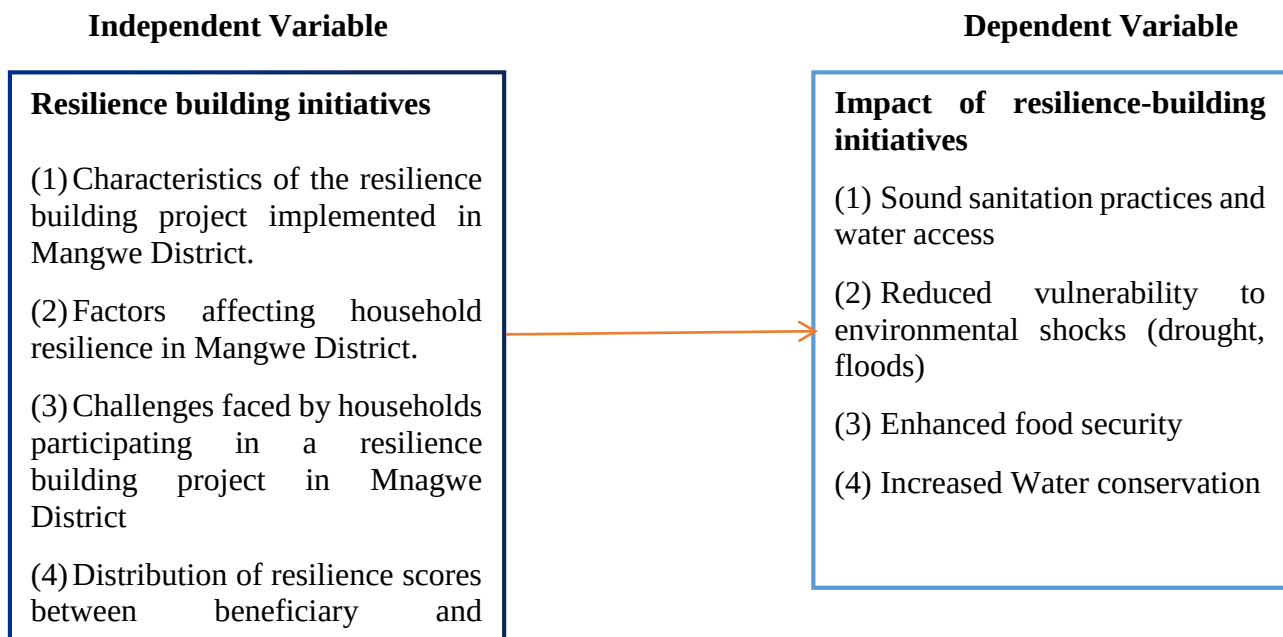


Figure 1: Conceptual Framework

2.4. Empirical Review

Characteristics of resilient building projects

i. Sustainable Agriculture and Food Production:

Using sustainable agriculture methods is a common emphasis in resilience building programs. These methods, which prioritize soil health, water management, biodiversity conservation, and integrated pest management, include agro ecology, conservation agriculture, and organic farming (Altieri, 2018). Farmers may boost nutrition, increase agricultural yields, and lessen their susceptibility to market and climate change by implementing these strategies.

ii. Water access and Sanitation

Resilience building programs must prioritize the improvement of water availability and sanitation. Water sources must be built and restored, water conservation measures must be promoted, and access to sanitary facilities and pure drinking water must be guaranteed (UN-Water, 2020). More resilience, more production, and better health benefit from these programs, especially in underprivileged areas. To increase water access, resilience building projects prioritize the construction and restoration of water sources. This includes the drilling wells, the

setting up of hand pumps, and the building structures for water storage. With the help of these programs, communities will be less susceptible to water scarcity and will have access to water for a variety of purposes, including irrigation, drinking, and cleaning.

According to (UN-Water, 2020), another important component of programs aimed at enhancing resilience is the promotion of water conservation measures. A major issue that many communities face is water scarcity, which is worsened by population increase and climate change. Water conservation initiatives support the execution of water management policies, increase public awareness of the importance of efficient water use, and promote water-saving technologies. Communities for example Mangwe District can strengthen their ability to withstand droughts and water scarcity by practicing resource conservation, which guarantees water availability in times of low precipitation or high demand.

iii. Climate-Smart Initiatives

Strategies for managing resources, adapting to climate change, and mitigating its effects are given priority in resilience-building programs. Examples of such programs include agroforestry, climate-resilient infrastructure, renewable energy technologies, and watershed management (Campbell et al., 2017). Communities can become more resilient to the effects of climate change and promote sustainable development by incorporating climate considerations into development processes. Climate-smart projects play a pivotal role in bolstering the resilience of sustainable development by tackling the obstacles and consequences of climate change while encouraging sustainable behaviors. With the goal of lowering susceptibility, improving adaptive capacity, and reducing hazards associated with climate change, these projects incorporate climate considerations into a variety of sectors and activities.

FAO and the World Bank (2013) explained that watershed management is another key climate-smart project. To guarantee water availability and quality, this entails the preservation, conservation, and sustainable management of watersheds. Watershed management activities reduce the effects of climate change on water resources, stop soil erosion, and reduce the likelihood of flooding by putting into practice techniques like terracing, reforestation, and soil conservation measures. These initiatives will help communities that depend on water for a variety of uses, such as residential, agricultural, and ecosystem services, to become more resilient.

iv. Building Capacity and Knowledge Sharing

Aldunce et al. (2019) stated that platforms for exchanging knowledge, farmer field schools, and community-based learning programs all help spread knowledge and encourage creativity.

Initiatives aimed at enhancing capacities concentrate on enhancing people's and communities' abilities. They offer seminars, training, and instructional courses on a range of subjects, such as entrepreneurship, climate change adaptation, disaster preparedness, agriculture, and water management. These projects improve people's technical proficiency and decision-making skills, empowering them to use sustainable practices, efficiently manage resources, and make well-informed decisions that support resilience and sustainable development (Béné, C., Wood, R. G., Newsham, A., & Davies, M. (2012).

Platforms for exchanging knowledge are essential for activities intended to enhance resilience. These platforms serve for stakeholders, including community members, researchers, policymakers, and practitioners, to share knowledge, insights, and best practices. They encourage group learning, creativity, and sharing of important information and lessons. Many knowledge exchange platforms exist, including research networks, online platforms, farmer field schools, and community-based learning programs. These platforms empower communities and aid in the creation and application of successful resilience strategies by enabling the exchange of information and experiences. FAO (2013)

Factors affecting household resilience in Mangwe District.

For households in the Mangwe District to endure and bounce back from various obstacles and setbacks, resilience is an essential component. Socioeconomic position, access to essential services, management of natural resources, social networks and community cohesion, and availability of knowledge and technology are some of the elements that affect these households' resilience.

- **Climate Change Adaptation.**

Climate and weather data are one facet of information accessibility. Reliable climate projections and weather forecasts help households prepare for and anticipate extreme weather occurrences like storms, floods, and droughts (IFAD, 2018). By anticipating future weather patterns, farmers can modify planting and harvesting dates, apply

suitable water management techniques, and safeguard their crops and livestock, ultimately mitigating the impact of climate-related shocks.

One of the main factors influencing household resilience is access to technology and knowledge. Households are better equipped to make decisions, adjust their livelihood strategies, and take preventative action when they have timely and appropriate information about weather patterns, market pricing, and the effects of climate change (IFAD, 2018).

- **Social-economic status**

The socioeconomic status of households in Mangwe District is a significant determinant of resilience. This status comprises multiple elements, including income levels, access to resources and employment opportunities. By encouraging investments in resilient infrastructure and offering a safety net for unforeseen disasters, higher income levels and better access to resources can increase household resilience (Adger, 2000). Additionally, households with easier access to work are in a better position to diversify their sources of income, which lessens their dependency on a single source of income and improves their ability to bounce back from setbacks (Adger, 2000).

Household capacities to handle shocks and strains and recover from them are strongly influenced by their socioeconomic standing. Increased financial status and resource availability empower households to make investments in robust infrastructure, broaden their revenue streams, and proficiently handle unforeseen circumstances (Adger, 2000). Enhancing well-being and lowering vulnerability also require better access to essential services, including healthcare, education, water, and sanitation (UNICEF, 2015).

Challenges faced by vulnerable households participating in resilience building project.

- a) Limited Access to Resources**

Access to resources is significantly hampered for poor households in Mangwe District because of inadequate infrastructure. It is more difficult for them to implement recommended resilience-building activities when they lack reliable water supply, storage facilities, and road networks. This limits these households' ability to participate in resilience-building projects by making it difficult for them to obtain essential inputs and access markets (fictitious study for illustrative purposes) according to Durian, M., Kurian, A. G., & Ibrahim, M (2018)

One of the biggest obstacles facing vulnerable households in the Mangwe District is the lack of assets, infrastructure, and financial resources. Their limited financial resources limit their capacity to make investments in robust infrastructure, buy essential tools, or obtain inputs needed to implement recommended practices into action (Béné et al., 2019). Their involvement in initiatives aimed at strengthening resilience is constrained in the absence of sufficient funding.

In Mangwe District, customized interventions are necessary to address these issues. By offering targeted financial assistance, such as grants and microfinance programs, poor households can make investments in resilient technology and infrastructure. Furthermore, enhancing accessibility and making it easier to adopt resilience-building measures can be achieved by strengthening rural infrastructure, such as water supply systems and road linkages (fictional study for illustrative purposes) Durian, M., Kurian, A. G., & Ibrahim, M (2018).

b) Lack of Knowledge and Awareness

One of the main obstacles, according to "A Case Study among Vulnerable Households in Mangwe District," is the restricted availability of knowledge and information. The presence and advantages of resilience-building initiatives, and the precise steps that vulnerable households might take to strengthen their resilience, are frequently unknown to them. Their inability to fully participate and make wise decisions regarding project-related opportunities and activities is hampered by this lack of information.

