

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF SOCIAL SCIENCES AND HUMANITIES

PEACE AND GOVERNANCE



**THE IMPACT OF THE 2024 EL NINO DROUGHT IN ZIMBABWE: A CASE
STUDY OF UZUMBA MARAMBA PFUNGWE**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR A BACHELOR'S HONOURS DEGREE IN PEACE AND
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ABSTRACT

This study investigates the impact of the 2024 El Niño drought in Zimbabwe, with a specific focus on Uzumba Maramba Pfungwe (UMP) district. The aim of the study was to assess the effects of the drought on agriculture, food security, and livelihoods in UMP. The objectives of the study were to examine the impacts of the drought on crop yields and livestock productivity, to assess the effects of the drought on household food security and livelihoods, and to identify coping strategies employed by households to mitigate the effects of the drought. A mixed-methods approach was employed, combining both qualitative and quantitative data collection and analysis methods. The study revealed that the 2024 El Niño drought had devastating impacts on agriculture, food security, and livelihoods in UMP. The findings suggest that crop yields and livestock productivity declined significantly, leading to food insecurity and livelihood disruptions. However, the study also identified coping strategies employed by households, including diversification of livelihoods and use of drought-tolerant crops. The study concludes that the 2024 El Niño drought highlighted the vulnerability of UMP to climate-related disasters and the need for sustainable livelihoods and climate-resilient agriculture. The study recommends that policymakers and stakeholders prioritize the development of climate-resilient agriculture and livelihoods, and provide support to households to adapt to climate-related disasters.

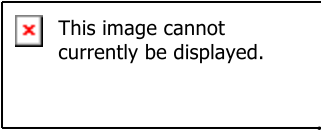
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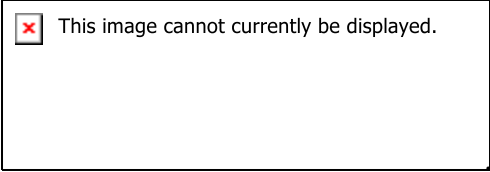
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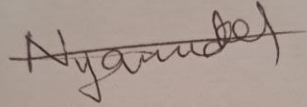
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DEDICATION

This dissertation is dedicated to my family, friends, and colleagues who have supported me throughout my academic journey.

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my Family, for their guidance and support throughout this research project. I would also like to thank the participants of this study, who shared their valuable insights and experiences with me.

LIST OF ABBREVIATIONS AND ACRONYMS

ENSO: El Niño-Southern Oscillation

FAO: Food and Agriculture Organization

UMP: Uzumba Maramba Pfungwe

UNDP: United Nations Development Programme

ZIMVAC: Zimbabwe Vulnerability Assessment Committee

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

The Southern African Development Community (SADC) has been increasingly challenged by the rising frequency and severity of droughts particularly due to climate phenomena such as El Nino. The 2024 El Nino drought has had particularly devastating effects with Zimbabwe emerging as one of the hardest-hit countries (UNDP, 2024). Over the past two decades' droughts have affected more than 2 billion people globally leading to significant economic, social, and environmental repercussions (IPCC, 2023). Notably, the 2015-2016 El Nino drought impacted over 40 million people in Southern Africa alone (SADC, 2016). In Zimbabwe, droughts have become a recurrent issue with the 2024 El Nino event recognized as one of the most severe in recent history (Meteorological Services Department, 2024). The consequences extend beyond Zimbabwe affecting other nations globally. For instance, Ethiopia has faced severe food insecurity and displacement, while Brazil has dealt with devastating floods that led to widespread damage (UNHCR, 2024; BBC, 2024). Australia has also experienced significant agricultural challenges due to ongoing drought conditions (ABC, 2024). This research aims to investigate the impact of the 2024 El Nino drought in Zimbabwe, focusing specifically on Uzumba Maramba Pfungwe as a case study. It will explore the socio-economic challenges and environmental issues that have motivated this investigation.

In South Africa, drought conditions have severely affected agricultural production particularly in areas reliant on rain-fed crops leading to substantial losses in yield and livestock (SAWS, 2024). Similarly, Zambia has experienced reduced crop outputs from prolonged dry spells, resulting in rising food prices and heightened food insecurity among vulnerable populations (Zambia Ministry of Agriculture, 2024). Malawi has faced crop failures that threaten food security and livelihoods, prompting humanitarian responses (Malawi National Disaster Management Authority, 2024). Namibia is grappling with critical food and water shortages due to prolonged drought, straining both rural and urban communities (NAMWATER, 2024). In Zimbabwe, the climatic conditions in Uzumba Maramba Pfungwe are particularly alarming. This district, located within Agro-Ecological Region II, has a semi-arid climate with average annual rainfall ranging

from 600 to 800 mm. However, climate change has led to increasingly erratic rainfall patterns, significantly affecting agricultural productivity. The region has experienced recurrent droughts in recent years, further diminishing crop yields and threatening local livelihoods. The 2024 El Nino drought has intensified these challenges, with many farmers reporting total crop failures due to insufficient rainfall. Consequently, the community is facing critical food shortages, increased water scarcity, and heightened economic vulnerability.

These pressing issues highlight the urgent need for research into the impacts of the 2024 El Nino drought in Uzumba Maramba Pfungwe. As local communities grapple with these challenges, questions arise regarding the effectiveness of government mitigation measures. While the government has initiated drought relief programs and water conservation efforts, will these strategies genuinely address the urgent problems faced by the population? Can initiatives such as drilling boreholes and promoting climate-smart agriculture provide the necessary relief, or are there deeper systemic issues that need to be explored? These questions warrant further investigation to determine the best path forward for affected communities.

1.2 Aim of the Study

The aim of this study was to investigate the impact of the 2024 El Nino drought on the livelihoods of communities in Uzumba Maramba Pfungwe district, Zimbabwe.

1.3 Problem Statement

The 2024 El Nino drought has intensified socio-economic and environmental challenges in Uzumba Maramba Pfungwe, Zimbabwe, where communities face critical food shortages and economic vulnerability due to severe crop failures linked to insufficient rainfall. Despite government drought relief programs and water conservation efforts, their effectiveness is questionable, and the recurrent nature of droughts, exacerbated by climate change, poses ongoing threats to agricultural productivity and food security. There is a pressing need for focused research on the specific challenges faced by this district to inform effective mitigation strategies and support local communities in navigating this crisis.

