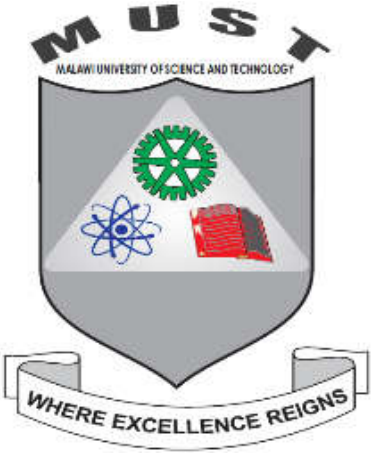


ASSESSING THE EFFECTIVINESS OF SAVALA EVACUATION CENTER IN FLOOD RESPONSE AND RECOVERY IN CHIKWAWA, MALAWI

BRIAN SIKAMALE

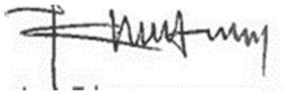
Thyolo, Malawi

Dissertation submitted to Ndata School of Climate and Earth Sciences of the Malawi University of Science and Technology in partial fulfillment of the requirements for the Bachelor of Science degree in Disaster Risk Management

JULY, 2021

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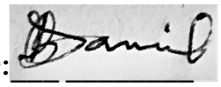
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DECLARATION

I Brian Sikamale declare that the research project represents my own work and that it has never been submitted to this institution or any other institution for any academic purposes. All the sources of information have been appropriately acknowledged

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ABSTRACT

Disasters have negative damaging impacts on the lives, livelihoods, environment, and economy of nations. So far, a lot of measures have been implemented to curb the negative impacts of disasters across the globe. One of the measures is constructing evacuation centers in disaster-prone areas. Evacuation centers accommodate displaced disaster victims and evacuees. Thus, they reduce shelter after disaster problems hence hastening the recovery process of individuals. So far, there has been an increased preference of evacuation centers to other mitigation measures of disasters in Malawi and other Countries since they are believed to increase the resilience of communities to disasters. However, it is not logical to conclude that the evacuation centers are crucial in increasing the resilience of all disaster-prone areas they have been constructed in across the world, this needs empirical evidence. Since in some disaster-prone areas they might be needless due to various reasons. Therefore, this study aimed at assessing how effective Savara evacuation center is in alleviating the impacts of floods and enhancing the recovery of displaced victims in Group village headman (GVH) Savara, Ta Makhwira, Chikwawa, Malawi. Thereby, bringing empirical evidence on the conceptual information of the Evacuation Center. The study used both qualitative and quantitative data collection methods. The data collected were analyzed using the Statistical Package of Social Science (SPSS) as well as Microsoft word. The sample comprised of individuals who have ever been displaced by floods and lived at the evacuation center in the area, Desk officer for disaster management in Chikwawa district, Chairperson of the Area Civil Protection Committee (ACPC) of TA Makhwira, and the Chairpersons of each of the three Village Civil Protection Committees (VCPC) in GVH Savara. Through the analysis of collected data, it was found that the Evacuation center is effective and suitable in terms of its role in flood response and recovery in the area. Since all shelter after disaster problems are over and the response to floods is effective and timely. The study recommends that the government and relevant stakeholders concentrate more on disaster preparedness measures in all disaster-prone areas including evacuation center construction rather than an ordinary disaster proactive approach.

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ACRONYMS / ABBREVIATIONS

ACPC: Area civil protection committee

DoDMA: Department of Disaster Management affairs

GIS: Geographic information systems

GVH: Group Village Headman

IDP: Internally Displaced person

NGO: Non-Governmental organization

VCPC: Village civil protection committee

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1. INTRODUCTION

1.1. Background information

"*Shelter is a critical determinant for survival in the initial stages of a disaster. Beyond survival, shelter is necessary to provide security, personal safety, and protection from the climate and to promote resistance to ill health and disease. It is also important for human dignity, to sustain family and community life, and to enable affected populations to recover from the impact of disaster*" (The Sphere Project, 2011).

The shelter has been recognized as the critical basic need for survival in cases of natural hazards or conflict. Recently, there is a growing realization of the importance of safe shelters for displaced people after a disaster. Governments and relevant stakeholders in various countries have constructed evacuation centers to solve shelter problems that have been being experienced from past disasters. An evacuation center is a designated building specifically selected as a safer location not anticipated to be adversely affected by the hazard (Queensland Government, 2013). An evacuation center strengthens communities' by influencing the response to a disaster to be effective, thus people easily evacuate when a warning about an impending disaster has been disseminated and they know a safe shelter to evacuate to (Lee et al., 2018).

Climate change has exacerbated the impacts and frequency of meteorological disasters like Cyclones, Floods, Landslides, and Heavy Rains. This is evidenced by the higher frequency and greater impacts of disasters in modern times unlike in the past before industrialization. The greater impacts that disasters inflict on the communities are, loss of lives, injuries, and destruction of buildings. Destruction of buildings especially houses causes displacement. Displacement exposes disaster victims to further harm, especially women. For instance, women can be raped when there are homeless due to a lack of security (Mtembenuzeni & Kushe, 2018). So, the government and humanitarian actors tend to rush to set up

emergency camps to provide shelter to disaster victims when they have been displaced. The camps are mostly set up with Tents or in school buildings. However, several researchers found that Tents cannot be relied upon in the sense of providing safety to victims, taking it from the angle that, Tents can collapse due to faulty installation of tents or tent designs not in accordance with the climate of an area. both of which relate to human error. (Mounaim et al., 2020). The use of schools as emergency camps has also been errored by many researchers because they disrupt classes, cause uncleanliness, and disturbance among the students, causing them to have less concentration in their studies (Kawasaki et al., 2020; Luna et al., 2008). So, to curb these impacts, the Government and various organizations embarked on constructing Evacuation centers in disaster-prone areas.