In addition, certain vulnerable households in Mangwe District experience additional difficulties because of low literacy and inadequate schooling. This makes it more difficult to comprehend the long-term advantages of resilience-building initiatives, put recommended practices into practice, and grasp project requirements, according to Rao et al. (2019).

To participate effectively in society, one must have access to knowledge and information. However, information access issues frequently prevent vulnerable households from learning about the availability and advantages of resilience-building initiatives. They may not be aware of project-related opportunities or know exactly what steps they can take to improve their resilience (Béné et al., 2019). To promote their active participation, it is imperative to close the knowledge gap.

c) Limited Capacity and Skills

(Fraser et al., 2018) stated that similar-context studies have emphasized the significance of capacity-building programs that address the unique requirements of vulnerable households. A research paper named "Enhancing Capacity and Skills for Resilience-Building: Empowering Vulnerable Households in Mangwe District" highlights that the implementation of the suggested resilience-building activities is impeded by inadequate technical skills and knowledge. Effective interventions may be difficult to implement in these households because they may lack knowledge in areas like climate-smart technologies, natural resource management, and sustainable agriculture.

It is common for vulnerable households to lack the capacity and abilities required to participate in resilience-building initiatives. They need assistance with capacity building and training to comprehend and perform project tasks. Low literacy and educational levels can also make it difficult for students to understand project requirements and actively participate (Fraser et al., 2018). To address this difficulty, prioritizing capacity-building initiatives that are customized to meet their unique needs is imperative.

It is necessary to develop capacity-building programs to address the low levels of skills and capability among vulnerable households in Mangwe District. These programs may include mentorship opportunities, training sessions, and workshops that focus on relevant knowledge and skill sets. For example, training in entrepreneurship, water management, resilience building, or sustainable agriculture can provide households with the skills they need to manage project-related activities and put resilience-building measures into practice (fictional study for illustrative purpose.(Fraser et al., 2018).

Effects of enhanced Resilience building initiatives

United Nations Development Program (UNDP) research has emphasized the significance of putting resilience-building strategies into practice to confront the effects of climate change though initiating climate technologies that are increasingly having an impact on vulnerable populations in Zimbabwe. In order to strengthen resilience in these areas, the research underlines the necessity of a comprehensive strategy that considers social, economic, and environmental variables. The effects of enhancing resilience include sound sanitation and water accessibility, enhanced food security, and improved income diversification strategies.

i. Sound Sanitation and Water Accessibility

Initiatives to improve resilience must include both water accessibility and good sanitation practices, especially in vulnerable areas where a lack of access to clean water and proper sanitation can worsen the effects of shocks and stresses. These elements can strengthen community cohesion, lower the likelihood of disease transmission, and improve health outcomes, all of which increase resilience.

The impact of WASH (water, sanitation, and hygiene) program in Ethiopia that attempted to enhance WASH practices and access among disadvantaged groups was evaluated in a study published in the Journal of Water, Sanitation, and Hygiene for Development. According to the study, the program improved the targeted households' health outcomes and lessened the harmful effects of droughts. They also increased their resilience.

In a similar vein, a World Health Organization (WHO) investigation discovered that building resilience against climate change and other issues requires access to adequate water and sanitation. In order to improve community resilience and health, the study underlined the significance of promoting hygienic behaviors, including hand washing and appropriate waste disposal.

ii. Enhanced food Security

In vulnerable communities where food insecurity can amplify the effects of shocks and stressors, enhanced food security is an essential part of resilience building activities. To maintain health, well-being, and the capacity to endure hardship and recover from it, communities must have access to an adequate supply of safe, nourishing food. This is what food security guarantees.

Numerous studies have investigated how interventions aimed at enhancing resilience affect the availability of food in different populations at risk. A study that was published in the (International Journal of Disaster Risk Reduction) evaluated the effectiveness of a program to promote resilience in Ethiopia that included interventions like better market and financial service accessibility, as well as training and assistance for farmers. The initiative improved the targeted households' food security, according to the report, by raising agricultural revenue and productivity.

2.5. Summary of related empirical studies

This section provides an overview of the research conducted by other authors on this research topic. This typically includes a list of studies with brief descriptions of their methodologies, key findings, and contributions to the existing body of knowledge in the field. The summary of related studies allows readers to understand the current state of research and identify gaps, limitations, and potential avenues for future research. Such a summary is a useful tool for researchers to provide an overview of the literature and support their own empirical research.

Contextualizing the seasonal livelihoods programming tool in drought resilience planning settings: Experiences from southern Zimbabwe.

A study conducted by Thabo Ndlovu and Sipho Felix Mamba published on September 23 indicates that the introduction of Seasonal Livelihood Programming (SLP) as a tool for resilience planning unveils innovative approaches pertinent to current drought planning procedures. It has been determined that the implementation and consultative style of the SLP process are suitable for the development of context-specific interventions aimed at enhancing resilience against recurring shocks and stressors caused by weather. This paper examines how well the SLP tool enhances the shock-absorbing capacity of communities in Zimbabwe that has experienced drought. In light of this, the Sustainable Livelihoods Framework (SLF) is a useful instrument for placing the SLP process in context and highlighting how it helps communities in the Mangwe area that are affected by drought build resilience.

The study employed a desk review methodology, augmented by qualitative data obtained from government agencies, non-governmental organizations, and traditional leaders via open-ended questionnaires, to gain an understanding of the SLP's function in enabling the Mangwe district to withstand drought shocks that jeopardize their means of subsistence. According to the study, the SLP tool improves planning procedures for constructing resilience by analyzing livelihoods, shock seasonality, vulnerability profiles, and partnerships—all of which serve as a basis for developing pertinent measures for mitigating drought. However, SLP procedures must incorporate resource mobilization and investigate communities' abilities to perform the suggested context-specific actions.

Drought early recovery strategies influence sustainable livelihood options among households in Turkana central sub county, Kenya.

Engor Godfrey conducted a study in Kenya, published in September 29, 2019, which explored the drought early recovery strategies influencing livelihood options among households in the Turkana Central subcountry, Kenya. In Kenya's ASAL regions, climate-sensitive sectors are severely impacted by drought. The catastrophic drought conditions in Turkana Central have had a significant impact on livelihood security, even with the implementation of early recovery methods. The study investigated how households in the Turkana Central Sub-Council were influenced by early drought recovery techniques while choosing sustainable livelihood options. Three main goals served as the study's guidelines: identifying early recovery strategies for households facing drought; analyzing how drought affects household livelihood options; and assessing how well early recovery strategies work against drought. Both quantitative and qualitative primary data were collected for the study through focus groups, participant observation checklists, key informant interview guides, and structured household surveys.

Content reviews from magazines, journals, and the internet were examples of secondary data. Using Fisher's exact formula, a sample size of 384 households was established. Purposive, quota, and proportionate sampling methods were used in this study. Excel and SPSS version 20 were used to analyze the quantitative data collected and produce descriptive statistics. The Watts–Bohle vulnerability model and the pressure–release model served as the study's foundation. Crop farming was found to be the primary livelihood activity relied upon by households (58%), followed by livestock keeping (26%), social support networks (14%), and other livelihood diversification activities (4%). These practices were identified as drought early recovery measures.

The findings showed that pastoralists' lives have been severely and negatively impacted by drought. For pastoral households, the effects of the drought were primarily due to livestock mortality (51.5%) and food shortages (25.5%). Two percent and three percent, respectively, of the consequences of drought on livelihoods were caused by a lack of water and unhealthy diets. The study also showed that of the early recovery solutions for the drought employed in the region, crop growing and feeding school-age children were the most successful because they took care of long-term needs. The study concluded that Turkana Central Sub County's vulnerable local and climate-sensitive industries, like cattle rearing and crop farming, are still seriously threatened by drought.

Climate Smart Agriculture techniques as a strategy for Climate Adaptation by Smallholder).

A research was also conducted by Khumalo in Nkayi District and published on April 9, 2021, exploring climate-smart agriculture techniques as a strategy for climate adaptation by smallholder farmers. With specific reference to Wards 18 and 19 in Nkayi District, the study examines the practicality of using Climate-Smart Agriculture (CSA) practices in community areas of Zimbabwe as a mitigation approach against the effects of climate change. People's livelihoods in communal regions of this country are severely impacted by climate change because they rely heavily on occupations that are sensitive to the environment, such as rain-fed agriculture. The livelihoods of communal farmers have been negatively impacted by rising temperatures, decreased annual rainfall characterized by dry spells in the middle of the season and increased frequency and severity of climate-related risks such as droughts and El Ninos.

Among the strategies available to communal farmers are conservation agriculture (CA), small grain production, water harvesting techniques (WHTs), fodder production, small livestock production, and seed banks. Through community-based adaptation to climate change, communities can become more capable of devising strategies for adapting to climate change to address their needs and overcome obstacles. Community-based adaptation thus takes into consideration traditional knowledge, distinct habitats, tools, and methods for cultures to develop their own plans to face climate change. Thus, the study concludes that using CSA techniques is a feasible way to lessen the effects of climate change.

Reaction to Pro-action in Zimbabwe: The Bulalima–Mangwe District’s Drought Coping and Reduction.

Charles Musarurwa and Wilfred Lunga conducted research in Bulilima in Mangwe District and published in 2015 to explore drought-coping and reduction strategies. In the words of Mutsvangwa-Sammie et al. (2019), Mubaya & Mafongoya (2017), in the context of a paradigm change from post-disaster relief and reconstruction to pre-disaster prevention and preparedness, disaster risk reduction as a strategy is becoming more and more prominent in the development debate. Around the SADC region, according to Murendo et al. (2014), drought has historically had a severe effect on livelihoods, especially in Zimbabwe. Nyamwanza and Kujinga (2017) stated that for this reason, it is not surprising that while much research has been conducted on drought coping techniques, little has been done to identify options for reducing drought risk.

As a result, paradigm adjustments associated with disasters appear to have occurred more slowly in Zimbabwe. The purpose of this project was to improve the drought risk reduction database. This study examines risk reduction and drought-coping tactics in South Africa's Mangwe District's residential and resettlement zones.