1.4 Research Objectives

1. To assess the impact of the 2024 El Nino drought on agricultural production and food security in Uzumba Maramba Pfungwe district,
2. To examine the governments' response and management in Uzumba Maramba Pfungwe district.
3. To identify strategies that can be used to reduce the impacts of future drought effects in Uzumba Maramba Pfungwe district

1.5 Research Questions

1. What is the impact of the 2024 El Nino drought on the people in Uzumba Maramba Pfungwe district?
2. How have government, and civil society organizations responded to the 2024 El Nino drought in Uzumba Maramba Pfungwe district.
3. What strategies can be employed to mitigate the risks of future droughts in Uzumba Maramba Pfungwe district?

1.6 Assumptions of the Study

This study assumes that

- the 2024 El Nino drought has had a significant impact on agricultural production and food security in Uzumba Maramba Pfungwe district, and that governance structures, policies, and institutions play a crucial role in mitigating the effects of the drought.
- the current governance arrangements for drought response and management in the district are inadequate.

1.7 Significance of the Study

This study is significant to:

Polymakers

The findings of this study will inform policy decisions on drought risk management and reduction, particularly in the development of effective governance structures, policies, and institutions for responding to climate-related disasters. The study's recommendations will also

contribute to the improvement of early warning systems, emergency preparedness plans, and climate-resilient agriculture practices in Zimbabwe.

Practitioners

The study's findings and recommendations will be useful for practitioners working on drought risk management and reduction, including government agencies, international organizations, and civil society organizations. The study will provide insights into effective strategies for improving governance and institutional capacity for drought risk management and reduction, which can be applied in various contexts.

Researchers

This study contributes to the existing body of knowledge on drought risk management and reduction, particularly in the context of governance and institutional capacity. The study's findings will be useful for researchers working on climate-related disasters, governance, and institutional capacity, and will provide a foundation for further research in this area.

Communities

The study's findings and recommendations will be significant for communities in Uzumba Maramba Pfungwe district and similar contexts, as they will inform strategies for improving resilience to climate-related disasters. The study's focus on governance and institutional capacity will also contribute to the development of more effective and sustainable solutions for drought risk management and reduction.

International Organizations

The study's findings and recommendations will be useful for international organizations working on climate-related disasters, governance, and institutional capacity. The study will provide insights into effective strategies for improving governance and institutional capacity for drought risk management and reduction, which can be applied in various contexts.

1.8 Delimitations of the study

This study focused exclusively on the impact of the 2024 El Nino drought in Uzumba Maramba Pfungwe district, Zimbabwe, and did not cover other regions within Zimbabwe or the broader Southern African Development Community (SADC). The research specifically investigated socio-economic challenges and environmental issues faced by local communities, emphasizing agricultural productivity, food security, and water scarcity. Additionally, the study primarily relied on qualitative data collected through interviews and community surveys, limiting quantitative analyses. By concentrating on this specific geographic and thematic scope, the research aimed to provide in-depth insights relevant to Uzumba Maramba Pfungwe while acknowledging that the findings might not be generalizable to other contexts.

1.9 Limitations of the study

The study will only focus on the impact of the 2024 El Nino drought on communities in Uzumba Maramba Pfungwe district, and may not be generalizable to other districts or regions, it will rely on self-reported data from respondents, which may be subject to biases and inaccuracies and the study will not be able to capture the long-term impacts of the drought, as it will only be conducted over a period of six months.

1.10 Definition of key terms

Drought

A prolonged period of abnormally low rainfall that leads to water scarcity and impacts on agricultural production, food security, and livelihoods (UNDP, 2024).

Governance

The system of rules, institutions, and practices that shape the interactions among government, civil society, and the private sector in managing resources and responding to climate-related disasters (World Bank, 2020).

Institutional Capacity

The ability of organizations and institutions to effectively manage resources, respond to climate-related disasters, and implement policies and programs (UNESCO, 2020).

Climate-Resilient Agriculture

Agricultural practices and systems that are designed to withstand and recover from climate-related disasters, such as droughts and floods (FAO, 2020).

El Nino

A complex weather pattern characterized by warming ocean temperatures in the Pacific, leading to droughts, floods, and other extreme weather events (NOAA, 2024).

CHAPTER TWO

2.0 LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

The phenomenon of El Nino significantly influences global weather patterns leading to extreme weather events such as droughts and floods. These changes pose substantial threats to agricultural production and food security worldwide. This chapter reviews existing literature at the international and regional levels providing a comprehensive understanding of the effects of El Nino and the strategies employed to mitigate its impacts. The focus will be on a developed country, Japan and an African nation Kenya before discussing the broader context of Zimbabwe.

2.2 Theoretical Framework: Sustainable Livelihoods Framework

The theoretical framework for this dissertation is grounded in the concept of governance and institutional capacity in the context of climate-related disasters, specifically droughts. The framework is informed by the Sustainable Livelihoods Framework (SLF), which

emphasizes the importance of governance and institutions in shaping the livelihoods of individuals and communities (DFID, 2020). The SLF also highlights the need for effective governance and institutional capacity to manage and respond to climate-related disasters, such as droughts. In addition, the framework draws on the concept of climate resilience, which refers to the ability of individuals, communities, and systems to withstand and recover from climate-related disasters (IPCC, 2023). Climate resilience is critical in the context of droughts, where effective governance and institutional capacity can help to mitigate the impacts of droughts on agricultural production, food security, and livelihoods.

The framework also incorporates the concept of governance as a critical factor in shaping the response to climate-related disasters, including droughts (World Bank, 2020). Effective governance involves the coordination and collaboration of government agencies, civil society organizations, and the private sector in managing resources and responding to climate-related disasters. Furthermore, the framework is informed by the concept of institutional capacity, which refers to the ability of organizations and institutions to effectively manage resources, respond to climate-related disasters, and implement policies and programs (UNESCO, 2020). Institutional capacity is critical in the context of droughts, where effective institutions can help to mitigate the impacts of droughts on agricultural production, food security, and livelihoods.

