

BINDURA UNIVERSITY OF SCIENCE EDUCATION

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DEPARTMENT OF DISASTER RISK REDUCTION



RESEARCH PROJECT

The Gendered Impact Of Flooding In School Attendance. A Case Of Chadereka Secondary School Ward 1 Muzarabani.

BY

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DECLARATION

This project is my original work and has not been presented for a degree in any other university.

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Signature of student



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LIST OF ABBREVIATIONS AND ACRONYMS

DRR	Disaster Risk Reduction
HFA	Hyogo Framework for Action
HIV	Human Immune Virus
LEDCS	less Economically Developed Countries
MEDCS	More Economically Developed countries
UNICEF	United Nations Children Education Fund
CSS	Comprehensive School Safety
GADRRRES	Global Alliance for Disaster Risk Reduction and Resilience in the
Education Sector	
SFDRR	Sendai Framework For Disaster Risk Reduction
UNISDR	United Nations International Strategy for Disaster Reduction

ABSTRACT

Floods are among the most common and destructive natural hazards. The destruction of schools is one way in which floods can inhibit educational attainment. Education as a human right is universal and inalienable. This right does not disappear or get suspended because of disasters and emergencies. The purpose of the study was to investigate the gendered impact of flooding on school attendance. Research objectives formulated to guide this study are to: examine the psychosocial impact of flooding on girls' and boys' schooling in Muzarabani, To establish the effects of floods on boys and girl's attendance and classroom participation in secondary school education in Muzarabani, To evaluate barriers to education access and attendance for boys and girls affected by floods in Muzarabani and To explore potential solutions to address these barriers and improve educational outcomes for boys and girls in Muzarabani. The study used a research design of 100 students drawn from the randomly selected levels and 10 school teachers. Questionnaires, in-depth interviews and focused group discussions were used to collect data . Findings revealed that floods not only close schools, they destroy infrastructure, make roads inaccessible for students and teachers. Families may lose their source of livelihood and be unable to send their children to school and end up having to choose between sending a boy child or a girl child to school. Floods hamper enrolment as parents do not want to endanger the lives of the children so schools prone to floods have a high chance of closing down due to low enrolment. Annually recurring floods regularly prevent millions of children from attending

a full year of school. At times the learning resources and materials are washed away or destroyed. Schools may be used as shelters for people who have been displaced from their homes due to the natural disaster. The additional students from flood affected areas leads to hundreds of students to squeeze in to poorly lit rooms usually designed for not more than forty. Every year floods provoke delay to study Programmes and damages to schools. Governments are primarily responsible for keeping their people safe by adopting coping mechanisms which include flood forecasting, policies which include girl's education, building more schools to increase accessibility and building sustainable infrastructure. So there is need for a paradigm shift from reactive to proactive flood management. Principals, teachers and students should undergo annual training on disaster risk reduction. The county governments should sensitize the communities on insuring educational institutions. The recommendations for further study are that the study can be replicated in other areas that are affected by floods in the country as well as a study on the effect of floods on early childhood and tertiary education.

CHAPTER ONE

BACKGROUND OF THE STUDY

1.0 Introduction

Chapter one concentrates on the background of the study with a focus on the intricacies of gendered impact of flooding on school attendance. It also includes the statement of the problem and also the objective of the study. The section also has the research question, the significance, limitations and delimitations of the research. The chapter concludes with the chapter summary.

1.1 Background of the study

Natural disasters have occurred for a long time around the world. They have since been known to cause destruction of property, disrupt livelihoods, and leading to loss of lives. Depending on the type and magnitude of hazard, natural disasters pose different threats. A study conducted by Brofinman, Cisternas, Repetto, and Castañeda (2019) showed that floods pose the greatest threat to property while earthquakes and Tsunamis account for the greatest number of fatalities. The same study noted that costs incurred due to natural disasters globally in a single year rose up to 314 billion. According to Dure (2021), global economic losses due to natural disasters for the year 2020 amounted to 210 billion US dollars. Africa is affected by 20 in every 100 disasters that occur worldwide even though it suffers 60% of all losses caused by natural disasters Loretto and Tegegn, (1996). Africa suffers losses due to a number of factors and these factors contribute to the losses. Africa consist of more countries that are less developed as compared to Europe. Less Economically developed countries struggle with financial resources. Africa struggle due to limited financial resources this in turn results in construction of unsafe structures that are susceptible to the impacts of disasters, for example the huts and houses that were built in Muzarabani some of these huts were built using pole and dagga therefore during floods these houses are more vulnerable. In Africa for instance Zimbabwe it suffers from poor

emergency preparedness planning. Unlike MEDCS such as Japan which invest fully in significantly emergency response planning. Regular earthquake drills in schools and well trained emergency services are done and these strengthens their preparedness. However, in Africa Disaster emergency response planning is still lacking this results in losses during disasters and the inability to bounce back using our own local resources. In Africa when a disaster occur they mainly rely on aid from high income earning countries. This aid may take time to arrive and may fall into the hands of corrupt people affecting the survival chances of those trapped or injured. Property damage and loss of life is greatest on the continent hence disasters affect economic development more in the region than any other region in the world. Studies have been conducted to ascertain the cost of natural disasters in Africa. Between 1970 and 2019, there were almost 1.7 thousand natural catastrophes recorded in Africa, accounting for 38.5 billion dollars in economic losses. Storms and floods caused the most economic damage. Storms accounted for 37 percent of the stated economic damages, with floods accounting for 34 percent. Compared to other parts of the world, Africa is more vulnerable to climate change. Many people in the population are impoverished, and their means of subsistence are heavily dependent on weather and climate change-sensitive industries (Saifaddin Galal, 2024).

The manner that men and women, boys and girls, are impacted by disasters and their ability to recover from them is influenced by gender dynamics. Gender dynamics impact how much women participate in disaster preparation and recovery, as well as how men and women prepare for, respond to, and recover from catastrophes. They also define anticipated roles in a community. Boys in many societies, boys are often taught to be physically strong, resilient, and risk-takers. They may be encouraged to engage in outdoor activities, explore, and take on leadership roles whilst women, on the other hand, are often socialized to be nurturing, caretakers, and responsible for household chores. They may be taught to prioritize family well-

being, safety, and community support. Boys: Traditionally, boys may have greater access to information (such as weather forecasts) due to their perceived roles as decision-makers or heads of households. Girls may rely on indirect channels (such as extension workers or community networks) for information. Lack of direct access can hinder their ability to prepare for floods. In terms of Mobility and Safety Boys are often encouraged to explore and move freely. During floods, they might venture out to assess damage or assist others. Girls' mobility is often restricted due to cultural norms. They may face challenges in evacuating or accessing safe spaces during floods in terms of Resource Management Boys may be involved in managing resources like livestock, crops, and land. Floods can disrupt these activities. Girls often bear the responsibility for water collection, cooking, and firewood. Floods can exacerbate resource scarcity, forcing them to travel farther for essentials. Health and Caregiving Boys Their roles may involve assisting with rescue efforts or rebuilding after floods. This can lead to physical exhaustion. Girls as primary caregivers, girls and women face increased stress during disasters. They care for family members, including children, the elderly, and the sick. Violence and Security Boys: While not exclusive to boys, post-disaster stress can lead to aggression or violence. Girls: Studies show an increase in domestic and sexual violence following disasters. Women's vulnerability rises during chaotic times.

1.2 Statement of the Problem

Floods have caused numerous schools to close, properties to be destroyed, school infrastructure to be damaged, and formal education to be temporarily suspended. These events have had an impact on both boys' and girls' attendance and retention rates in Muzarabani schools. Education is a fundamental human right, acknowledged and safeguarded by both national and international laws. However, despite the Zimbabwean government's efforts to ensuring the provision of quality education that is accessible and affordable for both girls and boys, flood prone areas have projected a different case altogether. In a study carried out by Nyamazenge

(2018) in Muzarabani, at least 1 out every 3 interviewed school aged children have either permanently or temporarily stopped going to school due to floods. This has subjected these children to related consequences such as child marriage and girls are the most affected due to a wide range of social, cultural and economic factors which privileges boys at the expense of girls. There is thus need for scaled up efforts to help school aged boys and girls in the area, to improve school attendance. Therefore, this research seeks to propose ways aimed at improving school attendance for girls and boys in disaster prone areas.

1.3 OBJECTIVES

1.3.1 Main Objective

To identify the gendered impact of floods on school attendance for boys and girls.

1.3.2 Specific Objectives

- To examine the psychosocial impact of flooding on girls' and boys' schooling in Muzarabani.
- To establish the effects of floods on boys and girl's attendance and classroom participation in secondary school education in Muzarabani.
- To evaluate barriers to education access and attendance for boys and girls affected by floods in Muzarabani.
- To explore potential solutions to address these barriers and improve educational outcomes for boys and girls in Muzarabani.

1.4 Research questions.

- What are the effects of floods on student enrolment on secondary school in Muzarabani?

- Which are the effects of floods on boys' and girls' attendance and classroom participation in secondary education in Muzarabani?
- What are the barriers to education access and attendance for boys and girls affected by floods in Muzarabani?
- What can be done to address these barriers and improve educational outcomes for boys and girls in Muzarabani?

1.5 Significance of the study

The study will be significant in a variety of ways. Firstly, the researcher identified a literature gap on the gendered impact of flooding on school attendance especially in Zimbabwe. Therefore, this research study seeks to close this academic gap. Different studies have been done to determine the disaster response of the community to disasters. However, this study aims at fully understanding how boys and girls affected by floods differently and how it affects performance and attendance.

Bindura University may store this research in their library repository and it will benefit students who will be furthering their studies in relation to the topic. The students may identify research gaps from this study and commence their research studies accordingly. They may also use this research study for literature referencing and cross examination with their study findings.

The researcher also identified gaps in theory especially those particularizing the impact of floods on boys' and girls' school attendance. Thus, this research will come up with a model in an attempt to theorize this component of research.

To policy makers, the study will analyse the impacts of floods on attendance to enlighten measures that can be put in place to help improve learner's retention rates in disaster prone areas such as Muzarabani.

1.6 Scope of the study

The study is limited to the Muzarabani area in terms of geography. In northeastern Zimbabwe, in the Mashonaland Central Province, sits the Muzarabani District. According to Madamombe (2004), it stretches between 16°00' S, 30°45' E to 16°30' S, 31°20' E. The Zambezi River flows through the district, with Lake Kariba upstream and Lake Cahora Bassa Dam downstream, forming floodplains. The study was conducted in Ward 1 of the District, Chadereka, which has roughly 6657 families and is situated at the junction of the Musengezi and Hoya Rivers, approximately 400 metres above sea level, and 60 kilometres from the Muzarabani Business Centre (International Federation of Red Cross and Red Crescent Societies).

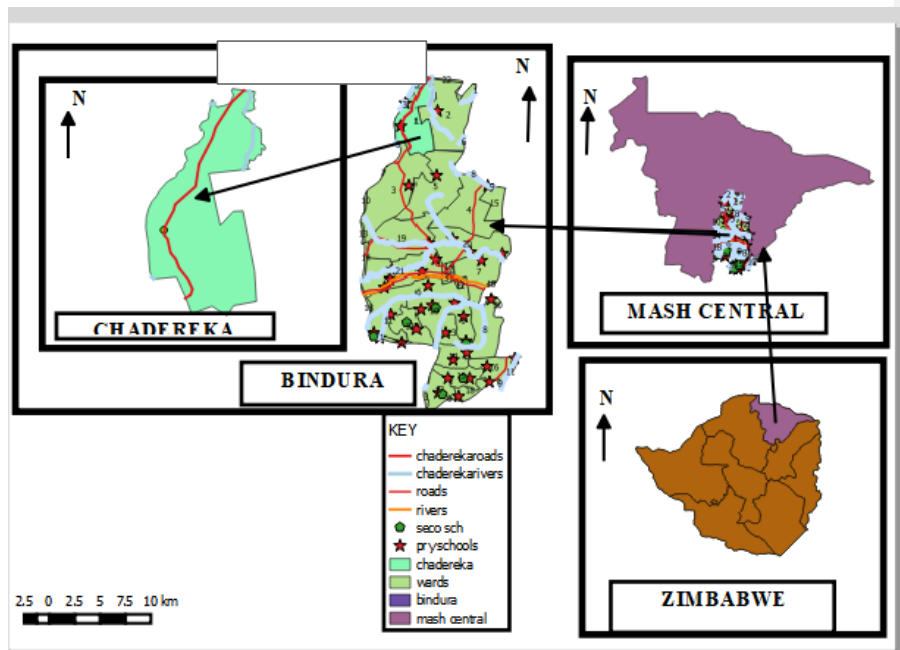


Plate 1.1 Map of the study area

source: own source (2024)

There are ten schools in the ward: one secondary and nine primaries. The community donated land for the development of all ten of these government schools. Nine schools were founded after Zimbabwe gained its independence in 1980, with only one being constructed before then. The majority of the schools are located in unsuitable areas for agriculture; some, like the secondary school constructed in 2001, are situated in wetlands, and others are placed in close proximity to significant rivers and streams. The study targeted that one secondary school in Chadereka village since secondary school learners are assumed to have high capacity to respond to interview questions.