1.1.1. Evacuation centers, the case of Malawi

For decades, Malawi has been the poorest country in sub-Saharan Africa, with a population of about 18 million. Using the international poverty line of US$1.90 per person per day, 50.7 percent of the population live below the poverty line and 25 percent live in extreme poverty (Internation Monetary Fund (IMF), 2017). Poverty results in the inability to construct strong resilient houses, hence many people in Malawi are vulnerable to displacement by a disaster (Kloukinas et al., 2019).

Malawi is a country that is affected by various Disasters almost every year. For the last decade, the worst impact by Disasters was experienced in 2015 and 2019. In 2015, Malawi was hard hit by Floods and in 2019, it was heavily impacted by Cyclone Idai's heavy rains, strong winds, and severe flooding. In 2015, an estimate of 1,101,364 people was affected, 230,000 displaced, 106 killed and 172 reported missing. While in 2019, It is estimated that 975,000 people in total were affected, with 86,976 displaced, 60 killed, and 672 injured. The displaced people were accommodated in temporary evacuation camps which were not meant to be evacuation centers and these were mostly Schools with limited access to

safe water and sanitation facilities. This resulted in significant disruptions to learning and teaching activities at the Schools (Government of Malawi, 2015, 2019).

In light of such problems, Various humanitarian organizations working in Malawi, relevant stakeholders, and the government of Malawi have embarked on the construction of Evacuation Centers as one of the solutions to shelter problems after a disaster. In 2016, the United Nations development programme (UNDP) together with the Peoples' Republic of China and the Government of Malawi, launched a Small Grant Scheme on Disaster Risk Reduction. Under this China-Malawi- UNDP collaboration, grants were approved for 5 Community-Based Organizations and one Civil Protection Committee to establish 5 Evacuation Centers and to build 2 Flood-protective Dykes in five disaster-prone districts in Malawi. The project was expected to benefit approximately 23,000 people in local communities in the districts of Chikwawa, Mangochi, Karonga, Salima, and Nsanje. (UNDP, 2018). The department of disaster management affairs (DoDMA) is also constructing other evacuation centers designed to host displaced populations from any type of disaster in 5 Disaster-prone districts which are Chikwawa, Balaka, Phalombe, Zomba, and Mangochi (Departpent of disaster management affairs (DoDMA), 2020).

The Malawi case shows that evacuation center construction is a new venture in the country's disaster mitigation measures. So far, no research has been done to study how effective the Evacuation centers are in terms of their role in disaster response and recovery. Since we cannot just conclude that tall the Evacuation centers are functional and minimizing the impacts of disasters in the areas, they have been constructed in. Thus, Every Evacuation center has to be assessed by empirical research. This research has focused much on assessing the effectiveness of the Savala Evacuation center in disaster response and recovery in Group Village Headman Savala, TA Makhwira, Chikwawa, Malawi.

1.2. Problem statement

Although the construction of designated Evacuation centers has been adopted by several governments and organizations to curb the impacts of displacement by disasters, empirical research assessing such aspects of disaster risk reduction measures is just developing. Various researchers have highlighted that designated Evacuation centers safeguard people in hazardous areas and situations and help them to recover from disaster impacts (Rohwerder, 2016; Sherwood et al., 2015; Sritart et al., 2020). However, it is not logical to conclude that they increase resilience in all areas they have been constructed in. This needs empirical evidence in the various areas the structures exist.

In Malawi, despite the construction of these Evacuation centers in some disaster-prone districts, the actual impact of these structures on the communities' resilience to disasters is still not known. Therefore, the crucial question still stands: How effective are these structures during the response and recovery stages of a disaster.

1.3. Main and specific objectives

1.3.1. Main objective

- To assess the effectiveness of Savala Evacuation Center during flood response and recovery of displaced persons in Group village Savara, Traditional Authority Makhwira in Chikhwawa District.

1.3.2. Specific objectives

- To find out the impact that the Evacuation center has on the victims' social-economic activities.
- To determine the accessibility of the evacuation center.

- To find out if medical treatment is readily available at the evacuation center.

- To find what is the most effective mitigation measure that the community needs.

1.3.3. Research questions

- What impact does the Evacuation center have on the victims' social-economic activities?

- Is the evacuation center accessible all the time?

- Is medical treatment readily available at the evacuation center to victims when a disaster strikes?

- What is the most effective mitigation measure that the community needs?

1.4. Significance of the study

The findings of this study will contribute to the theoretical debates of the direct importance of Evacuation Centers in reducing the problems resulting from a disaster and their contribution towards the success of other mitigation measures. In Malawi, like most countries, there has been less research focus on Evacuation Centers as a mitigation measure to disasters compared to other measures. Therefore, this study will validate theoretical assumptions and increase understanding of how optimal the Evacuation Centers are in the response and recovery stages of the disaster risk management cycle. Essentially, the findings of this study will inspire relevant stakeholders to construct evacuation centers in all disaster-prone areas, especially in Malawi. To sum up, this study will bring to light the effectiveness of the Savala-designated evacuation center in flood response and recovery.

2. LITERATURE REVIEW

2.1. Chapter Introduction

This chapter is aimed to be a critical review of literature related to the present study. Section 2.1, Broadly discusses the concept of Evacuation Centers. Section 2.2 discusses the role of evacuation centers in disaster risk management. Section 2.3 systematically engages with existing literature related to Evacuation Centers and exposes existing research gaps.

2.2. The Concept of Emergency shelters

The enormous shelter problems that have been observed after mass disasters have necessitated a shift towards an appropriate shelter preparedness measure which is constructing designated evacuation centers. The key function of Evacuation centers is to provide displaced people with basic needs including, food, water, the safety of people and property, clothing, and privacy (Kako et al., 2020). Evacuation centers do not only provide immediate and temporary accommodation for victims of a disaster; they also support victims to recover from the associated trauma and provide them with a base to start the process of coping with and adapting to stresses caused by the situation (Kako et al., 2020; Sritart et al., 2020; Zhao et al., 2017). Furthermore, evacuation centers are supposed to be established in a safe location away from potential primary and secondary hazards and should be structurally sound and follow existing building codes (Unicef & IOM, n.d.). In addition, a suitable evacuation center should cause minimal disruption to work, school, social arrangements, and cultural practices, and should have special shelter arrangements for more vulnerable individuals including lactating mothers, children, the elderly, and persons with disabilities (Unicef & IOM, n.d.).

