

**BINDURA UNIVERSITY OF SCIENCE EDUCATION
FACULTY OF SCIENCE AND ENGINEERING
DEPARTMENT OF DISASTER RISK REDUCTION**



An Assessment Of The Socio-Economic Impacts Of Cyclone Idai In Chimanimani District, Zimbabwe.

BY

Tinotenda Dhliwayo

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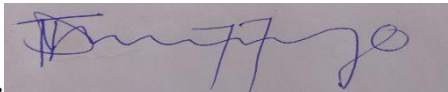
SUPERVISOR: DR MAVHURA

**DISSERTATION SUBMITTED TO BINDURA UNIVERSITY OF SCIENCE
EDUCATION IN PARTIAL FULFILMENT OF THE REQUIREMENTS OF THE
BACHELOR OF SCIENCE HONOURS DEGREE IN DISASTER MANAGEMENT
STUDIES**

DECLARATION

I declare that this dissertation is the product of my own work and that it has not been submitted before for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged as complete.

Signature ...



.....

Date ..30/05/2024....

1. APPROVAL FORM

The undersigned attests that they have read this project and have given their approval for its submission for marking after verifying that it complies with the standards of the Faculty of Science and Engineering and the Geography Department and HBSC DMS requirements.

SUPERVISOR

DATE

..... 

.....30/05/2024

DEDICATION

This piece of work is dedicated to my mother and all my family members for their unconditional love and support towards my academic achievements. This work was also carried out with the people of Chamanimani community at heart. Therefore I also dedicate this study to all Cyclone Idai survivors in Chimanimani District who directly and indirectly participated in this research work.

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ABSTRACT

This research study is an assessment of the socio-economic impacts of Cyclone Idai in Chimanimani district, Zimbabwe. The devastating cyclone struck the region in March 2019, causing widespread destruction and loss of life. Using a thematic analysis approach, this study examines the various ways in which the cyclone has affected the socio-economic landscape of the district. Data was collected through interviews, focus group discussions, and secondary sources such as reports and articles. The research adopted a mixed research paradigm where information was collected and analyzed qualitatively and quantitatively enabling the researcher to obtain in-depth information from respondents. Data was collected using questionnaires, interviews, key informant interviews and focus group discussions. The findings reveal that Cyclone Idai has had significant negative impacts on the livelihoods of the residents, including loss of homes, crops, and livestock. The cyclone has also exacerbated existing socio-economic inequalities in the district, with vulnerable populations such as women, children, and the elderly being disproportionately affected. The study concludes with recommendations for policy interventions to address the socio-economic impacts of natural disasters in the region and to build resilience among the affected communities. The research was motivated by the desire to contribute to the existing body of knowledge on cyclone disasters and their impacts on communities.

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Acronyms

OCHA:	United Nations Office of the Coordination of Humanitarian Affairs
UNDRR:	United Nations Office for Disaster Risk Reduction
DCP:	Department of Civil Protection

DRR:	Disaster Risk Reduction
NGOs:	Non-Governmental Organisations
WSBCSD:	World Business Council for Sustainable Development
UNICEF:	United Nations International Children’s Emergency Fund
DRM:	Disaster Risk Management
UNDP:	United Nations Development Programme
FAO:	Food and Agriculture Organisation
PAR:	Pressure and Release Model
EMA:	Environmental Management Agency
CRDC:	Chimanimani Rural District Council
FGDs:	Focus Group Discussions
DDC:	District Development Coordinator
IOM:	International Organisation for Migration

CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND

Cyclones, also referred to as hurricanes or typhoons depending on the region, are powerful natural disasters that can have serious socioeconomic consequences for the affected areas. These effects can be instant and long-term, affecting communities, economies, and

infrastructure. In this study, we will investigate the socioeconomic consequences of Cyclone Idai which hit Chimanimani district in March 2019 in Zimbabwe. Cyclone Idai had a severe destructive effect on the socioeconomic well-being of Chimanimani district population, displacing numerous people and causing them to lose their means of subsistence. The death toll and injuries caused by cyclones are among their most direct effects. Widespread destruction caused by cyclones can result in fatalities and injuries among the impacted populace. The United Nations Office of the Coordination of Humanitarian Affairs (OCHA) in 2020 said that Cyclone Idai had an impact on approximately 270,000 people in Zimbabwe. Chimanimani district is among the worst-hit districts in the country.

In addition to fatalities, cyclones can cause significant damage to infrastructure such as buildings, roads, and utilities. This can disrupt critical services like water and power, making it difficult for communities to recover and rebuild. According to a World Bank report (2018), the economic impacts of cyclones can be significant, with damages often totalling billions of dollars. Cyclones seriously damages roads, bridges, and schools, making it impossible for locals in to get basic services and for relief organisations to operate. The loss of crops and cattle as an impact of cyclones can have devastating impact on the local economy, causing many farmers to face food shortages and a reduction in income. Furthermore, cyclones can have long-term consequences for the economy of the impacted areas. Infrastructure destruction and service disruptions can reduce economic activity, notably in agriculture, tourism, and manufacturing. This can lead to employment losses, lower incomes, and increasing poverty among the afflicted people. According to Hallegatte et al. (2017), the economic repercussions of cyclones can last for years, with some towns unable to recover and rebuild. Cyclones can have both immediate and long-term societal consequences for affected communities. Cyclones frequently cause displacement, loss of livelihood, and psychological anguish, especially among vulnerable populations like the impoverished, elderly, and children. According to a 2019 research from the United Nations Office for Disaster Risk Reduction (UNDRR), cyclones can worsen existing social inequities and vulnerabilities, making it difficult for communities to recover and rebuild.

According to research, government and NGO reports about Cyclone Idai, in the aftermath of the cyclone, local communities in Chimanimani were faced with a range of challenges, including damaged homes, disrupted access to basic services, and limited access to clean water and sanitation. The disaster is also believed to have exposed the inadequacies of the local government's disaster response mechanisms, highlighting the need for improved coordination

and communication among different parties engaged in disaster management in the country. Examining the socioeconomic impacts of Cyclone Idai in Chimanimani district with an emphasis on the difficulties locals encountered in the wake of the tragedy is the aim of this study. In order to shed light on the short and long-term impacts of Cyclone Idai in Chimanimani, this research will examine how the cyclone affected livelihoods, food security, and access to services.

1.2 SCOPE

The reason for conducting this study is to assess Cyclone Idai's socioeconomic effects on Zimbabwe's Chimanimani district. The cyclone's consequences on the local economy, particularly on livelihoods, infrastructure, and agriculture will be the main subject of the study. It will also look at the difficulties impacted communities had in getting over the calamity and starting afresh. Policymakers and other stakeholders may create efficient plans to aid the impacted populations and increase their resilience to future disasters by having a thorough grasp of the social and economic effects of Cyclone Idai hence the importance of this research.

1.3 PURPOSE

This study aims to give a thorough examination of Cyclone Idai's socioeconomic effects in Zimbabwe's Chimanimani area. The research also attempts to highlight the vulnerabilities of the impacted populations and find opportunities for intervention and support by looking at how the cyclone affects the local economy and way of life. The findings of this study will contribute to the existing knowledge base on resilience building and disaster management in relation to climate change and extreme weather occurrences in Zimbabwe.

1.4 JUSTIFICATION OF THE STUDY

This research topic is justified by the need to investigate Cyclone Idai's specific socioeconomic repercussions on Chimanimani district populations. By investigating these effects, we can learn about the impacted population's vulnerabilities and coping strategies, as well as the efficacy of response and recovery initiatives. This information is critical for influencing future disaster planning and response plans, as well as pushing for targeted assistance and resources for affected areas.

Furthermore, by investigating the societal and economic effects of Cyclone Idai in the Chimanimani district, we may add to the current body of information on disaster risk reduction and management in the context of climate change. This study can also give significant information for politicians, humanitarian groups, and development practitioners operating in disaster-prone areas, allowing them to improve the effectiveness and sustainability of their efforts. This study attempts to address these important issues to provide insight into the socioeconomic effects of Cyclone Idai in the Chimanimani district and to guide future efforts in the area to respond to and recover from disasters. A thorough investigation into the socioeconomic effects of Cyclone Idai is important, given the magnitude of the storm's effects on the Chimanimani district. Such a research would offer insightful information about the specific difficulties experienced by the impacted people as well as the degree of the damage inflicted by the cyclone. Through the documentation of the community's experiences following the cyclone, the study can offer significant insights for future efforts related to the preparation and response to disasters.

1.5 PROBLEM STATEMENT

The socioeconomic consequences of Cyclone Idai in Zimbabwe's Chimanimani district have not been comprehensively investigated, leaving a gap in knowing the depth of the disaster's damage and the long-term consequences for the impacted populations. The research was conducted to look into the socioeconomic impacts of Cyclone Idai in the Chimanimani district of Zimbabwe, concentrating on assessing the challenges faced by the affected population in rebuilding their lives and livelihoods, as well as identifying potential recovery and resilience-building strategies for future disasters.

1.6 AIM

The study's main aim is to assess Cyclone Idai's socio-economic impacts in Chimanimani district.

1.7 SPECIFIC OBJECTIVES

The study's specific goals are:

- (i) To examine the extent of the socio-economic impact of Cyclone Idai which made landfall in Chimanimani, Zimbabwe in March 2019?
- (ii) To analyze the factors that led to the socio-economic losses in Chimanimani district.
- (iii) To determine the coping strategies used by the Chimanimani district community to deal with the cyclone effects.

1.8 RESEARCH QUESTIONS

- (i) What are the socio-economic consequences of Cyclone Idai on the communities impacted by the disaster in Chimanimani district?
- (ii) Which factors increased the extent of damage caused by the cyclone?
- (iii) What coping mechanisms were employed by the affected population in response to Cyclone Idai in Chimanimani district?
- (iv) What other support systems were provided by other stakeholders to improve the welfare of affected people in Chimanimani district?

1.9 DEFINITION OF KEY TERMS

Socio-economic impacts: The World Business Council for Sustainable Development defined socioeconomic impact as a far ranging term that refers to overall effects on social and economic aspects of the population, including changes in standards of living, opportunities, capabilities or resources (WBCSD 2020).