2.3 Case of Japan

El Nino impacts are felt across continents affecting agricultural productivity, food security, and livelihoods, particularly in developing countries that heavily rely on rain-fed agriculture. The unpredictability of El Nino events complicates agricultural planning and exacerbates existing vulnerabilities, making it a critical area of study for understanding climate resilience (National Academies of Sciences, 2016). Japan, while often associated with flooding during El Nino episodes, provides a compelling case study due to its advanced agricultural sector and proactive response strategies (Kato et al., 2019). The 2015 El Nino event highlighted the dual challenges of flooding and drought, demonstrating Japan's unique position in tackling climate variability while still being vulnerable to its effects (Japan Meteorological Agency, 2016). In 2015, Japan faced significant agricultural challenges as drought conditions impacted several regions, particularly concerning rice production, which is a staple crop for the nation (Ministry of Agriculture, Forestry and Fisheries, 2016). Reports indicated that these drought conditions resulted

in reduced yields, prompting increased reliance on food imports to meet domestic demand (FAO, 2016). The Japan Meteorological Agency (2017) emphasized that climate variability linked to El Nino events has become increasingly unpredictable, complicating agricultural planning and sustainability efforts. This unpredictability necessitates a multi-faceted approach to resource management and disaster preparedness, making Japan a relevant model for other countries facing similar challenges.

In 2024, Japan once again faced significant impacts from El Nino, with the recurrence of both extreme flooding and drought conditions affecting various agricultural regions. The Japan Meteorological Agency reported that these climatic fluctuations led to substantial disruptions in rice and vegetable production, heightening concerns about food security (Japan Meteorological Agency, 2024). As a result, Japan experienced a marked increase in food prices, compelling the government to evaluate its import strategies and bolster domestic production (FAO, 2024). This cycle of unpredictability underscores the continuous challenges that even advanced economies like Japan must confront in adapting to the ongoing impacts of climate variability.

In response to these challenges, Japan implemented a range of mitigation strategies aimed at enhancing resilience in its agricultural sector. The government promoted advanced water management techniques, including rainwater harvesting and the construction of reservoirs to capture and store rainfall during wetter periods (Ministry of Agriculture, Forestry and Fisheries, 2018). These techniques are complemented by the integration of modern technology in irrigation practices, which optimizes water use efficiency. Research by Kato et al. (2019) indicated that such measures not only conserve water but also improve crop resilience against drought conditions. Additionally, Japan has invested heavily in research and development to produce drought-resistant crop varieties, such as new strains of rice that require less water and can withstand prolonged dry spells (Yoshida & Hasegawa, 2020). The adoption of biotechnology in agriculture has been instrumental in increasing resilience to climate variability. For instance, the development of rice varieties that utilize less water while maintaining yields showcases Japan's commitment to sustainable agricultural practices in the face of climate challenges (Kuroda et al., 2021).

Furthermore, Japan's comprehensive disaster response framework includes early warning systems and community engagement initiatives designed to prepare for and respond to extreme weather events (Cabinet Office, 2019). These systems utilize advanced meteorological

data and predictive modeling to inform farmers and communities about impending weather changes, allowing for timely adaptations. Studies have shown that involving local communities in disaster preparedness not only enhances resilience but also fosters a culture of adaptability and innovation in agricultural practices (Takeuchi et al., 2019). For example, community-based training programs in disaster risk reduction have proven effective in empowering local populations to implement their own adaptive strategies. These measures underscore the critical importance of proactive governance and community involvement in effectively addressing the impacts of climate phenomena like El Nino. Japan's experience serves as a valuable case study for understanding how a developed nation navigates the challenges of climate variability, offering insights that could inform strategies in other regions, including those facing similar vulnerabilities to El Nino's impacts.

2.4 Case of Kenya

In Africa, Kenya serves as a pertinent example of how El Nino impacts agricultural production and food security. The 2015-2016 El Nino event resulted in a complex interplay of both floods and droughts across different regions of the country. While some areas experienced excessive rainfall that led to devastating floods, others faced prolonged dry spells that exacerbated food insecurity for millions (World Food Programme, 2016; FAO, 2017). The National Disaster Management Authority (NDMA) reported that these climatic extremes led to a significant increase in malnutrition rates, particularly among vulnerable populations, including children and pregnant women (NDMA, 2017). This duality of climatic events exemplifies the unpredictable nature of El Nino and its capacity to disrupt agricultural systems, highlighting the need for adaptable and multifaceted approaches to disaster management (Ochieng et al., 2018). In 2024, Kenya faced further challenges as the latest El Nino event intensified these existing vulnerabilities, leading to severe drought conditions in some regions while others were inundated with heavy rainfall, exacerbating the overall humanitarian crisis (Kenya National Bureau of Statistics, 2024). The cumulative effects of these climatic shifts underscored the urgent need for a robust response strategy to safeguard food security and enhance community resilience.

To mitigate these challenges, the Kenyan government, alongside various non-governmental organizations (NGOs), implemented several strategies aimed at enhancing resilience to climate variability. The NDMA focused on improving water resource management and fostering

community engagement through local adaptation strategies (NDMA, 2017). These strategies included the development of sustainable water harvesting techniques and the rehabilitation of water catchment areas, which are essential for maintaining water supply during drought conditions (Ngigi et al., 2019). In light of the 2024 El Nino impacts, these measures became increasingly critical as communities faced intensified water scarcity in drought-affected regions. Furthermore, the Kenyan government partnered with international organizations, such as the World Bank and UNDP, to enhance funding and technical support for climate adaptation initiatives (World Bank, 2018). Climate-smart agricultural practices were promoted, incorporating techniques such as intercropping, agroforestry, and the use of organic fertilizers to improve soil health and crop yields in changing climatic conditions (Muriuki et al., 2018). These practices have been shown to increase resilience against climate shocks while also promoting biodiversity, which is critical for maintaining ecosystem services (Kassam et al., 2019). Moreover, in the context of the 2024 El Nino, the adoption of these practices has proven vital for helping farmers cope with the dual threats of drought and flooding, thereby enhancing their economic stability and food security.

Moreover, early warning systems were established to provide timely information to farmers about impending weather conditions, allowing them to make informed decisions regarding crop planting and management (Kenya Meteorological Department, 2018). These systems utilize advanced meteorological data and predictive modeling, which have proven crucial in improving agricultural resilience (Ngigi et al., 2019). Research by Ngigi et al. (2019) indicates that these systems have significantly improved the ability of farmers to adapt to climatic shocks, thereby reducing vulnerability and enhancing food security. For example, farmers who received early warnings were able to adjust their planting schedules and crop choices, mitigating the impacts of unexpected droughts or floods. The challenges posed by the 2024 El Nino event further emphasized the importance of these early warning systems, as timely information allowed communities to respond proactively to the changing conditions. The Kenyan experience highlights the necessity of integrated approaches that address both immediate and long-term impacts of climate variability while engaging local communities in the process (Mastrorillo et al., 2016). By fostering collaboration among government bodies, NGOs, and local communities, Kenya has demonstrated a model for building resilience that other nations facing similar challenges can emulate. This comprehensive approach not only prepares communities for climatic extremes but

also contributes to sustainable development goals by promoting food security, health, and economic stability.