Methodically, the research was qualitative to engender in-depth responses from participants on the gendered impact of flooding on school attendance for both girls and boys in Chadereka village ward 1.

1.7 Definition of key terms

Access -is the ability to apply for, attend, and graduate from secondary education (Mills, 2016). This suggests how the floods in Muzarabani have impacted the chances for boys and girls to enrol in, attend, and finish their education.

Classroom participation- includes taking part in classroom activities in school. (Flein, 2018).

Gendered- refers to socially constructed roles, behaviors based on sex (Hoffney, 2021).

Floods- when a lot of water overflows into nearby schools and the surrounding area, it causes flooding.

Attendance -. refers to going to school regularly, not missing 7 consecutive days of school learning (MPSE, 2014)

Enrolment- is the process of adding oneself or another person to the official school register. Shaw (2018).

1.8 Organization of the study

The study is organised into 5 chapters as shown below:

Chapter 1: This chapter provides an overview of the entire study, including the problem statement, the study's justification, its objectives, research questions, significance, assumptions, limitations, delimitations, definitions of key terms, and its organisation.

Chapter 2: In accordance with the research objectives, this chapter examines the body of literature that is currently available on the subject of study. It explores the effects on enrolment, attendance,

Chapter 3 :it focuses main on the research design and data analysis .

Chapter 4: Data Presentation and Discussion of Findings This chapter's main topics are presented.

Chapter 5: In this chapter, conclusions, a synopsis, and recommendations.

1.9 Chapter Summary

This chapter introduced the study by providing the background of the study such that there is some insight on what this research is all about, the statement of the problem which led to research questions and objectives guiding this research

Commented [L1]: - justification not clear
- . study area provided wrong, chadereka is not in Bindura

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

A literature review is a critical analysis of a subset of the published body of knowledge using reviews, summaries, classifications, and comparisons of previous research works in addition to theoretical pieces. The study was introduced in the chapter before, and this chapter examines previously published works that were related to the investigation. The chapter explains the theoretical foundation supporting the investigation and is directed by its aims. The chapter also identifies gaps in the literature review and provides evidence for how the current investigation will close those gaps.

2.2 Disaster management legislative framework

2.2.1 Global overview

International organisations have acted to improve schoolchildren's safety and the resilience of the educational system. The United Nations Children's Fund (UNICEF) has started a variety of programmes to ensure and improve the quality of education for all children (Wright, 2009). The Interagency Network for Education in Emergencies (INEE) has acted to establish baseline requirements for safe learning spaces for children in disaster situations. The United Nations Office for Disaster Risk Reduction (UNDRR) made an effort to guarantee school safety during calamities in 50 countries through programmes like the Worldwide Initiative for Safe Schools (WISS) (Paci-Green, 2020).

To lower the danger of disasters, the education sector introduced the Comprehensive School Safety (CSS) Framework in 2012. The framework was approved in 2015 by the Global Alliance for Disaster Relief, which was made possible by the UNDRR. It was established by the Global

Alliance for Disaster Risk Reduction and Resilience in the Education Sector (GADRRRES). Three pillars supported the idea of school safety in the CSS Framework: safe learning environments (pillar 2), risk reduction and resilience education (pillar 3), and school disaster management (pillar 3). A multitude of global forums have enacted legal frameworks acknowledging the significance of education for children. Goal 4 of the Sustainable Development Agenda promotes inclusive, high-quality education for all and acknowledges lifelong learning as a sustainability goal.

These deeds highlight the value of education. A child's right to an education is protected by Article 28 of the United Nations Children's Act, which lends credence to Wisner's (2018) claim that education is a child's entitlement. Notwithstanding, we should recognise that education is a child's right, as affirmed by Article 28 of the United Nations Children's Act. Appreciating these international commitments is crucial, but it's also critical to acknowledge that the sheer number of impacted children has outpaced them. Recent tragic occurrences have brought to light the particular vulnerability of children. For instance, a Pakistani earthquake in October 2005 claimed the lives of almost 16,000 children when schools collapsed. More than 200 schoolchildren were buried alive in the Philippines in February 2006 due to a landslide that happened on Leyte Island (Asian Disaster Preparedness Centre [ADPC] 2007; Peek 2008). Three million children were impacted by an earthquake that struck Gujarat in 2001, according to UNCRD (2009). Children make up the majority of the population in developing cultures, so the potential effects of these disasters are amplified there.

The Hyogo Framework for Action (HFA), which was adopted by 168 member states in 2005, aims to reduce disaster losses and build resilient communities. Its main objective was to integrate disaster risk reduction (DRR) education into university curricula. Using knowledge, innovation, and education to create a culture of safety and resilience was the HFA's third aim. The 15-year Sendai Framework for Disaster Risk Reduction (SFDRR) plan is a living testament

to the HFA's legacy, despite its discontinuation from operation. Encouraging disaster risk governance through education, including DRR-related policies and legal frameworks, is the second aim of the SFDRR. Schools are essential for lowering the danger of disasters. Zimbabwe has likewise taken steps to incorporate disaster education into its educational system; yet, this is still far from reaching its best effectiveness. Despite coming to an end, the Hygo Framework for Action continues to serve as the cornerstone for its replacement, the Sendai Framework for Disaster Risk Reduction (SFDRR) (2015–2030). The SFDRR has a fifteen-year lifespan, as opposed to its ten-year predecessor. In order to control disaster risk through education, the framework's second priority directs the strengthening of disaster risk governance. This priority calls on member states to develop DRR education policies and legislative frameworks that take into account all relevant aspects of their government's ability to handle important DRR education components. It is significant because it recognises schools as vitally important facilities and advocates for the use of structural, non-structural, and functional disaster risk reduction strategies.

The importance of the educational system is demonstrated by the Sendai Framework for Disaster Risk Reduction's itemised aims. A framework for improving school safety, bolstering disaster risk education, identifying priorities for improving student safety at school, and guaranteeing kids' access to primary education even after a catastrophic disaster is provided by the Comprehensive School Safety Framework (CSS). Additionally, it facilitates cooperation between the various parties involved, with an emphasis on harmonising the field of education and policies related to disaster management. Furthermore, the Sustainable Development Goals discuss the value and significance of education. The safety of school locations, the advancement of children's access to education, and the use of education to support nations in strengthening their efforts to reduce the danger of disasters were all highlighted by these projects.

Nonetheless, one of the risks proving to be a roadblock to these efforts is flooding in areas with governance problems. Floods have a devastating effect on the education sector that takes time to heal. Students' education is on the precipice. If school buildings are utilised as shelters during an emergency, there is a possibility that classes will be cancelled, students may leave, and absenteeism may arise. Additionally, getting to school could be challenging because of the possibility of numerous roads and bridges being destroyed by high rains, particularly in marginalised regions. As an example, consider the floods in Cambodia that occur from July to December at the start of the school year. Due to damaged roads, both instructors and students are unable to get to school. Using boats increase the cost of getting to schools which parents fail to meet. The most depressing effects of floods is to be found in the affected areas, as the students have to wade through the flooded fields or board canoes that are dangerously rowed through the floating water.

2.2.2 Regional views on floods and school attendance

Climate change is posing a threat to the continuity of education in African countries through floods and other natural disasters. Many studies predict that children will bear a disproportionate amount of the short- and long-term consequences of floods (Dearl, 2018). The education sector is impacted by floods in a number of ways, such as the destruction of infrastructure and buildings, the operation of institutional and organisational structures, and the welfare of individuals and communities. Chang et al. (2022) claim that failing schools undermine students' hard-won educational rights and that missing class time gradually lowers educational quality. Many children will never be able to make up lost ground and will permanently drop out of school when there are no plans for alternative locations and they are not allowed to attend classes. Tens of thousands of children in Sub-Saharan Africa have been forced out of school or seen the start of their academic year delayed after heavy floods drove them from their homes and destroyed classrooms. In 2022 more than 800 people were killed

due to floods in Nigeria, Niger and other nearby countries. The floods in Nigeria were seen as the most devastating in a decade. This resulted in the relocation of more than 1.3 million people and more than a million hectares of farming land were destroyed. Over the past decades, a number of girls and boys have fallen victims to the effects of natural disasters.

Little boys and girls have lost their lives in various communities as a result of natural disasters like floods. They have experienced several effects. Natural disasters have claimed a disproportionately large number of lives in both boys and girls (Kousky, 2016). The quantity and quality of learning that children receive is also frequently jeopardised by these disasters, as is their access to educational services. For instance, cyclones and floods can result in fatalities, less educational opportunities, and damage to school infrastructure. Disasters can affect children in a variety of ways, from total disruption to a detrimental effect on academic performance and attendance at school (Mudavanhu, 2015). Regretfully, the statistics that are currently available on how disasters affect schools continue to concentrate on the quantity of schools that are impacted by such happenings (Amri;2022). The effects of flooding have had an impact on some schools' ability to operate normally during the rainy season as well as student attendance. Online learning is utilised by a few highly developed nations throughout those times, but most African nations cannot claim the same. This is caused by both a lack of adequate internet services and resources. Since cell phones and computers are not common among students in rural regions like Muzarabani, the idea that online learning will lessen student mobility during floods is illogical. It is clear that the abrupt and unplanned switch from in-person classroom instruction to online instruction presents significant difficulties for the 1.6 billion students that attend classes globally (McIlwaine, 2020).

Therefore, it is crucial to comprehend how disasters impact students' safety and welfare, including their ability to study, as well as how possible losses in learning quality can be appropriately measured and effectively addressed.

2.2.3 National issues on floods and school attendance

Zimbabwe as a nation has experienced floods in the recent years with cyclone Idai being the greatest of all the floods disasters. Muzarabani due to its location experiences flash floods. floods are one of the natural disasters that are affecting the students in marginalized areas. In 1980 when Zimbabwe received its independence there were reforms that were introduced and the educational sectors was also included. On the reforms they introduced the principle “Education for all”. In order to harness this principle, the government of Zimbabwe embarked on a mission to build schools especially in the marginalized areas and disadvantaged urban areas. Incidentally some of the marginalized areas were in flood prone areas. The Zimbabwean government in an effort to enhance and implement the education for all principle involved the local community by engaging them to help by providing labor through molding bricks and other resources. Accessibility to education was prioritised over the effectiveness and affordability of the educational system. Zimbabwe's Fast Land Reform Programme did not improve things either. Under the pretence of gaining access to land and black empowerment, people established themselves wherever they pleased. Certain communities made their home in flood-prone locations. Due to the population growth in those unlawfully occupied areas, the government was forced to build more schools, also referred to as satellite schools. In one way or another, enabling people to dwell in such precarious areas eased political tension that had begun to arise in the nation as a result of socioeconomic woes. However, similar to the post-independence era, infrastructure quality is not prioritised in terms of its ability to withstand shocks like floods. The effect that floods eventually have on education is least recognised as the degree to which they affect a society depends on its susceptibility.

Floods have an effect on the livelihoods of people. This therefore can also have an effect on the recovery of people. In addition, this can affect the school attendance of students. Actually, the rescuers' top concern has been estimating this loss. Even though it is the true, research suggests that a person's political, social, and economic standing have a big impact on how much they are vulnerable to flooding. Since marginalised populations are typically located in dangerous areas, they are more susceptible. They don't have the resources to live in less dangerous areas. According to this construction of flooding, a person's exposure to floods is a social construction. If flooding is socially created, then it makes sense to consider it as a man-made phenomenon. Cann (2018) are quick to remind us that flooding degrades the quality of drinking water, which increases the risk of contracting water-related infectious diseases including cholera and hepatitis. Damage to or overloading of the sanitation system exacerbates these diseases. Other writers have also mentioned floods as destroyers, claiming that they damage social institutions, service buildings, transportation and communication infrastructure, and crops. Such a loss hurts the country's economy and exacerbates the decline in people's social and economic conditions. Although literature predicts an increase in flood hazards as a result of numerous natural and man-made constructions, its impact on education systems worldwide has not gotten much attention.

After a flood, we frequently hear and read about the extent of the impact on children's socioeconomic well-being, if not primarily on the financial benefits of the event. However, as has been noted, the effects on children's access to and entitlement to a high-quality education have not gotten as much attention. As a result, there aren't many research on how floods affect infrastructure and schoolchildren in most nations, including Zimbabwe. Many frameworks have been developed to comprehend how floods affect educational systems and provide guidance on actions for children's safety during emergencies and for the continuation of education. Children's psychological health is also impacted by the living circumstances in

evacuation centres, the shortage of space in schools as a result of the increased enrollment, and the lack of resources available to teachers. Evidence is provided by the devastation of school facilities in Zimbabwe's Chimanimani area caused by Cyclone Idai.