There are various shelter alternatives to displaced populations after a disaster has struck, Generally, these Shelters after a disaster can be categorized into two, thus, formal and

informal evacuation shelters(Ninggar & Kusumo, 2016). Informal evacuation shelters are shelters that are not meant to accommodate displaced people, but people evacuate to these places when a disaster is imminent or when they have been displaced by a disaster without any concert or advice from disaster management authorities, for example, churches and schools. The victims are accommodated in classrooms and other school facilities like halls. While formal emergency shelters are designated evacuation centers which are places planned, designed, constructed, and chosen to be used to accommodate displaced people and evacuees in the event of a disaster. The designated evacuation center can be a school where additional facilities are constructed to accommodate victims and it can also be a stand-alone constructed evacuation center. when a school is designated to be used as an evacuation center, victims do no reside in classrooms. A designated evacuation center has staff or personnel who are always in charge of the shelter even when it is not operating. Unlike the miscellaneous use of schools as post-disaster shelters. Besides, there are also emergency shelters which are usually tents distributed to the displaced population as a part of humanitarian aid to solve the post-disaster shelter problems.

In many African countries, including Malawi, schools are mostly used miscellaneously as emergency shelters (Government of Malawi, 2015, 2019). However, the schools are not designed in any way to accommodate displaced or any mass population. Most primary schools do not have bathrooms, have limited access to safe water, and do not have adequate toilets (Government of Malawi, 2015, 2019). To solve the problem, the government and other organizations have embarked on constructing evacuation centers that accommodate the disaster-displaced population.

2.3. Disaster Risk Management Cycle and Evacuation Centers

The construction of evacuation centers has recently become one of the crucial topics in disaster risk management. This has mainly gained support from the critical need to find a solution to shelter problems associated with displacements after a disaster. In line with

one of the priorities of The Sendai Framework for Disaster Risk Reduction 2015–2030 (Sendai Framework), adopted by 187 United Nations member states in March 2015, "*Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation, and reconstruction as one of its priorities*", The construction of evacuation centers is seen to be one of the most effective disaster risk reduction measures. Subsequently, once the evacuation center has been constructed in preparation for future disasters, the response to the disasters is way very effective.

The Disaster risk management Cycle is a widely used model that is used to shows the sequence of activities that often follow a natural or man-made disaster (Hansford, 2006). The cycle has two key phases; the Pre-disaster phase, and the post-disaster phase. The pre-disaster phase has two stages namely; Preparedness and Mitigation while the post-disaster phase comprises response and recovery stages. The evacuation centers are involved in all stages. The thought process is as such; The evacuation centers are constructed to prepare for future disasters, to lessen their extent and impact. In a way that displaced people or evacuees are accommodated immediately before, during, and after a disaster (Kako et al., 2020). Besides, Zhao et al.,(2017) emphasized that the Evacuation centers also support victims in their recovery from the associated trauma by providing them with a base to start the process of coping with and adapting to stresses caused by the situation.



Figure 1. Disaster risk management cycle

Source: (Khan et al., 2008)

Of all, this research has focused much on stages three and four, response and recovery, or in other words how communities react to and recover from a disaster. Especially how effective the Savala evacuation center's role is in response and recovery stages.

2.4. Evacuation centers and victims' social-economic activities

The conditions at an Evacuation Center can have an impact on disaster victims' social-economic status, this can either be a positive or a negative impact. For instance, proper attention to Ethical issues at an Evacuation center makes victims comfortable (Khaji et al., 2019), when victims are comfortable, they find it easier to do their social-economic activities. Examples of Ethical issues are the violation of privacy, the shortage of basic needs and, the type and quality of services rendered. Besides, Evacuation centers have a positive impact on victims' social-economic activities, especially either when victims are encouraged

to do social-economic activities or not. However, encouraging victims to do their social-economic activities at Evacuation centers is crucial to their recovery (Lindell, 2011). Since the victims will not be living at the evacuation center forever, they are supposed to start making a living on their own rather than depending on Humanitarian Aid only.

In some evacuation centers, victims are not allowed to do their social-economic activities by the local authorities either because the disaster situation has not normalized or the government wants to reallocate the victims to a new safe location (Makhoul, 2014). However, it is not good to restrict victims from doing their daily social-economic activities since, social-economic activities are essential to victims' recovery (Lindell, 2011). Thus, unnecessary restrictions at evacuation centers can derail victims' social-economic activities.

2.5. Assessing the accessibility of evacuation centers

Accessibility of an Evacuation center has been considered by various researchers as a suitable measure when studying Evacuation centers. Thus, with consideration of other factors, and the Evacuation center that is accessible is considered suitable to be used by internally displaced persons (IDPs). Besides, an Evacuation center has to be at a suitable distance from at-risk communities and the route to the Evacuation center has to be passable, for it to be considered accessible (Luathep & Jaensirisak., 2014). Surprisingly, many researchers used Geographical information systems (GIS) to determine the suitability of distance from at-risk communities to an Evacuation center (Kar & Hodgson, 2008; Mustaffa et al., 2016). But it is quite important to determine the suitability of distance to the evacuation center based on at-risk communities' views since they are the ones who evacuate to the structure when they have been displaced or when a warning about an impending disaster has been issued. This is important because, when people consider the Evacuation center to be located at a suitable distance, they are encouraged to evacuate when a warning about an impending disaster has been disseminated (Tsioulou et al., 2021).