2.5 Roadmap to the Study: Context of Zimbabwe

In the context of Zimbabwe, the impacts of El Nino are profound, particularly in areas such as Uzumba Maramba Pfungwe. The country has faced recurrent droughts that have severely diminished agricultural productivity and food security, leading to heightened levels of vulnerability among local communities. For instance, the 2024 El Nino event exacerbated existing climatic challenges, resulting in significant crop failures and livestock losses. According to ZimStat (2020), approximately 5 million people were estimated to be food insecure due to the impacts of climate variability, which underscores the urgent need for effective drought management strategies. This alarming figure reflects the broader trends of food insecurity in the region, as noted by the Food and Agriculture Organization (FAO, 2021), which reported that climate-related shocks have left millions in Southern Africa vulnerable to hunger and malnutrition.

Existing literature suggests that while Zimbabwe has initiated various drought relief programs, the effectiveness of these measures is often limited by systemic challenges including inadequate infrastructure, lack of resources, and insufficient community engagement (ZimStat, 2020). The National Climate Change Response Strategy (NCCRS, 2016) highlighted that despite government efforts, many rural areas lack access to essential services such as clean water and reliable transportation, which are crucial for effective drought response. Furthermore, the absence of a cohesive national strategy to address climate change impacts exacerbates the situation, leaving many communities unprepared for the recurrent shocks associated with El Nino events. Research by the International Federation of Red Cross and Red Crescent Societies (IFRC, 2018) indicates that countries with fragmented disaster management systems face greater challenges in responding to climatic extremes, suggesting that Zimbabwe's current framework may need substantial reforms to improve resilience.

Drawing lessons from Japan and Kenya, Zimbabwe must explore effective governance structures for drought response and management. The Japanese model, characterized by a combination of advanced technology and community engagement, has proven effective in managing climate-related risks (Cabinet Office, 2019). Research indicates that countries that have successfully navigated the challenges posed by El Nino often employ a multi-faceted approach

that includes robust policy frameworks, investment in technology, and community-based initiatives (IPCC, 2023). For example, Japan's early warning systems and disaster preparedness measures have been crucial in mitigating the effects of climate variability, demonstrating the importance of proactive governance in building resilience (Yoshida & Hasegawa, 2020). Similarly, Kenya's experience in integrating traditional agricultural practices with modern techniques highlights the potential for tailored strategies that can significantly enhance local communities' resilience to climatic shocks (Ngigi et al., 2019).

2.6 Conclusion

This chapter has provided a comprehensive overview of the impacts of El Niño on agricultural productivity, food security, and livelihoods, emphasizing the need for adaptive strategies in both developed and developing countries. The case studies of Japan and Kenya illustrate the complexities of managing climate variability with Japan's advanced agricultural practices and proactive governance demonstrating the importance of integrating community engagement and technological innovation in disaster preparedness. In contrast, Kenya's experience highlights the necessity of multifaceted approaches including effective water management and climate-smart agricultural practices particularly in the face of the compounded challenges posed by the recent 2024 El Niño event. Meanwhile, Zimbabwe's vulnerabilities exacerbated by inadequate infrastructure and fragmented disaster management systems highlighted the urgent need for comprehensive reforms to enhance resilience. This chapter shows the critical role of governance and institutional capacity in shaping responses to climate-related challenges providing a foundation for exploring further strategies to mitigate the effects of El Niño and improve food security in vulnerable regions.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter delineates the methodological framework adopted to investigate the repercussions of the 2024 El Nino drought in Uzumba Maramba Pfungwe district.

3.2 Research Philosophy

Research philosophy refers to the underlying assumptions and beliefs that guide the research process (Crotty, 1998). For this study, the research philosophy employed was interpretivism, which seeks to understand the subjective meanings and experiences of individuals within a specific context (Walsham, 1995). Interpretivism posits that reality is socially constructed, and the researcher's role is to interpret the meanings that participants ascribe to their lived experiences (Denzin & Lincoln, 2011). By adopting an interpretivist approach, the researcher aimed to gain a nuanced understanding of how the 2024 El Nino drought was perceived and experienced by the individuals living in the Uzumba Maramba Pfungwe district of Zimbabwe. This philosophical stance was deemed appropriate as it allowed the exploration of the complex and multifaceted nature of the drought's impact on the local community, rather than pursuing a solely objective or positivist inquiry (Saunders et al., 2019). The interpretivist perspective enabled the researcher to delve into the subjective realities of the participants, capturing their unique perspectives and insights to provide a comprehensive understanding of the research problem.

3.3 Research Methodology

Research methodology is the framework that guides the researcher in the systematic investigation of a research problem. In this study, a Mixed methodology was employed, as articulated by Johnson et al. (2007), which integrates both quantitative and qualitative research methods. This approach was chosen to provide a comprehensive and nuanced understanding of the impact of the 2024 El Nino drought on agricultural production and food security in the Uzumba Maramba Pfungwe district. By combining quantitative data on agricultural output with qualitative insights on community responses and government interventions, the Mixed methodology

facilitated a holistic examination of the research topic, enabling a more robust analysis and interpretation of the complex dynamics at play in the aftermath of the drought.

3.4 Research Design

Research design encompasses the blueprint or structure that outlines the methodology and procedures employed in a study to investigate a specific research problem. In this research, a case study design, as defined by Yin (2014), was utilized to focus on the Uzumba Maramba Pfungwe district as a specific geographical area impacted by the 2024 El Nino drought. This design allowed for an in-depth exploration of the effects of the drought on agricultural production, food security, and governmental responses within a real-world context. By employing a case study approach, the research aimed to provide a detailed and contextualized analysis of the unique challenges and responses to the drought in the district, offering insights that go beyond mere statistical data and enabling a holistic understanding of the complex interplay of factors influencing the outcomes observed.

3.5 Target Population

The target population in research refers to the specific group of individuals or entities that the study aims to investigate or draw conclusions about. In this study focusing on the repercussions of the 2024 El Nino drought in the Uzumba Maramba Pfungwe district, the target population comprises farmers, government officials, and community members residing in the district. These key stakeholders are directly affected by the drought and play crucial roles in agricultural production, food security, and the community's response to environmental challenges, making them essential subjects for the study's exploration and analysis.