The practice of designating schools as evacuation centres during disasters has become common. However, this approach has its drawbacks. Here are some of the drawbacks

Overuse of Schools as Evacuation Centres Schools are often used as temporary shelters during natural disasters due to their large space. However, this practice can lead to long-term disruptions in education. When schools are used as evacuation centers for extended periods, it affects the quality of education provided to students.

Impact on Education Quality The prolonged use of classrooms as shelters can hinder students' learning. It becomes challenging to predict how many days the classrooms will be needed for evacuation purposes. As a result, students may not meet the expected competency levels. This leaves schools in poor conditions and disheartens educators. Teachers may be reluctant to work in areas prone to disasters, leading to shortages of qualified teaching personnel. The absence of skilled educators further impacts the quality of education.

Risks to Female Learners, Extended school closures due to floods expose female learners to additional risks, such as early marriage.

2.2.4 MUZARABANI

The term "flood plain," or "Muzarabani" in Shona, Zimbabwean, refers to an area that floods regularly; Chadereka Ward 1 is the most severely impacted. The region experiences both epidemics like cholera and malaria as well as calamities brought on by weather-related dangers like floods and droughts. While there have been yearly droughts, particularly in the 2000s, the current decade has witnessed floods of never-before-seen proportions (Madamombe 2004). In Muzarabani, annual floods are most often the cause of destructive occurrences and the main source of losses from natural hazards. From January to the conclusion of the rainy season in

March, the region is typically submerged in water. The primary cause of the floods is localised, intense seasonal rainfall and runoff, which frequently causes rivers to overflow.

In addition to flooding, cyclones like the ones that occurred in February 2000 and March 2003 are to blame. Because the research region is where the Musengezi and Hoya Rivers converge, it is particularly vulnerable to flooding disasters. Inflows from the Zambezi River and backflow from the Cahora Bassa Dam both have an impact. In order to prevent dam failure, water is also discharged from the Kariba Dam when the water reaches a specific level. The majority of releases occur during the rainy season, which runs from January to March, which results in a significant rise in the Zambezi River's flow. As one moves downstream, tributaries to Lake Kariba and the Zambezi River continue to raise the Cahora Bassa Dam's levels, which eventually causes backflow and flooding. The area's population is growing, which makes people, commodities, and structures more vulnerable. To make matters worse, people are continually building in these flood-prone areas. The situation has gotten worse due to changes in the environment, such as precipitation, river courses, and catchment regions. Muzarabani is located in Natural Region 4, which experiences seasonal droughts and sporadic strong rainfall, aside from floods. The Muzarabani village in Zimbabwe's semi-arid region is in danger due to the increasing frequency of droughts. The region is extremely susceptible to unpredictable rainfall because of its reliance on natural resources and rain-fed agriculture. Floods and droughts are examples of climate extremes that can also contribute to the spread of illnesses like malaria and cholera. Enormous downpours often contaminate clean water supplies, which in turn fuels cholera outbreaks. Due of food insecurity, cross-border trade (between Zimbabwe and Mozambique) introduces tainted food and afflicted individuals into the region. After floods, stagnant water creates an ideal environment for mosquito reproduction. Malaria can cause a crisis by placing strain on the health system's capacity to cope, and Muzarabani is also typified by extremely high temperatures that are favourable to mosquitoes. Because of these

natural disasters, people are losing their lives. For instance, the 2000 cyclone-caused floods in Zimbabwe and Mozambique resulted in over 500 000 displaced persons, 700 fatalities, and over \$1 billion in infrastructure damage (Wamukonya & Rukato 2001). A total of 1000 homes were impacted by the floods in December 2007, and 400 of them lost nearly all they owned (International Federation of Red Cross and Red Crescent Societies 2007). Floods cause many children to miss school, which interferes with learning and lowers passing rates.

2.3 The importance of school attendance in disaster risk reduction

Schools play a vital role in every community (Stanley & Williams 2020) and they need to be well secured and protected. The concept of school safety was given a major focus by the UN International Strategy on Disaster Reduction (UNISDR) during the 2006–2007 World Disaster Reduction Campaign, with the theme ‘Disaster reduction begins at school’. This theme was chosen by UNISDR because it is in line with the Priority 3 of the Hyogo Framework for Action 2005–2015, which states that ‘Use knowledge, innovation and education to build a culture of safety and resilience at all levels’ and because schools are the best venues for forging durable collective values and therefore suitable for building a culture of prevention and disaster resilience (ADPC 2015). The campaign identified the reasons for which a school should be made safe, namely, safety as school buildings can save lives, shelter as schools be utilised as shelters in an emergency period, continuation of education as education is disrupted in times of emergencies and resource preservation as schools are valuable local investment of a nation (ADPC 2015). The research is analysing the gendered impact of floods in school attendance and performance. Schools provide most information therefore during post disaster schools should be sources of knowledge as well as comfort to the affected. School headmasters as well as the top management should assist in making sure that attendance return to normal. In addition girls tend to be affected more during post disaster as some are left to head families if the parents die or are affected by the disaster. Therefore, schools should be at the forefront of making

follow ups on school dropouts and finding their reasons for leaving schools. During recovery schools should also initiate psychological support to the children.

The increase in flood intensity and frequency poses a threat to community infrastructure and affects the total well-being of children in regard to: access to food, health, school attendance, access to clean water and sanitation, physical and social security. Using both qualitative and quantitative data, this research provide an overview of flood disasters and their potential effects on children's attendance and performance.

2.4 Psychosocial impact of drought on boys' and girls' schooling

2.4.1 Effects of floods on Access

It has long been acknowledged that everyone has the fundamental right to education. Everyone has the right to education, according to Article 26 of the Universal Declaration of Human Rights. Floods not only force families to relocate, close schools, and block access to roadways, but they also accelerate the spread of disease. According to Sheikh (2019), females are disproportionately affected by flooding since boys have more effective coping mechanisms. Levy (2021) pointed out, however, that schools and their contents could be harmed or destroyed, rendering them either temporarily or permanently unusable for educational purposes for both boys and girls. Lay (2018) emphasised that during floods in Cambodia, pupils face challenges getting to school due to damaged roads and having to cross rivers.

Since they must take a boat to school, underprivileged children may have significant absentee rates. Due to the lack of public transport in Cambodia, kids must find other ways to get to school. Since most people commute by foot or bicycle, some students decide to take a month or two off from school owing to flood-related road damage (Lay, 2018). Both boys and girls experience the effects (UNICEF, 2022), although girls have more

absenteeism than boys due to their increased susceptibility and inadequate coping mechanisms. In 2014, the Koshi River in Nepal broke its embankments, inflicting destruction to 67 schools. Fifteen of the schools had walls that fell, resulting in damage to the facilities and furniture. 23,000 students were denied access to education. In the host schools where the displaced people had taken refuge, instruction was similarly disrupted (Integrated Regional Information Network News, 2016). Birungi (2018) reported that numerous schools in eastern Uganda were left in poor condition due to the previous year's floods; children in the Bundibugyo area were unable to attend school during the rainy season. The first week of March 2013 marked the beginning of Kenya's long rainy season, which resulted in significant flooding across the majority of the nation. Boys' and girls' access to schools was hampered by the damaged infrastructure (Kenya Red Cross Society, 2013).

Parents would rather send their boys to school than their girls because of the effects of floods (Humfrey, 2019). Due to parents' perceptions of boys' lower risk of dropping out of school than girls, preferences for boys over girls have been identified by UNICEF (2014) as one of the factors leading to the low retention of girls in schools. According to Hefziba (2018), in order to determine and comprehend the effects of the floods on school-age girls and boys, Rapid Gender Analyses (RGAs) were carried out in Ethiopia, Kenya, Somalia, and South Sudan. Girls' experiences were given priority in order to determine their special needs and capacities in order to guide the humanitarian response. The assessment mostly revealed that the flooding sequence with current gendered sociocultural norms have put girls in a more vulnerable place. According to Elkin (2016), pre-existing gender norms in Kenya are frequently exacerbated during times of crisis, such as droughts brought on by floods. According to the study, more girls than boys are dropping out of school as a result of child marriages and an increased workload brought on by a string of floods that left the affected areas drought-stricken. Transactional sex for food or money to acquire the commodity, teenage pregnancies, and girls

being forced to drop out of school owing to hunger are all on the rise in Ethiopia, according to reports (Hefziba, 2018). These girls live at home or are married. Girls opt to drop out of school in order to keep up with their household responsibilities because they are the ones who handle all of the household chores. It becomes tough for these girls to complete all of this work and attend class. Twelve percent of adult respondents in Somalia said that they were pushing boys to finish their education while relegating girls to household tasks (Carrington, 2018). Nonetheless, despite the area's recurring floods, a senior female teacher in Rumbek, South Sudan, claimed that girls' nonattendance at school was due to the lack of a girl-friendly atmosphere (Reus, 2016).

2.4.2 Effects of Floods on Students Attendance

Following the 2007 floods, there was a twenty percent decline in attendance in Bangladesh. 1.6 million children were impacted by the floods because schools sustained damage and some were converted into shelters (Integrated Regional Information Network, 2013). Hundreds of public buildings and infrastructure, including schools, were destroyed by Hurricane Sandy in 2012. Over 50 schools were totally destroyed, while over 100 schools had to close as a result of damage (IRIN News, 2013). The pupils were unable to cross rivers in Zambia because of crumbling culverts and bridges. Attendance reductions of 40–50% were recorded by the most impacted districts (Zambia Vulnerability Assessment Committee, 2016).

A considerable proportion of children in Kenya continue to miss school due to various factors, including flooding (Achoka & Maiyo, 2018). Even though the landscape is still muddy and some sections are inaccessible, the rains are continuing and most areas are now drying up (Hawks, 2017). When there are floods, a lot of roads are damaged or swept away, making schools inaccessible and lowering enrollment. Limited use of restrooms and inaccessible health facilities lead to infections among students, making them unable to return to class after

instruction has resumed (Okuom et al, 2012). Teachers choose to move to cities since some of the schools that are vulnerable to flooding are located in rural areas (INEE, 2012). Families may not be able to pay the opportunity costs of sending their kids to school during floods instead of having them scavenge for money (INEE, 2015). Floods don't just shut down schools; in Nyando, for example, one school had to close entirely because of flooding, forcing both students and teachers to evacuate (Kenya Red cross, 2015).

2.4.3 Effects of Floods on Students Enrolment

Enrolment is hampered by floods because parents don't want to jeopardise their kids' livelihood. Thus, schools that are vulnerable to flooding are more likely to close as a result of low enrolment. Due to financial difficulties, parents who lose their livelihood as a result of the floods may be unable to register their children (INEE, 2016). Floods make roads impassable and schools uninhabitable, which deters parents and students from enrolling their children in such schools.

In Bangladesh, a school feeding project has increased enrolment overall by 35 percent. Due to floods, 385,000 children in Ethiopia need emergency education between June and July 2012; for females, the dropout rate was 21% and for boys, it reached 50% (UNICEF, 2014:34). Students in Cambodia, particularly girls, have a difficult time getting to school during floods (Lay, 2018). In flood-prone provinces, the average annual dropout rate is 7%, or 1700 students annually in 2012, of whom approximately 786 were female (Coghlan, 2018:59).

In Kenya the situation is not different as the dropout rate increases during floods (Nyakundi, 2015).

2.4.4 Effects of Floods on Students Classroom Participation

Floods cause damage to schools and delays to study plans every year. In Cambodia, 21% of schools are located in locations that are prone to flooding (Lay et al., 2018). There may be a persistent scarcity of competent personnel in some areas due to the difficulty experienced teachers have finding teaching positions. Classrooms, teacher quarters, boarding houses, furniture, and books were all destroyed in Fiji during the April 2018 floods. Rivers might be seen in the play areas (IRIN News, 2016). In August 2013, floods in Pakistan caused damage to schools, raising concerns about education. Debris, including bricks, pieces of wood, concrete, and shattered household items, is visible throughout the southern region of Punjab, which was severely affected by the flooding. Because of the damage that floods do to homes and school infrastructure, it could take months before children who are impacted can return to school. Better-looking ones are converted into relief camps, which may not be abandoned for an extended period of time (Red Cross, 2013).

Floods in Nigeria forced many families to relocate, swamped schools, and displaced people to use the forest as toilets. Participation in class is disrupted when schools are utilised as evacuation sites. Bridges and school buildings occasionally collapse or are flooded for a few weeks. Power supplies are shut off when electric polls are destroyed (Kesieno, 2016). Rainstorms hit Tanzania's Kilosa area, affecting 5,867 families. At first, the impacted families took refuge in schools (IRIN News, 2018).