2.6. The availability of medical support at evacuation centers

Various researchers and evidence from gray literature have shown that medical support or treatment is very crucial at Evacuation centers. Disaster affects the health of individuals either physically or emotionally. Since Evacuation centers are the only places where disaster victims evacuate, they are supposed to have medical support. Having medical support at an Evacuation center helps victims to recover on time and reduces their exposure to further harm (Fujita, 2010). This is so because treating injured or sick people prevents serious health complications which can result in death. Besides, apart from being injured by a disaster, Victims experience serious health complications at evacuation centers due to the unavailability of separate toilets, inadequate sanitation, lack of sanitary supplies, and inadequate childbirth and maternity care resources (Chowdhury et al., 2019). This shows that at evacuation centers various health problems can arise, so medical support is a necessity. However, it is not only about having medical treatment, the medical treatment has to be readily available at Evacuation centers so that if a disaster strikes, victims can get the treatment on time. Since delayed medical treatment or care can lead to the death of people (Boniatti et al., 2013).

2.7. The Preference of Evacuation Centers over Relocation

Globally the studies of evacuation centers are minimal as compared to other disaster risk management interventions. However, the attention on constructing evacuation centers is currently increasing due to their perceived advantage in safeguarding people from hazardous areas and situations. Findings from some other research studies have shown that people who live in affected regions opt for the construction of Evacuation centers rather than other disaster mitigation measures. For instance, research that was done by (Walch, 2018) in the Philippines found that at-risk communities in the country refused to relocate and preferred robust construction of evacuation centers and a strengthened early warning system to mitigate the impacts of disasters they face. This usually happens because of the lively economic benefits that exist in the disaster-prone area. This is also evidenced in

research that was done in Chikuse Flood-prone area in TA Makhwira, Chikwawa by (Mtembenuzeni & Kushe, 2018). The people living in the flood-prone area stressed that they want an Evacuation center in their area rather than Relocating to a safe area because of the area's fertile soils which are good for agriculture and the active Fishing activities in the Shire River. However, it is not logical to conclude that, all the people in disaster-prone regions opt for Evacuation centers over other mitigation measures, this needs to be assessed.

2.8. Chapter conclusion

This chapter has discussed the basic concepts of Evacuation Centers in disaster risk management and how the issue of evacuation centers has been tackled by other researchers. However, the core part of this chapter, is how it has exposed existing research gaps on evacuation centers in disaster risk management.

3. METHODOLOGY

3.1. Description of the study area

The study was conducted in Group Village Headman Savala, Traditional Authority Makhwira in Chikwawa District in the southern region of Malawi. The area comprises 4 villages namely; Savala, Nota. Thedzi, Mitawe. The area is prone to disasters such as cyclones, stormy rains, floods, and Heatwaves. However, Floods are the most recurring disaster in the area and the district as a whole. Of all areas in the district, Makhwira is the main area that is hit by floods almost yearly. This area lies along the Shire River and gets flooded due to several river tributaries that pour water into the Shire River. The land is almost flat with several river tributaries. The area has good and fertile soils for the cultivation of crops without applying inorganic fertilizer which makes it less likely to be abandoned by the inhabitants despite the area being very prone to floods.