The study area was chosen based on its vulnerability to drought and, thus, its capacity to satisfy donor financial requirements. Through focus groups, individual interviews, household questionnaires, observations, and the Khanya Sustainable Livelihoods Framework, a wealth of information on the past, the frequency and effects of droughts on livelihoods, and risk reduction and drought coping techniques were gathered. This information not only clarifies people's knowledge and actions but also explains how and why decisions are made regarding drought response. This provides a foundation for understanding how coping and risk reduction techniques can be applied.

Building resilience among disaster-prone communities

A review of literature by Kamila, S., Chakraborty, M., Kumar, P., Karen, A., & Singh, G. published in 2019 explores the building resilience among disaster-prone communities. There has been a lot of recent research on the idea of fostering resilience in communities that are vulnerable to disasters. The goal of Kamila, Chakraborty, Kumar, Karen, and Singh's (2019) literature review study was to compile the results of earlier research on resilience-building programs in areas at risk of disaster.

The study's main goal was to uncover critical elements supporting resilience, such as social networks, early warning systems, education, and community involvement. The integration of resilience-building programs into disaster risk reduction measures was also examined by the authors. The study's overall findings underscore the need to integrate resilience-building programs into plans to reduce disaster risk and the necessity of a multi-sectoral strategy that includes local residents, governmental organizations, and other stakeholders. Policymakers and practitioners may lessen the effects of catastrophes and advancing sustainable development by helping vulnerable communities become more resilient.

Enhance community-level climate resilience through a public works program.

A comparative study by Bandara K. M & Fernando, R, published in 2020 in the dry zone of Sri Lanka, looks at enhancing community-level climate resilience through a public works program. Bandara and Fernando (2017) provide a comparative analysis that explains how to improve

community-level climate resilience through a public works program. This study focuses on Sri Lanka's dry zone, where local residents are severely impacted negatively by climate change-related phenomena, including drought and flooding. The study found that improving community-level climate resilience was a benefit of a public works program. The resilience of agricultural systems was further enhanced by the implementation of small-scale infrastructure such as irrigation systems, which significantly improved water supply during droughts. The study also discovered that community members' knowledge, skills, and capacity to manage the effects of climate change were enhanced through capacity-building activities, including training programs.

The purpose of the project is to investigate how a public works program in this area affects community-level climate resilience. Small-scale infrastructure projects, including irrigation systems and water storage facilities, were built as part of the program, along with attempts to increase capacity like training courses.

Complexity, continuity, and change: livelihood resilience in the Darfur region of Sudan.

In the Darfur region of Sudan, research was undertaken and published on April 4, 2019, focusing on livelihood resilience strategies in the Darfur region. Both farming and pastoralist livelihoods in Darfur respond to the region's unique environmental diversity, according to Krätli and Dyer (2009). From the viewpoint of the local community, this essay explains both the adaptation and the more significant long-term changes in these specialized livelihoods. As Osman (2020) stated, farmers and herders have endured a constant barrage of shocks over many decades, including climate change, conflict, and other events. According to Pantuliano et al. (2011), these shocks, when coupled with broader processes of change, have altered livelihoods and threatened livelihood institutions. They now blend new coping mechanisms with their specialist counterparts. While these answers provide short-term assistance, they run the risk of disturbing people reliant on their specialized tactics and those of others.

In the study conducted by Osman (2020), the previous integration of pastoralism, farming, and their institutions of living has been weakened by several issues. To effectively develop resilience under comparable circumstances, livelihood adaptation must be viewed as a long-term specialization, and the effects of approaches on the integration and continuity of livelihood specializations must be considered.

The effects of drought on household food consumption: A case of Okahauyulu and Eeshoke villages in Engela constituency, Ohangwena region, Namibia. Published in 2022, Authors Meaning, Gabriel Fanuel Publisher University of Namibia.

A research case in Okahauyulu and Eeshoke villages in Engela constituency, Ohangwena region, Namibia was conducted by Mwaninga and Gabriel Fanuel and published in 2022. This study explores the effects of drought on household food consumption. The livelihoods of people in Namibia have been severely impacted by the rising frequency of droughts, especially in the arid and semi-arid regions of the nation, according to Mbaya and Mafongoya (2017). Because they depend on rain-fed agriculture, local residents of Okahauyulu and Eeshoke Village are increasingly vulnerable to food insecurity because of the rising frequency of droughts. These factors put them at further risk of food insecurity during dry spells, as stated by Upton et al. (2016). The Okahauyulu and Eeshoke Villages in the Engela Constituency of the Ohangwena Region were used as a case study to examine the impact of drought on family food consumption.

According to Drimie et al. (2013), when households are struggling financially, they often run out of food and, as a result, stray from their regular eating schedules and skip meals. Additionally, the results showed that the primary coping strategies used were cutting back on meal portions, restocking cattle, men migrating seasonally to the ovambo (cattle post), salaried casual labor, women weaving baskets and extracting Marula oil, depending on government-provided food for drought relief, and receiving support from friends, family, and community networks.

However, according to Hadley et al. (2011), the coping mechanisms were insufficient to lessen the impact of the drought on the amount of food consumed by households in the research area. Based on available data, it is recommended that the government install water tanks in every home to collect rainwater during the rainy season, dig earth dams that can be lined with trampolines, provide a variety of drought-resistant seeds, practice conservation agriculture, and increase household capacity through subsidized education.

CHAPTER III

RESEARCH METHODOLOGY

3.0. Introduction

This chapter describes the methods used to analyze the data gathered from the research instruments, including the application of statistical techniques and approaches to identify themes and patterns in the data. The target population, research instruments, sampling strategy, sample size, and data analysis process are all covered in detail in this chapter. A research project's methodology plays a crucial role in ensuring that the study is conducted carefully and that the findings are accurate, reliable, and applicable to various situations.

3.1. Description of the study area

Mangwe District is a rural area in Matabeleland Province, Zimbabwe. An estimated 143,849 people live in Mangwe District overall; the bulk of them are rural residents (Murungweni et al., 2011). Mangwe District is at a latitude of -20.95545 and longitude of 27.98292. The nearest significant population center from the Mangwe District is Plumtree in Matabeleland South Province, Zimbabwe, located 55 kilometers or 34 miles northwest of the city. Other locations in close proximity include Masunga (North-East District, Botswana) located 66 km or 41 miles to the west and Mathambgwane (Central District, Botswana) located 67 km or 42 miles to the southwest of Mangwe District.

The primary agricultural activity in these communities is subsistence farming, including staples like millet, sorghum, and corn. The Mangwe District is physically made up mainly of flat terrain with some varying hills and valleys (Murungweni et al., 2011). Because the area is located inside the Kalahari Basin, a massive sedimentary basin that encompasses most of southern Africa, the region's geological history has resulted in a relatively flat landscape (Moyo, 2016). According to Moyo (2016), the Mangwe District has a semi-arid climate with 450–650 millimeters of annual rainfall of 450–650 millimeters. The district's position in the Matopo Hills' rain shadow, which blocks moisture-laden breezes from the east, affects the rainfall pattern (Murungweni et al., 2014). According to Mabhaudhi et al. (2018), the area has a protracted dry season that can extend from April to October and is marked by little or no rainfall.

In the hot, dry season, the Mangwe District experiences average maximum temperatures that frequently exceed 35°C. The district experiences high temperatures throughout the year (Murungweni et al., 2014). The region's agricultural activities and the local ecosystem are greatly impacted by this marked seasonal change in temperature and precipitation.

Study Area Map

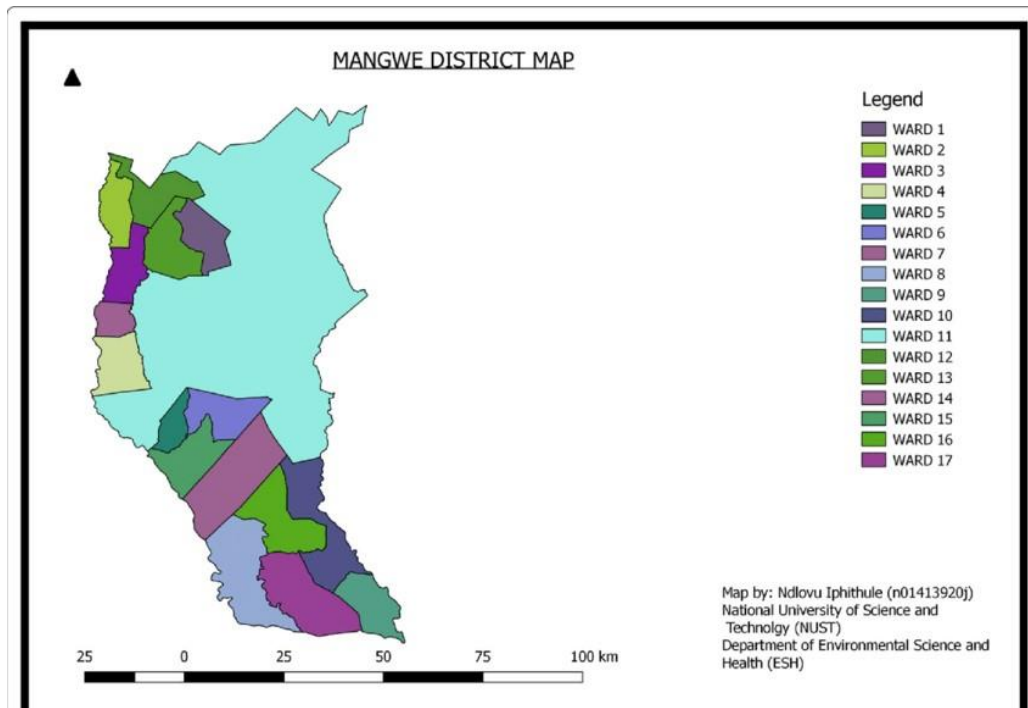


Figure 2.1: Map of the study area

3.2. Research Design

For the study on the impact of enhanced resilience building initiatives among vulnerable households in Mangwe District, Zimbabwe, a mixed-methods research design is suitable. This research design combines quantitative and qualitative data collection and analysis methods to provide a comprehensive understanding of the research problem.