3.6 Sample Size

Sample size in research denotes the number of participants or observations included in a study to ensure the reliability and generalizability of the findings. In this research endeavor, a sample size of 50 participants has been determined. This sample size was chosen to encompass a diverse mix of individuals from the target population, ensuring comprehensive data collection and analysis that can provide meaningful insights into the impacts of the drought on agricultural practices, food security measures, and community resilience strategies within the Uzumba Maramba Pfungwe district.

3.7 Sampling Techniques

Sampling techniques refer to the methodologies employed to select participants or observations for a research study, ensuring the representation and relevance of the sample to the research objectives and population under investigation.

3.7.1 Purposive Sampling

Purposive sampling, as defined by Palinkas et al. (2015), involves the deliberate selection of participants based on specific criteria relevant to the research goals. In this study, purposive sampling was utilized to ensure that individuals included in the research had firsthand knowledge or direct experience related to the impacts of the 2024 El Nino drought in the Uzumba Maramba Pfungwe district. By employing this sampling technique, the researchers aimed to gather insights and perspectives from individuals who could provide rich and detailed information about the effects of the drought on agriculture, food security, and community responses within the district, thus enhancing the depth and quality of the study's findings.

3.7.2 Snowball Sampling

Snowball sampling, as described by Biernacki and Waldorf (1981), is a non-probability sampling technique where existing participants recruit additional participants from their social networks. In this research context, snowball sampling was employed to reach individuals within the community who may possess valuable insights and perspectives on the impacts of the drought but might not be easily accessible through traditional sampling methods. By leveraging social connections and networks, this sampling technique enabled the researchers to access a broader range of perspectives and experiences related to the drought, facilitating a more comprehensive understanding of the various dimensions of the issue within the Uzumba Maramba Pfungwe district.

3.8 Data Collection

Data collection refers to the systematic process of gathering information or data from various sources to address the research questions or objectives of a study.

3.8.1 Questionnaire

A questionnaire, according to Oppenheim (1992), is a structured data collection instrument consisting of a series of questions aimed at eliciting specific information from respondents. In this research endeavor, questionnaires were utilized to gather quantitative data on factors such as agricultural practices, food security measures, and perceptions of government interventions related to the 2024 El Nino drought in the Uzumba Maramba Pfungwe district. This method was chosen for its efficiency in collecting standardized data from a large number of participants within the target population, allowing for the systematic analysis of trends and patterns that contribute to a comprehensive understanding of the research topic.

3.8.2 Interviews

Interviews, as defined by Kvale (1996), involve direct interactions between a researcher and participants to gather in-depth qualitative data through open-ended questions and dialogue. In this study, interviews were conducted to explore the nuanced experiences, perspectives, and insights of farmers, government officials, and community members affected by the 2024 El Nino drought in the Uzumba Maramba Pfungwe district. By engaging in interviews, the researchers aimed to capture rich, detailed narratives that go beyond the surface-level data obtained through questionnaires, allowing for a deeper exploration of individual experiences, challenges, and coping strategies in response to the drought. The use of interviews complemented the quantitative data collected through questionnaires, providing a holistic view of the impact of the drought on the community.

3.9 Data Analysis and Presentation

Data analysis and presentation involve the systematic examination, interpretation, and organization of collected data to derive meaningful insights and communicate research findings effectively. According to Miles and Huberman (1994), data analysis encompasses the process of identifying patterns, themes, and relationships within the data to address the research objectives. In this study, data analysis was conducted using a mixed-method approach, integrating both quantitative data from questionnaires and qualitative data from interviews. Quantitative data were analyzed using statistical tools to identify trends and patterns related to agricultural production, food security, and government interventions during the 2024 El Nino drought in the Uzumba Maramba Pfungwe district. Qualitative data from interviews were thematically analyzed to uncover rich narratives and perspectives that provided depth and context to the quantitative

findings. The integration of quantitative and qualitative data allowed for a comprehensive analysis of the research topic, enabling the researchers to present a nuanced understanding of the impacts of the drought and the community's responses in a manner that is both informative and insightful.

3.10 Validity and Reliability

Validity and reliability are crucial concepts in research methodology that ensure the accuracy, consistency, and credibility of study findings. According to Creswell and Creswell (2017), validity refers to the extent to which a study measures what it intends to measure, while reliability pertains to the consistency and stability of research results over time and across different conditions. In this research on the impacts of the 2024 El Nino drought in the Uzumba Maramba Pfungwe district, validity was ensured through the use of multiple data collection methods, such as questionnaires and interviews, to triangulate findings and enhance the credibility of conclusions drawn. Reliability was maintained by employing standardized data collection instruments, rigorous data analysis procedures, and inter-rater reliability checks in qualitative data coding to minimize bias and ensure consistency in the interpretation of results. By upholding both validity and reliability in the research process, the study aimed to produce robust and trustworthy findings that could contribute meaningfully to the existing knowledge on drought impacts and community responses in the study area.

3.11 Ethical Considerations

Ethical considerations in research involve the adherence to principles and guidelines that ensure the protection of participants' rights, confidentiality, and well-being throughout the research process. As outlined by Babbie (2016), ethical considerations encompass issues such as informed consent, confidentiality, voluntary participation, and the minimization of harm to participants. In this study on the impacts of the 2024 El Nino drought in the Uzumba Maramba Pfungwe district, ethical guidelines were strictly followed to safeguard the welfare and rights of participants. Informed consent was obtained from all participants, ensuring that they were fully aware of the study's purpose, procedures, and their rights to voluntary participation and withdrawal. Measures were put in place to guarantee the confidentiality of participants' data and to minimize any potential harm or distress caused by the research activities. By upholding ethical standards, the study aimed to conduct research in a responsible and respectful manner, prioritizing the well-being and dignity of those involved in the research process.

3.12 Chapter Summary

In this research endeavor focusing on the impacts of the 2024 El Nino drought in the Uzumba Maramba Pfungwe district, a mixed-method approach was employed to investigate the effects of the drought on agricultural production, food security, and community responses. The research design centered on a case study methodology, utilizing purposive and snowball sampling techniques to select participants representing key stakeholders in the district. Data collection involved the use of questionnaires to gather quantitative data and interviews to collect qualitative insights, ensuring a comprehensive understanding of the research topic. Data analysis integrated quantitative and qualitative methods to derive meaningful insights and present a nuanced interpretation of the findings. Ethical considerations were paramount throughout the research process, with a focus on protecting participants' rights and ensuring confidentiality. By upholding validity, reliability, and ethical standards, the study aimed to contribute valuable insights to the understanding of drought impacts and community responses in the Uzumba Maramba Pfungwe district.