Disaster: According to the UNDRR (2017), a disaster is a serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts. This final stage refers to the actual impact of the disaster, including its human, social, economic, and environmental consequences. This stage can also include the response and recovery efforts that are undertaken to address the effects of the disaster.

Cyclone: The World Meteorological Organization referred to a cyclone as a large-scale air mass that rotates around a strong centre of low atmospheric pressure, typically characterized by inward spiralling winds that rotate counter clockwise in the Southern Hemisphere (WMO 2017).

1.10 CHAPTER SUMMERY

This chapter provided a detailed summary of the research, concentrating on the main goals and objectives of the study. It examined key issues that set the stage for the study, including background information, the problem statement and the rationale for the study. It also defined the key terms in the research project.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

Cyclones are natural disasters that can have devastating socio-economic impacts on communities, particularly in developing countries like Zimbabwe. These impacts can include loss of life, destruction of infrastructure, disruption of livelihoods, and long-term economic

consequences. In recent years, Zimbabwe has experienced several cyclones that have had significant effects on the country's population and economy. Zimbabwe has experienced natural disasters such as cyclone and floods in the past. Despite having experienced other cyclones like cyclone Eline and Dineo, Cyclone Idai remains the most devastating and dangerous due to the extensive damage it caused in Chimanimani and Chipinge districts, as well as other parts of Zimbabwe (Chatiza 2019). Approximately 340 individuals perished due to the effects of cyclone Idai, with some fatalities resulting from collapsed buildings and others being swept away by floodwaters from rivers, roads and streams. The cyclone also caused extensive damage to property, facilities and the road network (Chatiza 2019). Around the world, climate change is having unprecedented effects on societies. It is therefore important to carry out this research so as to document cyclone Idai's socioeconomic impacts specifically focusing on Chimanimani as a district. This literature review will focus on the description of study area, conceptual framework and a review of existing literature on the socioeconomic effects of Cyclone Idai in the Chimanimani district.

2.2 CONCEPTUAL FRAMEWORK: THE PRESSURE AND RELEASE MODEL

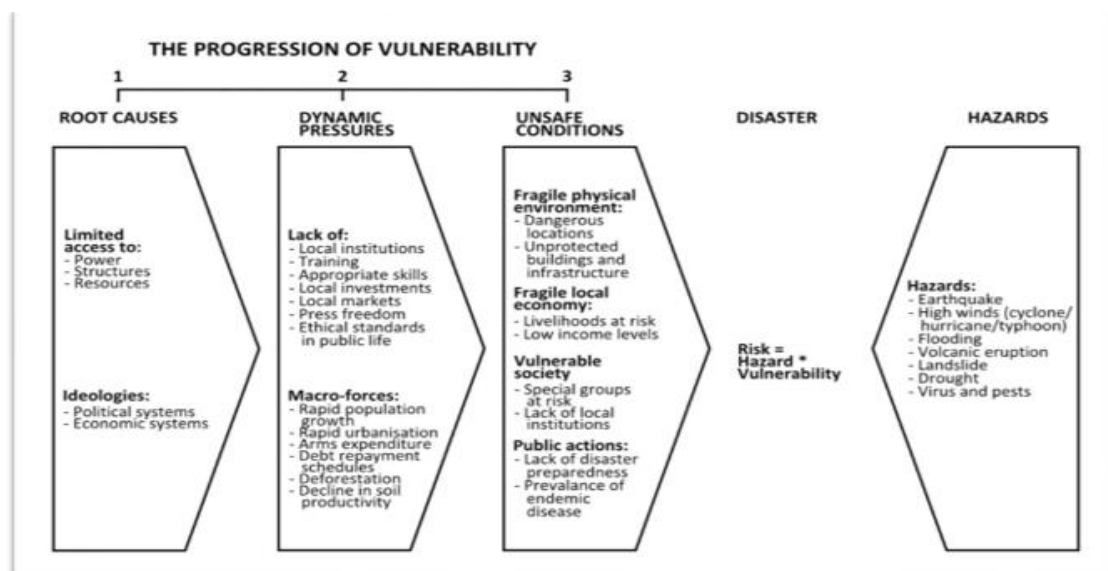
One model that can be used to explore the socio-economic impacts of cyclones is the Pressure and Release (PAR) Model originally known as the disaster crunch model. This framework focuses on understanding how different factors that interact to shape the impacts of natural disasters like cyclones. The model considers how pre-existing vulnerabilities, such as poverty, inequality, and lack of access to resources, can increase a community's susceptibility to the impacts of cyclones. It also looks at the capacity of individuals, communities, and institutions to prepare for, respond to, and recover from cyclones, including factors like infrastructure, social networks, and governance structures. The pressure and release model which is used for disaster vulnerability was developed by Blaikie, Cannon, Davis, and Wisner in their book "At Risk: Natural Hazards, People's Vulnerability, and Disasters" (1994). This model suggests that the exposure to disasters is caused by both external pressures and internal conditions within a society. According to the authors, external pressures refer to the physical and environmental factors that increase the likelihood of a disaster occurring, such as natural hazards like

earthquakes, floods, or hurricanes. These external pressures can be exacerbated by human activities, such as deforestation, urbanization, or climate change, which can increase the frequency and severity of disasters. On the other hand, internal conditions refer to the social, economic, and political factors within a society that determine how vulnerable people are to disasters. These internal conditions include poverty, inequality and insufficient availability of resources, insufficient infrastructure, and ineffective governance. These factors can increase people's exposure to disasters and limit their ability to cope and recover from them. The pressure and release model suggests that vulnerability is a result of the interaction between external pressures and internal conditions. When external pressures exceed a society's capacity to cope, disasters occur. The model emphasizes the importance of addressing both the root causes of vulnerability (internal conditions) and the immediate triggers of disasters (external pressures) in order to reduce disaster risk.

Figure 2.2.1 Disaster Crunch Model

Source: (Winser, 2004.

P47)



2.3 THE SOCIOECONOMIC IMPACTS OF CYCLONES.

Tropical cyclones caused damage totalling USD 2111 billion between 1980 and 2018, accounting for almost half of all natural hazard-related disaster losses globally, according to Munich Re (2018). According to Kunze (2021), they are among the most damaging natural hazards in the world. Indeed, most countries are susceptible to natural disasters because of their geographic location (Klomp and Valckx 2014). In the Chimanimani district, Cyclone Idai severely damaged people's means of livelihoods (Chatiza, 2019). People's livelihoods and sources of employment were damaged when cyclone Idai struck the Chimanimani district, affecting both formal and informal enterprises (RINA, 2019). Many business owners had their workshops and market booths destroyed, and their trade tools washed away by the flood. Cyclone Idai destroyed the businesses, industries, and social amenities that the people of Ngangu and Kopa relied on for their daily necessities. In the impacted areas, the abrupt water surge completely or partially submerged some houses, resulting in their destruction (Government of Zimbabwe, 2019). People's monetary savings and supplies of grains were consequently either polluted or lost (Chatiza, 2019). The elimination of economic safety nets had a detrimental impact on survivors' ability to get necessities such as shelter, water, education, medical facilities and food.

Zimbabwe, which frequently experiences natural catastrophes including tropical cyclones, droughts, and floods, has not been spared from the immense destruction and displacement caused by cyclones. Climate change is predicted to increase the frequency and intensity of these risks, with flooding brought on by cyclones being one of the greatest frequent and devastating disaster, causing half of all natural disaster fatalities (Rana and Routray 2018; Mhlanga et al. 2019). The two most recent tropical storms to hit Zimbabwe, storms Dineo in 2017 and Idai in 2019, both left a path of destruction and floods in their wake, posing socioeconomic problems for the local populace. From March 14 to 17, in 2019, Chimanimani district was struck by the catastrophic Cyclone Idai. A minimum of half of the residents of Chimanimani district, were severely affected by the strong winds and a lot of precipitation caused by the cyclone (UNICEF 2019). The cyclone triggered flash floods, and landslides, resulting in fatalities as well as the destruction of homes as well as loss of livelihoods. The Chimanimani District Development Coordinator said that Cyclone Idai caused the displacement of approximately 4000 people, while more than 325 persons were reported to be missing, and about 300 were lost (Matsvange

et al. 2020). Cyclone Idai effects proved that there are weaknesses in the disaster risk management (DRM) system of Zimbabwe in terms of both capacity and policy.

Cyclones have a significant socioeconomic impact, including the loss of infrastructure and property. According to Smith et al. (2018), cyclones can cause significant damage to buildings, roads, and utilities, disrupting transportation, communication, and access to key services. This destruction frequently causes large economic losses for impacted areas, as shown by Jones and Smith (2019) in their study on the economic repercussions of cyclones in poor nations. Mavhura et al. (2013) looked at Cyclone Eline's socioeconomic effects in Zimbabwe in one study. The cyclone severely damaged buildings, bridges, and other infrastructure, which disrupted communication and transportation networks, according to the researchers. For the impacted areas, the destruction of property, including homes and businesses, meant large financial losses. Chikodzi et al. (2018) concentrated on the impacts of Cyclone Idai in Zimbabwe as a whole in another study. The researchers emphasized how many people in informal settlements lost their houses and belongings as a result of cyclone-related dangers. The researchers found that the cyclone's socioeconomic effects on the impacted populations were worsened by the damage of infrastructure, such as water and sanitary services.

Regarding agriculture, cyclone Idai destroyed fertile land and agricultural infrastructure at smallholder irrigation schemes, which affected farmers and nearby populations who relied on agriculture and revenue from contract labour (RINA, 2019). Additionally, farmers lost their sheep, goats, chickens and cattle. In Zimbabwe, cyclones have been demonstrated to seriously harm agricultural infrastructure, including crops, animals, and irrigation systems (Mavhura et al., 2013). Cyclone Idai devastated approximately 250,000 hectares of crops in Zimbabwe in 2019, resulting in food shortages and financial losses for numerous farmers (UNDP, 2019). Moreover, cyclones have socioeconomic effects on Zimbabwean agriculture that go beyond simple crop devastation. The long-term effects of agricultural supply chain and market disruptions on livelihoods and food security may be significant. For example, Cyclone Idai's destruction of roads and bridges made it more difficult to get agricultural produce to markets, which increased prices and caused food insecurity in the impacted areas (FAO, 2019). Furthermore, Zimbabwe's smallholder farmers' susceptibility to cyclones exacerbates negative effects on agriculture. Due to their reliance on rain-fed agriculture, smallholder farmers are

especially vulnerable to crop losses and income shocks brought on by cyclones. Smallholder farmers encounter additional difficulties in recuperating from losses caused by cyclones due to restricted access to insurance and financial resources (Chikodzi et al., 2018).