3.1.1. Map of the Study Area

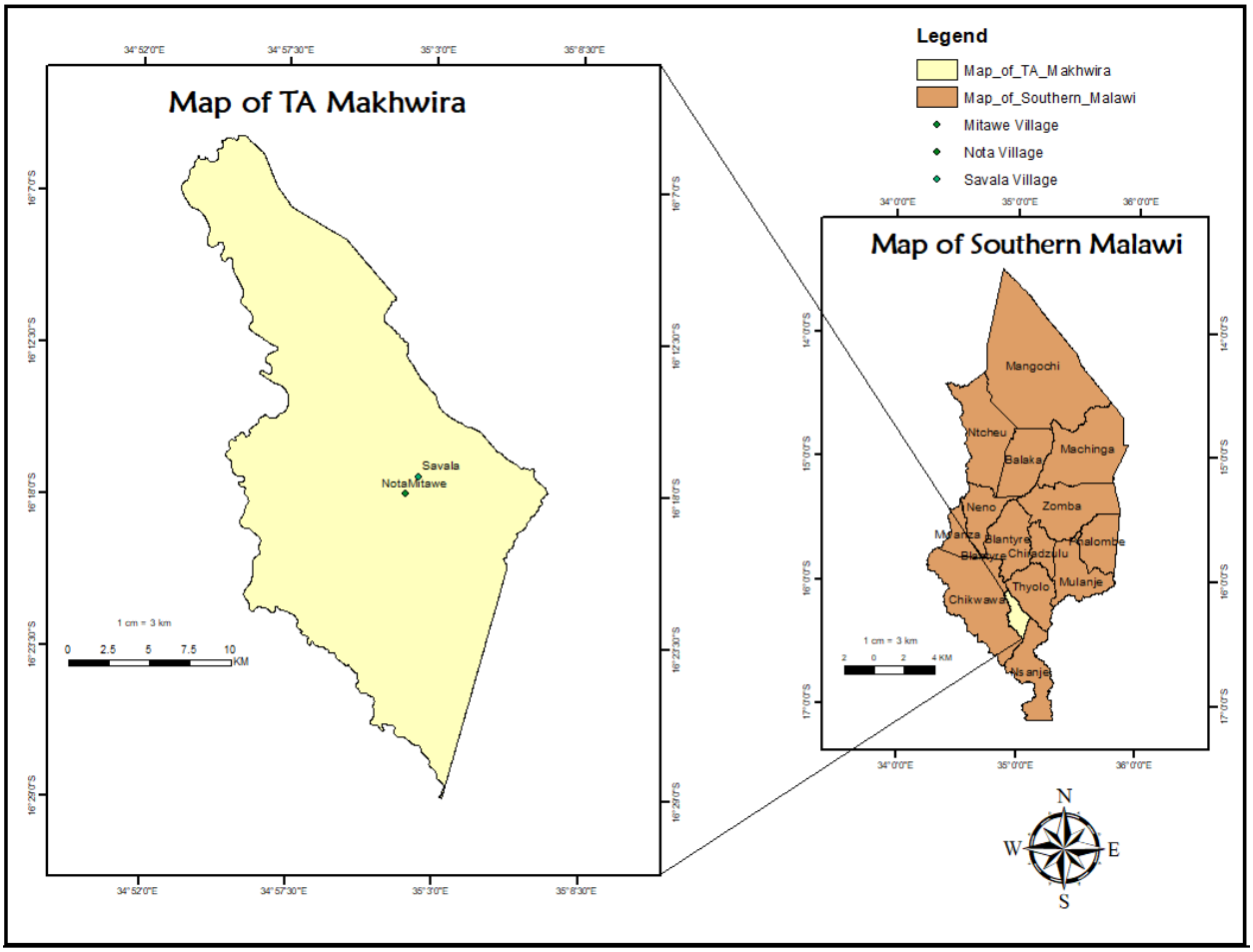


Figure 2. Map of the study area

3.2. Research Design

This study adopted a descriptive research design to achieve its objectives. Thus, the research was purely based on a theoretical basis, whereby data was collected, analyzed, prepared, and then presented understandably. To achieve the objectives, there was a field trip to the study area to collect data. Both qualitative and quantitative data collection methods were used in the field. Therefore, the study used a mixed approach where both figures and statements were used in the data collection and analysis. A survey was conducted in the

study area; whereby questionnaires were distributed to obtain information from the people who were once victims of displacement by floods in the area and have lived at Savala Evacuation Center once or more. The study was complemented by semi-structured interviews and field observations by the researcher. The interviews comprised of the Desk Officer for Disaster Management in Chikwawa District, the Area civil protection committee (ACPC) chairperson of Traditional authority Savala, and the village civil protection committee (VCPC) chairpersons of 3 villages out of the 4 villages in Group village headman Savala. The table below shows the approach that helped to answer the research questions of this research

Table 1. A conceptual framework for the study shows how the approach helped to answer research questions

Research Question	Variable analyzed	Data Collection tool	Data Analysis Method
RQ1: What impact does the Evacuation center have on the victims' social-economic activities	Impact on the social-economic activities (based on questionnaires)	Questionnaires	Descriptive statistics
RQ2: Is the evacuation center accessible all the time?	Accessibility (based on questionnaires)	Questionnaires	Descriptive statistics
RQ3: Is medical treatment readily available at the evacuation center?	Readiness of treatment	Semi-structured interviews	Thematic analysis
RQ4: What is the most effective mitigation measure?	Perception of Mitigation measures	Questionnaires	Descriptive statistics

3.2.1. Sampling and sample sizes

The research used non-probability sampling, which is purposive sampling. The researcher used personal judgment to choose respondents to participate in the study. Since not everyone was eligible to participate in the study, only those that were once victims of displacement by floods and lived at Savala Evacuation center were included in the study. The research involved 50 respondents in total, of which 15 respondents were selected from three villages out of the 4 villages in the Savala area. 5 respondents were key informants in the study.

3.2.2. Data Collection Methods

In this study, specific data collection methods and instruments were used to collect the study-specific data that would help determine the effectiveness of the Savala Evacuation center in terms of its role in disaster response and recovery.

3.2.2.1. Questionnaire

A survey was conducted in the study area whereby questionnaires were used. The questionnaires were distributed to 45 respondents, of which 15, were from each of the following 3 villages in the Savala area. The villages are Savala, Nota, and Mitawe. The participants are those who have ever been displaced by floods and took shelter at the evacuation center that was constructed in the area. The questionnaires aimed to find out the following data: The impact that Savara evacuation has on victims' social economic activities, the accessibility of the evacuation center, and the perception that the people have on the most effective mitigation measure.

3.2.2.2. Semi-structured Interviews

The researcher used semi-structured interviews with Five key informants. The Five key informants were the Desk Officer for Disaster Management in Chikwawa District, The Chairperson of the ACPC, and The Chairpersons of the VCPC of each of the three villages. The key informants are people who are more involved in disaster management activities and understand the conditions of the affected area much better. The key informants were asked questions to obtain the actual impact of the evacuation centers on disaster response and recovery in the area, especially the readiness of the evacuation centers in providing medical treatment to disaster victims and they also provided details of how the Savala evacuation center and other evacuation centers in the district have improved the management of disaster response activities for example aid distribution.

3.2.2.3. Observations

The researcher also conducted observations which allowed him to gain insights into the perceived importance of the Evacuation center in disaster response and recovery in the study area. According to Creswell (2012), observations are a convenient data collection instrument for gathering open-ended, first-hand information by observing people and places in research sites. Thus, using observations for purposes of data collection allowed the researcher to get the actual information of the situation in the area and also study respondents who had difficulties in expressing their views.

3.2.3. Data Analysis Methods

This study employed a mixed-method data analysis approach.

3.2.3.1. Descriptive statistics

The collected quantitative Data that was obtained through questionnaires was analyzed by using the Descriptive statistics method. The data was then analyzed using SPSS software by

computing simple statistics such as frequencies, totals percentages, and presented in pie charts and graphs. SPSS software was used because of its efficiency in analyzing data, tabular presentation, and Pie chart, and graph plotting.

3.2.3.2. Deductive thematic analysis

All the qualitative data that was collected through semi-structured interviews and observations were analyzed by a deductive approach to thematic analysis. Thus, the researcher had preconceived themes that he expected to find in the data. The data were then transcribed to text in Microsoft word. where the preconceived themes the researcher had were highlighted for easy visualization. Lastly, the results were presented in a simple paragraph.

4. RESULTS AND DISCUSSIONS

4.1. Introduction

This chapter presents a summary of the collected and qualitatively analyzed data. The collected data and analysis applied intended to address the set research questions that are presented in Chapter 1. The chapter further provides an analysis and findings and a discussion of the findings.

4.2. Results

From 45 respondents of the survey, the results and findings are as shown below.