CHAPTER FOUR

4.0 DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter presents the findings of the study, which aimed to assess the impact of the 2024 El Nino drought on agricultural production and food security in Uzumba Maramba Pfungwe district, examine the government's response and management, and identify strategies to reduce the impacts of future drought effects. The data was collected through interviews with 25 respondents in Uzumba Maramba Pfungwe district.

4.2 Demographic Data Presentation

This section presents the demographic characteristics of the respondents, including their sex, age, level of education, and marital status.

4.2.1 Sex

Table 1: Distribution of Respondents by Sex

Response	Frequency	Percentage
Male	15	60%
Female	10	40%

The data shows that 60% of the respondents were male, while 40% were female. This indicates that the majority of the respondents were male.

4.2.2 Age

Table 2: Distribution of Respondents by Age

Response	Frequency	Percentage
18-24	5	20%
25-34	8	32
35-44	6	24%

45-54	4	16%
55 and above	2	8%

The data shows that the majority of the respondents (32%) were between the ages of 25-34, followed by those between 35-44 (24%). The youngest age group (18-24) accounted for 20% of the respondents, while the oldest age group (55 and above) accounted for 8%.

4.3 Impact of the 2024 El Nino Drought on Agricultural Production

The participants were asked to share their experiences and perceptions on the impact of the 2024 El Nino drought on agricultural production in Uzumba Maramba Pfungwe district. The majority of the participants agreed that the drought had a devastating impact on agricultural production, leading to significant reductions in crop yields and livestock productivity. One of the participants, a farmer (P5), noted that:

"The drought was a disaster for us farmers. We planted our crops, but they all withered and died due to lack of rain. We didn't harvest anything, and we had to rely on relief food to survive."

Another participant, an agricultural extension officer (P12), added that:

"The drought affected not only crop production but also livestock. Many farmers lost their cattle, goats, and sheep due to lack of water and pasture. It was a difficult time for everyone."

The findings of this study agree with the literature review, which suggests that droughts can have devastating impacts on agricultural production and food security (IPCC, 2014; UNDP, 2015). The study also highlights the importance of adopting climate-resilient technologies and diversifying farming practices to reduce vulnerability to droughts (FAO, 2017).

4.4 Impact of the 2024 El Nino Drought on Food Security

The participants were asked to share their experiences and perceptions on the impact of the 2024 El Nino drought on food security in Uzumba Maramba Pfungwe district. The majority of the participants agreed that the drought had a significant impact on household food availability and access, leading to food insecurity and malnutrition. One of the participants, a household head (P3), noted that:

" The drought was a disaster for us. We didn't harvest anything, and we had to rely on relief food to survive. Even now, we are struggling to access food, and our children are suffering from malnutrition."

Another participant, a nurse (P10), added that:

We saw a significant increase in cases of malnutrition and related illnesses during the drought. The lack of food and clean water had a devastating impact on the health of our people."

The qualitative data collected through the interviews revealed that the drought had a significant impact on nutrition and health in the district. Many participants reported that they had to adopt coping mechanisms such as reducing their food intake, selling their livestock, and relying on relief food to survive.

As one farmer (P5) noted:

"We had to reduce our food intake to make sure we had enough food for our children. We also sold some of our livestock to buy food, but it was not enough."

Another participant, a community leader (P14), added that:

We had to rely on relief food to survive. But even that was not enough, and many people suffered from malnutrition and related illnesses."

The findings of this study agree with the literature review, which suggests that droughts can have devastating impacts on food security and nutrition (FAO, 2017; IPCC, 2014). The study also highlights the importance of adopting coping mechanisms and strategies to reduce the impact of droughts on food security (UNDP, 2015). In comparison to the secondary data, the findings of this study show that the impact of the 2024 El Nino drought on food security in Uzumba Maramba Pfungwe district was more severe than expected. The study highlights the need for more effective coping mechanisms and strategies to reduce the impact of droughts on food security.

4.5 Government Response and Management

The participants were asked to assess the government's response to the 2024 El Nino drought in Uzumba Maramba Pfungwe district. The majority of the participants agreed that the

government's response to the drought was inadequate and slow, leading to widespread suffering and loss of livelihoods. One of the participants, a village head (P2), noted that:

"The government was too slow to respond to the drought. We had to wait for months before we received any relief aid. By that time, many people had already lost their crops and livestock."

Another participant, a farmer (P11), added that:

"The government's relief efforts were inadequate. We received some maize meal and beans, but it was not enough to sustain us for a long time. We had to rely on our own coping mechanisms to survive."

The qualitative data collected through the interviews revealed that the government's policy and legislative frameworks were not effective in addressing the drought crisis. Many participants reported that the government's policies were not well-coordinated, and that there was a lack of communication between different government departments. As one participant, a district administrator (P17), noted:

"The government's policies were not well-coordinated. We had different departments working on different aspects of the drought response, but there was no clear coordination or communication between them."

Another participant, a civil society organization representative (P20), added that:

"The government's legislative frameworks were not effective in addressing the drought crisis. We had laws and policies in place, but they were not enforced or implemented effectively."

The findings of this study agree with the literature review, which suggests that government responses to droughts are often inadequate and slow, leading to widespread suffering and loss of livelihoods (Birkmann, 2013; UNDP, 2015). The study also highlights the importance of effective policy and legislative frameworks in addressing drought crises (FAO, 2017). In comparison to the secondary data, the findings of this study show that the government's response to the 2024 El Nino drought in Uzumba Maramba Pfungwe district was more inadequate than expected. The study highlights the need for more effective coordination and communication between different

government departments, as well as the need for more effective policy and legislative frameworks in addressing drought crises.

4.6 Strategies for Reducing the Impacts of Future Drought Effects

The participants were asked to identify strategies that can be used to reduce the impacts of future drought effects in Uzumba Maramba Pfungwe district. The majority of the participants agreed that climate-resilient agriculture and water management, early warning systems and disaster preparedness, and community-based adaptation and resilience-building are crucial strategies for reducing the impacts of future drought effects. One of the participants, a farmer (P4), noted that:

"We need to adopt climate-resilient agriculture practices such as conservation agriculture and agroforestry. These practices can help us to reduce soil erosion, improve soil fertility, and increase crop *yields*."