Furthermore, a study by Chikodzi and Shumba (2019) found that cyclones in Zimbabwe have been demonstrated to inflict major damage to school infrastructure, resulting in school closures and disruptions to children's education. According to the report, Cyclone Idai, which devastated several schools in Zimbabwe in 2019, prevented many children from receiving an education for a considerable amount of time. Moreover, Cyclone Idai's socioeconomic effects on Zimbabwean education go beyond mere infrastructural destruction. According to a Mavhura et al. (2018) study, cyclones can also raise poverty rates in the impacted communities, which can impede children's access to school because of financial limitations. A study by Kabonga et al (2023) made clear that paying for school supplies, uniforms, and other educational costs was difficult for families hit by Cyclone Idai. Apart from causing harm to infrastructure and elevating poverty rates, cyclones can also have enduring psychological effects on educators and learners. Makoni et al.'s (2020) study which focused on the psychological effects of Cyclone Idai on Zimbabwean instructors as well as pupils discovered that many of them suffered from anxiety and trauma, which made it difficult for them to concentrate on their studies and teaching.

Individuals with disabilities are especially susceptible to physical constraints that could make it difficult for them to flee or get help during a storm. In Zimbabwe, people with disabilities encountered difficulties getting to shelters and getting the help they needed after Cyclone Idai, according to a research by Chireshe et al. (2019). This underscores the importance of inclusive plans for preparing and responding to disasters. In addition to bearing the brunt of caring for children and elderly family members, women are disproportionately harmed by cyclones. In addition, women may be more vulnerable to gender-based violence in areas hit by disasters. According to research by Mavhura et al. (2019), women in Zimbabwe were more likely to lose their livelihoods and experience food insecurity after Cyclone Idai, highlighting the need for gender-sensitive approaches to disaster relief efforts.

During cyclones, single parents are more likely to experience financial difficulty and displacement since they might not have the social and financial support of a partner. According to a research by Mutasa et al. (2020), single mothers in Zimbabwe struggled to reconstruct their

homes and means of subsistence following Cyclone Idai, underscoring the need of providing this vulnerable population with focused assistance programs. Because of their potential for reduced mobility, health problems, or other vulnerabilities that heighten their susceptibility to the disaster's effects, the elderly and children are also more vulnerable during cyclones. According to a study by Dube et al. (2020), the elderly and children in Zimbabwe were among the groups most impacted by Cyclone Idai, with many of them suffering from trauma, being uprooted from their homes, and losing close ones. Individuals with Disabilities During cyclones, people with disabilities are among the most vulnerable groups because they may have trouble getting to evacuation shelters, getting timely warnings, and getting access to necessary services. According to a study by Mavhura et al. (2019), Zimbabwe's disabled population had a tough time leaving the country during Cyclone Idai because there was a shortage of support services and inaccessible transportation. As a result, this group experienced greater rates of injury and death than the overall population.

The increased danger of waterborne illnesses is one of the main effects of cyclones on Zimbabwe's health. Flooding brought on by cyclones can contaminate water sources and accelerate the development of illnesses like typhoid and cholera. According to a study by Mberikunashe et al. (2019), cholera was reported in over 1000 cases in Zimbabwe following the 2008 Cyclone Jokwe. This study will also examine Cyclone Idai's health impacts in Chimanimani district. The danger of disease transmission during and after storms is increased by the lack of access to sanitary facilities and clean water. Moreover, people impacted by cyclones may experience mental health effects. Stress, anxiety, and depression can rise as a result of the trauma of going through a natural disaster and losing one's house and means of subsistence. According to a research by Chikodzi et al. (2020), survivors of Zimbabwe's 2019 Cyclone Idai experienced serious mental health effects, with many of them exhibiting signs of post-traumatic stress disorder. In addition, cyclones in Zimbabwe have direct health effects as well as indirect socioeconomic health repercussions. For instance, cyclone-related damage to hospital buildings and infrastructure can interrupt healthcare services and cause delays in receiving medical attention. For those who require emergency care or have chronic diseases, this might have major repercussions. The World Health Organization (2018) reported on the difficulties Zimbabwe's health systems encountered in the wake of Cyclone Idai, including a staffing and supply deficit.

In Zimbabwe, one of the main economic effects of cyclones is the destruction of infrastructure which usually leads to money losses. Roads, bridges, buildings, and other vital infrastructure can sustain extensive damage during cyclones, necessitating high repair and reconstruction expenses. For instance, the damage inflicted by Cyclone Idai to Zimbabwe's infrastructure in March 2019 was projected to be \$622 million (World Bank, 2019). This not only results in a direct cash loss but also impedes the growth and development of the local economies. Cyclones can cause serious harm to infrastructure, but they can also significantly affect agriculture, a vital industry for Zimbabwe's economy. Food insecurity and decreased agricultural productivity can result from cyclones destroying infrastructure, animals, and crops. For instance, Cyclone Idai devastated more than 50,000 hectares of crops in Zimbabwe, resulting in agricultural losses estimated to be worth \$100 million (World Bank, 2019). In addition to having an impact on farmers' livelihoods, this also has wider economic ramifications, such as rising food costs and declining agricultural exports.

2.4 CHAPTER SUMMARY

This chapter examined the existing literature related to the research topic. This literature review shows that the factors that contribute to the adverse socioeconomic impacts of cyclones include poor infrastructure, poverty and poor information dissemination systems for early warning systems. Cyclone Idai impacts became more severe due to the heavy rainfall and heavy storms which caused flooding and landslides. The PAR model can be used to understand how pre-existing vulnerabilities, such as poverty, inequality, and lack of access to resources, can increase a community's susceptibility to the impacts of cyclones. According to this literature view, cyclones have devastating impacts on the socioeconomic setup of a community which include loss of livelihoods, displacement of populations, health impacts, damage of property, loss of productivity and psychological impacts such as anxiety, stress and trauma.

CHAPTER THREE: METHODOLOGY

3.1 INTRODUCTION

The research methodology outlines how the study was executed. It consists of the procedures for collecting, and organising data. This chapter also justifies the type of research approach used by the researcher as well as the research instruments used. The researcher of this study assessed the socioeconomic impacts of Cyclone Idai in the Chimanimani district of Zimbabwe in Manicaland Province. In order to achieve the objectives of this study, a number of research instruments, approaches and methods were employed. This chapter will provide insights on this research's design, research approach, data collection instruments, data collection procedures, data analysis procedures and research ethics.

3.2 DESCRIPTION OF THE STUDY AREA

The study was conducted in the eastern Zimbabwean province of Manicaland near the Mozambican border, in the Chimanimani District. There are 23 wards in the district.

Chimanimani has a warm, temperate climate. The mountainous eastern regions are home to Mount Binga which is the second highest peak in Zimbabwe. The mountain rises up to 2440 meters higher than sea level and receives up to 1,400 millimetres of rainfall annually (Chingombe and Musarandega, 2021). The Department of Civil Protection (DCP 2013) argued that due to its location between the Indian Ocean and Mozambique, the area is susceptible to tropical cyclones. Because of the incredibly rough terrain, which consists of ranges of peaks and ravines, tropical cyclones find it difficult to move through the area. Consequently, the eastern highlands of Chimanimani received the majority of Cyclone Idai's strength, resulting in a concentration of heavy rainfall in the district. Agro ecological Region 1 is characterized by strong agricultural productivity in the soils (Musarandega 2021). Due to the well-graded and compacted soil particles, farmers are able to cultivate crops on slopes and in mountainous areas because they are less susceptible to erosion. Some populations have been compelled to settle on extremely steep slopes and along landslide-prone rivers due to a lack of liveable land. Additionally, the local government has persisted in developing settlements in areas that are obviously dangerous and vulnerable. On slopes that are particularly vulnerable to landslides, logging, infrastructure and residential construction, and other activities are still growing. Due to the widespread uprooting, cutting, and burning of trees by illegal settlers in order to make way for farms, the mountains have significantly lost their forest cover. In 2019, an evaluation was conducted by the Environmental Management Agency (EMA) and found that most areas that were impacted by flooding were located in floodplains, next to rivers, and on steep hillsides. The Chimanimani district's low river flows, sparse forest cover, degradation of rangelands, and growing susceptibility to landslides and flooding make inadequate watershed management the main danger to biodiversity. Plantations of exotic trees surrounding river sources seem to be another factor in the decreased water flows. Compaction of the soil, increased runoff, loss of soil fertility, and a reduction in plant cover are all signs of land degradation. A lot of rivers and river sources appear to have stream bank agriculture surrounding them in Chimanimani district. Therefore, the socio-economic impacts of Cyclone Idai in Chimanimani were attributed to the above factors.

3.3 RESEARCH APPROACH

Creswell (2018) defines research approach as the plan or strategy that a researcher uses to answer a research question or test a hypothesis. This study utilized a mixed methods research approach to assess the socio-economic impacts of Cyclone Idai in Chimanimani district. The mixed methods approach combines both quantitative and qualitative research methods to provide a comprehensive understanding of the complex socio-economic effects of the cyclone on the local community. The researcher also chose the mixed approach in order to fully utilize statistics in order to add accuracy to language, visuals and stories through a range of research methods. By combining quantitative data analysis with qualitative insights, the mixed methods approach allowed for a more comprehensive understanding of the socio-economic impacts of Cyclone Idai in the Chimanimani district. This enabled a deeper examination of the different elements that impact the community's recovery and resilience. The use of multiple data sources and research methods enabled triangulation, which can enhance the validity and reliability of the study findings. By cross-verifying the results obtained from different methods, the study ensured a more robust and accurate analysis of the socio-economic impacts of the cyclone. The mixed methods approach also allowed for the collection of rich and diverse data, including both numerical data on economic indicators and qualitative data on social and psychological impacts. This provided a more detailed understanding of the effects of Cyclone Idai in Chimanimani district. According to Creswell (2018), the mixed methods approach is particularly useful in studies that aim to explore complex phenomena from multiple perspectives. By integrating quantitative and qualitative data, researchers can gain a more holistic understanding of the research topic and generate more nuanced insights.