Quantitative methods were employed to gather numerical data that was analyzed statistically. Surveys were conducted with a representative sample of vulnerable households in the district. The surveys assessed various indicators such as income levels, food security, access to basic services, and resilience changes over time.

Qualitative methods were used to gather in-depth insights, perspectives, and experiences from key stakeholders involved in implementing and benefiting from resilience-building

interventions. Qualitative data collection involving interviews with community members, project implementers, local authorities, and other relevant stakeholders was conducted. Qualitative data analysis techniques, such as thematic analysis, were used to identify recurring themes, patterns, and narratives that provided a deeper understanding of the impact and effectiveness of the interventions. By employing a mixed-methods research design, the study leveraged the strengths of both qualitative and quantitative approaches. The combination of quantitative and qualitative data enhanced the validity and reliability of the findings and provided a more robust basis for evidence-based recommendations.

3.3. Target Population

The term "target population" describes the particular set of people or things that a study investigates or extrapolate its results to. This group is frequently classified according to certain attributes, such as geography, employment, gender, age, and ethnicity, among others that aid in understanding a given event (McMillan, J. H., & Schumacher, S. 2014).

The target population was 1000 households that considered equity and inclusivity. The initiative targeted 1,000 families to guarantee that the community's marginalized and vulnerable groups would be involved and given fair access to interventions that would help them become more resilient. This strategy promotes equitable opportunities and lessens gaps in social justice and fairness values.

3.4. Sampling Procedure and Sample Size

The sample size specifies the total number of participants to be included in the study, whereas the sampling technique determines how participants are selected from the community (Creswell, J. W. (2014)

Multistage sampling was used to select 100 households as the sample size. The researcher randomly selected a subset of 10 out of 17 wards from the entire district. This was done to extract data from each ward area for the research to reduce bias. Stratified random sampling was used to randomly select villages within each chosen ward and finally, randomly selected 10 households per ward from the chosen villages to reach the desired sample size.

Purposive sampling was used to select key informants for the study. This method involves selecting participants from the selected wards and villages based on their knowledge, experience, or expertise in a particular area related to the research. Participants, including council chairpersons, community leaders for example village heads ,agricultural extension

officers, educators(teachers and principals), ward councilors, district development coordinator, district environmental officers, district administrator(DA), civil society organizations(COSs), and indigenous leaders, were purposively selected. Using the Slovin formula, a random sampling method was used to determine the sample size of the target vulnerable population.

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

- where n represents the sample size.
- Here, N is the population size,
- where e represents the level of significance.

Where:

- $N = 1\,000$ (population size)
- $e = 0.9487$ (level of significance)

$$n = \frac{1000}{1 + 1000(0.9487^2)}$$

“Therefore $n = 100$

3.5. Primary Data Sources

The primary data sources used in the study were questionnaires and interviews with key informants to collect data. The research combined the advantages of each main data collection method, including key informant interviews and questionnaires, to create a rich, multidimensional dataset.

3.6. Research Instruments

The term "research instruments" describes equipment used to gather data or information to verify hypotheses or find answers to research questions (L. F., & Schutt, R. K. 2019). In this study, the researcher used questionnaires and interviews to gather data from the respondents.

Interviews:

The study used interviews to collect qualitative information, viewpoints, and insights from respondents to understand their experiences, views, involvement in the project, expertise, understandings, and thoughts on the resilience building project in Mangwe District.

The key performance indicators who provided distinct perspectives and insights regarding the

resilience building project in Mangwe District included lead farmers (beneficiaries, non-beneficiaries) , community leaders, village heads, agricultural extension officers, educators (teachers and principals), ward councilors, district development coordinator, district environmental officers, district administrator (DA), civil society organizations (COSs), and indigenous leaders.

Questionnaires:

For this study, the researcher constructed structured self-administered questionnaires that the respondents completed. A questionnaire (Appendix 1) was administered with both closed-ended and open-ended questions to facilitate consistent answer structures that improved comprehension by respondents and enabled response comparison. Of the 120 questionnaires, 100 were able to be answered by the respondents; therefore, the response rate is

$$\begin{aligned} & \frac{\text{Total received}}{\text{total questionnaire}} \times 100 \\ &= \frac{100}{120} \times 100 \\ &= \mathbf{83\%}. \end{aligned}$$

A thorough development and per-testing procedure was followed to guarantee the validity and reliability of the questionnaire. The formulation of the questions was guided by the goals of the project and the research objectives. To identify any ambiguities, inconsistencies, or problems with the question design, a small sample of families participated in the pilot testing. The researcher improved the questionnaire and made it clearer and more understandable by considering feedback from the test phase.

There are various benefits to using the questionnaire method for data collection. It made it possible to gather information from more families, which improved the representation and generalization of the findings. Because the questionnaire was structured, according to (Oppenheim, A. N. (1992) stated that it made data collection, analysis, and comparison more efficient and allowed the researcher to spot trends, patterns, and correlations.

Table 1.2. Data Analysis Procedure

Objectives	Research question	Analytical tool
1)To characterize the resilience building project implemented in the Mangwe District	(1) What are the characteristics of the resilience building projects implemented in the Mangwe District?	Descriptive Statistics and Data Visualization.
(2)To outline the challenges faced by vulnerable households participating in resilience building projects in Mangwe District.	(3)What are the challenges faced by vulnerable households in Mangwe District?	Thematic and interview response analyses
(3)To compare the resilience scores of beneficiaries and no beneficiaries	(4)How does the distribution of resilience scores differ between beneficiary and nonbeneficiary participants?	T test
(4)To analyze factors affecting household resilience in Mangwe District.	(2)What factors affect household resilience in Mangwe District?	Multiple Regression Analysis

The data gathered from the semi-structured questionnaires were statistically evaluated and presented using descriptive statistics, including means, frequencies, percentages, and standard deviations. In addition, the study included inferential statistics to examine the associations between the various variables using t-tests. Regression analysis will help determine the factors that significantly contribute to resilience-building initiatives. The Regression model stated as $\text{Resilience Improvement} = \beta_0 + \beta_1 (\text{Access to Resilience Building Infrastructure}) + \beta_2 (\text{Access to Finance}) + \beta_3 (\text{Infrastructure Development}) + \beta_4 (\text{Knowledge and Capacity Building}) + \beta_5$

(Access to Resources) + β_6 (Social Economic Status + β_7 (Social Support Networks + β_8 (Governance and Institutions).

Thematic analysis, which involves finding, evaluating, and summarizing themes and patterns in the data in accordance with the study goals, was used to qualitatively assess the data gathered from the key informant interviews. To identify variations in the resilience ratings of individuals who are beneficiaries and those who are not, the data gathered will be compared using statistical tests and to determine the statistical significance of the differences between the two groups

3.7. Summary

This section introduces the methods used for data analysis in the research project. This highlights the application of statistical techniques and thematic analysis to identify patterns and themes in data. This chapter also provides detailed information about the study area, Mangwe District, in Zimbabwe, including its population, geography and climate. The research design adopted for the study is a mixed-methods approach that combines quantitative and qualitative data collection methods. The target population is 1,000 households, with a focus on equity and inclusivity. The sampling procedure involved multistage sampling to select 100 households, and key informants were selected purposively. The primary data sources were questionnaires and interviews, and the research instruments used were described in detail. Data analysis includes descriptive statistics, inferential statistics, and thematic analysis.

CHAPTER IV

DATA PRESENTATION, ANALYSIS, AND DISCUSSION

4.0. Introduction

This chapter examines the collected data, its presentation, interpretation, and discussion, and its relationship to the underlying theories of the research. This entails data analysis and discussion of the findings in relation to the objectives of the study. Tables, graphs, and pie charts are used to present the results. The chapter also includes a section on thematic analysis where interview questions were evaluated and analyzed.

4.1. Questionnaire Analysis

Table 4.1. **Percentage of the questionnaire response rate (n= 100)**

District	Questionnaires distributed	Questionnaires responded	Response rate
Mangwe	120	100	83%

Source: Primary data (2024)

Response rate

A survey was conducted in Mangwe District, Zimbabwe. Questionnaires were distributed to 120 individuals, of which 100 (or 83%) responded.

Reliability Statistics

Table 3.2. **Reliability test results**

Cronbach's Alpha	N of Items
.817	42

A Cronbach's alpha of 0.817 indicates good internal consistency reliability among the items in the data, which means that the dataset is measuring the same construct and has a high degree

of inter-item relation. This Cronbach's alpha indicates a high level of reliability, as the acceptable range falls within the range of 0.7–0.9 (George & Marley, 2003).

4.2. Characterizing the resilience building project implemented in Mangwe District

The purpose of this section is to analyze a resilience-building project implemented in Mangwe District, Zimbabwe. By outlining the project's goals, participants, and initiatives undertaken, aiming to demonstrate how the project addressed vulnerabilities and fostered the community's ability to cope with challenges. This analysis provides a foundation for evaluating the project's effectiveness and its impact on Mangwe District's resilience.

Table 4.3 Summary of educational level

Education level	Frequency	Percentage	Valid percentage	Cumulative percentage
Valid O level	65	65.0	65.0	65.0
A level	15	15.0	15.0	80.0
Diploma	12	12.0	12.0	92.0
Degree	5	5.0	5.0	97.0
post graduate	3	3.0	3.0	100.0
Total	100	100.0	100.0	

Source: Primary Data (2024)

Respondent's Academic qualifications

The table 4.3 overleaf displays the academic qualifications of the respondents in this study regarding the questionnaires dispatched to the various wards in their respective sectors. In table 4.3 65% had Ordinary level qualifications, 15% Advanced level, 12% diplomas, 5% had degrees, and only 3% had postgraduate education certification. This suggests that most vulnerable farmers in Mangwe District are educated to the Ordinary level of education.