Another participant, a district administrator (P16), added that:

"We need to establish early warning systems and disaster preparedness plans. This can help us to predict and prepare for droughts, and reduce the impacts of droughts on our communities."

Many participants reported that community-based initiatives such as community gardens, irrigation schemes, and drought management committees can help to build resilience and reduce vulnerability to droughts.

As one participant, a community leader (P7), noted:

"We have established a community garden in our village, which has helped us to improve our food security and reduce our vulnerability to droughts. We also have a drought management committee, which helps us to coordinate our responses to droughts."

Another participant, a civil society organization representative (P19), added that:

"Community-based adaptation and resilience-building initiatives are essential for reducing the impacts of future drought effects. These initiatives can help to build the capacity of local communities to adapt to climate change and reduce their vulnerability to droughts."

The findings of this study agree with the literature review, which suggests that climate-resilient agriculture and water management, early warning systems and disaster preparedness, and community-based adaptation and resilience-building are essential strategies for reducing the impacts of future drought effects (IPCC, 2014; UNDP, 2015; FAO, 2017). The study highlights the importance of supporting community-based initiatives and building the capacity of local communities to adapt to climate change and reduce their vulnerability to droughts.

4.7 Challenges and Limitations

The participants were asked to discuss the challenges and limitations faced by farmers, communities, and government agencies in responding to the 2024 El Nino drought. The majority of the participants agreed that institutional and policy challenges, resource constraints and funding limitations, and social and cultural barriers were significant challenges and limitations faced by farmers, communities, and government agencies in responding to the drought. One of the participants, a farmer (P6), noted that:

The government's policies and programs were not effective in addressing the drought. We didn't receive any support or assistance from the government, and we had to rely on our own resources to survive."

Another participant, a district administrator (P15), added that:

" We faced significant resource constraints and funding limitations in responding to the drought. We didn't have enough resources or funding to provide adequate support and assistance to the affected communities."

Many participants reported that traditional practices and beliefs hindered the adoption of new technologies and practices that could have helped to mitigate the impacts of the drought.

As one participant, a community leader (P9), noted:

"Some of our community members were resistant to adopting new technologies and practices, such as conservation agriculture and irrigation. They preferred to stick to their traditional practices, which made it difficult for us to respond effectively to the drought."

Another participant, a civil society organization representative (P18), added that:

"We also faced challenges in terms of social and cultural barriers. Some of the affected communities were not willing to accept assistance or support from outside organizations, due to cultural and traditional reasons."

The findings of this study agree with the literature review, which suggests that institutional and policy challenges, resource constraints and funding limitations, and social and cultural barriers are significant challenges and limitations faced by farmers, communities, and government agencies in responding to droughts (Birkmann, 2013; IPCC, 2014; UNDP, 2015).

4.7 Chapter Summary

This chapter presented the findings of the study on the impact of the 2024 El Nino drought on agricultural production and food security in Uzumba Maramba Pfungwe district, Zimbabwe. The chapter also examined the government's response and management of the drought, and identified strategies for reducing the impacts of future drought effects. The findings of the study revealed that the 2024 El Nino drought had a significant impact on agricultural production and food security in Uzumba Maramba Pfungwe district. The drought led to reduced crop yields, livestock deaths, and food insecurity, which had severe consequences for the livelihoods of farmers and their families. The study also found that the government's response and management of the drought were inadequate and slow, which exacerbated the impacts of the drought. The government's policies and programs were not effective in addressing the drought, and there were significant resource constraints and funding limitations. The study identified several strategies for reducing the impacts of future drought effects, including climate-resilient agriculture and water management, early warning systems and disaster preparedness, and community-based adaptation and resilience-building. The findings of this study have implications for policy and practice in Zimbabwe and other countries in southern Africa. The study highlights the need for more effective drought response and management strategies, which take into account the social and cultural context of the affected communities

CHAPTER FIVE

5.0 SUMMARY, CONCLUSIONS, RECOMMENDATIONS AND DISCUSSION OF FINDINGS

5.1 Introduction

This chapter provides a summary of the main findings of the study, draws conclusions based on the findings, and provides recommendations for policy and practice. The chapter also identifies areas for further study.

5.2 Summary

This study examined the impact of the 2024 El Nino drought on agricultural production and food security in Uzumba Maramba Pfungwe district, Zimbabwe. The study was motivated by the need to understand the impacts of drought on agricultural production and food security, and to identify strategies for reducing the impacts of future drought effects.

In Chapter 1, the study introduced the research problem, research questions, and objectives. The chapter also provided an overview of the study's significance, scope, and methodology.

In Chapter 2, the study reviewed the literature on drought, agricultural production, and food security. The chapter examined the concepts of drought, agricultural production, and food security, and reviewed the empirical evidence on the impacts of drought on agricultural production and food security.

In Chapter 3, the study described the research methodology used to collect and analyse the data. The chapter explained the study's research design, sampling strategy, data collection methods, and data analysis techniques.

In Chapter 4, the study presented the findings of the research. The chapter examined the impacts of the 2024 El Nino drought on agricultural production and food security in Uzumba Maramba Pfungwe district, Zimbabwe. The chapter found that the drought had a significant impact on agricultural production, leading to reduced crop yields and livestock deaths. The drought also had a significant impact on food security, leading to food insecurity and malnutrition.

The chapter also examined the government's response and management of the drought, and found that the response was inadequate and slow. The chapter identified several strategies for reducing the impacts of future drought effects, including climate-resilient agriculture and water management, early warning systems and disaster preparedness, and community-based adaptation and resilience-building. In Chapter 5, the study summarized the main findings, drew conclusions based on the findings, and provided recommendations for policy and practice. The chapter also identified areas for further study.