4.2.1. The impact that the evacuation center has on victims' social-economic activities

4.2.1.1. Victims are allowed to do social-economic activities at the Evacuation center

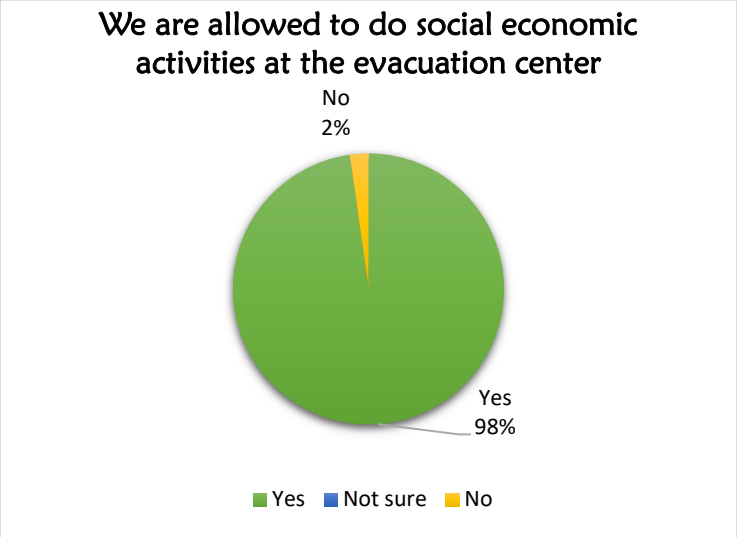


Figure 3: Victims allowed to do social-economic activities at the Evacuation Center.

As the question was asked to 45 respondents, the findings show a high percentage of 98% from the total number of respondents has admitted that they are allowed to do their social-economic activities at the Evacuation Center. Thus, they are not restricted in any way to go to their farms. However, barely, 2% admitted that they are not allowed to do their social-economic activities. Possibly, due to old age or their poor health conditions. In line with Galappatti & Richardson, (2016), the Evacuation centers indeed have a positive impact on disaster victims' recovery, since allowing disaster victims to do social-economic activities after a disaster, helps victims to recover from stress and psychological trauma.

4.2.1.2. Victims find it easier to do social-economic activities at the Evacuation center

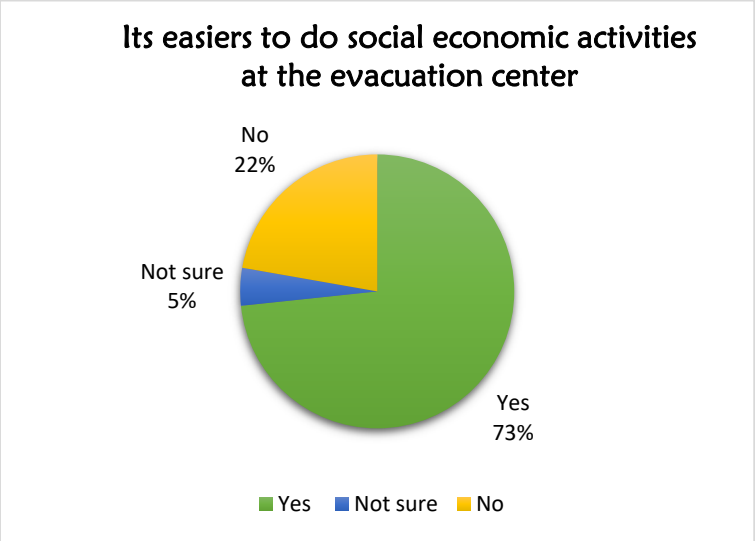


Figure 4: Victims find it easier to do their social-economic activities from the Evacuation Center.

From the findings, out of 45 respondents, 73% admitted that they find it easier to do their social-economic activities from the Evacuation Center and 22 % do not. Thus, the majority find the evacuation center to be a comfortable place due to the quality of the shelter offered. While the 22% do not because of lack of privacy since the evacuation center is occupied by a group of people and this affects victims comfortability to do their activities (Khaji et al., 2019), However, 5% of the respondents were not sure about the situation,

this could be due to trauma as a result of the disaster. a person who is traumatized stays idle and confused most of the time (Galappatti & Richardson, 2016). If victims are comfortable doing their social-economic activities at an Evacuation center, the success rate of recovery of disaster victims is higher. According to Kako et al., (2020), the evacuation center offers a conducive environment for recovery.

4.2.1.3. Victims are encouraged to do social-economic activities at the Evacuation center

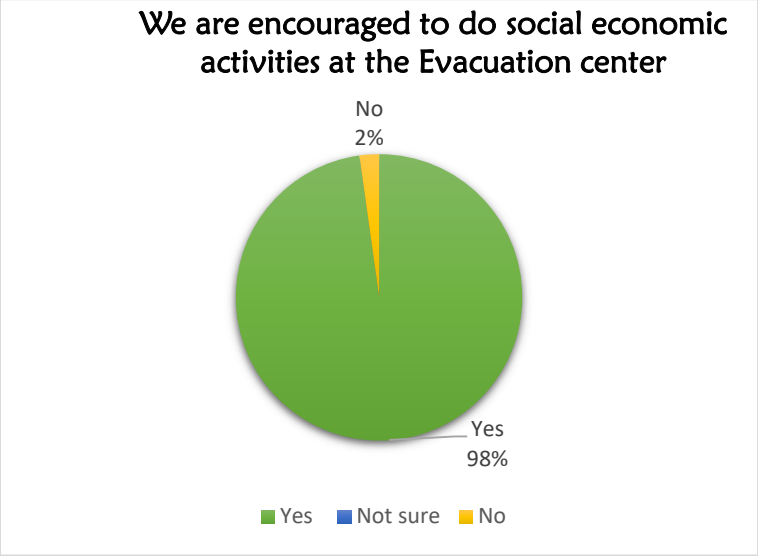


Figure 5: Victims are encouraged to do their social-economic activities

From the findings, out of 45 respondents, 98% of respondents admitted that they are encouraged to do their social-economic activities at the evacuation center. Besides, only 2% admitted that they were not. Thus, the majority admitted that because they were trained and advised on best agricultural practices, so they can be economically independent once they leave the place. Unlike the 2% who said no, because the financial support was low and they were not encouraged with it, however, this could be due to overdependency on humanitarian aid. According to Lindell, (2011) encouraging disaster victims to do social-

economic activities has a direct impact on the success of their social-economic activities hence boosting their recovery rate.