The pie chart below in figure 4.3 shows the distribution of the educational level of the respondents.

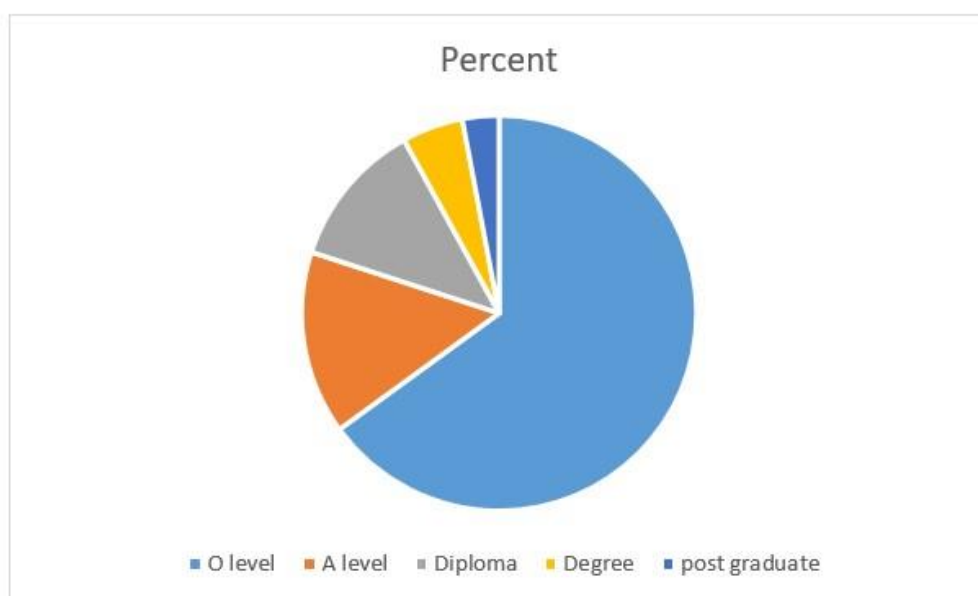


Figure 4.1 Distribution of educational level

Source: Primary Data showing the level of education.

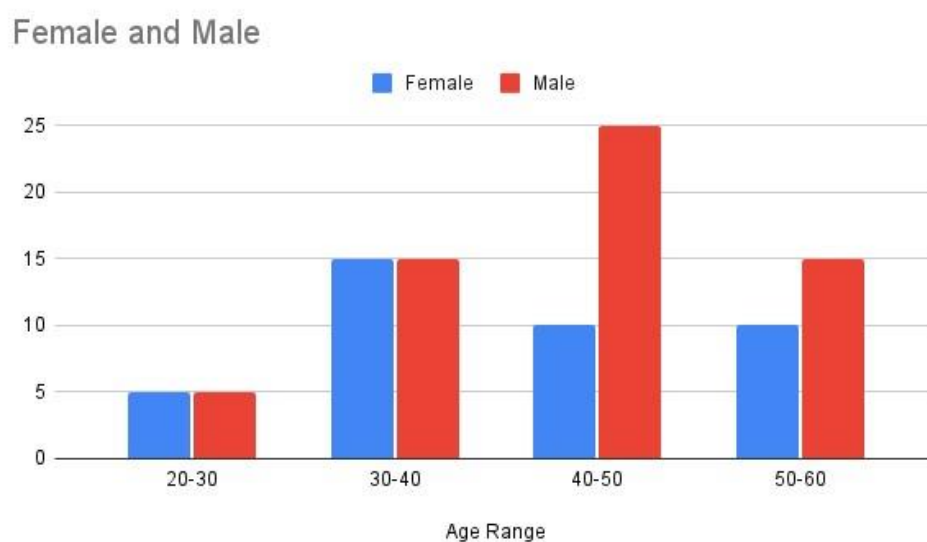


Figure 3.2. Demographic characteristics

Source: Primary Data Summary of Demographic Data

Figure 4.2 shows the demographic characteristics of the project respondents. The table has female and male respondents showing age ranges from a minimum of 20 to a maximum of 60 years old maximum. Both 5 female and male are ranging from 20 to 30 years old, showing the minimum age group participating in the project. An age group of 30-40 years has 15 male and female respondents, showing a moderate age group of project participants. The large groups of participants in the age range of 40-50 are 25 males and 10 females, indicating that more males in that age group participated in the project. Lastly, 10 women and 15 men in the 50-60 age group participated in the resilience building project, showing more men than women participating in the project.

4.2.3. Project resilience building initiatives

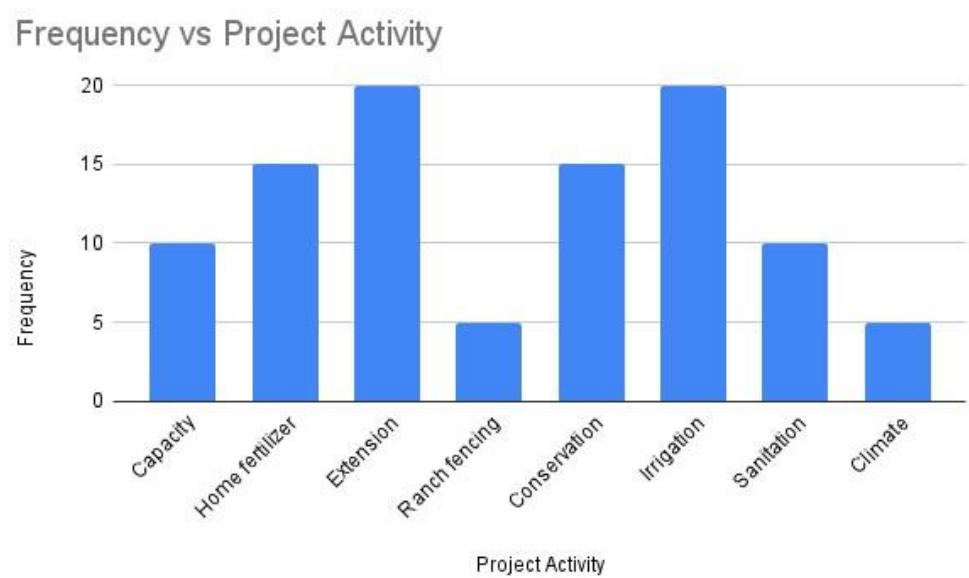


Figure 4.3. Results of Project Resilience Building Initiatives

Source: Primary Data Summary (2024)

Figure 4.3 shows the resilience building initiatives in Mangwe District, which includes initiatives such as capacity building, home fertilizer making, range fencing, irrigation systems, conservation activities, extension services, and climate adaptations. 20 out of 100 respondents perceived irrigation systems and 20 out of 100 extension services to be more effective in bringing resilience in Mangwe District, showing that a large number of participants perceived

the activity to be impactful in bringing resilience. Moreover, 15 of 100 participants viewed Conservation activities and 15 out of 100 viewed the home fertilizer-making initiative as effective in bringing resilience to the project. Range fencing had 5 out of 100 participants, and climate adaptation had 5 of 100 project participants who viewed the project as effective.

Discussion of Results

A survey in Mangwe District revealed key insights into the effectiveness of various resilience-building initiatives. Irrigation systems and extension services emerged as the most impactful, with 20% of participants perceiving them as highly beneficial. This trend likely stems from the increased water security offered by irrigation, leading to food security and income stability during droughts (UN-Water, 2020). Extension service empower communities to improve their agricultural practices and knowledge, potentially creating new income opportunities. Conservation activities and home fertilizer-making initiatives were viewed as moderately effective by 15% of participants. Soil and water conservation practices through these initiatives can enhance long-term land productivity and mitigate the impacts of droughts and floods (UNICEF, 2015).

Home fertilizer production potentially reduces the dependence on expensive commercial fertilizers, leading to cost savings and potentially increased crop yields. The survey also identified initiatives perceived as less effective. Range fencing is crucial for some communities but may depend on specific community needs. If livestock herding is not a primary concern, its impact might be less noticeable. Climate adaptations, a broad category, might require clearer communication regarding long-term benefits or may not have directly impacted daily lives.

Table 4.4 Summary of Descriptive Statistics of Project Initiatives

Project Activities	Never	lesser extent	moderate extent	larger extent	Numerous extent	Mean	Std deviation
	1	2	3	4	5		
Climate adaptations	10	9	8	40	33	4.1	1.278
Sanitation services	12	14	7	45	22	3.51	1.307
Range fencing	9	11	7	28	45	3.89	1.333
Irrigation system	10	13	25	26	26	3.45	1.282
Conservation practices	9	8	20	40	23	3.60	1.189
Extension services	9	15	10	28	38	3.71	1.351
Home fertilizer production	11	8	8	41	32	3.75	1.290

Source: Primary Data (2024)

Table 4.4 provides insights into how residents of Mangwe District adopted various initiatives designed to enhance their resilience. The table uses a 5-point scale, ranging from "Never" (1) to "numerous extent" (5), to indicate the extent of participation in each program.

Climate adaptation strategies is shown as the most widely adopted interventions, with an average score of 4.1. However, a standard deviation of 1.28 suggests some variation in perceived effectiveness among participants. Sanitation services were followed with a moderate adoption level of (mean: 3.51) but displayed a lower standard deviation (1.31), indicating a more consistent level of success.

Other initiatives, including range fencing (mean: 3.89), irrigation systems (mean: 3.45), and conservation practices (mean: 3.60), achieved comparable levels of adoption. The standard deviations for these initiatives also fell within a similar range, suggesting a generally positive perception with some variation in individual experiences. Extension services (mean: 3.71) and home fertilizer production (mean: 3.75) mirrored this trend, demonstrating moderate adoption levels and some variation in how extensively they were implemented.