Floods that occur frequently in various parts of Kenya have a severe effect on people's ability to make a living, cause fatalities, damage property and infrastructure, and interfere with education when schools are destroyed, books are lost, students are forced to relocate, or the displaced use the schools as shelters. Sinks leak, posing a risk to one's health and hygiene. One factor contributing to girls' lower educational participation rates is inadequate sanitation

facilities. Boys' and girls' privacy and security are enhanced by separate restrooms on school property (Okuom, 2015). When roads become waterlogged or bridges are washed away, transport is also disrupted (Red Cross, 2016).

2.4.5 Increased girl child marriage and school dropouts

Previous studies show that girls are affected by floods in a unique manner. Muddock (2019) carried out a study in Kinshasa and found that families risked girls to stay at home and allow boys to continue schooling following floods which affected household income. Though the families recognized this to be a temporary solution to recover from the impact of drought, Muddock (2019) stressed that this order stay girls out of school has actually resulted in them navigating other options such as child marriage.

Delany (2015) carried out a study in Messica Mozambique secondary schools and found that being withdrawn from school is a major challenge on how girls are being affected. Delany (2015) further expounded that due to the need to minimize cost girls re usually the ones that are withdrawn from school. Girls in the society have been regarded as inferior to boys as the saying goes that if you educate the girl child you will be enriching the in-laws where she will get married. Therefore, in other societies girls tend to be at a disadvantage compared to boys. Girls re usually left as guidance to the younger siblings. After a disaster girls are usually the ones that are left to take care and head the family meaning that school attendance will be affected.

UNICEF (2018) pointed that in disaster situations, girls are usually forced into early marriages. When a disaster strikes girls can be forced into early marriage due to poverty. These challenges compromise children's rights and access to quality education. Some in trying to escape from hunger from their own families they end up getting married at a very young age.in addition families can get their daughters marries into rich families in order for them to benefit. When a

disaster strikes some families are quick to bounce back due to a number of factors that include power, economy among others. Therefore, this can greatly affect the number of girl's attendance as they are involved in early marriage.

Mudavanhu (2015) carried out a study in Muzarabani and found that, the rainy season had the highest percentage of absence from school; attendance averaged 50% during this time, meaning that over half of the kids missed school between January and March of 2013. Respondents emphasised that kids at lower levels typically have to stay home a little bit longer since they can't cross flooded rivers, which has an impact on their academic development once more.

2.4.6 Stress, anxiety & depression

High levels of distress and anxiety are often prevalent among school going girls who experience drought than boys (Coghlan, 2018). According to Santrock (2019), stress is the body's reaction to feeling like you're losing control due to a bad scenario or someone. We can all benefit from occasional or rollercoaster stress since it boosts immunity and fosters resilience. But the short-term and long-term stress that poor children grow up with has a terrible effect on them (Kohen,., 2018:1858). Acute stress is defined as extreme stress brought on by trauma such as abuse or violence, whereas chronic stress is defined as high stress that is maintained over an extended period of time. Carroll, Morbey, Balogh, and Araoz (2019) carried out a study at four schools in Buma and noted that school aged girls had difficulty sleeping, low motivation, and obsessive behavior following an acute drought caused by floods. Carroll *et al* (2019) further stressed that persistent distress and anxiety were especially prevalent in girls following the consequences of floods on families. In Iritria, Carnie, Berry, Blinkhorn, and Hart (2015) found that girls of school going age felt high levels of distress and reported being concerned about their families, overwhelmed, isolated, and worried about the future.

Murray (2019) conducted a study in Mozambique, Africa, and discovered that a series of long-term psychological stressors frequently replace the first acute trauma of the floods, particularly for school-age girls. When someone believes they are unable to react or adjust to a particular circumstance, stress can appear as both a subjective emotion and a physical reaction. Anxiety, sadness, concern for upcoming droughts, feelings of vulnerability and helplessness, mourning, loss, and despair can also accompany stress (Neria & Shultz, 2018). Many girl children who experience drought exhibit psychological discomfort even years after the flood, according to a number of research (Simpson, Weissbecker, & Sephton, 2015; Crabtree, 2017; Alderman, Turner, & Tong, 2020). High levels of worry and discomfort also seem to be associated with female high school dropouts, since these individuals may be considering methods to lessen the load on their parents and may turn to marriage as a source of comfort.

2.4.7 Girl child abuse and school dropout

According to Kuttak (2019) the negative consequences of floods in households may stimulate abuse especially on the girl child. As a result, they may look for ways to run away from such abuse and consequentially drop out of school (Kuttak, 2019). When it comes to children and drought, the 2011 drought in East Africa, one of many notable and recent droughts, created a severe food crisis that drastically changed the lives of many children, particularly girls. These children were then abused, exposed to violence, forced to beg for food, engage in dangerous jobs, drop out of school, or migrate (UNICEF, 2015). Droughts can also worsen inequality, which puts people in marginalised rural communities in a precarious cycle of hardship. In Tanzania, a child's or future generation's identification with their natal home and family is threatened when a parent chooses to move their child away in response to immediate survival concerns (Cooper, 2017).

2.4.8 loss of learning hours

Floods have also been held accountable for learning hours lost, which has an impact on educational quality. According to in-depth interviews, the majority of primary and secondary school teachers are not covering the curriculum. It was stated that this would have an impact on the kids' performance because they will take national exams alongside students whose education was uninterrupted. This is consistent with study by Amer (2017) and Okuom et al. (2016) showing that during disasters, teachers don't finish the syllabus, which results in subpar performance. Children mentioned that, in addition to missing class time, they occasionally skip school due to flooding in the rivers caused by the destruction of several bridges.

2.4.9 Exposure to disease outbreak

Children are exposed to several health concerns during floods. Children are exposed to illnesses like malaria and cholera when there is stagnant water. According to reports, cholera is the most common infection that kills children. Malaria is the second most frequent ailment and has also been reported to be killing children in the research area. Speaking with representatives of the health service revealed that during the rainy season, they treat more cases of malaria and cholera. This is consistent with research by Ochola (2009) and the UN Children's Fund (UNICEF) (2009) that indicate low socioeconomic level exacerbates the health risks of malaria and cholera in flood zones.

2.5 Solutions to improve education outcomes for girls and boys

2.5.1 Gender specific interventions

According to Hughes (2019), girls and boys in school are exposed and vulnerable differently to disaster occurrences. Thus, the Sendai Framework for Disaster Risk Reduction advocates for a gender lens in intervention (Carls, 2022). It requires empowerment and inclusive, accessible and non-discriminatory participation, paying special attention to people disproportionately affected by disasters, especially the poorest. It also necessitates 'a gender, age, disability and cultural perspective in all policies and practices; and the promotion of women and youth leadership; in this context, special attention should be paid to the improvement of organized voluntary work of citizens'. The Hyogo Framework for Action which precedes and lays the foundation for the Sendai Framework states that 'a gender perspective should be integrated into all disaster risk management policies, plans and decision-making processes, including those related to risk assessment, early warning, information management, and education and training (Murray, 2019). In the education sector, this implies the need to come up with strategies which specifically address the different concerns of girls and boys with regards to education attainment.

According to UNESCO (2016), large numbers of girls in Sub-Saharan Africa enroll at the beginning of their school careers, but less complete primary education as well as their secondary education. According to some studies conducted, elimination of direct costs of schooling increase enrolment and retention of girls (UNGEI, 2015). In this sense, it is crucial to provide incentives for females that focus on their basic educational needs, such as books, stationery, and school fees. Girls' projected travel distance is reduced when schools are close to or easily accessible from the neighbourhood (Banik & Fyles, 2014), which raises their enrolment and retention rate. According to Lone (2018), schools that have flexible schedules and calendars that provide girls time to do household tasks that are required of them will see a boost in the enrolment and retention rate of girls. Additionally, schools that have female teachers and supervisors will also see an increase in these numbers.

2.5.2 Community sensitization

Girls, parents, educators, and community members should all be made aware of the value of girls' education through sensitization, motivation, and mobilisation (Manion, 2015). It is time to review girls' access to education. When hiring staff members for schools, gender balance should be taken into account, with a preference for female candidates (Mills, 2016). Particularly in areas with significant gender inequality, single-sex schools ought to be taken into consideration (Murphy, 2018). However, effective retention can occur if institutions, in this case schools, are committed to having programmes that are inclusive of all genders, according to Tinto's model of student retention (as stated by Draper, 2018). Boys and girls should prioritise their wellness over all other academic objectives and not feel excluded from any activities that must occur in the school setting. Additionally, the paradigm suggests that learners and teachers should have a reciprocal relationship. For students to feel positively about all academic pursuits, there needs to be a good relationship of such kind. In order to guarantee that students, excel academically and are socially integrated into the school setting, teachers must be resolute in providing them with the assistance and encouragement they need to excel in all courses and activities.

2.5.3 Self coping skills

Previous studies show that school going children both girls and boys are not a homogenous group, hence each have their own way of coping with disaster such as floods (Coghlan, 2021). According to Chinyoka (2019), some female students in Zimbabwe appear to be able to handle schoolwork successfully even after experiencing the trauma of floods. These children are said to possess resilience, which enables them to overcome the hardship caused by the flood and benefit from education despite living in abject poverty. According to

Garnezy (2017), resilient kids are those who play and work hard while upholding high standards. They are also frequently identified by the use of traits like autonomy, self-efficacy, locus of control, and self-esteem. Bernard (2015) noted that children who are resilient have high hopes, a life purpose, goals, personal agency, and the ability to solve problems with others. In a study conducted in Mexico, Chess (2018) found that females could use adaptive distancing as a psychological strategy to separate from unhappy friends and family in order to achieve positive goals and further their psychological needs. According to Fredrickson (2019), nurturing resilience in girls requires organised, loving families that set high standards for their kids' behaviour and promote participation in the family's activities. Strong bonds with at least one adult—who isn't usually a parent—are shared by the majority of resilient kids, and they help to lessen the risks that come with dysfunctional families. Bernard (2012) discovered that while floods might cause stress, having the community's and family's social support can lessen it and have good effects. Consequently, girls who exhibit high resilience are more likely to exhibit low levels of sadness, to abstain from drug and cigarette use, to have early sex, and to drop out of school.

2.5.4 Psychosocial support

Children who have been evacuated from a disaster need psycho-social care in order to help them deal with the experiences of the event and the conditions of being uprooted. Some of the children have lost loved ones, assets, and a place to stay, while some still have family members missing (Mills, 2021). Children and instructors alike experience trauma as a result of these losses, making it difficult for them to engage in class. A suitable learning environment offers sufficient resources, including staff, resources for learning, and facilities, all of which are necessary for the efficient and successful operation of the educational process (Richardson, 2016). Schools are directly impacted since essential human resource pillars are necessary for their smooth operation (Yande, 2019).

2.5.6 Coping Mechanism for Schools

Governments are ultimately in charge of ensuring the safety of their citizens by implementing risk-reduction strategies; the Netherlands is a prime example. Although a large portion of the Netherlands is below sea level, making it more susceptible to flooding and storms, the Dutch have built physical barriers and water management systems over the centuries to protect their nation from the effects of natural disasters (IRIN News, 2013). After 50 years of suffering from floods, Budalangi, the epicentre of Kenyan floods, has been dry throughout 2013. Redesigned dykes have made this possible, and the key is to learn how to live with the floods. (May 4, 2013, Daily Nation). The flood crisis affects schools in a variety of ways. Schools handle things in various ways. After a calamity, individuals with the ability to recover quickly emerge, while those without it continue to spiral downward in poverty. Actions like flood forecasting, food stockpiling, emergency medical services, building flood shelters, insuring buildings and school property against flooding, trenching around their compounds, planting trees and sisal fences around the schools to break and reduce the flow of floodwaters, and preventing erosion are examples of coping mechanisms (Achoka, 2018). Boats were the primary mode of transportation in the severely devastated areas, and many people adapted by living in shelters and relief camps. Other people constructed adjustments in their own homes to deal with the increasing flood waters. The Maniquenique classroom block was designed to serve as a safe haven in the event of flooding. Storage reservoirs and other water retention infrastructure are examples of additional coping strategies (Krysanova, Buiteveld, Haase, Hattermann, Niekerk & Roest, 2019). The purpose of early warning systems and monitoring is to facilitate the implementation of corrective actions and to provide timely and efficient relief through emergency and disaster preparedness activities (UNISDR, 2015). Early warning systems provide crucial information to the school community and other interested parties, enabling them to make informed decisions about evacuation or relocation.

By utilising better early warning systems, disaster preparedness, and other risk reduction strategies, several nations, like Bangladesh, Cuba, and Vietnam, have been able to lessen the impact of meteorological risks like floods and tropical storms (UNISDR, 2015).

2.5.7 Mitigating Flood Hazards and Disasters

The several actions made by governments or other stakeholders to assist communities impacted by floods are known as interventions, and they occur both during and after flood threats and disasters. This could take the form of giving displaced communities clothing, food, medication, and shelter (Elvis, 2014). It might also take the shape of offering educational support services including constructing makeshift learning centres, supplying school supplies, and teacher training. Depending on the needs identified, the type and extent of the disaster, and other factors, there are several types of interventions. Given the potential severity of flooding hazards, interventions aimed at strengthening the impoverisher's assets to absorb shocks are likely to become more crucial in lowering the toll that flooding takes on human life (IPCC, 2014).