3.4 RESEARCH DESIGN

This study employs a case study research design to assess Cyclone Idai's socio-economic impacts in Chimanimani district. This study used a case study approach which was chosen for several reasons. Firstly, a case study allowed for a detailed assessment of the socioeconomic impacts of Cyclone Idai in Chimanimani district. Creswell (2018) asserts that case studies allow researchers to gather correct information from a population. For the above reason, the researcher chose a case study so that data can be generalized and inferences made about some characteristics, attitudes and behaviour of the population under study. Secondly, a case study design is particularly suitable for investigating complex issues, such as the socio-economic impacts of a natural disaster, allowing for a holistic examination of the various factors at play.

According to Yin (2014), case study research is valuable for its ability to provide detailed insights into specific cases and to generate rich and complex data. In this study, the case study design involved collecting and analyzing data from multiple sources, including interviews with key stakeholders, surveys of affected communities, and analysis of secondary data sources such as reports and documents related to the impacts of Cyclone Idai in the district of Chimanimani. This case study allowed for a comprehensive understanding of the socio-economic impacts of Cyclone Idai in Chimanimani district.

3.5 STUDY POPULATION, SAMPLE SIZE, AND SAMPLING TECHNIQUES

The study population for this study consists of individuals residing in the district of Chimanimani who were directly affected by Cyclone Idai. This included households, community members, local authorities and other stakeholders who experienced the socioeconomic impacts of the cyclone. In addition to the primary study population, key informants for example local government officials, NGO officials and officials from different sectors such as health and education were also part of the population.

A sample size of 90 individuals was selected from the study population using a stratified random sampling technique to select respondents for interviews and questionnaires. The sample was stratified based on various demographic factors such as gender, age and level of education to ensure representation from different segments of the population. A sample of three villages was selected which consisted of three villages heads and two school heads. The sample also included 10 key informants from the Ministry of health, education, local government and Chimanimani Rural District Council (CRDC) among other important key informants. The selection for key informants was done using purposive sampling to select informants according to their specialised knowledge or expertise.

3.6 DATA COLLECTION METHODS

To archive this study's objectives, a detailed data collection approach was used, utilising a combination of interviews, questionnaires, focus group discussions and key informant interviews as research methods. The information gathered from these instruments provided a complex understanding of the socioeconomic impacts of Cyclone Idai in the district of Chimanimani given the advantages of each instrument.

3.6.1 INTERVIEWS

The researcher conducted 30 interviews with 30 members from the selected villages who were affected by Cyclone Idai which hit Chimanimani district in 2019. The interviews were conducted between 11 and 15 March in 2024. The interviews were semi-structured to allow flexibility for both the researcher and the interviewee. This allowed the researcher to probe further into interesting points provided by the interviewees. The interviews were also conducted with a diverse range of individuals including the elderly people, women, children, religious leaders as well as people living with disabilities. This was done to make sure that all the people in the community were represented.

3.6.2 QUESTIONNAIRES

Sixty questionnaires were administered to 60 villagers from the selected villages affected by Cyclone Idai in Zimbabwe's Chimanimani district between 11 and 15 March 2024. Questionnaires conveniently enabled the researcher to collect large amounts of data inside this short period of time. Both open-ended-questions and close-ended questions were used to gather both quantitative and qualitative data. Questionnaires allowed the researcher to collect standardised data as participants were asked the same questions using the same wording. This helped to reduce research bias and increased the reliability of the data. The data collected by the researcher from the questionnaires was well suited for collecting quantitative data, allowing for statistical analysis and the identification of patterns and trends in the data.

3.6.3 FOCUS GROUP DISCUSSIONS (FGDs)

Tegan (2021) defines focus group discussion as a facilitated group discussions held with a small number of people who have special knowledge or interest in a particular topic. The researcher conducted three focus group discussions with ten members from each village in Chimanimani district, discussing how Cyclone Idai impacted their socioeconomic lifestyle. The focus group discussions were conducted between 18 and 20 March 2024. The rationale for

using focus group discussions was that it gave opportunities for participants to clarify responses as they interacted among each other, allowing them to build on each other's responses thereby generating new ideas and perspectives which could have been left out from interviews and questionnaires. Moreover, FGDs provided immediate feedback and hypothesis leading to validation of the results obtained from the questionnaires. Unexpected themes and issues rose during the discussions which allowed the researcher to explore more information despite being left out during the construction of the FGD questions.

3.6.4 KEY INFORMANT INTERVIEWS

Key informant interviews were also conducted in this study to assess the socioeconomic impacts of Cyclone Idai in Chimanimani district. The researcher reached out to potential key informants on 11 and 12 March 2024 to explain the purpose of the study and to schedule time to carry out the interviews. The researcher managed to get 10 key informants. The informants were as follows; a local councilor, a village head, a school head, a health official, an official from IOM, an agriculture extension officer, an official from the DDC's office, a farmer, an official from the ministry of transport and a church leader. This allowed the researcher to collect information related to the interviewee's field of expertise. For example, farmers provided the researcher with rich data on the impacts of the cyclone on agriculture and how it threatened food security in the district. Health officials on the other hand provided their insights on the impacts of the cyclone relating to the field of health. The 10 key informant interviews were conducted from 18 to 22 March 2024. Nine of them were conducted face to face while only one was conducted over a phone conversation since the informant had moved out of the district for personal business. These key informant interviews helped to validate and verify findings from questionnaires and interviews. Informants from local authorities helped the researcher with reports and statistics on the impacts of the cyclone in their areas of jurisdiction.

3.7 DATA PRESENTATION AND ANALYSIS PROCEDURES

Creswell et al. (2022) alluded that data presentation involves processing, editing, coding, classifying and tabulation of collected data so that they are amenable to analysis. The collected data in this study was analyzed both qualitatively and quantitatively. The data was analyzed by making comparisons of the collected data from the different research instruments used and from previous literature. The data obtained from the above research methods was presented

using pie charts, tables, graphs and even narrations. Thematic analysis was used to analyze the data from the focus group discussions and key informant interviews. Themes were established and every response was connected to a given theme.

3.8 RELIABILITY AND VALIDITY

The researcher used internal validity which refers to the accuracy of the measurement tool. The accuracy of the data in this research was based on triangulating different data sources by examining evidence from the sources and using it to build a coherent justification of themes (Creswell 2018). Creswell (2018) noted that if the themes are established based on converging several sources of data or perspectives from participants, then this process can be claimed as adding to the validity of the study. A pilot study was carried out on the research instruments in February 2024. To ensure the reliability of the data, a systematic approach was used to analyse the database. This involved organising and reviewing the information, closely examining texts, coding and categorising the data and compiling it into word files. The data was carefully reviewed and refined to ensure its reliability.

3.9 ETHICAL CONSIDERATIONS

Research ethics deals with primarily the interaction between researchers and the people they study, these codes of ethics are important in conducting research (Creswell and Creswell, 2018). Researcher communicated with all the gatekeepers to gain access to the children as participants. Permission was sought from the District Development Coordinator (DDC) of Chimanimani district. The researcher used informed consent to make sure people understand what it means to participate in the research so they can decide in a conscious, deliberate way whether they want to participate. This ensured dignity and respect for participants, so the researcher adhered to this principle so that participants were not just seen as a means to achieve research objectives.

CHAPTER FOUR: DATA PRESENTATION AND ANALYSIS

4.1 INTRODUCTION

This Chapter presented, analyzed, interpreted and discussed the data obtained from the responses collected during this study, in connection to the research objectives and the research questions in Chapter One. Sixty respondents responded to the questionnaires and thirty responded to interviews. Three focus group discussions consisting of ten villagers from each of the three villages were conducted. Ten key informants were also engaged in key informant interviews. All participants returned the answered questionnaire resulting in a high response rate. Moreover, there was active participation during these focus group discussions, which indicated their willingness to be part of the research. This chapter presents and analyses the data obtained from Chapter 3.

4.2. BIOGRAPHIC DATA OF RESPONDENTS' SAMPLE

Table 4.1 displays the bio-data of the participants who took part in the interviews and completed the questionnaires. The results show that the population comprised more females than males as females were represented by 70% against males' 30%. This helped the researcher to collect gender-specific impacts of the Cyclone Idai which hit Chimanimani district. Women and men often experience disasters differently due to their social roles, responsibilities and access to resources.

The data collected on the age of the participants revealed that the majority of the participants fell within 41 to 60 age range, while the second represented group fell in the range of 20 to 40 years with the smallest group being over 60 years. The statistical mode indicated that the respondents were predominantly mature individuals with a good understanding of the local context hence their responses can be trusted.

In addition to demographic details, the period that every respondent has been staying in the Chimanimani district proved to be very important. Sixty percent of the respondents were long-term residents of the district who had a deeper understanding of the local socioeconomic dynamics. Only 10% of the respondents were newcomers who faced severe impacts due to their lack of familiarity and limited access to resources and support.