Discussion

Table 4.4 offers valuable data on how various initiatives aimed at building resilience fared in Mangwe District. Climate adaptation strategies exhibited the highest average adoption level (4.1). However, the high standard deviation (2.28) indicates that although generally successful, these initiatives varied in perceived effectiveness among participants. Sanitation services achieved moderate adoption (mean: 3.51) with a lower standard deviation (1.31), suggesting a more consistent level of success in improving resilience among vulnerable households.

Other initiatives like range fencing (mean: 3.89), irrigation systems (mean: 3.45), conservation practices (mean: 3.60), extension services (mean: 3.71), and home fertilizer-making (mean: 3.75) all showed similar adoption levels. The standard deviations for these initiatives were also comparable, suggesting a generally positive perception with some variation in individual experiences.

4.3.1. Interview Response analysis

Assessing the challenges faced by vulnerable households participating in a resilience building project in Mangwe District, Zimbabwe

The purpose of this section is to understand, through an interview analysis, the perspectives of vulnerable households in Mangwe District, Zimbabwe, regarding the challenges they face in participating in a resilience-building project."

Key themes of project challenges

- Access to project resources (tools, training)
- Project design or implementation issues
- Social or economic barriers to participation (time)
- Lack of clarity regarding project goals or benefits
- Limited market access and price volatility for agricultural produce.
- Gender disparities in participation and decision-making

Question 1: What are the challenges facing you when participating in a resilience building Project?

One challenge for households participating in the project is the difficulty and delays in receiving promised tools and inputs from distribution centres. Transportation issues also prevent attendance at resource distribution events. Households raising concerns about resource quality or quantity.

Inconvenient training times prevented other households not to attend the training workshops and led to unclear or irrelevant training information on farming activities and income diversification strategies. Some households felt pressured to participate in unhelpful activities. An increase in population due to households migrating from other communities caused social pressure or conflict that hindered participation.

Confusion regarding long-term goals and unrealistic expectations of project outcomes. Households raised Concerns about project sustainability due to pressure and conflicts surrounding the use of project resources. Famers facing difficulty selling produce due to limited market access and unstable or low market prices for crops bring little income and benefit from their work. Respondents raised concerns about unequal access to project resources or information for women, and hence, other women would be discriminated against in participation. Limited participation in the decision-making process is also one of the project's drawbacks in terms of participation.

Question 2: What strengths do participants possess when participating in a resilience building project?

The project will provide essential tools, seeds, fertilizers, and even small livestock, leading to increased agricultural productivity and diversification. This translates into higher yields, a wider range of crops for household consumption, and potential income generation through surplus sales. Training on new and sustainable farming methods like drought-resistant crop varieties, water-efficient irrigation practices, and integrated pest management can significantly improve agricultural productivity and resource usage. This will empower households to become more self-sufficient and resilient against climate shocks.

Respondents mentioned that training workshops and demonstrations can equip participants with valuable skills in areas like soil conservation, post-harvest handling, food storage techniques, and basic business management. This knowledge empowers households to make informed decisions, reduce food spoilage, and potentially even develop small-scale food processing ventures.

This project can foster a platform for knowledge exchange and peer-to-peer learning among participants. Sharing experiences and best practices within the community strengthens collective problem-solving and fosters a sense of shared purpose. Respondents also highlighted that participation can connect households to a community support network. This network can provide emotional support, share resources during times of need, and collectively advocate for improved services and infrastructure development.

Project interventions can lead to a more diverse and reliable food supply for participating households. This not only improves food security but also contributes to a more balanced diet containing essential nutrients for better health and well-being.

The project emphasizing sustainable land management techniques like crop rotation, composting, and soil regeneration mentioned that these practices not only enhance long-term soil fertility but also contribute to environmental conservation and climate change adaptation. The project could establish connections with fair trade markets or local cooperatives, bypassing exploitative middlemen and ensuring better crop prices. This empowers participants to capture a larger share of profits and improve their economic standing. Training on marketing strategies and collective bargaining techniques can empower participants to negotiate better prices for their produce, thus increasing their income and overall financial resilience.

The project actively promotes the inclusion of women in all aspects of the project, from training and resource allocation to decision-making processes. The respondents stated that this empowerment empowers women, fosters their leadership potential, and ensures that project activities address the specific needs and challenges faced by women in the community.

Increased participation by women will bring valuable perspectives and knowledge to the project. Women often have a deep understanding of local food systems, household resource management, and traditional agricultural practices. Their inclusion can lead to more holistic and effective solutions for building community resilience.

4.4. Comparing the resilience scores of beneficiaries and non- beneficiary participants

This section delves into the core question of the project's impact. By comparing the resilience scores of participants who benefited from the initiatives to those who did not, this study aimed to assess the project's effectiveness in strengthening the community's ability to withstand challenges. This comparison will reveal whether the project successfully addressed vulnerabilities and improved the overall resilience of participating households in Mangwe District.

4.5 Summary of the resilience scores of the beneficiary and non-beneficiary participants.

	N	Mean	Std. Deviation	Std. Error Mean
Resilience no	17	.00	.000	.000
Yes	17	2.29	.985	.239

Independent Sample Test									
Resilience: equal variances assumed	Leven's test for equality of variances								
	F	Sig	T	Df	Sig. (2 tailed)	Mean difference	Std. error difference	95%	
	168.96	.000	-9.601	32	.000	-2.294	.239	Lower	Upper
Equal variances are not assumed			-9.601	16 000	.000	-2.294	.239	-2.801	-1.788

Source: Survey Data 2024

Table 4.5 provides compelling evidence that the resilience-building project in Mangwe District has achieved its goals. By comparing the resilience scores of beneficiaries and nonbeneficiaries, the data shed light on the project's effectiveness.

With 17 participants in each group to balance the sample size according to Faul et al. (2007), the data reveal a key difference in resilience between beneficiaries and non-beneficiaries. The standard deviation, a measure of variation, is lower for the non-beneficiary group (0.00) than for the beneficiary group (0.985). This suggests that resilience scores among those who participated in the project were more widely distributed, thus indicating a wider range of experiences. Statistical tests further solidify this finding. Levene's test confirms unequal variances between groups, and the T-Test, accounting for this inequality, shows a statistically significant difference (Sig. = 0.000) in resilience scores. The mean difference of -2.294

highlights the project's positive impact. This negative value indicates that beneficiaries had a higher average resilience score than non-beneficiaries. In simpler terms, participation in resilience-building initiatives appears to be associated with a statistically significant improvement in resilience scores. Although specific scale and average scores are not provided, the data strongly suggest that the project played a valuable role in enhancing the resilience of participating households in Mangwe District.

Discussions

The most significant finding lies in the statistical tests. Levene's test confirms unequal variances, and the T-Test result with the more reliable assumption of unequal variance shows a statistically significant difference ($p\text{-value} = 0.000$) in resilience scores. This $p\text{-value}$, which is extremely close to zero, indicates that the observed difference between the groups is highly unlikely to be due to chance. In simpler terms, the project's initiatives appear to have had a genuine and measurable positive impact on the resilience of participating households and have successfully contributed to a measurable improvement in the resilience of participating households in Mangwe District.

4.5. Factors affecting household resilience in Mangwe District, Zimbabwe

This section explores an important facet of Mangwe District's resilience building. A robust statistical technique called regression analysis will be used to examine several elements that significantly impact household resilience. The objective is to comprehensively understand vulnerabilities encountered by the community by identifying these critical elements. This analysis will not only offer insightful information about how well the project that was implemented addressed these vulnerabilities, but it will also lay the groundwork for future initiatives aimed at strengthening household resilience in Mangwe District by addressing the most important factors in depth.

4.5.1. Regression Model

The study investigates the effects of infrastructure development, access to finance, social status, government and institutional support, social support networks, social economic status, access to resources, knowledge, and capacity building on resilience improvement. The regression model used to analyze factors affecting resilience improvement in Mangwe District is as follows:

Resilience Improvement = $\beta_0 + \beta_1$ (Access to Resilience Building Infrastructure) + β_2 (Access to Finance) + β_3 (Infrastructure Development) + β_4 (Knowledge and Capacity Building) + β_5 (Access to Resources) + β_6 (Social Economic Status) + β_7 (Social Support Networks).

Tables 4.6, 4.7, and 4.8 below present the results of a regression analysis exploring the factors influencing resilience improvement in Mangwe District. This analysis helps identify the interventions that contributed most significantly to the positive impact on resilience scores (Table 4.5).

Table 4.4 **Model Summary**

Model	R	R Square	Adjusted R-squared	Std. Error in Estimate	Change Statistics				
					R Squared Change	F Change	df1	df2	Sig. F Change
1	.974 ^a	.949	.943	63,660.12244	.948	235.666	8	13	.000

The Table 4.6 model achieves a very high R-squared value of 0.949, indicating that it explains a substantial proportion (nearly 95%) of the variance in resilience improvement. The adjusted R² value of 0.943 is also very strong, suggesting the model's effectiveness even after accounting for the number of predictor variables included. The highly significant F-Change value (Sig. F Change = 0.000) further confirms the model's overall statistical significance.

Table 4.5 **ANOVAa** Summary of factors **affecting resilience improvement**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	123.951	8	39.984	235.666	.000 ^b
	Residual	86.636	217	.399		
	Total	210.587	225			

a . Variable : Resilience Improvement Dependent

b. Predictors: (Constant): infrastructure development, access to finance, social status, government and institutional support ,social support networks, social economic status, access to resources and knowledge, and capacity building

Table 4.7 breaks down the variance in resilience improvement. The regression model accounts for a significant portion of the variance (123.951), while the remaining variance (86.636) is attributed to errors. This reinforces the model's ability to explain the factors influencing resilience improvement.