It has taken the hazardous fields a while to catch up with the larger discussions about community-based development, participation, and governance. Nonetheless, there is growing consensus in favour of boosting community participation in intervention projects and placing more of an emphasis on localised coping capacity building (Jain, 2020). In order to be effective and socially sustainable, the African continent should prioritise the implementation of flood forecasting systems, increasing public knowledge and preparedness, and developing local institutional capacities. By strengthening communities' own resistance and resilience to flood hazards, these measures can significantly improve society's ability to deal with floods and lessen their overall impact (Baldassarre., 2016). Low-cost technologies that are already available in many African countries, like radio links from cellular

communication networks, offer a great opportunity to support these sustainable actions. These technologies not only make it easier to transmit point measurements of rainfall and river flow, but they can also be used to monitor path-averaged rainfall (Leijnse, 2017). Additionally, emerging low-cost space-borne data sets enable both near real-time flood monitoring (Schumann, 2016) and rainfall measurement (Li, 2019).

According to Maskrey (2019), the creation of a community-based flood warning system was one of the projects included in a capacity building programme in La Masica, Honduras, which was funded by several development agencies. Mitch's 1998 hurricanes caused catastrophic flooding, but the system allowed early mitigation to begin. "La Masica saw no fatalities, in contrast to nearby areas" (Maskrey, 2019). Governments and non-governmental organisations have a strong historical propensity to divide their efforts between disaster management and traditional development, although development and risk reduction should be viewed as complementary aspects of the same process (Mercer, 2019).

Strategies for mitigating the adverse effects of flooding may involve measures taken prior to, during, or subsequent to flood incidents. Parker (2015) distinguished between "structural" and "non-structural" methods to flood remedies, which is a helpful difference. In general, the former refers to engineering interventions like reservoirs, barrages, embankments, and altered river channels that are intended to regulate river flow and lessen or manage the spread of flooding. While structural measures are well-known in the history of floods mitigation, their effectiveness has been uneven.

Many of the structural approaches have proved costly in environmental terms and failure or poor maintenance of some have even exacerbated flood hazards (Yin and Li, 2014). The financial cost of structural solutions, however effective they may be, also makes widespread coverage unfeasible (Newman, 2018) for many flood prone developing countries.

Nonstructural measures have tended to grow in prominence as the limitations of major, engineered solutions have emerged (Newman, 2018). Usually, they refer to actions intended to lessen the short- and long-term effects of the hazard rather than to stop floods from happening. Macro-level examples include official flood warning systems, evacuation plans, land use restrictions in flood-prone areas, building codes to stop floodwaters from entering buildings, and insurance plans. However, non-structural vulnerability reduction at the micro-scale that is, traditional and modern community and household level adaptations and actions has received greater attention recently, particularly in the context of developing nations.

2.5.8 Social capital

Leveraging on social capital helps schools to curb the effects of floods. The literature indicates that while there are many definitions of social capital, social structure, trust, norms, and social networks that support collective action are frequently highlighted (Green and Haines, 2022). According to TANGO (2016), social capital is defined as aspects of social organisation including social trust, norms, and networks that promote cooperation and coordination for mutual gain. Both the volume and calibre of social cooperation are reflected in the context of community resilience.

Community links and networks, for example, are advantageous because they enable people to access the social resources within their communities and raise the possibility that these communities will be able to effectively address their shared issues (Green and Haines, 2019). Community networks can also offer an outside resource that might speed up the growth process, particularly when social services like children's education are involved. The idea of social capital is crucial because it makes it easier for citizens to find solutions to challenges as a group.

Communities that collaborate to achieve a common objective are the most resilient (Davidson, 2016). The theory is that when a society lacks the traits that make it strong, its people are generally less equipped to handle calamities. The quantity of non-profit organisations, volunteer groups, religious organisations, voter registration and involvement, newspaper readership, and sports and leisure clubs in the community can all be used to quantify social capital as a source of communal cooperation and efficacy. Therefore, public behaviours including participation in public affairs, attending public gatherings, casual sociability, and trust can be used to gauge social capital. The capacities reliant on social capital influence community resilience in major part (Frankenberger et al., 2013). Empirical evidence indicates that the degree and utilisation of social capital play a pivotal role in characterising the resilience of communities (Aldrich, 2016).

2.6 Theoretical framework

Theoretical framework entails the blueprint for research (Grant and Osanloo, 2019). A framework is anchored on an available theory in a particular field of inquiry which is related or reflects the hypothesis of a given study. The framework is a blueprint that researcher often borrow to build their research inquiry. It is used as a foundation upon which a research is conducted. The Trans-theoretical model of behavior change, differential exposure and vulnerability theory and the ecological systems theory by Bronfenbrenner have been used in this study to explore the impact of floods on school attendance for boys and girls from a systemic point of view. The theories are explicitly explained below:

2.6.1 Trans-theoretical model of behavior change

This study will make use of the trans-theoretical model of behaviour modification, which is founded on social science theory. The concept outlines the kinds of activities that lead to the results seen in a change map's pathway. The idea's principal proponents are (Prochaska &

Diclemente, 1983). For people's behaviour towards floods to change, their knowledge, attitudes, and abilities must also change. The concept outlines the kinds of acts that result in the outcomes shown in the transformation's pathway. This idea has five phases for changing oneself: stage of precontemplation, during which the person has no immediate plans to change. The second stage is when someone intends to take action in the future but is quite prepared to do so at this time. When someone is considering changing their behaviour, they are in the third stage. Although the person's behaviour has altered, it is still in the early phases of the fourth stage, the action stage. The final stage is maintenance, in which the individual has altered their behaviour and is attempting to maintain it. Because it discusses how people's actions may alter in reaction to disasters—in this case, floods—the personal behaviour change model was chosen. In this case, attitudes on females' education during floods must change. According to Mills (2019), females are sacrificed more on matters of education than boys in situations involving disasters and their aftermath for a variety of reasons, including ingrained sociocultural views.

2.6.2 Differential exposure theory

According to this method, boys and girls are exposed to disasters in different ways. Due to their distinct physiological, psychological, and developmental characteristics, girls are more susceptible (Heath, 2016). Additionally, girls are more likely to drop out of school, which keeps them stuck in a cycle of poverty (Hughes, 2018). Disasters can strike when a child is travelling to or from school; homes and schools can collapse; and a lack of income can result in food poverty, among other things. Catastrophes can occasionally lead to missed school and delayed academic advancement, lost social chances, and greater vulnerability to different life stressors including disease, which primarily affects girls (Peek 2018).

Girls are expected to bear a disproportionate amount of the short- and long-term consequences of floods, according to Fleim (2021). The education sector is impacted by floods in a number of ways, such as the destruction of infrastructure and buildings, the operation of institutional and organisational structures, and the welfare of individuals and communities. Chang et al. (2016) claim that failing schools undermine students' hard-won educational rights and that missing class time eventually lowers educational quality. Many children will never be able to make up lost time and will permanently drop out of school when there are no plans for alternative venues and they are not allowed to attend classes. Flooding-related disruptions to schooling are a widespread problem across the globe.

2.6.3 The ecological perspective

However, the quality and context of a female child's surroundings are examined by Bronfenbrenner's Ecological Systems Theory (Donald, 2018). Learning and social interaction are negatively impacted by an environment that is rife with poverty and drought. According to Bronfenbrenner's Theory, an individual's environment—including his or her home, school, place of employment, church, neighbourhood, culture, and government—all affects how that person develops (Woolley & Kaylor, 2016:96). An individual's engagement with their environment is the definition of the ecological perspective (Rathus, 2016:23). In one instance, a child's inability to cope with the floods causes significant psychosocial difficulties. According to Donald (2016), the foundation of ecological theory is the interaction of various organisms with their physical surroundings. According to Bronfenbrenner (2005, 2008), the ecological viewpoint offers a framework through which many contextual elements influencing female children's academic achievement can be assessed. According to Bronfenbrenner and Ceci (2018), a person's growth is the result of numerous direct and indirect influences that either help or hinder that person's ability to reach their full potential. According to Bray, Gooskens, Khan, Moses, and Seekings (2017), the system is more than the sum of its components.

Therefore, how girl children think, feel, and behave in response to the psychosocial effects of drought is influenced by the social groups, relationships, and socioeconomic forces that make up their environment. These include families, peer groups, schools, and other social groups, as well as the interpersonal, cultural, political, and power dynamics. Events in one part of the system may therefore have an effect on other parts of the system as well as the system as a whole.

- **The microsystem**

According to Rathus (2016:23), a microsystem is the deepest structure made up of interactions between a child and people in their immediate surroundings, such as their home, school, neighbouring community, and peer group. may have detrimental psychological consequences on the child's surroundings. Prejudice from peers, neighbours, and close relatives falls under this category. According to Donald (2017), microsystems are those in which kids engage in close, up-close interactions with other known individuals, including their family.

Microsystems are made up of roles, interactions, and daily routines that influence various facets of a person's development—cognitive, social, emotional, moral, and spiritual. The family, the school, the neighbourhood, and child care facilities are examples of structures in the microsystem (Cole., 2019; Engle & Black, 2018). Boyd and Bee (2016) propose that the biological content of a child, which is also referred to as their developmental stage and genetic makeup, constitutes another component of the microsystem. According to Berk (2017:24), all relationships should be understood to be two-way. For instance, a girl child from a household impoverished will be impacted by parenting styles, the kind of school she attends, and her peers, which will have an impact on her cognitive performance. Santrock (2019) contends that in these environments, the learner participates actively in social interactions and contributes to the creation of the environment rather of acting as a passive recipient of experiences. The child

will therefore be able to develop academically to a greater extent if these interactions and settings are supportive and loving even in the face of the harsh consequences of drought. The association between drought-induced poverty and a child's academic achievement does not seem to be explained by the child's qualities. However, evaluating the child's temperament, the parenting styles of boys and girls, the child's diet, and the child's overall health may reveal elements that either independently or more severely exacerbate the effects of drought-induced poverty on psychosocial issues (Bee & Boyd, 2007:38).

Children need supportive parents when it comes to homework and a generally suitable home environment in order to do well in school. 1 200 teenagers between the ages of 12 and 14 participated in a study led by Eamon (Santrock, 2007) to investigate the impact of drought-induced poverty on reading and math skills. The study found that poverty brought on by drought was associated with lower reading and math results because it was linked to less exciting and unsupportive household circumstances. Parent-child interactions don't always explain the link between children's psychosocial functioning and poverty brought on by drought.

Children living in poverty brought on by floods may experience social-emotional difficulties as a result of peer relationships being hampered or influenced, attending subpar schools, or being in unsupportive learning contexts (Donald, et al., 2010:40). Low-achieving and unruly classroom environments can exacerbate the behaviour patterns of impoverished children, who are more likely to attend schools with little resources (Bowen & Bowen, 2008:482). Psychological distress is also more common in girl children who feel that their school surroundings are not as helpful (Ganga & Chinyoka, 2010:191). The school, as a subsystem inside the microsystem, is crucial to children's academic achievement. Because they will be well-groomed, supportive, and have access to educational resources at school, teachers frequently give preference to students from wealthy homes (Chinyoka, 2011:147). According

to Bronfenbrenner's ecological model, the development of a girl takes place inside an interacting system of nested interactions between the environment and the child. Although there are many settings and mechanisms at play, this researcher is only concerned in looking at how drought affects families and how that affects academic attainment. To that end, she is concentrating on five environments: the family/home, the neighbourhood, peers, the school, and the government.

- **The mesosystem**

According to Bronfenbrenner's theory, the mesosystem is the second level. The mesosystem is a collection of interactions between two or more contexts in which the developing individual takes an active role, according to Bronfenbrenner (2008). Children from low-income families frequently experience discrimination and labelling (Mill, 2018). A drought makes matters worse and widens the disparity between girls from wealthy homes and those from low-income ones. According to Donald (2017), a mesosystem is a collection of microsystems that communicate with one another constantly. Thus, a child's behaviour at school might be influenced by what occurs in their family or peer group, and vice versa. For instance, a neighbour, peer, or teacher may show compassion and understanding to a girl kid who lacks familial support. Thus, contacts with her neighbours, peer group, or teacher may, over time, lessen her feelings of uncertainty, even while her family's lack of support may cause her to feel worried and insecure (Tope, 2015; Mufanechiya, Mandiudza, Mufanechiya & Jinga, 2016). This could therefore alter how she interacts with people at home. Another definition of the mesosystem is a relationship inside the microsystem. For instance, a girl child's academic achievement is impacted by her parents' participation at home, as well as that of her friends, neighbours, and teachers at school (Berk, 2017).