Table 4.1 Biographic data of respondents' sample

Biographical variable	Variable description	Interviews and questionnaires from participants
Gender	Male	30% (27)
	Female	70% (63)
	Total	100% (90)
Age	Below 20 years	20% (18)
	21 – 40 years	10% (9)
	41 – 60 years	50% (45)
	Over 60 years	20% (18)
	Total	100% (90)
Educational level	Tertiary	20% (18)
	A level	30% (27)
	O level	40% (36)
	Grade 7	10% (9)
	Total	100% (90)
Period of time stayed in the district since Cyclone Idai	5 years	60% (54)

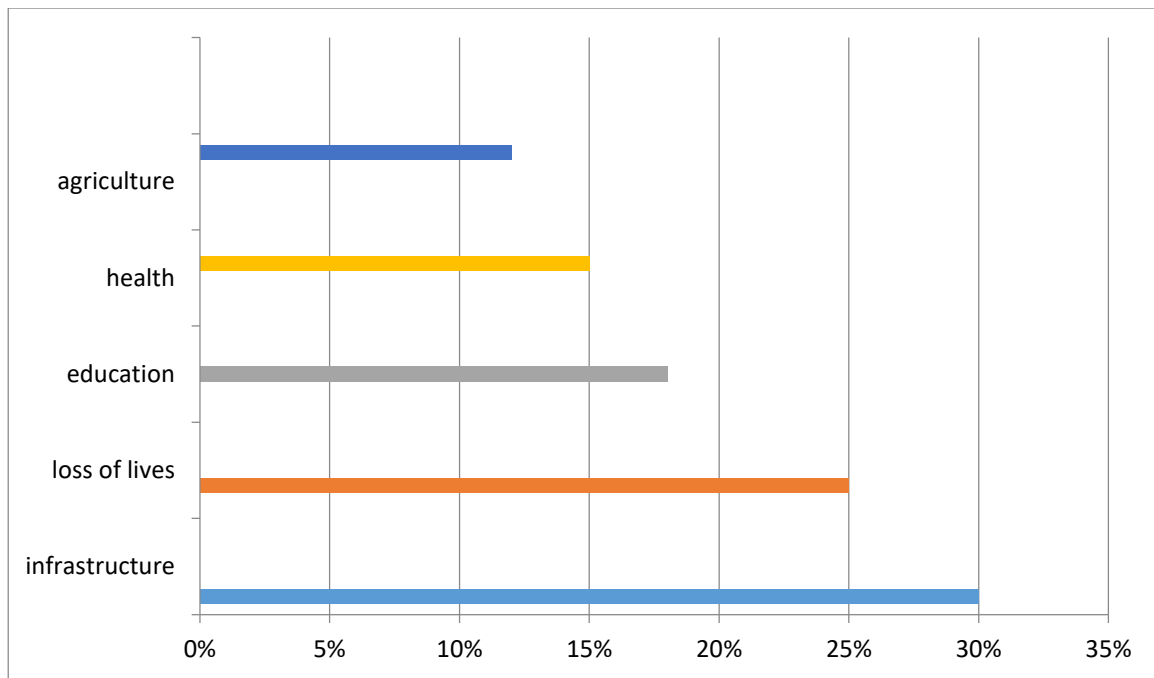
	3-4 years	30%	(27)
	1-2 years	10%	(9)
	Total	100%	(90)

4.3 EXTENT OF THE SOCIOECONOMIC IMPACTS OF THE CYCLONE

The first objective of this study aimed at examining the extent of the socioeconomic impacts of Cyclone Idai in Zimbabwe's Chimanimani district. Data obtained from the interviews indicated that the cyclone had the greatest impact on infrastructure which was destroyed. The destruction of infrastructure was characterized by the damaging of roads, bridges, buildings and communication networks. The destruction of roads and bridges further worsened the situation in terms of transport logistics. The destruction of houses led to the displacement of many people in the district of Chimanimani. Second to the destruction of infrastructure was the loss of lives. According to a report provided by a key informant Chimanimani District Development Coordinator's office, over 300 people in the district lost their lives due to Cyclone Idai. In addition to loss of lives, the respondents indicated that they lost their livestock which included cattle, pigs, goats and poultry. The extent of damage to livelihoods was followed by the disruption of the education system. School infrastructure was destroyed leading to the closure of learning activities in some schools. Some schools were being used as emergency and evacuation centres which disrupted learning processes. The education system was also affected by the displacement of learners from their original homes. The cyclone also damaged healthcare facilities and disrupted the provision of medical services. This resulted in increased health risks and difficulties in accessing medical care. The cyclone also caused agricultural damage as crops, livestock and agricultural infrastructure were destroyed. This caused food insecurity in the district.

The bar graph below summarizes the socioeconomic effects of Cyclone Idai and the extent of the impacts according to questionnaire respondents.

Figure 4.2 the extend of the impacts of Cyclone Idai according to questionnaire and interview respondents



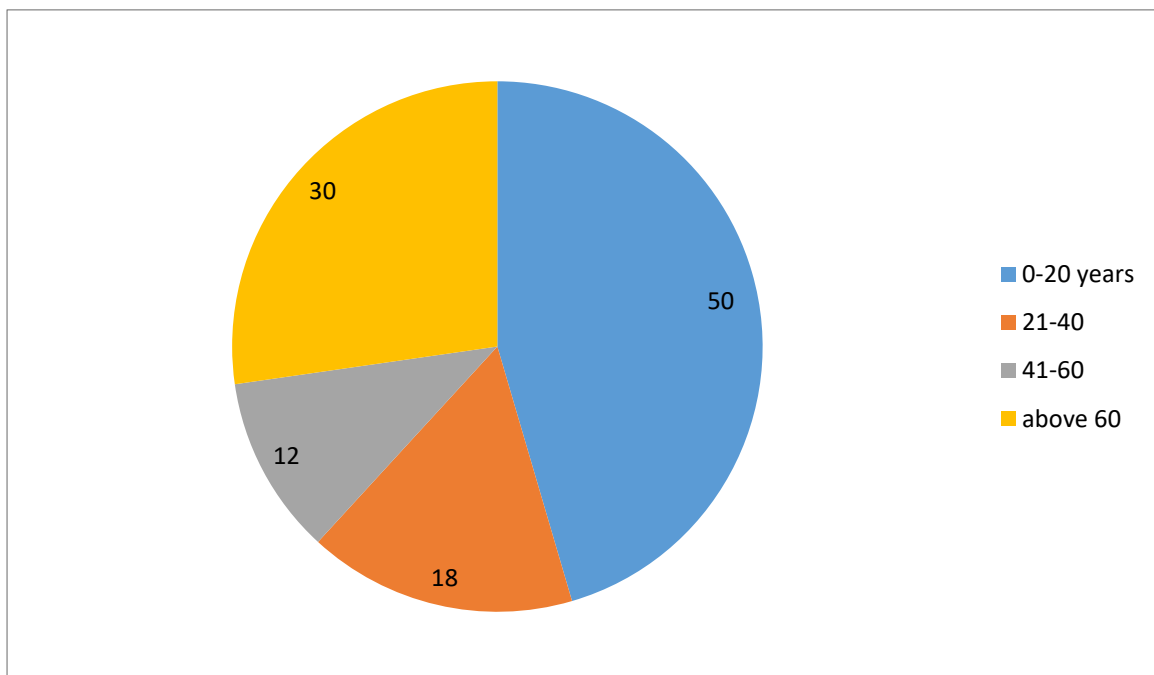
4.3.1 IMPACT ON LOSS OF LIVELIHOODS

Focus group discussions conducted in this study indicated that children and the elderly faced different vulnerabilities during Cyclone Idai. Their vulnerability was attributed to dependency and limited mobility. This information was complemented by the data obtained from the interviews and questionnaires. The data show that the largest group of people who died due to the effects of the cyclone in the 3 villages where research was conducted is 0-20 which encompasses young children. Fifty children of this age from the 3 villages where data was collected died. In addition, 30 elders aged above 60 also lost their lives. This may be due to the reason that children and old people are vulnerable and cannot ensure their safety during

natural disasters. Their vulnerability is attributed to their limited mobility and dependency on others. Eighteen people aged between 21 and 40 died due to the effects of the cyclone. The lesser number of deaths in this age group means that the able-bodied were in a better position to ensure their safety than young children and the elderly. This shows that Cyclone Idai disproportionately affected Chimanimani residents due to their age. The data on loss of lives also shows that Cyclone Idai has to a greater extent negatively impacted human lives.

The pie chart that follows shows the number of human lives lost in the three villages per group age.

Figure 4.3 loss of livelihoods by age group



4.3.2 IMPACT ON DESTRUCTION OF HOUSES

Cyclone Idai surely caused the destruction of houses in Chimanimani district as evidenced by the intervention of IOM to help rebuild houses for those who completely lost their houses. Information obtained from key informant interviews also supported this information beyond reasonable doubt as informants indicated that many people in the district lost their houses. Data from focus group discussions show that 45 houses in village C were destroyed by Cyclone Idai. From the discussions from focus groups, respondents argued that this huge number was because the village is situated in a valley. Village A had 30 houses destroyed by the cyclone. 10 homesteads were destroyed in village B. This is due to the fact that their houses were situated in higher areas with less risk of flooding. The 10 houses destroyed may be attributed to landslides or erosion due to the heavy rains caused by Cyclone Idai.

Below is a graph showing the number of houses destroyed in the three villages. From the graph below, it can be concluded that houses built on high land were affected to a lesser extent by Cyclone Idai as compared to those built on low land areas.

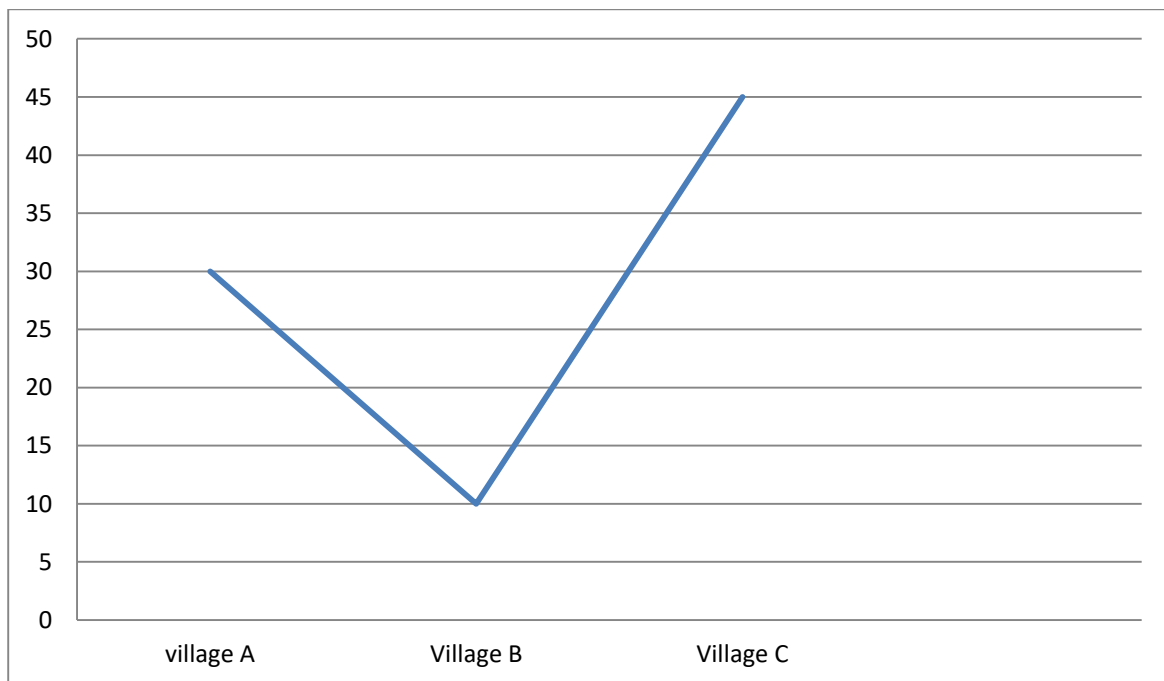


Figure 4.4 the destruction of houses

4.3.3 DISPLACEMENT OF COMMUNITIES

Using key informant interviews, this research found compelling evidence that displacement was a major social impact of Cyclone Idai which hit Chimanimani district in 2019 as numerous

individuals were left without homes. People whose houses were damaged by the cyclone were forced to vacate their homes and move to safer places. Some of them were taken to evacuation centres while others moved out of the district to live with their relatives. Thus the cyclone created both internally displaced persons and externally displaced persons. A local councillor highlighted the key issues around these forced displacements. In a key informant interview he said:

I witnessed the cyclone as it destroyed houses in our community. The cyclone brought unprecedented destruction, leaving many families homeless and forcing them to displace from their homes. The powerful winds and heavy rains of Cyclone Idai caused widespread flooding and landslides, destroying houses and infrastructure in our district. Many families were left with no choice but to evacuate their homes as the floodwaters rose and the landslides threatened their safety. Internally, families sought refuge in makeshift shelters, schools, and community centres that were serving as temporary evacuation centres. These families had to leave behind their belongings and livelihoods, unsure of when they would be able to return home. Externally, some families were forced to seek shelter in neighbouring districts or even across the border in Mozambique. The destruction caused by Cyclone Idai was so severe that many families had no choice but to leave their homes and communities in search of safety and assistance. The displacement of families both internally and externally highlighted the urgent need for humanitarian aid and support in our district. As the councillor, I worked tirelessly to coordinate relief efforts, provide assistance to displaced families, and advocate for resources to help our community recover and rebuild after the cyclone.

An official from the IOM also narrated how their organisation provided assistance to people who had their houses destroyed due to this disaster. He said:

In response to the disaster, our organization mobilized resources and launched a comprehensive relief and recovery operation in Chimanimani district. Our organization worked closely with local authorities, humanitarian partners, and community members to provide emergency shelter, food, water, and medical assistance to those affected by the cyclone. We also provided technical expertise, materials, and financial support to help families reconstruct their houses, repair infrastructure, and restore their communities. Our organization worked tirelessly to ensure that the displaced population could return to safe and dignified living conditions.

4.4 FACTORS THAT LED TO THE SOCIOECONOMIC LOSSES IN CHIMANIMANI

The second objective of this study aimed to analyse the factors that contributed to the adverse socioeconomic losses caused by Cyclone Idai in Chimanimani. This research found that poor infrastructure; poor farming methods, poverty, unemployment and limited access to resources are the main factors that increased the level of damage caused by Cyclone Idai. According to this study, 55% of the socioeconomic losses are attributed to poor infrastructure while 25% is attributed to poverty. Focus group discussion results indicated that the lack of proper roads and bridges as well as communication networks made it difficult for residents to evacuate or receive timely warnings about the approaching cyclone. All key informants in this study indicated that the lack of infrastructure hindered the delivery of aid and emergency services after the cyclone hit, further causing the socioeconomic losses experienced in Chimanimani district. Household interviews indicated that 60% of the respondents heavily relied on agriculture as their source of income. However 9 out of the 10 key informants in the study blamed poor farming methods by the local community in Chimanimani district as the main factor that made the land more susceptible to erosion and flooding. This also increased the risk of landslides. This explains why the majority of interview respondents indicated a severe damage on agriculture. This study also found that the high levels of poverty and unemployment among Chimanimani district residents contributed to the increased socioeconomic losses in Chimanimani district. This means that residents lacked resources to prepare for or bounce back from the impact of Cyclone Idai. The lack of financial security made it difficult for residents to access basic necessities like food, water and shelter hence the justification of poverty as a second highest factor that led to high levels of socioeconomic losses.

The graph below summarizes the responses from interviews and questionnaires relating to the extent to which the above factors mentioned led to the adverse losses caused by Cyclone Idai in Chimanimani district.

Figure 4.5 factors that led to socioeconomic losses



From the data gathered, poor infrastructure led to the high socioeconomic losses caused by Cyclone Idai. Responses from the household questionnaires indicated that 33 participants put poor infrastructure as their biggest factor that added to the socioeconomic losses to Cyclone Idai. Eighteen respondents indicated that poverty was their worst nightmare that increased their losses to the cyclone. 15 of the respondents the poor farming methods practiced in the district contributed to the increased socioeconomic impacts of the cyclone. The poor farming methods they mentioned include, ploughing and planting down the slope, stream bank cultivation and deforestation for the purpose of cultivation.

4.4.1 POOR INFRASTRUCTURE

The information gathered from focus group discussions showed that the district's poor infrastructure, including roads, bridges and communication networks, were unable to withstand the impact of the cyclone leading to widespread destruction and hindering rescue and relief efforts.

The village head said:

The damaged roads and bridges made it difficult for emergency services and aid organizations to reach us. This worsened the already dire situation for residents of this village. Additionally, the poor communication networks in this area made it challenging for authorities to coordinate

rescue and relief efforts effectively. This lack of communication hindered the dissemination of crucial information to residents, leaving many unaware of evacuation orders or where to seek help during the disaster.

4.5 COPING STRATEGIES USED BY THE IMPACTED COMMUNITY

The third objective of this research determined coping strategies used by the local community to deal with the effects of Cyclone Idai in the Chimanimani district. In the aftermath of the devastating storm, the community has employed various coping strategies to deal with the effects of the disaster. These strategies include sharing resources, mutual aid, adopting new farming techniques, seeking external assistance, education, and rebuilding together.

The table below shows how the community employed these strategies.

Table 4.5.1 coping strategies used by the local community

Strategy	How the strategy was implemented
Sharing resources	The Chimanimani community started sharing food, water, clothes and other essential supplies with each other to ensure that everyone has access to basic needs.
Mutual aid	They assisted each other in rebuilding homes, clear debris, and supporting each other emotionally during this difficult time.
Adopting new farming techniques	In response to the destruction of crops and farmland caused by Cyclone Idai, the community introduced new farming techniques such as vertical gardening and hydroponics to ensure food security.
Seeking external assistance	The Chimanimani community reached out to local and international organizations for support in rebuilding infrastructure, providing medical assistance, and securing clean water sources. This was done

	through chiefs, councillors, village heads and the District Development Coordinator.
Educating the community	Community leaders have been educating the population on disaster preparedness and resilience strategies to better cope with future natural disasters.
Rebuilding together	The community has been working together to rebuild homes, schools, and other infrastructure that was destroyed by the cyclone, using local materials and traditional building techniques.

4.6 SUPPORT SYSTEMS BY STAKEHOLDERS

The study findings show that the people affected by Cyclone Idai in the Chimanimani district were provided with assistance from different stakeholders to improve their welfare. Respondents of this study indicated that they got much of the assistance from the government which provided them with food aid, shelter and medical supplies. The government was also applauded by the respondents for its role in coordinating relief efforts. Respondents also indicated that NGOs played a crucial role in supporting the affected people by distributing relief items, providing medical assistance and helping with the reconstruction of homes and infrastructure. This research also found that the private sector including businesses and corporations played a significant role in improving the welfare of the affected people in Chimanimani. They contributed through donations, in-kind support and expertise in areas such as construction, supply chain management and logistics. There were also individual donors and philanthropists who contributed funds and resources to support recovery efforts of the community including rebuilding homes, schools and health facilities in the affected areas. This research also noted the crucial role played by local churches and other religious organisations. They provided spiritual support and counselling for the affected persons. They also provided food and non-food items such as shelter and clothes.

The data from household interviews and questionnaires showed that the government provided 40% of the needed assistance to the affected people in Chimanimani district. NGOs provided 30% while the private sector provided 20% of the needed assistance. Individual donors and philanthropists provided only 10% and this can be attributed to the lack of resources to donate.

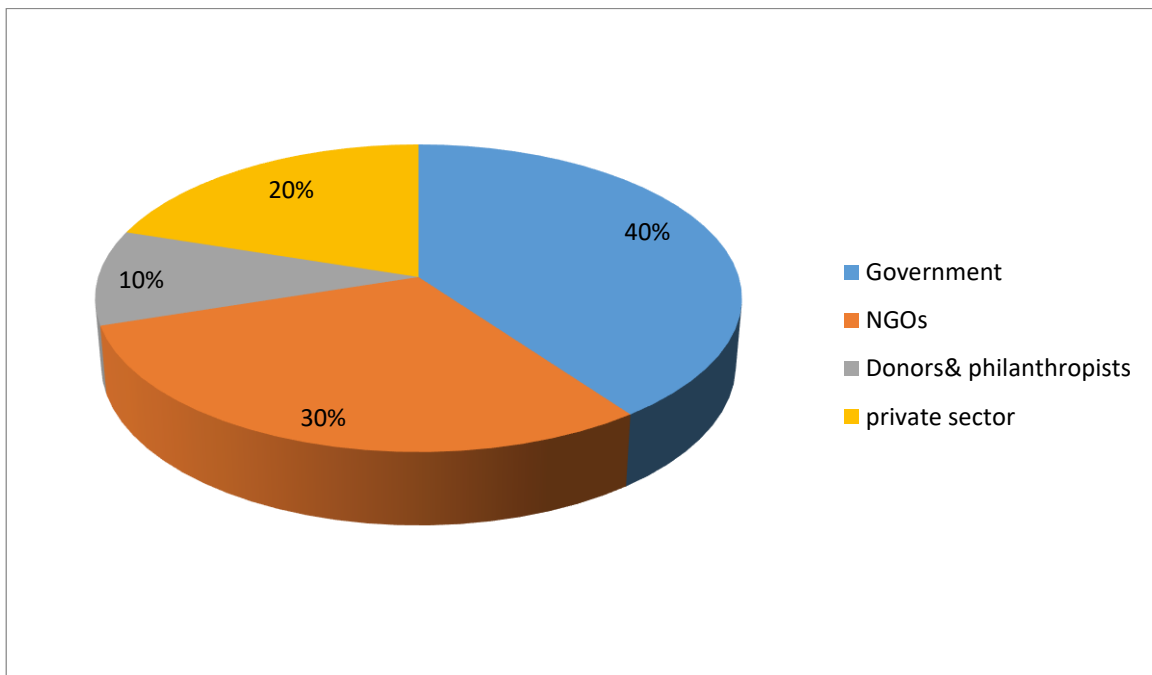


Figure4.6.1 Support systems by stakeholders

CHAPTER SUMMARY

The data highlighted the socio-economic impacts of cyclone Idai in Chimanimani district. Conclusions drawn from this study show that human lives were lost, animals died and there was great destruction of infrastructure due to the cyclone. The education system and the healthcare facilities were negatively impacted. This reduced the socioeconomic status of the community, leading to discontinuities in the development of the community. Furthermore, the data showed that the cyclone had a disproportionate impact on vulnerable groups of the Chimanimani community particularly children, and the elderly as evidenced by their high death rates from graphical representations.

CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

The rationale for this study was to assess the socioeconomic impacts of Cyclone Idai which struck Chimanimani district in 2019. Results have proved that the cyclone had devastating effects on the socio-economic fabric of the community. This chapter will discuss the findings of the results in chapter 4 including the loss of livelihoods, damage to infrastructure, destruction of agricultural activities as well as the damage caused on the health and educational sector. The discussion further discusses the factors that contributed to increased socioeconomic losses. The discussion will also include the coping strategies used by the Chimanimani community to deal with the effects of the disaster. Recommendations for recovery and rebuilding efforts will also be provided, along with a conclusion summarizing the key findings of the study.

5.2 DISCUSSION OF RESULTS FINDINGS

The first objective of this study was to examine the extent of the socio-economic impact of Cyclone Idai which made landfall in Chimanimani, Zimbabwe in March 2019. The findings of this study on the impact of Cyclone Idai in Chimanimani revealed that the destruction of infrastructure had the greatest of impact of the disaster. This result is consistent with previous research on the impacts of cyclones, which have shown that infrastructure damage is a common and significant consequence of such natural disasters. One study by Mavhura et al. (2019) examined the impacts of Cyclone Idai in Zimbabwe and found that the destruction of infrastructure, including roads, bridges, and buildings, was one of the most severe consequences of the cyclone. Another study by Manyena et al. (2020) also highlighted the significant impact of Cyclone Idai on infrastructure in Chimanimani, noting that the damage caused by the cyclone had a long-lasting and detrimental effect on the community.

Moreover, the findings of this study revealed that loss of lives was a significant adverse impact of the disaster. The cyclone caused widespread destruction and devastation in the region,

leading to the loss of many lives. This result is consistent with previous research on the impacts of Cyclone Idai in other regions, which also highlighted the high human toll of the disaster. One study by Manyena et al. (2020) examined the impacts of Cyclone Idai in Zimbabwe and found that the cyclone resulted in a significant loss of lives in Chimanimani district. Another study by Chikodzi et al. (2019) focused on the health impacts of Cyclone Idai in Zimbabwe and found that the cyclone led to an increase in mortality rates in Chimanimani district.

The research findings also revealed significant damages to the health system, education system, and agriculture. The cyclone caused widespread destruction of health facilities, schools, and agricultural lands, leading to disruptions in essential services and livelihoods for the local population. These results align with previous studies that have highlighted the devastating effects of natural disasters on various sectors in affected areas. For example, a study by Mavhura et al. (2019) examined the impacts of Cyclone Idai in Chimanimani district and found that the cyclone had severe consequences for the health, education, and agriculture sectors. Similarly, a study by Manyena et al. (2020) also documented the extensive damages caused by Cyclone Idai in Chimanimani district, including disruptions to health services, education, and agricultural activities.

The second objective of this study was to analyze the factors that led to the socioeconomic losses caused by Cyclone Idai in Chimanimani district. Poor infrastructure emerged as the main factor that caused the adverse socioeconomic losses. In previous research on the impacts of Cyclone Idai in Chimanimani district, similar findings have been reported regarding the role of poor infrastructure in exacerbating socio-economic losses. One study by Mavhura et al. (2020) found that the lack of adequate infrastructure including roads, bridges, and communication networks hindered the response and recovery efforts in Chimanimani district after Cyclone Idai. Another study by Manatsa et al. (2019) also highlighted the importance of improving infrastructure resilience to mitigate the impacts of future disasters in the region since poor infrastructure had greatly caused more damage to the affected people in Chimanimani.

This study also indicated that poverty also contributed to the significant socioeconomic losses caused by Cyclone Idai impacts in Chimanimani district. In previous research on the impacts of Cyclone Idai in Chimanimani district, poverty has consistently been identified as a key factor exacerbating the socio-economic losses experienced by the community. One study by Mavhura et al. (2020) found that poverty was a significant factor in determining the vulnerability of households to the impacts of Cyclone Idai in Chimanimani district. The researchers highlighted

how limited access to resources and infrastructure, as well as low levels of income, contributed to the challenges faced by the community in recovering from the disaster. Another study by Chikodzi et al. (2021) also emphasized the role of poverty in exacerbating the impacts of Cyclone Idai in Chimanimani district. The researchers noted how households living in poverty were less able to cope with the destruction caused by the cyclone, leading to greater socio-economic losses.

Moreover, poor farming methods practiced in Chimanimani district as well as the lack of access to resources is other factors that led to the socioeconomic losses caused by Cyclone Idai. A research by Manyena et al (2019) highlighted the importance of sustainable farming practices in mitigating natural disasters like cyclones. Makoni et al (2018) indicated that poor farming practices and limited access to resources are key factors that contribute to the vulnerability of communities to cyclone disasters. Therefore the findings of this study are in line with previous researches.

The final objective of this study determined the coping strategies used by the Chimanimani community to deal with Cyclone Idai effects. The study found out that, sharing resources, mutual aid, adopting new farming techniques, seeking external assistance, education, and rebuilding together are some of the coping mechanisms that the Chimanimani community implemented to deal with the cyclone effects. One study by Mavhura et al. (2020) also explored the coping strategies employed by the Chimanimani community in the aftermath of Cyclone Idai. The study found that the community utilized a combination of traditional coping mechanisms, such as reliance on social networks and community solidarity, as well as modern strategies, such as seeking assistance from government agencies and NGOs. The community's ability to adapt and innovate in the face of adversity was crucial in their recovery efforts.

Another study by Chikodzi et al. (2021) focused on the role of social capital in the coping strategies of the Chimanimani community post-Cyclone Idai. The researchers found that strong social networks and community cohesion played a significant role in helping the community recover from the disaster. They also highlighted the importance of external support from government agencies and NGOs in facilitating the community's coping efforts. A study by Mutasa et al. (2019) examined the psychological coping strategies used by individuals in the Chimanimani district following Cyclone Idai. The researchers found that many individuals employed strategies such as seeking social support, engaging in religious practices, and

participating in community activities to cope with the trauma and stress caused by the disaster. The study emphasized the importance of mental health support in the recovery process.

Given the above information, this study managed to meet its objectives. However, the sample size used only focused on 3 villages which is a small sample size to represent the whole of Chimanimani district. Future research should aim to have a larger population sample in order to get more information on the topic in question. Future researchers should also consider using observations and GIS as data collection methods to enhance the validity of the study.

5.3 RECOMMENDATIONS

In order to address the socio-economic impacts of Cyclone Idai in Chimanimani district, it is essential to support the recovery and rebuilding efforts in the community. Some key recommendations for action include:

1. **Enhance infrastructure resilience:** The cyclone highlighted the vulnerability of infrastructure in Chimanimani district. It is recommended that efforts be made to improve the resilience of critical infrastructure such as roads, bridges, and buildings to withstand extreme weather events.
2. **Support livelihood recovery:** Many households in Chimanimani district lost their sources of income due to the cyclone. It is important to provide support for livelihood recovery, including access to financial assistance, training programs, and resources for income-generating activities.
3. **Promote climate-resilient agriculture practices:** Farmers in Chimanimani district should be encouraged to adopt climate-resilient agriculture practices such as conservation agriculture, crop diversification, and water harvesting techniques. This will help

mitigate the impact of future cyclones and extreme weather events on agricultural production.

5.4 CONCLUSION

In conclusion, the socio-economic impacts of Cyclone Idai in Chimanimani district were severe and long-lasting. The loss of livelihoods, damage to infrastructure, and displacement of families had a negative effect on the community's socioeconomic status, requiring urgent action to support recovery and rebuilding efforts. By implementing the recommendations outlined in this chapter, it is possible to help the residents of Chimanimani district recover from the devastation caused by of Cyclone Idai and build a more resilient and sustainable future for the community.

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APPENDICES

Appendix 1: Household Questionnaire

I am Tinotenda Dhliwayo a fourth-year student at Bindura University of Science Education studying a Bachelor of Science Honours Degree in Disaster Management. I am carrying out a research entitled: *An assessment of the socioeconomic impacts of Cyclone Idai in Chimanimani district, Zimbabwe*. This questionnaire is meant to collect data regarding the socioeconomic impacts of Cyclone Idai. However, disclosure of your personal identity is optional. Confidentiality and privacy regarding information you provide will be maintained. You are kindly asked to voluntarily participate and you can withdraw your participation at any stage without prejudice. You are advised that there is no financial benefit for participating in this survey.