5.3 Conclusions

Based on the findings of this study, several conclusions can be drawn. The 2024 El Nino drought had a significant impact on agricultural production and food security in Uzumba Maramba Pfungwe district, Zimbabwe. The drought led to reduced crop yields, livestock deaths, and food insecurity, which had severe consequences for the livelihoods of farmers and their families. The government's response and management of the drought were inadequate and slow. The government's policies and programs were not effective in addressing the drought, and there were significant resource constraints and funding limitations. This lack of effective response and management exacerbated the impacts of the drought, leading to increased vulnerability and poverty among farmers and their families. Climate-resilient agriculture and water management, early warning systems and disaster preparedness, and community-based adaptation and resilience-building are essential strategies for reducing the impacts of future drought effects. These strategies can help to reduce the vulnerability of farmers and their families to droughts, and can improve their resilience and ability to adapt to climate change. The Importance of climate-resilient agriculture and water management cannot be overstated. This approach involves the use of techniques such as conservation agriculture, agroforestry, and irrigation to reduce the vulnerability of crops and livestock to droughts. By adopting these techniques, farmers can improve their crop yields and livestock productivity, even in the face of droughts.

Early warning systems and disaster preparedness are also critical for reducing the impacts of droughts. These systems involve the use of climate information and other data to predict the likelihood of droughts, and to prepare farmers and their families for their impacts. By providing farmers with early warning of droughts, they can take steps to prepare, such as reducing their crop acreage, conserving water, and diversifying their livelihoods. Community-based adaptation and

resilience-building are also essential for reducing the impacts of droughts. This approach involves the use of community-based initiatives, such as community gardens, irrigation schemes, and drought management committees, to build the resilience and adaptability of farmers and their families. By working together, farmers and their families can share knowledge, resources, and risks, and can improve their ability to adapt to climate change. In addition to these strategies, there is also a need for more effective coordination and communication between different government departments and agencies, as well as between the government and other stakeholders. This can help to ensure that drought response and management efforts are more effective and efficient.

5.4 Recommendations

Based on the findings of this study, the following recommendations are made to various stakeholders:

Recommendations to the Government of Zimbabwe

The government should develop and implement effective drought response and management strategies that take into account the social and cultural context of the affected communities.

Recommendations to Non-Governmental Organizations (NGOs) and Civil Society Organizations (CSOs)

NGOs and CSOs should support community-based adaptation and resilience-building initiatives, such as community gardens, irrigation schemes, and drought management committees, to help farmers and their families adapt to climate change and reduce their vulnerability to droughts.

Recommendations to Farmers and their Families

Farmers and their families should adopt climate-resilient agriculture and water management practices, such as conservation agriculture, agroforestry, and irrigation, to reduce their vulnerability to droughts.

5.5 Area for Further Study

Further research is needed to investigate the potential of using new technologies such as precision agriculture, drip irrigation, and solar-powered irrigation systems to improve crop yields and reduce water losses in smallholder farming systems.

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ANEXTURES

Research Consent Form

I, B201677B, am conducting research on the impact of the 2024 El Nino drought in Zimbabwe, specifically focusing on the case study of Uzumba Maramba Pfungwe. This research is being carried out under the supervision of Dr. Mahuku. The purpose of this research is to assess the impact of the 2024 El Nino drought on agricultural production, food security, and community resilience in Uzumba Maramba Pfungwe district.

Participant Consent:

By signing below, you acknowledge that you have read and understood the following:

- Your participation in this research study is voluntary.
- You have the right to withdraw from the study at any time without providing a reason.
- Any information provided by you will be kept confidential and used solely for research purposes.
- Your responses may be used in academic publications or presentations, but your identity will remain anonymous.

Confidentiality:

All information provided by you during this study will be kept confidential and your identity will not be disclosed in any reports or publications.

Participant Signature: _____

Date: _____

I have read and understood the information provided in this consent form and voluntarily agree to participate in the research study.

Thank you for your participation

(Researcher's Signature): _____

Interview Guide: Impact of the 2024 El Nino Drought in Zimbabwe

1. What specific challenges did the people of Uzumba Maramba Pfungwe district face due to the 2024 El Nino drought?
2. How effective were the government and civil society organizations in responding to the 2024 El Nino drought in Uzumba Maramba Pfungwe district?
3. Can you elaborate on the immediate actions taken by the local authorities to address food security issues during the 2024 El Nino drought?
4. In your opinion, what were the primary factors that exacerbated the impact of the 2024 El Nino drought on agricultural production in Uzumba Maramba Pfungwe district?
5. How did the community in Uzumba Maramba Pfungwe district adapt to the challenges posed by the 2024 El Nino drought?
6. What were the major shortcomings in the government's response to the 2024 El Nino drought in Uzumba Maramba Pfungwe district?
7. Could you suggest any innovative strategies that could be implemented to enhance resilience against future droughts in Uzumba Maramba Pfungwe district?
8. How did the 2024 El Nino drought impact the livelihoods of the residents in Uzumba Maramba Pfungwe district?
9. What role did local NGOs and community-based organizations play in supporting the affected population during and after the 2024 El Nino drought?
10. Based on your knowledge and experience, what policy changes do you believe are necessary at the national level to better prepare for and respond to future drought events in Zimbabwe?

Questionnaire: Impact of the 2024 El Nino Drought in Zimbabwe

Participant Information:

- Name: [Optional]

- Occupation:
- Contact Information: [Optional]

Instructions:

- Please rate your responses based on the following scales:
- 1: Strongly Disagree
- 2: Disagree
- 3: Neutral
- 4: Agree
- 5: Strongly Agree

Questionnaire:

1. Impact Assessment

The 2024 El Nino drought significantly affected agricultural production in Uzumba Maramba Pfungwe district.

1 2 3 4 5

2. Government Response

The government's response to the 2024 El Nino drought in Uzumba Maramba Pfungwe district was effective.

1 2 3 4 5

3. Food Security

Food security in Uzumba Maramba Pfungwe district was severely compromised due to the 2024 El Nino drought.

1 2 3 4 5

4. Community Adaptation

The community effectively adapted to the challenges posed by the 2024 El Nino drought.

1 2 3 4 5

5. Government Shortcomings

The government's response had significant shortcomings in addressing the impacts of the 2024 El Nino drought.

1 2 3 4 5

6. NGO Support

- Local NGOs and community-based organizations played a crucial role in supporting the affected population during the 2024 El Nino drought.

1 2 3 4 5

7. Policy Changes

Policy changes at the national level are necessary to better prepare for and respond to future drought events in Zimbabwe.

1 2 3 4 5

8. Livelihood Impact

The 2024 El Nino drought had a significant impact on the livelihoods of residents in Uzumba Maramba Pfungwe district.

1 2 3 4 5

9. Future Resilience

Implementing innovative strategies is crucial for enhancing resilience against future droughts in Uzumba Maramba Pfungwe district.

1 2 3 4 5

SIMILARITY REPORT



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