Robinson and Reed (2008:29–130) draw the conclusion that academics should examine the benefits and drawbacks of family mesosystems in connection to early childhood education programmes and explore strategies for strengthening them. The connections among the systems are essential in understanding the child's academic achievement. O'Neil (2011) asserts that improved home-school cooperation and collaboration enhances students' academic performance and attitudes towards learning. Due to inferiority complexes and the possibility that they are working long hours to pay for food, the girls from drought-stricken households find it difficult to create these connections (Grimm, 2019). In addition to being stigmatised and isolated by peers and instructors, children of impoverished parents may experience a decline in self-esteem and a negative impact on their academic performance (Witt, 2018). Children from families affected may experience cultural rejection, which lowers their self-worth and increases their chances of social isolation and academic underperformance.

The socio-emotional development of a female child in the mesosystem, including the connections between the home and the school, may be impacted by drought-induced poverty (Keagan, 2001, as referenced in Bee & Boyd, 2007:28). Problematic peer relationships might arise from the impact of drought-induced poverty on parenting methods in the home, leading to behavioural issues in the child. In a similar vein, Bronfenbrenner's theory states that impoverished children may encounter unsupportive school environments, which could negatively impact their psychosocial adjustment and make it more challenging for parents to foster nurturing or to be involved and supportive parents in the home. (2008). According to Bee (2017) and Sprinthall, Sprinthall, and Oja (2016:113), a child's behaviour at home or at school is influenced by both the demands and forces of the systems they are a part of as well as their own psychological development. In light of this, creating strong dyads or links within the microsystem is crucial for improving the academic achievement of the student in the educational setting.

The exosystem

Exosystems are one or more environments that have an impact on a child's local environment but do not actively involve the youngster (Cole, 2019). As a result of the poverty brought on by the floods, parents squabble, and children become stressed and depressed. The youngster does not engage in these situations, yet they do have an impact on their lives. They consist of community organisations, school boards, and the parents' places of employment. Common environments for children include their homes and their parents' places of employment; things that happen at the parent's place of employment may have an impact on the child at home. An important part of a child's development is the ecosystem. For instance, a parent may vent their frustrations on the family (Bronfenbrenner, 2008:20) if they lose their job or are dissatisfied with their working conditions. This will have an impact on the family's living and financial circumstances. This has a profound impact on friends, instructors, and a youngster who will undoubtedly need to transfer schools. According to Bee (2017), a father's unemployment places a great deal of stress on the family and can lead to marital problems, which can cause tension, anxiety, anger, despair, and misbehaviour in the kids. This could have a detrimental effect on the child's academic achievement.

- **The macrosystem**

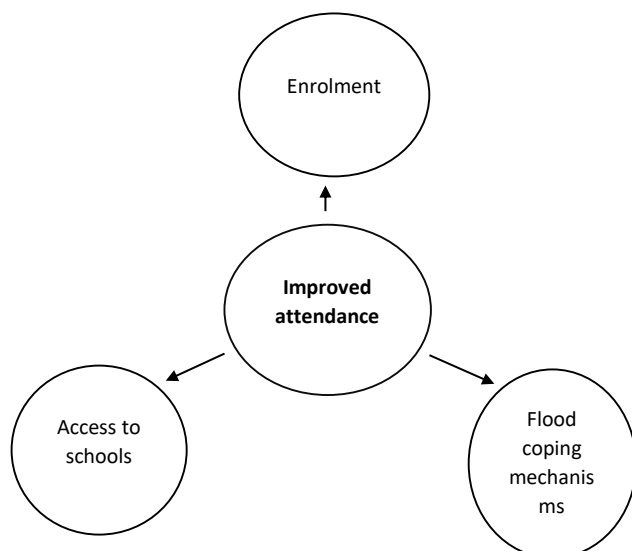
The proximal interactions in a child's microsystems and probably his or her entire mesosystem are influenced by cultural values; similarly, the state's distribution of resources in society impacts all levels of the system. According to Berk (2017), the macrosystem is the highest level of Bronfenbrenner's concept and is composed of rules, expectations, values, and lifestyles that are both cultural and subcultural. According to Donald (2013), the macrosystem consists of the main economic and social institutions as well as the attitudes, convictions, and behaviours that shape every other social system. The two systems that comprise the macrosystem are the

broader community and the entire social system (Boyd & Bee, 2016). Given the previously indicated, macrosystems are the coherence in the other three systems (micro, meso, and exo) that support the way individuals and families organise their lives and have the potential to benefit society as a whole. This implies that the child is not spared and that the rules and values of the parents' place of employment may be used to influence the child's immediate surroundings. Berk (2018) studied how government spending affected the schooling of children who were made impoverished by the floods.

2.7 Conceptual framework

The framework provides an illustration of the factors that affect secondary school education accessibility in areas that are vulnerable to flooding. The use of flood coping measures, which reduce the amount of time lost to learning in the event of a flood, determines how frequently teachers and students attend classes. Floods significantly impede and postpone educational opportunities.

Figure 2.



The conceptual framework shows that putting flood coping strategies into practice to control floods will increase access to secondary education by improving attendance, enrollment, and student participation in the classroom.

2.8 Summary

The literature and the theoretical foundation supporting the investigation have been discussed in this part. In this instance, the goals of the study led the literature review. The research study's methodology is examined in the following chapter.

Commented [L2]: - poor punctuation
- ended up talking more about drought rather than floods

CHAPTER 3: METHODOLOGY

3.0 Introduction

This chapter outlines the methods and procedures that were used during collecting data on the gendered impacts of floods in school attendance and performance. The chapter outlines the research design, the sampling methods, data collection and analysis methods among others. This chapter gives a clear picture of the methods and procedures that were employed when collecting data from participants. The research was explorative in nature, employing the qualitative and quantitative research approach while engaging the phenomenological research philosophy.

3.1 Research methodology

This study used the mixed methods approach, or triangulation method, by utilising both the qualitative and quantitative research approaches. This approach allows for the integration of methods from both approaches (qualitative and quantitative) in a complementary manner and thus ensures a balanced synthesis of data (Moss, 2015). This understanding aligns with Wilson's (2013) definition of research methodology, which states that research methodology refers to the strategies and overall approach used in gathering data.

Curtis and Curtis (2011) describe triangulation as using many methods to double- or cross-check data that has been acquired and/or partially processed using one way. According to Whittaker (2012), qualitative research may be used to explain social phenomena by gaining an understanding of how people interpret their social environments and the historical and cultural context of knowledge. However, D'Cruz and Jones (2014) state that quantitative research can be applied when quantification is required or when determining intensity or frequency with numerical data. Whittaker (2012) asserts that triangulation allows for a synthetic integration of techniques from both quantitative and qualitative approaches, so each technique compensates for the shortcomings of the other. Consequently, the primary benefit of triangulating

qualitative and quantitative approaches in this study was that, it enabled the researcher to gain an in breadth and depth understanding of the gendered impact of floods in Muzarabani.

3.2 Research design

The research uses a descriptive research design. A research design is defined as the overall plan or structure that guides the process of conducting research (Murray, 2018). It is a critical component of the research process and serves as a blueprint for how a study will be carried out, including the methods and techniques that will be used to collect and analyse data. A descriptive design is essential for ensuring that the research objectives are met and that the results are valid and reliable. In order to understand the gendered impacts of floods on school attendance in Chadereka secondary school a descriptive research design was used and, for this reason, the researcher had to create questionnaires that asked teachers and students for the information they wanted to know. The descriptive survey design was required since it allows the researcher to collect thorough, organised, and detailed information about each instance of interest (Kothari, 2004).

Because it combines characteristics of both qualitative and quantitative research, a descriptive research design was used for this study. These kinds of techniques made it easier for the researcher to comprehend the research and to have a better picture of it. Luck and Rubin (2017) state that descriptive research yields precise explanations of factors pertinent to the issue at hand. Berry (2014) lends credence to this, arguing that descriptive research designs are used to gather data on the phenomena's current state in order to characterise what is present in terms of circumstances and conditions. Information was gathered using a descriptive research design using focus groups, interviews, and questionnaires.

- **Advantages**

Descriptive design has the advantage of rapid and thorough data collecting. By using a descriptive design, only pertinent data is gathered in a predetermined amount of time. According to Panneeselvam (2004), a descriptive study is conducted with particular goals in mind, leading to firm conclusions. To ensure that there were no misunderstandings, the researcher used questionnaires with well-written questions. This aided the researcher in drawing inferences from the information gathered. Descriptive design was chosen by the researcher because it makes use of both primary and secondary data.

- **Disadvantages**

Information distortion is a potential risk when using a descriptive study approach that relies on human observation and response. It takes a lot of time and money, depending on the character. For instance, the data processing procedure takes longer if the respondents are asked open-ended questions. Furthermore, because of the varied and complicated perspectives from qualitative research, interpretation is frequently problematic because it is time-consuming and challenging to discover much common ground.

3.3 Target population

Shukla, Satishprakash, (2020) defines population as a set of all the units which possess variable characteristic under study and for which findings of research can be generalised. In addition, (Orodho, 2008) defines a target population as the set of elements that the researcher focuses upon and to which the results obtained by testing the sample should be generalized. Therefore, in this research the targeted population comprises of school children both boys and girls as well as teachers. These people were chosen because they are the ones that are being affected by floods in their school attendance.

3.4 Sampled population

A sample is the portion of the population that serves as its representative. This means that the units chosen as a sample from the population must encompass all the various characteristics of the various kinds of population units. For a variety of reasons, most studies only collect data from sample units rather than the full population, and their conclusions are then extrapolated to the entire population. In order to provide a balanced study in which people of different backgrounds participated, the population sample for this study consisted of 110 participants: 100 pupils, of whom 50 are male and 50 are female; and 10 teachers at Chadereka Secondary School.

Category	Target population	Sample size
Teachers	32	10
Students	350	100
Total population	382	110

Table 3.1

3.5 SAMPLING TECHNIQUES

Random sampling was used during the research to gather information from Chadereka secondary school. The characteristics of probability sampling are as follows. Subjects are selected in an objective and unbiased manner. Every population unit has an equal chance of

being chosen for a sample. (For instance, it is 1 or 1/10.) This probability has a present value before the sample is chosen. Researchers can choose a sample by using an appropriate probability sampling approach while considering the sample size. The choice of a certain subject is independent of the researcher's personal preferences. Each subject is chosen on its own. The choice of one subject has no bearing on the choice of another. It raises the likelihood of choosing a sample that accurately reflects the entire population.

In this research, the study used the hat method on one secondary school that is in ward 1 in Chadereka village. School children and teachers were asked to pick cards which were written yes or no in the hat. Those who picked cards which were tagged yes were the ones chosen to participate in the study. A total of 100 school children were obtained through random sampling and it was applied to the 10 teachers also. The student sample were distributed in all forms.

3.6 PRIMARY DATA SOURCES

Primary data is first-hand information that is gathered directly from respondents using surveys and in-person interviews. Primary data are those that the researcher gathers for the topic in question while on the ground, according to Kotler and Armstrong (2007). Since primary data are gathered specifically for study purposes, the researcher utilised them since they offer the most recent information. It also provides much more reliable data since that data is obtained directly from the source which is Chadereka secondary school ward 1 in Muzarabani district. However due to the need to travel and collect data it takes more resources hence it is expensive.

3.6.2 SECONDARY DATA.

Secondary data sources were also used by the researcher to obtain information. This data was gathered for different study projects by others outside the researcher (Bishop, 2007). This required obtaining second-hand information from both internal and external secondary sources.

Secondary data was used by the researcher since it is easily accessible and cuts down on the amount of time needed for the investigation. The majority of the data comes from published texts. There are quantitative and qualitative data in it. However, as their fundamental cause is different from the study problem at hand, this could contain a lot of bias and distort the findings.

3.7 METHODS OF DATA COLLECTION

3.7.1 In-depth Interviews

The researcher used in-depth interview in collecting data from the selected teachers. The interview was done upon appointments. According to Coghlan and Brannick (2014), an in-depth interview is a conversation between the interviewer and the interviewee that is marked by intense questioning. The primary rationale behind selecting in-depth interviews was their ability to foster an environment in which participants will be attentively listened to in order to fully comprehend the message being communicated. Using in-depth interviews also allowed the researcher to ask more follow-up questions, elicit more information, and revisit important topics later in the interview to gain a deeper understanding of the attitudes, perceptions, and motivations of the participants. The in-depth interview was used because it helped the researcher to establish a good interaction with participants to make them feel more comfortable thereby engendering and soliciting in-depth responses from them.

3.7.2 FOCUSED GROUP DISCUSSIONS

Focus group discussions were done with the teachers. They were done upon appointment also with the permission from the headmaster at Chadereka secondary school. The groups were divided into 3 one for the boys, the other for girls and the teachers group. Each group consisted

of 10 members so as to fully allow maximum participation from each individual. The focused group were done during the day when students are at school. Some of the topics discussed in each group were how floods affected each group; boys' girls and teachers. How they managed to get to school and the problems they faced during flooding and the affects it had on their attendances. Both boys and girls took turns in participating in these group. Other topics discussed are the availability of safe roads to use when a flood strikes. The duties of both boys and girls that they carry before going to school were also discussed.