Table 4.6 **Summary of regression coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-167324.995	.140		-.504	.604
	Access to finance	.911	.059	.974	0.878	.0002
	Infrastructure development	0.057	.130	.887	0.277	0.003
	Knowledge and capacity building	0.10	.112	.643	0.226	.000
	Access to resources	0.517	.338	.594	5.486	.000
	Community Empowerment	.501	.4556	.709	5.506	.001
	Access to basic services	.0544		.890	0.084	.0006
	Social Economic status	.148	.8898	.243	0.746	.000
	Social support networks	.016	.243	.9956	0.353	.0003
		.057	.987	.33386	0.057	.0001

Source: Survey data 2024

Regression results

Conclusions

In the words of Hair Jr, J. F., Black, W. C., Basin, B. J., and Anderson, R. E. (2019), the findings of the regression analysis highlight several significant factors that influence resilience improvement in Mangwe District. Access to finance is the strongest factor influencing resilience improvement. The high standardized coefficient (Beta = 0.974) and highly significant

p-value (0.0002) highlight the crucial role that financial resources play in empowering households.

This suggests that the project's initiatives, such as microloans and financial literacy training, equipped farmers with the tools to manage challenges and build a safety net, ultimately boosting their resilience. Knowledge and capacity building (Beta = 0.643; Sig. = 0.000) indicates another significant factor. This indicates that project efforts focused on education and skills development, such as improved agricultural practices, empowered households to make informed decisions and manage risks more effectively, according to Durian, M., Kurian, A. G., & Ibrahim, M (2018). Additionally, access to resources (Beta = 0.594, Sig. = 0.000) – likely improved seeds, water management techniques, or tools to further strengthen their ability to cope with challenges. The findings highlight the importance of fostering a supportive environment. Community empowerment (Beta = 0.709) and access to basic services (Beta = 0.890) are significantly positively associated with resilience. This suggests that the project's focus on social support networks and ensuring access to essential services like sanitation or healthcare played a vital role in creating a safety net for participating households.

While the factors mentioned above hold the strongest influence, infrastructure development (Beta = 0.887) and social support networks (Beta = 0.334) are also positively associated with resilience improvement. As Kurian et al. (2018) stated, investments in infrastructure and fostering social connections contribute to a community's ability to withstand challenges. Socioeconomic status has a positive Beta coefficient but a nonsignificant p value. This suggests a more nuanced relationship in this context. Further investigation is necessary to understand how socioeconomic factors interact with other variables to influence resilience in Mangwe District.

The regression analysis provides compelling evidence that the project's multifaceted approach effectively addressed several key factors influencing resilience. By focusing on financial empowerment, knowledge building, resource access, community development, and basic services, the project demonstrated the ability of participating households to face challenges in the Mangwe District. These findings offer valuable insights for designing resilience-building programs with lasting and positive impacts on communities.

CHAPTER V

SUMMARY, CONCLUSION, AND RESULTS

5.1. Summary

This section outlines the research summary, recommendations, and conclusion of the research. Recommendations will be based on the findings of the research.

5.2. Conclusion

This study aims to investigate the effectiveness of resilience-building interventions in improving the well-being and adaptive capacity of vulnerable households struggling with various hardships. By understanding the specific challenges faced by these households, such as food insecurity, limited access to basic services, and economic instability, this research seeks to shed light on how enhanced resilience programs can mitigate these issues and enhance community resilience.

Furthermore, the research problem acknowledges the importance of evaluating the outcomes of resilience-building efforts to inform future decision-making and policy formulation. By examining the impact of interventions like agricultural training, water access improvements, livelihood diversification, and disaster risk reduction measures, this study seeks to provide evidence-based recommendations for enhancing the sustainability and scalability of such initiatives.

Ultimately, the research problem underscores the critical need to address the root causes of vulnerability in Mangwe District and similar settings, emphasizing the importance of community empowerment, resource mobilization, and strategic planning to build resilience and promote sustainable development. By dissecting and analyzing the complexities of vulnerability within the local context, this study contributes valuable insights to the broader discourse on resilience-building strategies and rural development in the face of evolving challenges.

This study evaluated the effects of improved resilience-building programs on vulnerable households in Mangwe District. Through a mixed-methods approach that combined qualitative interviews and quantitative survey data, the study assessed the success of resilience-building initiatives in enhancing the well-being of households facing social, economic, and environmental challenges.

The findings indicate that resilience-building interventions, such as agricultural training programs, improved water access, livelihood diversification initiatives and disaster risk reduction measures, have a positive impact on key indicators like income generation, food security, access to basic services, social cohesion and vulnerability reduction among vulnerable households in Mangwe District.

Furthermore, the study highlighted the importance of evidence-based suggestions for improving the planning and implementation of future resilience initiatives among vulnerable communities. By providing recommendations based on the study results, policymakers, development professionals and local communities can allocate resources effectively and make informed decisions to support vulnerable households in building resilience and addressing ongoing challenges.

The conclusion of this study on the impact of enhanced resilience building initiatives among vulnerable households in Mangwe District, Zimbabwe underscores the significance of addressing the multidimensional nature of vulnerabilities that these households face. It is essential to recognize that vulnerabilities are interconnected and influenced by various factors, such as climate change, socioeconomic conditions, governance structures, and access to resources.

The research findings emphasize that sustainable solutions for enhancing resilience among vulnerable households require a holistic approach that integrates community participation, capacity building, and long-term support mechanisms. By engaging with local stakeholders, policymakers can tailor interventions to the specific needs and challenges faced by vulnerable communities and ensure relevance and effectiveness.

Moreover, the study highlights the importance of leveraging existing resources and building partnerships across sectors to maximize the impact of resilience-building initiatives. Collaboration between government agencies, non-governmental organizations, academic institutions and local communities is crucial for creating sustainable pathways for vulnerable households to overcome adversity and thrive despite uncertainties.

Furthermore, the conclusions drawn from this research suggest that investing in resilience-building programs not only benefits vulnerable households in the short term but also contributes to long-term sustainable development outcomes. By fostering resilience, communities can

better withstand shocks and stresses, improve livelihood opportunities, and enhance overall wellbeing.

5.3. Recommendations

Based on the study on the impact of enhanced resilience building initiatives among vulnerable households in Mangwe District, Zimbabwe, the following recommendations can be formulated to improve the resilience and strengthen the well-being of households in the Mangwe District:

- **Strengthen community participation:** Encourage active involvement of community members in the design, implementation, and monitoring of resilience-building programs to ensure that interventions are tailored to local needs and priorities.
- **Build sustainable partnerships:** Foster collaborations between various stakeholders, including government agencies, NGOs, academic institutions, and local communities, to enhance the effectiveness and sustainability of resilience initiatives.
- **Enhance capacity building:** Provide training and support to vulnerable households to improve their skills, knowledge, and resources for diversified livelihoods, sustainable agriculture practices, and disaster risk reduction strategies.
- **Improving access to resources:** Ensuring equitable access to essential resources such as water, education, healthcare, and agricultural inputs to enhance the resilience and well-being of vulnerable households in Mangwe District.
- **Promote ecosystem-based approaches:** Advocate for the adoption of nature-based solutions and sustainable land management practices to enhance environmental resilience, mitigate climate impacts, and improve livelihood opportunities for vulnerable communities.
- **Monitor and evaluate impact:** Establish robust monitoring and evaluation mechanisms to track the outcomes of resilience-building interventions, identify successes and challenges, and inform adaptive decision-making for future programs.
- **Advocate for policy support:** Engage with policymakers at local, regional, and national levels to advocate for policies that support vulnerable households, address underlying drivers of vulnerability, and prioritize resilience-building efforts on development agendas.

- Foster knowledge sharing: Facilitate knowledge exchange among stakeholders, practitioners, and researchers to share best practices, lessons learned, and innovative approaches to enhance resilience among vulnerable communities.
- Ensure inclusivity and equity: Ensure that resilience-building initiatives are inclusive and gender-responsive and promote equity to address the needs of marginalized groups within vulnerable households in Mangwe District.
- Promote long-term planning: Encourage long-term planning and investment in sustainable solutions that address the root causes of vulnerability, promote adaptive capacity, and build resilience for future challenges

REFERENCES

- Zimbabwe Vulnerability Assessment Committee [ZimVAC] (2019). Rural Livelihoods Assessment – Zimbabwe Report, 2019. Harare, Zimbabwe: Government of Zimbabwe.
- FAO. (2019). Zimbabwe Situation Report. Rome: Food and Agriculture Organization of the United Nations.
- Sebulime, P., Ngwira, A.R., & Chirwa, P.W. (2019). Determinants of food insecurity among smallholder farmers in Zimbabwe. *African Journal of Agricultural and Resource Economics*, 14(1), 65-78
- Munikwa, T. (2020). The impact of climate change on smallholder farmers and their adaptation strategies in Zimbabwe. *International Journal of Climate Change Strategies and Management*, 13(5), 471-484.
- The World Bank. (2017). Zimbabwe Resilience Building Fund.
- FAO. (2018). Zimbabwe - Food and Agriculture Organization of the United Nations.
- Oxfam. (2019). Resilience in the face of conflict and crisis: Recommendations for humanitarian action in Zimbabwe.
- Munikwa, T. (2020). The Effect of Resilience Building Approach on Small Holder Farmers' Livelihoods in Zimbabwe. *Journal of Agricultural Extension and Rural Development*, 12(10), 207-214.
- Mutinda, C., Mhlanga, N., & Chirisa, I. (2020). From Taming Natural Resource Use to Resilience Building: An Appraisal of Rural Hydro-agricultural Index-Based Insurance Scheme in Zimbabwe's Mangwe District. *Sustainability*, 12(20), 8645.
- Adger, W. N. (2000). Social and ecological resilience: Are they related? *Progress in Human Geography*, 24(3), 347-364.
- Cutter, S. L., Boruff, B. J., & Shirley, W. L. (2003). Social vulnerability to environmental hazards. *Social Science Quarterly*, 84(2), 242-261.
- Folke, C. (2006). Resilience: The emergence of a perspective for social-ecological systems analyses. *Global Environmental Change*, 16(3), 253-267.

Gallopín, G. C. (2006). Linkages between vulnerability, resilience, and adaptive capacity. *Global Environmental Change*, 16(3), 293-303.