4.2.2. The accessibility of the evacuation center

4.3.2.1 The Evacuation center is located at a suitable distance

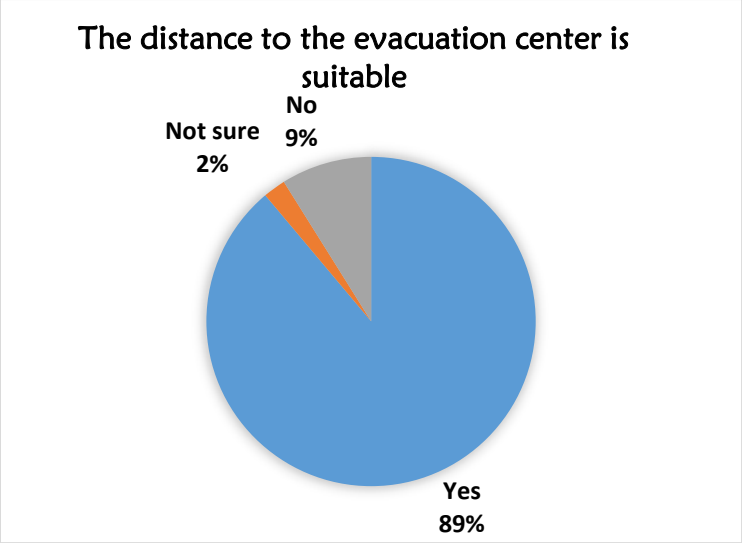


Figure 6. The Evacuation center is located at a suitable distance

From the findings, out of 45 respondents, 89% admitted that the Evacuation Center is located at a suitable distance while 9% admitted that it is not at a suitable distance. Besides 2% was not sure. The suitable distance is based on the factor that the people can walk to the Evacuation Center without any transportation support on time since most of the respondents travel by foot. However, some people have mobility problems that are either associated with old age or disability and they do not find the Evacuation Center to be at a suitable distance. According to Luathep & Jaensirisak (2014), the Center is accessible, since it is located at a suitable distance. An accessible Evacuation center influences victims'

decision to evacuate (Rahman & Rahman, 2015). This results in effective disaster response, hence hastening the recovery process of a disaster (Lindell, 2011).

4.2.2.1. The route to the Evacuation center is passable

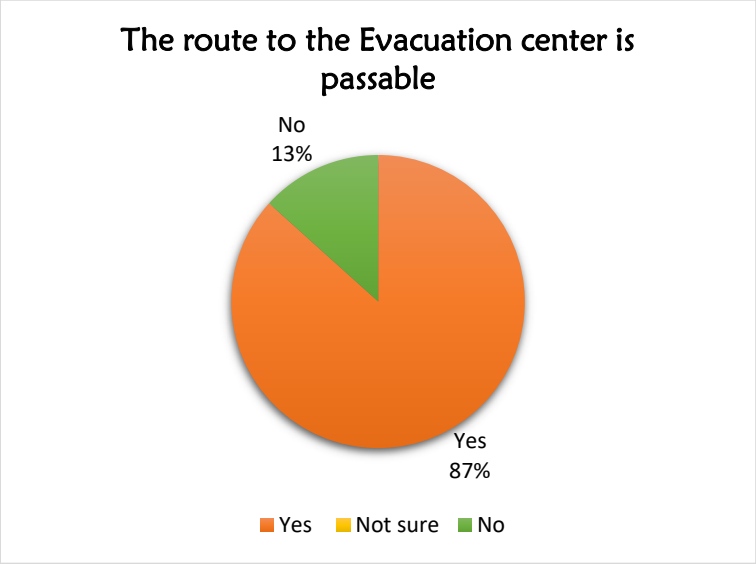


Figure 7: The route to the Evacuation Center is passable

Out of the 45 respondents, the findings show a high percentage of 87%, admitting that the route to the Evacuation Center is passable. While 13% said the route to the Evacuation center is not passable. Thus, the people consider the route to be passable because it is big enough to use however, 13% found the route to be muddy and slippery during the rainy season. However, Luathep & Jaensirisak. (2014) emphasized that the route to the evacuation center has to be big enough to avoid traffic and stampede. So, the Evacuation center is considered to be passable. If the route to the Evacuation center is passable, people find it easier to evacuate, resulting in an effective response. An effective response hastens the recovery process of a disaster (Lindell, 2011).