3.7.3 Questionnaire

In order to get information from respondents—teachers and students—the researcher in this study also used questionnaires. Through pre-testing the questionnaires, the researcher ensured that there were no unclear questions. Both closed-ended and open-ended items were included in the questionnaires used in this investigation. Furthermore, the length of the questionnaire was adequate because a larger one would have a lower response rate and produce inaccurate data. Therefore, in order to keep the questionnaire within acceptable bounds, the researcher made sure that all ambiguous questions were removed.

The questionnaire was divided into five sections ;first section containing the demographic information of respondents, second section containing the impact of floods on girls and boys enrolment at Chadereka secondary school; the third section comprising of the barriers to educational and school access during floods, the fourth containing the effects of floods on school routes, In this study, closed-ended questions were crucial since they accelerated the process by guiding the researcher towards the topics they were interested in learning more about.

Using questionnaires to gather data was a somewhat simple and inexpensive method. A sizable population was covered by the questionnaires. It gave the responders time to consider their

answer and preserved their potential anonymity as well as their ability to express themselves freely without worrying about being questioned.

3.8 Data analysis

The process of analysing data, methods for interpreting the outcomes of such procedures, and strategies for organising data collection to facilitate data analysis are all included in data analysis (Turkey, 1961). The process of extracting, gathering, and modelling raw data in order to generate useful information that may be used to draw conclusions is known as data analysis. Microsoft Excel was primarily utilised to analyse the questionnaire data, while field observations and interview data were used to inform the qualitative discussion. Tables and bar graphs were then used to display the data. Furthermore, the act of gathering, analysing, and evaluating data using a variety of logical and statistical approaches and methodologies is known as data analysis. Data must be inspected, cleaned, transformed, and interpreted in order to yield insightful findings, make decisions, and assist in decision-making. There are two core areas of data analysis: quantitative and qualitative research.

Quantitative research analysis involves the collection of numerical data through structured surveys or experiments, such as ratings, rankings, or test scores. The data was gathered from 110 participants in Chadereka secondary school. The questionnaires were collected from participants but prior to that they were checked for the accuracy and to make sure they were complete. Before the data entry and data cleaning questionnaires were checked to obtain good data quality. The data was analysed using descriptive statistics. The data was presented using tables and graphs. Microsoft excel aided in analysing quantitative data.

Qualitative research analysis involves the collection of textual or audio data through interviews, focus groups, or other discussions. There are several types of data analysis methods such as descriptive analysis, Qualitative research exploratory analysis, inferential analysis,

predictive analysis, causal analysis, mechanistic analysis, and diagnostic analysis. Data themes will be used. Thematic Analysis Thematic analysis is used to deduce the meaning behind the words people use. This is accomplished by discovering repeating themes in text. These meaningful themes reveal key insights into data and can be quantified, particularly when paired with sentiment analysis. The themes for the interview and focus group discussions will be closely analysed and coded. A six-step process will be followed to analyse the data. That is familiarization, coding, generating themes, reviewing themes, defining and naming themes and write-up

3.9 Thematic analysis

Thematic analysis is a technique for evaluating qualitative data that entails finding recurring themes, subjects, concepts, and meaning patterns in a collection of texts, such as transcripts or interviews. After carefully examining the data to find these patterns, the researcher groups the topics into codes or categories. In social science research, thematic analysis is frequently used to examine intricate phenomena and spot patterns in huge data sets. The most popular method of thematic analysis involves six steps: familiarisation, coding, generating themes, reviewing themes, defining and labelling themes, and writing up. There are other ways to do thematic analysis as well. When preparing their analysis, researchers can benefit from this procedure by avoiding confirmation bias. The researcher first coded the information that is used to identify and identify and label meaningful patterns and themes. Then the codes were coded into broader themes and they were interpreted and describe the themes.

3.10 Data presentation

In chapter 4 qualitative data is going to be presented using themes. And my quantitative data will be presented using both graphs and tables.

3.11 Ethical issues

A set of guidelines that direct your research ideas and procedures are known as ethical considerations in research. Voluntary involvement, informed consent, anonymity, secrecy, risk of damage, and results communication are some of these guiding concepts. There is a code of conduct that scientists and researchers must always follow when gathering information from subjects. Understanding real-life occurrences, researching effective therapies, examining habits, and enhancing lives in other ways are common objectives of human research. The headmaster of the school granted the researcher permission to conduct group discussions and interview subjects. The researcher ensured that participant privacy and confidentiality were respected and upheld.

3.12 Summary

Chapter three of the research laid out the methodologies that were used by the researcher during the study. for example, the methods that were used in data collection and how the data was analyzed. This has paved a way for the data presentation to be done in chapter four. Ethical consideration during the research were also included in chapter three. These approaches have helped the researcher to move to the next chapter that is chapter four of data presentation.

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-Limitations of the study not stated

CHAPTER FOUR

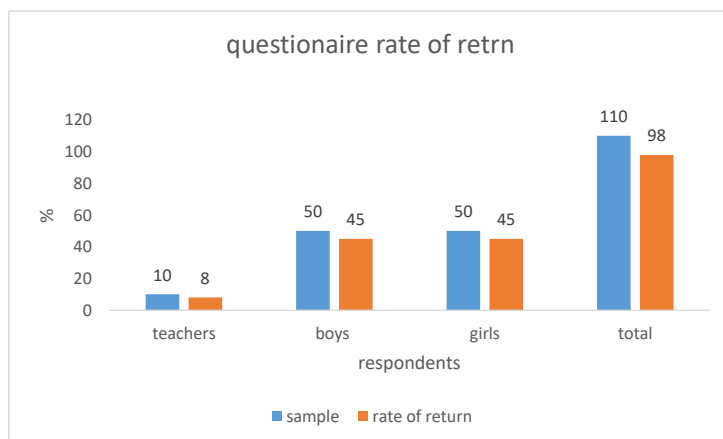
DATA ANALYSIS AND PRESENTATION

4.1 INTRODUCTION

The presentation and discussion of data gathered from the distributed tools is the main objective of this chapter. It deconstructs the respondents' demographic data, interprets the data, and discusses the conclusions. The lecture focused on the goals and inquiries of the study. With the use of Microsoft Excel, the data given in this chapter were processed. The same research topics were covered by every theme that was presented and examined collectively. Things with a similar topic were arranged together. This chapter covers a number of topics, including the questionnaire return rate, respondent demographics, data analysis, and findings discussion. We concentrated on the research questions and objectives during the presentation. A descriptive analysis was performed on the data presented in this chapter. All of the themes connected related to the same research questions together for a comprehensive analysis. Additionally, items centred around specific themes were also presented together

4.2 QUESTIONNAIRE RETURN RATE

Questionnaire return rate is the proportion of the questionnaires returned after they have been issued to the respondent



Source: own construction

Fig 4.1 Percentage distribution on the Questionnaire response rate at Chadereka secondary school.

Out of the 10 teachers, 100 students, 50 boys and 50 girls sampled during the study, 8 teachers and 90 students comprising of 45 girls and 45 boys filled and returned the questionnaire. The

return rate was 80% for teachers and 90% for the students, therefore it was deemed adequate for data analysis. Questionnaire return rate is presented in fig 4.1

4.3 DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

This section shows the characteristics of personal attributes of individual respondents. They include age, gender and duration of stay in the various schools in terms of number of years.

4.3.1 Distribution of respondents by gender.

The researcher sought to find out the gender of teachers and students in various classes. The respondents were requested to indicate their gender and reported as shown in Table 4.1

4.1 Distribution of Respondents by Gender.

Male	5	50	53	53
Females	5	50	47	47
Total	10	100	100	100

n=100 source: primary data

Table 4.1: Percentage distribution on the gender of respondents.

Of the ten teachers, above shows that five are men and five are women. There were five female teachers and five male teachers, indicating that they had attained gender parity. The ratio of male to female teachers was 50 to 50. The boys were 53% while the girls were 47% showing that there are more boys than girls in the secondary schools in Chadereka secondary, therefore

a lot need to be done to achieve gender parity among the students as a way of trying to curb the gendered impact of floods on school retention for both girls and boys.

4.3.2 Distribution of correspondents by age.

	Teachers		Students	
Respondents age in years	F	%	F	%
13-15	00		17	
16-18	00		61	
19-21	00		19	
22 and above	10		3	
Total	10		100	

n=100

source: primary data

Table 4.3.2: Percentage distribution on the ages of respondents

The above table shows that all the teachers were above 22 years and the majority of the students were between 16-18. This implies that they have witnessed rains and floods severally during school attendance and the assumption therefore is that they have experience on flood mitigation measures and therefore will be a reliable source of information for the researcher.

4.4 Effects of Floods on girls and boys Enrolment

The study participants were asked on the effects of floods on girls and boys enrolment at Chadereka secondary school and the following were their responses:

Response	students		Teachers	
	F	%	F	%
enrolment of girls dropped	35	35	4	40
enrolment of girls didn't drop	15	15	1	10
enrolment of boys dropped	12	12	2	20
enrolment of boys didn't drop	30	30	3	30
not sure	8	8	0	11
Total	100	100	10	100

n=100

source: primary data

Table 4.4: Percentage distribution of responses on the effects of floods on student's enrolment

The study's first objective was to determine how floods affected the number of students enrolled in Muzarabani District's Chadereka Secondary School. A series of questions about how floods affect student enrolment were posed to the respondents. The question of whether they had ever moved due to flooding was posed to the respondents.

From the study floods affect the enrolment of both boys and girls. However, from table 4.3 above it shows that among the respondents the majority shows that more girls have dropped school as compared to the number of girls. Only 15% stated that the girl's enrolment didn't drop. 30% of the student's state that the rate of boys dropping out of school didn't drop while 12 % suggested that the boys dropped out of school due to floods. 4% of the teachers suggest that the percentage of girl's enrolment dropped whilst 2% suggested that the percentage of boys dropped. This varied response may be due to the fact that the greatest percentage of the sampled students are in high grades while the few percentages are in lower grades and may lack information.

In FGD's, more girls noted inability to cross damaged bridges going to school. One of the participants had the following to say:

"it is difficult for us girls to continue crossing the river when going to school during times of floods due lack of skills to swim, but some boys are capable of doing it when water levels lowers"

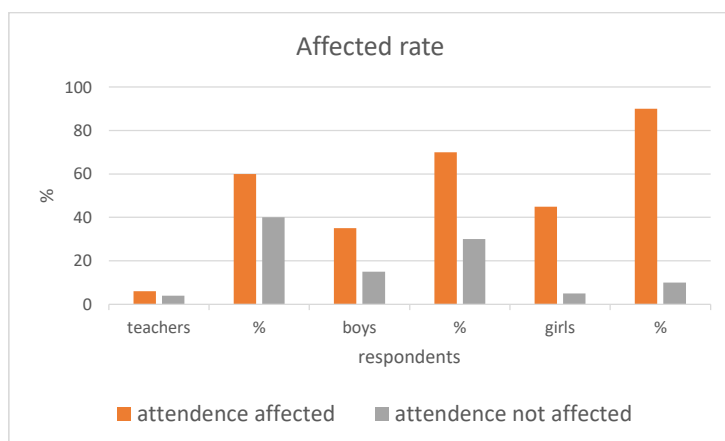
In interviews, the participants also had the following to say:

"Boys have skills and physical ability to manoeuvre, but girls are the ones most affected in instances of floods"

The findings above show that floods mostly affect girls than boys on school attendance. Some boys have been noted as having the ability to cross damaged bridges and flooded rivers as compared to the girls. This is linked to the study done by with (Achoka & Maiyo, 2008) which implied that floods make the enrolment of girls to drop.

4.5 IMPACT OF FLOODS ON ATTENDANCE ON BOYS AND GIRLS

The study's second goal was to determine how floods affected the attendance of boys and girls in secondary schools in Chadereka. When asked if floods had an impact on attendance, the respondents' comments are shown in Fig. 4.2 below.



percentage distribution of responses on the impact of flooding on school attendance for boys and girls.

As shown on Fig 4.5, both boys and girls are affected in terms of school attendance. However, 45% of the girl's population are affected. Their school attendance is affected. While also 35% of boys are affected. Though there is a difference in the number of the affected it should be noted that boys are also victims of floods. They are also affected in terms of attendance as it is shown on the 35%. When the attendance of school is affected there is destruction in the covering of the syllabus and this can result in poor performance during exams.

In in-depth interviews, the study participants had the following to note:

During the rainy season we do not attend school because the rivers will be overflowing. There are no bridges on most of the rivers, some were destroyed and others were never constructed.'