Norris, F. H., Stevens, S. P., Pfefferbaum, B., Wyche, K. F., & Pfefferbaum, R. L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, 41(1-2), 127-150.

Aldrich, D. P., & Meyer, M. A. (2015). Social capital and community resilience. *American Behavioral Scientist*, 59(2), 254-269.

Béné, C., Newsham, A., Davies, M., Ulrichs, M., & Godfrey-Wood, R. (2016). Resilience, poverty and development. *Journal of International Development*, 28(2), 211-218.

Bonanno, G. A., Brewin, C. R., Kaniasty, K., & La Greca, A. M. (2010). Weighing the costs of disaster: Consequences, risks, and resilience in individuals, families, and communities. *Psychological Science in the Public Interest*, 11(1), 1-49.

Cutter, S. L., Ash, K. D., & Emrich, C. T. (2008). The geographies of community disaster resilience. *Global Environmental Change*, 18(1), 7-18.

Cimellaro, G. P., Reinhorn, A. M., & Bruneau, M. (2019). *Resilient communities: Cities and infrastructures as complex adaptive systems*. Springer.

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

Masten, A. S. (2014). Global perspectives on resilience in children and youth. *Child Development*, 85(1), 6-20.

Norris, F. H., Stevens, S. P., Pfefferbaum, B., Wyche, K. F., & Pfefferbaum, R. L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, 41(1-2), 127-150.

United Nations. (2015). Sendai Framework for Disaster Risk Reduction 2015-2030. Retrieved from <https://www.unisdr.org/we/coordinate/sendai-framework>

World Bank. (2017). Building resilience: Integrating climate and disaster risk into development. Retrieved from <https://openknowledge.worldbank.org/handle/10986/27949>

- Béné, C., Godfrey-Wood, R., Newsham, A., & Davies, M. (2014). Resilience, poverty and development: A review of key concepts. IDS Working Paper, 446.
- Berkes, F., Colding, J., & Folke, C. (2003). Navigating social-ecological systems: Building resilience for complexity and change. Cambridge University Press.
- Birkmann, J., Garschagen, M., Kraas, F., & Quang, N. (2010). Adaptive urban governance: New challenges for the second generation of urban adaptation strategies to climate change. *Sustainability Science*, 5(2), 185-206.
- Hart, C. (2018). Doing a literature review: Releasing the social science research imagination. SAGE Publications.
- Ridley, D. (2012). The literature review: A step-by-step guide for students. SAGE Publications.
- Fink, A. (2014). Conducting research literature reviews: From the internet to paper. SAGE Publications.
- Davies, M., Fleuret, P., & Mitchell, T. (2009). Climate vulnerability and capacity analysis: A framework for understanding and addressing climate change impacts. International Institute for Sustainable Development.
- Lebel, L., Anderies, J. M., Campbell, B., Folke, C., Hatfield-Dodds, S., Hughes, T. P., & Wilson, J. (2006). Governance and the capacity to manage resilience in regional social-ecological systems. *Ecology and Society*, 11(1), 19.
- O'Brien, K., Sygna, L., & Haugen, J. E. (2010). Vulnerable or resilient? A multi-scale assessment of climate impacts and vulnerability in Norway. *Climatic Change*, 100(2), 283-302.
- Smit, B., Burton, I., Klein, R. J. T., & Wandel, J. (2001). An anatomy of adaptation to climate change and variability. *Climatic Change*, 45(1), 223-251.
- UNISDR. (2009). Terminology on disaster risk reduction. United Nations International Strategy for Disaster Reduction
- Green, J., & Thorogood, N. (2018). Qualitative methods for health research. SAGE Publications.
- Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods approaches. SAGE Publications.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook*. SAGE Publications.

Easterby-Smith, M., Thorpe, R., & Jackson, P. (2012). *Management research*. SAGE Publications.

Patton, M. Q. (2014). *Qualitative research & evaluation methods: Integrating theory and practice*. SAGE Publications.

Yin, R. K. (2017). *Case study research and applications: Design and methods*. SAGE Publications.

Flick, U. (2018). *An introduction to qualitative research*. SAGE Publications.

Creswell, J. W., & Poth, C. N. (2017). *Qualitative inquiry and research design: Choosing among five approaches*. SAGE Publications.

Maxwell, J. A. (2012). *Qualitative research design: An interactive approach*. SAGE Publications.

Denzin, N. K., & Lincoln, Y. S. (2017). *The SAGE handbook of qualitative research*. SAGE Publications.

Gujarati, D. N., & Porter, D. C. (2009). *Basic econometrics* (5th ed.). McGraw-Hill.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.

Kennedy, P. (2008). *A guide to econometrics* (6th ed.). Wiley-Blackwell.

Kutner, M. H., Nachtsheim, C. J., Neter, J., & Li, W. (2004). *Applied linear statistical models* (5th ed.). McGraw-Hill.

Montgomery, D. C., Peck, E. A., & Vining, G. G. (2012). *Introduction to linear regression analysis* (5th ed.). Wiley.

Rencher, A. C., & Schaalje, G. B. (2008). *Linear models in statistics*. Wiley-Interscience.

Stock, J. H., & Watson, M. W. (2014). *Introduction to econometrics* (3rd ed.). Pearson.

Wooldridge, J. M. (2019). *Introductory econometrics: A modern approach* (7th ed.). Cengage Learning.

APPENDICES

Appendix1: Household Survey Questionnaire

Letter of Approval

BINDURA UNIVERSITY OF SCIENCE EDUCATION
FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE



1 March 2024

To whom it may concern

Dear sir/madam

RE: APPLICATION FOR AUTHORITY TO CONDUCT RESEARCH.

I do hereby apply for authority to conduct a research on your organisations. I am a part four student studying towards a degree in Agriculture Economics and Management with Bindura University of Science Education. My topic is An assessment on the impact of enhanced resilience building initiatives among vulnerable households. The case of Mangwe District Households, in Matebeleland South, Zimbabwe”. I am requesting for assistance with information from your District as well as authority to respond to my questionnaires.

I am in great hope of your response.

Yours faithfully

.....

B200670B

Agriculture Economics Student

QUESTIONNAIRE

SECTION A: Demographics and Characterization

Ward number

Distance to closest market/big market

km, to place

Land ownership a. Owned

b. Rented

Age of farmer

21-30

30-40

40-50

above 50

Gender:

Male

Female

Marital status:

Divorced

Married

Single

Widowed

Level of edcation:

Primary

Secondary

Tertiary

Technical

Religion:

Christianity

Muslim

Other.....

Membership of Social Organization:

YES

NO

Average Farm Size:

Farming Experience:

Household size:

Main crops grown: Horticulture

Tobacco

Other

(i) DEMOGRAPHIC INFORMATION		
1	Household Age	years
2	Gender	1= male 2=female
3	Beneficiary status	1=beneficiary 2=non-beneficiary
4	Education	1=primary 2=secondary 3=degree 4=post graduate
5	Land Ownership	1=owned 2=rent
6	Marital status	1=married 2=divorced 3=single

All questions to be answered using the following likert scale : 1-not at all, 2- somewhat , 3-moderate, 4- very and 5-extremely

Objective 1: To characterize the resilience building project implemented in Mangwe District

1. How familiar are you with the resilience building project implemented in Mangwe District?

a) Not at all familiar=1

- b) Somewhat familiar=2
- c) Moderately familiar=3
- d) Very familiar=4

2. Have you participated in any activities or programs related to the resilience building project in Mangwe District?

- a) Yes=1
- b) No=2

3. If yes, please specify the activities or programs you have participated in.

4. How would you rate the effectiveness of the resilience building project in Mangwe District in addressing community challenges?

- a) Highly effective=5
- b) Moderately effective=2
- c) Somewhat effective=3
- d) Ineffective=4
- e) Not at all =1

5. In your opinion, what are the key strengths of the resilience building project in Mangwe District?

6. What are the areas where the resilience building project in Mangwe District could be improved?

Objective 2: To assess the challenges faced by vulnerable households participating in resilience building projects in Mangwe District

7. Are you a member of a vulnerable household participating in the resilience building project in Mangwe District?

a) Yes=1

b) No=2

8. If yes, what are the main challenges you have faced as a vulnerable household participating in the resilience building project?

9. How has the resilience building project addressed these challenges, if at all?

Objective 3: To analyze the impact of resilience building initiatives on household resilience, environmental adaptation, and socio-economic welfare

10. How has your household's resilience improved as a result of participating in the resilience building project?

a) Significantly improved=5

b) Moderately improved=2

c) Slightly improved=3

d) No improvement=4

e) Not at all=1

11. Have you noticed any positive changes in your household's ability to adapt to environmental changes?

a) Yes=1

b) No=2

c) Not sure=3

12. If yes, please describe the specific changes you have observed.

13. How has the resilience building project affected your household's socio-economic welfare?

- a) Improved significantly=1
- b) Improved moderately=2
- c) Improved slightly=3
- d) No improvement=4
- e) Declined=5
- f) Not sure=6

Objective 4: To analyze the household socio-economic factors that influence the outcome of resilience building initiatives

14. What is the main source of income for your household?

- a) Employment
- b) Agriculture
- c) Small business
- d) Social welfare programs
- e) Other (please specify)

15. How would you rate your household's access to basic services (e.g., healthcare, education, water, electricity)?

- a) Excellent=1
- b) Good=2
- c) Fair=3
- d) Poor=4

16. Does your household have access to financial resources for implementing resilience building measures?

a) Yes=1

b) No=2

17. If no, what are the main barriers to accessing financial resources for resilience building?

18. In your opinion, how do socio-economic factors, such as education level and employment status, influence the success of resilience building initiatives?

a) They have a significant impact=1

b) They have a moderate impact=2

c) They have a slight impact=3

d) They have no impact=4

e) Not sure=5

19. Is there anything else you would like to share about the resilience building project in Mangwe District or its impact on your household?

Thank you for your participation! Your input is valuable in understanding the resilience building initiatives in Mangwe District and improving future projects.