Section 1: Biographic Data of Respondents

1. Name of household head (optional): _____

2. Age:

Below 20

21-40

41-60

61 and above

3. Gender:

Male

Female

Other

4. Occupation: _____

5. Level of Education:

No formal education

Primary education

Secondary education

Tertiary education or higher

6. Household Size: _____

7. Duration of Residence in Chimanimani District since Cyclone Idai:

- 1-2 years
- 3-4 years
- 5 years

Section 2: Socioeconomic Impacts and level of damage caused

8. Please rate the extent of the following socioeconomic impacts of Cyclone Idai on your household:

Impact Area	No Impact	Low Impact	Moderate Impact	High Impact	Severe Impact
Infrastructure					
Loss of lives					
Education					
Health					
Agriculture					
Housing					
Income					
Livestock					
Access to clean water					

Section 3: Reasons for High Level of Damage

9. For each impact area rated as high or severe, please provide reasons for the level of damage experienced:

Infrastructure:
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Loss of
lives: :.....
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Education:.....
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Health:
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Agriculture:

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Housing:.....

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Income:.....

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Access to clean
water:

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Livestock.....

Section 4: Factors that increased the Socioeconomic Losses

10. Please rate the following factors that may have increased the socioeconomic losses of Cyclone Idai at your household:

Factor	Not Significant	Slightly Significant	Moderately Significant	Very Significant	Extremely Significant
poor infrastructure					
Poverty					
Poor farming methods					
Limited access to resources					
Unemployment					
Poor farming methods					
Lack of warning systems					

Section 5: Support Systems Used by Local People

11. What coping mechanisms did you and your community use to cope up with the aftermath of Cyclone Idai?

-
-
-
-
-
-
-

12. Can you share any personal stories of resilience or community support during the recovery process?

13. Did you receive any informal support from family or friends during the recovery? (Yes/No)

14. How effective were these local support systems in helping you recover? Fill the table below to answer this question,

Support system	Not effective	Slightly effective	Moderately effective	Effective	Very effective
Sharing Resources					
Mutual aid					
Adopting new farming techniques					
Seeking external assistance					
Educating the community					

Rebuilding together					
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Section 6: Support Systems by Other Stakeholders

15. What types of support did you receive from government agencies or NGOs after Cyclone Idai?

-
-
-
-
-
-
-

16. Which stakeholders provided assistance to your community?

-
-
-
-
-
-

17. How would you assess the effectiveness of the support provided by each external stakeholder? Use a scale of 1-5 (1=less effective, 5= most effective)

Stakeholder	Effectiveness

18. Did you receive any financial assistance from external organizations? (Yes/No)

19. What recommendations would you make for improving future disaster response and recovery efforts in your community?

Appendix 2: Interview Questionnaire

I am Tinotenda Dhliwayo a fourth-year student at Bindura University of Science Education studying a Bachelor of Science Honours Degree in Disaster Management. I am carrying out a research entitled: *An assessment of the socioeconomic impacts of Cyclone Idai in Chimanimani district, Zimbabwe*. This questionnaire is meant to collect data regarding the socioeconomic impacts of Cyclone Idai. However, disclosure of your personal identity is optional. Confidentiality and privacy regarding information you provide will be maintained. You are kindly asked to voluntarily participate and you can withdraw your participation at any stage without prejudice. You are advised that there is no financial benefit for participating in this survey.

Section 1: Biographic Data of Respondents

1. Name of household head (optional): _____
2. Age:
 - Below 20
 - 21-40
 - 41-60
 - 61 and above
3. Gender:
 - Male
 - Female
 - Other
4. Occupation: _____
5. Level of Education:
 - No formal education
 - Primary education
 - Secondary education
 - Tertiary education or higher
6. Household Size: _____

7. Duration of Residence in Chimanimani District since Cyclone Idai:

- 1-2 years
- 3-4 years
- 5 years

Section 2: Socioeconomic Impacts and level of damage caused

8. Please rate the extent of the following socioeconomic impacts of Cyclone Idai on your household:

Impact Area	No Impact	Low Impact	Moderate Impact	High Impact	Severe Impact
Infrastructure					
Loss of lives					
Education					
Health					
Agriculture					
Housing					
Income					
Livestock					
Access to clean water					

Section 3: Reasons for High Level of Damage

9. For each impact area rated as high or severe, please provide reasons for the level of damage experienced:

Infrastructure:
.....
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Loss of
lives: :.....
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Education:.....
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Health:
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Agriculture:

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Housing:.....

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Income:.....

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Access to clean
water:

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Livestock.....

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Section 4: Factors that increased the Socioeconomic Losses

10. Please rate the following factors that may have increased the socioeconomic losses of Cyclone Idai at your household:

Factor	Not Significant	Slightly Significant	Moderately Significant	Very Significant	Extremely Significant
poor infrastructure					
Poverty					
Poor farming methods					
Limited access to resources					
Unemployment					
Poor farming methods					
Lack of warning systems					

Section 5: Support Systems Used by Local People

11. What coping mechanisms did you and your community use to cope up with the aftermath of Cyclone Idai?

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-
-
-
-

12. Can you share any personal stories of resilience or community support during the recovery process?

13. Did you receive any informal support from family or friends during the recovery? (Yes/No)

14. How effective were these local support systems in helping you recover? Fill the table below to answer this question,

Support system	Not effective	Slightly effective	Moderately effective	Effective	Very effective
Sharing Resources					
Mutual aid					
Adopting new farming techniques					
Seeking external assistance					
Educating the community					

Rebuilding together					
---------------------	--	--	--	--	--

Section 6: Support Systems by Other Stakeholders

15. What types of support did you receive from government agencies or NGOs after Cyclone Idai?

-
-
-
-
-
-
-

16. Which stakeholders provided assistance to your community?

-
-
-
-
-
-

17. How would you assess the effectiveness of the support provided by each external stakeholder? Use a scale of 1-5 (1=less effective, 5= most effective)

Stakeholder	Effectiveness

18. Did you receive any financial assistance from external organizations? (Yes/No)

19. What recommendations would you make for improving future disaster response and recovery efforts in your community?

11. Please provide any additional comments or insights regarding the socioeconomic impacts of Cyclone Idai in Chimanimani District:

Appendix 3: Focus Group Discussion Guide:

Section 1: Extent of Damage

1. Initial Reactions

- What were your immediate thoughts and feelings when Cyclone Idai hit?
- Can you describe the most significant damage you witnessed in your community?

2. Physical Damage:

- What types of infrastructure (homes, roads, schools, and hospitals) were most affected?
- How did the cyclone impact agricultural land and livestock?

3. Economic Impact:

- How did the cyclone affect local businesses and employment opportunities?
- Were there any long-term economic consequences that you foresee?

4. Social Impact:

- How did the cyclone affect community cohesion and social networks?
- Were there any changes in access to essential services (healthcare, education) post-cyclone?

Section 2: Factors that Increased Level of Damage

1. Environmental Factors:

- How do you think the geography and climate of Chimanimani contributed to the extent of the damage?

- Were there any pre-existing environmental issues that made the area more vulnerable?

2. Socioeconomic Factors:

- How did poverty levels in the community influence the impact of the cyclone?
- Were there any demographic factors (age, gender, disability) that affected vulnerability?

3. Preparedness and Response:

- How prepared was the community for such a disaster?
- Were there any warning systems in place, and how effective were they?

Section 3: Support Systems by the Local People

1. Community Solidarity:

- How did community members come together to support each other after the cyclone?
- Can you share any specific examples of local initiatives or support networks that emerged?

2. Resource Sharing:

- What resources (food, shelter, labor) did community members share with those in need?
- How did local leaders or organizations facilitate support?

3. Challenges Faced:

- What challenges did the community face in providing support to one another?
- Were there any conflicts or issues that arose during the recovery process?

Section 4: Support Systems by Other Stakeholders

1. Government Response:

- How effective was the government's response to the cyclone?
- What types of assistance (financial, logistical, humanitarian) did the government provide?

2. NGOs and International Aid:

- Were there any non-governmental organizations (NGOs) or international agencies that provided support?
- How did their assistance impact the recovery efforts in your community?

3. Which other stakeholders provided assistance to your community?

4. Long-term Support:

- What ongoing support do you think is necessary from external stakeholders to aid in recovery?
- How can these stakeholders better prepare for future disasters in Chimanimani?

Key Informant Guide:

Section 1: Extent of Damage

1. Physical Damage

- Can you describe the physical damage caused by Cyclone Idai in your community? (e.g., infrastructure, homes, roads, schools, health facilities)
- What specific areas or sectors were most affected?

2. Economic Impact

- How has the cyclone affected local businesses and livelihoods? (e.g., agriculture, trade, employment)
- What are the estimated economic losses in your community?

3. Social Impact

- How has the cyclone impacted social structures and community cohesion? (e.g., displacement, loss of life, mental health issues)
- Are there any changes in population demographics as a result of the cyclone?

Section 2: Factors that Increased Level of Damage

1. Environmental Factors

- What environmental conditions contributed to the severity of the cyclone's impact? (e.g., deforestation, land degradation)
- Were there any pre-existing vulnerabilities in the area that exacerbated the damage?

2. Preparedness and Response

- How prepared was the community for such a disaster? (e.g., early warning systems, emergency plans)
- Were there any gaps in the response efforts that contributed to the level of damage?

3. Socioeconomic Factors

- How did the socioeconomic status of the community influence the level of damage experienced? (e.g., poverty levels, access to resources)
- Were there any specific groups (e.g., women, children, elderly) that were more vulnerable to the impacts of the cyclone?

Section 3: Support Systems by the Local People

1. Community Resilience

- How did local communities come together to support each other in the aftermath of the cyclone?
- Can you provide examples of grassroots initiatives or community-led recovery efforts?

2. Traditional Knowledge and Practices

- Were there any traditional practices or knowledge that helped the community cope with the impacts of the cyclone?
- How did local leaders or community organizations play a role in the recovery process?

3. Social Networks

- How important were social networks (family, friends, neighbors) in providing support during the recovery phase?
- Were there any notable stories of solidarity or assistance among community members?

Section 4: Support Systems by Other Stakeholders

1. Government Response

- What role did local and national government play in the response and recovery efforts?
- Were there any specific programs or policies implemented to assist affected communities?

2. Non-Governmental Organizations (NGOs)

- Which NGOs or humanitarian organizations were active in the area following the cyclone?
- What types of support (e.g., food, shelter, medical assistance) did they provide?

3. International Aid

- Did international aid play a role in the recovery efforts? If so, how?
- Were there any challenges or successes in coordinating with international stakeholders?

PLAGIARISM REPORT

Tinotenda Project Version 2

by Daniel Mavhura

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