An FDG interview respondent had the following to say:

'It is difficult for us to cover the syllabus because during the rainy season most children do not come to school. We have to wait for them to so that they will not be disadvantaged''

These responses show that floods affect attendance rate of learners, both boys and girls in Muzarabani. Questionnaire responses, focus group discussions with children and interviews indicated that there were many flood-related factors that contributed to school dropouts and absenteeism. This concurs with a study done in Bangladesh where there was a 20% drop in school attendance after the 2007 floods (IRIN, 2013).

4.6 To identify the barriers to educational access and school attendance for students affected by flooding

Through Questionnaires, students were also asked to comment on how floods affected the routes that they use to get to school. The following were their responses in fig 4.3

Fig 4 3 Percentage distribution of boy’s responses on the effect of floods on access to school

Areas	no effects	Moderate	Severe
Footpath	27	15	8
Rivers	8	12	30
roads	44	5	1
Total	79	32	39

Source: primary data

Table 4 .3 showing the impact of floods on access to education for boys and girls.

As shown in table 4.3,30 respondents pointed that crossing the river during floods is difficult when going to school. On the other note, 8 boys highlighted that they had no challenge with crossing partially flooded rivers when going to school. A total of, 44 boys who use roads pointed that they are not greatly affected when roads are not badly destructed during floods.

Table 4.6.2 Percentage distribution of girl’s responses on the effect of floods on access to school

Areas	no effect	Moderate	Severe
Footpath	22	20	8
Rivers	1	5	44
Roads	40	1	0
Total	63	26	52

Table 4.6.2 showing the impact of floods on girl’s access to school

Unlike boys as shown in Fig 4.6.1 above, only 1 girl expressed the ability to cross partially flooded rivers when going to school during rain seasons. This shows that when it comes to crossing the rivers most girls are likely to fail to attend schools as the rivers will be difficult to cross. Also, 40 girls preferred using the road when going to school during rain seasons. Again, this number is slightly lower than boys as Fig 4.6.1 shows 44 boys with the ability to use the road when going to school during rain seasons. This differently affects the attendance of girls at Chadereka secondary school in Muzarabani.

The teachers from indepth interviews pointed that the attendance for both girls and boys is better when they use the road rather than crossing flooded rivers. They however pointed that when the roads are severely damaged, it is only some few boys who have the capacity to cross going to school. One of the participants had the following to say:

“Boys are more resilient than girls, hence they can easily use other means to track to school during the rainy season”

In FGD’s, one of the study participants had the following to underscore:

“Because I am a girl child, my parents won’t even allow me to step out of the house when it is raining. This is because our area has a known history of recurring floods, hence no parent would want her child to be swept away by floods”.

These responses from participants show that girls are the ones whose school attendance is much implicated during the rainy season and instances of floods. This aligns with the finding by Arturo (2018) who pointed that girls suffer the most from differential exposure and differential vulnerability.

4.7 Discussion of key themes emerging

4.7.1 Flood Impacts on School Attendance

It has been noted in the study that floods affect girls’ school attendance more than boys. However, some boys are also affected as they are dropping out of school and seeking employment at an early age. Be that as it may, the differential exposure and vulnerability theory argues that this severely applies to girls due to limiting physical and cultural factors (Hughes, 2015).

4.7.2 Learning Hours Lost

It has been noted also that floods lead to a loss in learning hours for both girls and boys though mostly for girls. during the rainy season. Most students fail to attend school as they fear the flooded rivers. During the rainy season most students are late to school as they wait for rivers to subdue before crossing. This aligns with a finding by Murray (2018) that during the rainy season when there are floods schools are temporarily closed as some classes are also used as evacuation centers.

4.7.3 Qualified Personnel and Absenteeism

It has also been noted that some teachers are temporarily out of school as they fear the floods during rain seasons in Muzarabani. Moreover, the students both boys and girls tend to be behind the syllabus and this affects the pass rate. This is affecting the students as they have to sit in for National Examinations though they have not finished the syllabus. Students fail to proceed with their education due to poor grades

4.8 Chapter summary

The primary focus of this chapter was on the analysis, presentation, and discussion of the research findings. The data was presented and analysed using tables, graphs, and thematic analysis, and it is consistent with the study's aims.

Commented [L4]: - most of the figures not correctly labeled.
- results compared with reviewed literature

CHAPTER 5

SUMMARY CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter focuses on the summary of the study findings, recommendations and conclusions of the study. The chapter is guided by study objectives, looking specifically at the findings presented in the preceding chapter.

5.1.1 Summary of the study

The primary goal of the research was to investigate how floods affect school attendance in relation to gender at Chadereka Secondary School, which is situated in the Muzarabani district. Three research aims formed the basis of the study. The first aim was to characterise how flooding affected the enrollment of boys and girls. Finding the obstacles preventing pupils impacted by flooding from accessing and performing well in school was the second goal. Investigating possible ways to remove these obstacles and enhance educational results was the third and last goal. The descriptive survey approach, which involves interviewing or giving a

questionnaire to a sample of people, was used to perform the study. Additionally, a mixed-methods qualitative and quantitative research approach was used to perform the study. The sample was made up of 10 teachers and 100 students. Of the 100 students they were divided into half girls and boys.

5.2 Summary of the findings

The results of this study demonstrate how floods have an impact on student enrolment since, on occasion, schools have been forced to close and serve as evacuation centres. This resulted from roads to schools being damaged, classrooms being inundated, and schools being inaccessible. Teachers who were female and girls were the most affected because of their varying levels of vulnerability and exposure. Schools are impacted by floods, and pupils could have to leave for home. The flooded areas and rivers made it impossible for teachers and students to cross. Everyday school access has been impacted by improper road maintenance during flooding.

Many rivers are full during flooding, making it impossible for children to traverse them. This poor development and lack of bridges has an impact on students' attendance at school. Radio advisories were issued, but there was nowhere else to go. As a result, property was destroyed, people were forced to evacuate, and several schools had to close due of flooded classrooms, damaged roads, and flooded dorms. Teachers faced difficult working conditions, thus some of them filed for deployment.

Nevertheless, despite the fact that flood catastrophes are thought to have a significant influence on children's education and development, this research showed that attempts to lessen the effects are often insufficient and inappropriate. Children who live in disaster-prone locations are therefore not sufficiently served by the educational system. While the time lost due to disasters is not reimbursed, they receive the same treatment as children in other locations and

take the same national exams. It has been noted that schoolchildren and the infrastructure are susceptible to flood disasters, which jeopardises the children's rights to participate in society and to obtain high-quality education, information, and cleanliness.

It is necessary to include catastrophe risk mitigation in the curriculum. It is important to teach kids how to anticipate, lessen, prevent, respond to, and recover from flood disasters. It is necessary to implement both structural and non-structural measures to lessen the likelihood that flood catastrophes would affect schools and children. Legislators must impose building norms and standards in order to prevent the use of inferior structures and building materials, which endanger the lives of instructors and students. Zoning and land-use planning are necessary before any public building construction can begin to ensure that sensitive areas are not occupied. Additionally, bridge building and road upkeep are necessary to ensure that all neighbourhoods and schools will not be occupied. There is also need for road maintenance to schools and construction of bridges so that all the communities and schools will be accessible by road.

5.3 Conclusions Based on the findings of the study

It was concluded that floods do not only affect the school attendance of girls but boys are affected as well, though girls tend to be more affected. They are regarded as physically fit. This affects them because when resources are destroyed they are expected to help their fathers to repair and also the society expects them at an early stage like form 3 to start acting like man. This has affected their attendance. They are often late to school because they have to fulfill some household duties at home. The level of dropout as well has increased among the boys.

5.4 Recommendations

Based on the research findings, the researcher recommended the following actions to make things better. The Ministry of Education in liaison with the civil protection unity should

develop increase in building schools that are accessible students should not walk long distances to find schools.in addition introduction of mobile schools during flooding should be implemented. They should not be limited to mobile clinics only. In order to plan, build, and maintain school facilities that are robust in the face of recurring disasters like floods and other weather-related disasters, the board of management should hire trained professionals to evaluate the structural safety of damaged school buildings. High enrolment and retention rates can result from providing educational facilities when it's most convenient for them—for instance, by operating during the dry season and closing during floods. It is important to include disaster risk mitigation in the curriculum. Every year, catastrophe risk reduction training should be provided to principals, educators, and students. Communities should be made aware of the need for county governments to insure educational institutions against natural calamities like floods. The ministry of education should make sure that schools follow the guidelines in the safety standards manual. After floods occur, individuals are often compelled to seek employment to support their families. Unfortunately, they can also become victims of flooding, risking their lives while assisting siblings and relatives in crossing rivers to reach school. This expectation arises from the perception that physically strong individuals can handle dangerous tasks to prove their resilience. Floods not only disrupt learning for students and teachers but also lead to school closures, infrastructure damage, family displacement, and increased disease outbreaks. Schools often serve as shelters for displaced families. To address this, a shift from reactive to preparedness strategies is crucial, with a specific focus on flood-related challenges. During floods, receiving a high-quality education protects people physically, psychologically, and cognitively, maintaining dignity and even saving lives. One of the recommendations is to hire experts with the necessary qualifications to evaluate, plan, build, and manage school buildings that are flood-resistant. It is imperative that catastrophe risk reduction be incorporated into the curriculum and that principals, instructors, and students receive yearly training. County

governments should also spread the word about the importance of insuring educational establishments.

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APPENDIX 1: QUESTIONNAIRE FOR THE STUDENTS

I am Ruvarashe Gutusa a fourth year student at Bindura University of Science Education studying for a Bachelor of Science Honours Degree in Disaster Management Studies. I am conducting a research on the effects of flooding on school attendance.in ward 1 in Chadereka Muzarabani district. Kindly assist in answering the questionnaire. The information provided would be surely used purely for academic purposes and the recommendations would benefit your community and school in general. I guarantee utmost confidentiality of the information you give. Indicate your answer by ticking and filing in the space provided. Your cooperation is greatly appreciated.

Please answer all questions and return the questionnaire upon completion

SECTION A BACKGROUND INFORMATION

✓ *Please indicate your response by ticking*

1 RESPONDENTS AGE (IN YEARS)

16-18

AGE	✓ TICK
16-18	
19-21	
Above 22	

2) WHAT IS YOUR GENDER

FEMALE	
MALE	

3) If there is other to question 1 and 2 above specify

SECTION B THE EFFECTS OF FLOODS ON SCHOOL ROUTES

Rank the extent to which floods affect school attendance on different genders

Indicate by ticking the respective box as shown

1=no effects 2= moderate 3=severe

Barriers	Rank		
	1no effect	2moderate	3severe
Roads			
Rivers			
Footpath			

IF ANSWER IS OTHER TO QUESTION ABOVE PLEASE SPECIFY.....

.....

8. Can you swim? Yes No

SECTION C: WHAT ARE THE IMPACTS OF FLOODS ON SCHOOL ATTENDANCE

What are the impacts of floods in attending school.

(indicate your answer by ticking against the impact on the table below

Low syllabus coverage	
Increased absenteeism	
Reduced enrolment	
Early marriage	
Poor school performance	

IF THE ANSWER IS OTHER TO QUESTION ABOVE, PLEASE SPECIFY.....

.....

SECTION D: MEASURES IMPLEMENTED TO INCREASE SCHOOL ATTENDANCE DURING FLOODING

WHAT ARE THE MEASURES BEING IMPLEMENTED TO INCREASE THE ATTENDANCE OF BOTH BOYS AND GIRLS DURING FLOODING

State any at least five measures in the space provided.

.....

.....
.....

THANK YOU FOR PARTICIPATING

QUESTIONNAIRE FOR TEACHERS

This survey will help determine the impacts of floods on school attendance to secondary school education. I kindly request you to fill this questionnaire. Do not write your name. Please answer the questions as honestly and as truthfully as possible by ticking in the spaces provided. The information you give will be treated with utmost confidentiality and will be used for this study only. Thank you for taking the time to complete this survey.

Demographic Information:

1. How long have you been in this school?

2. Age range:

Please tick in the box below

23-30

31-40

41-50

51-60

3 Gender: Male Female

Section A: Flood hazard on attendance and enrolment

4. To what extent did the floods affect: students' attendance in your class? students' enrolment in your school?

5. Are there students or teachers who did not return after the floods?

If yes specify and explain

THANK YOU FOR PARTICIPATING

APPENDIX 2 FOCUS GROUP DISCUSSION GUIDE

1 What are the factors increasing floods in your community?

2 what are the effects of floods on school attendance to girls/boys?

3 how do you get to school during floods?

4 what are the challenges you are facing in getting to school during the rainy season?

APPENDIX 3 IN DEPTH INTERVIEW GUIDE

Introduction and brief instructions

Introduce yourself and explain the purpose of the interview. Also highlight that participation in the meeting is voluntary and no incentives are offered. Assure confidentiality. Ask if there are any questions.

Interviewer----- date-----

Start time....

Respondent's name----- Gender-----

Age----- Postal Address-----

Mobile-----

Can you please describe the challenges you are facing during flooding and how it is affecting you as a student (boy/girl)?