4.2.3. The most effective mitigation measure that the people perceive

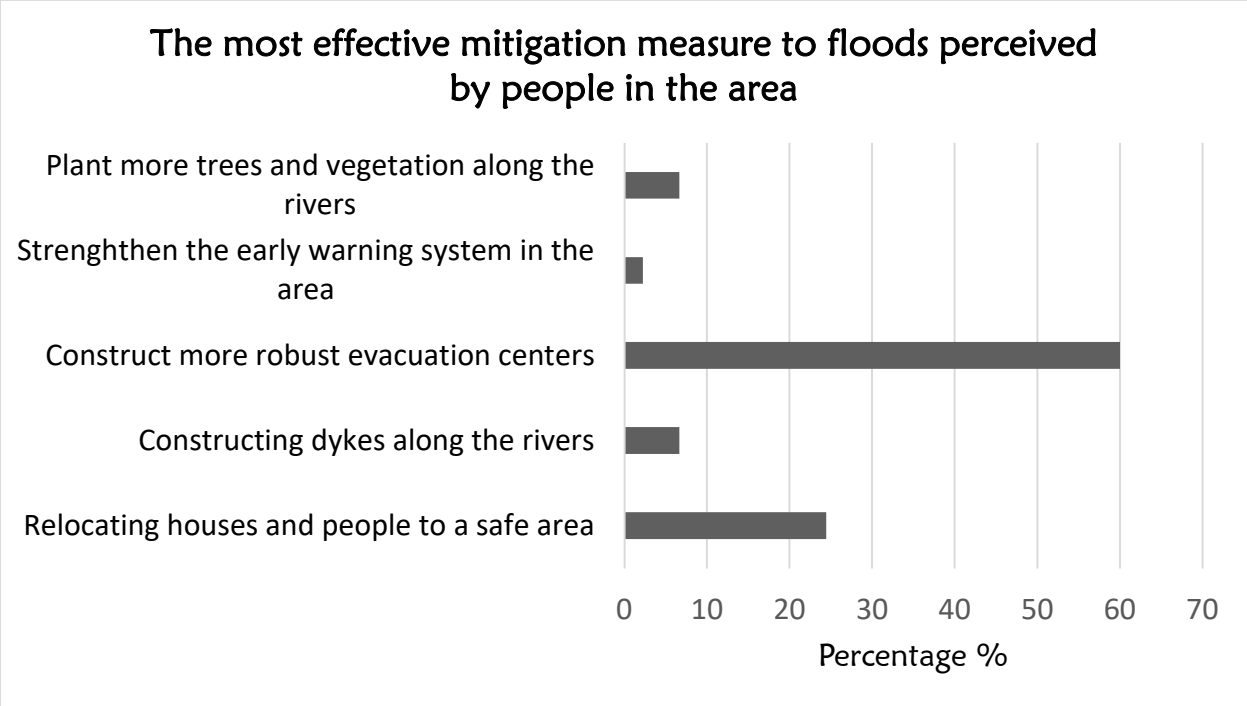


Figure 8. The most effective mitigation measure to floods that the people perceive.

Based on the graph above, 60% out of the 45 respondents admitted that the robust construction of Evacuation centers can reduce the negative impacts of floods in the area and the surrounding areas. So, it is clear that the people perceive constructing evacuation centers as effective mitigation rather than the other interventions since 24.4 % admitted that relocating to a higher safe area is the best mitigation measure against floods, 6.7 % preferred constructing dykes along the rivers, 6.7 % preferred planting trees and vegetation along the rivers and 2.2 % preferred strengthening early warning systems of floods in the district. Many people chose robust construction of evacuation centers because it is what seems to have reduced the problems that are experienced when a flood has occurred and if more are to be constructed in the whole area of TA Makhwira disaster response and recovery is more likely to be effective. In line with what Opdyke et al., (2017) found in the Philippines, many of the respondents did not choose relocation because they

benefit a lot from the area rather than what they can gain after relocating for example the area has fertile soils which do not need fertilizer to grow crops. Besides, dykes were not strongly preferred because the area has so many rivers and it is struck by several disasters, thus the constructing a dyke cannot control floodwaters from all the rivers, and also dykes cannot protect them from other disasters they experience like Strong winds and heavy rains. Besides, Trees are effective in minimizing floods but they take time to grow and they mostly fail to grow properly because of poor climatic conditions of the area and Shire valley as a whole. There exists a strong early warning system in the area but it cannot be effective when the Evacuation center does not exist. Thus, people have to know where they have to evacuate for safety when an early warning system about a disaster has been disseminated for them to evacuate. So, the success of an early warning system also depends on the existence of an Evacuation center.

4.2.4. To find out if medical treatment is readily available at the evacuation center

All 5 key informants emphasized that medical treatment is readily available, so, the evacuation center is stocked with first aid kits. In this case, victims are most likely to get medical treatment promptly. According to Fujita, (2010), having medical support at an evacuation center helps to avoid fatalities and minimize mortalities. However, it is not only about having medical support at an evacuation center, the medical support or treatment has to be readily available so that when a disaster has injured people, they have to be treated on time and recover faster.

4.3. Discussions

4.3.1. The impact that the Evacuation center has on the victims' social-economic activities

According to the results, a higher percentage admitted that they are allowed, encouraged, and find it easier to do social-economic activities at the evacuation center. This shows that

the evacuation center has a positive impact on the victims' social-economic activities hence aiding the recovery of the victims. In informal emergency shelters, for example, schools, disaster victims find it difficult to do their social-economic activities (Cruz, 2017). This shows that recovering from a disaster requires a proper emergency shelter after being displaced by a disaster. Significantly, this research has found that, the Evacuation center aid disaster recovery in both economic and psychological factors. Thus, Evacuation centers do not just support victims to recover from emotional stress or trauma as was found by (Zhao et al., 2017). Thus, Savala Evacuation Center influences both economic and psychological recovery to disasters. For instance, the encouragement and support that disaster victims get at the evacuation center, especially training and advice on the best agricultural practices that can result in higher crop yields as well as conserving the environment. High crop yields directly lead to stable economic households. Besides, being encouraged and allowed to do daily social-economic activities at the Evacuation center gives disaster victims some hope. Subsequently, as stated by Galappatti & Richardson, (2016) a person with hope heals faster from disaster trauma than a hopeless person. Besides, the timely provision of shelter by the Evacuation center when a disaster has occurred relieves people from their stresses. Also, a person who is completely dependent on humanitarian aid does not recover quickly from a disaster. (Word Bank, 2010), so encouraging victims to do social-economic activities reduces disaster victim's over-dependence on humanitarian aid.

4.3.2. The Accessibility of the Evacuation Center

According to the results, the majority, thus the higher percentage of the respondents, admitted that the evacuation center is located at a suitable distance and the route to the Evacuation center is accessible, this higher percentage shows that the evacuation center is accessible. Since an Evacuation center that is considered accessible has to be located at a suitable distance and the evacuation route to the evacuation center has to be passable for it to be considered accessible (Luathep & Jaensirisak., 2014). Significantly, an Evacuation center that is located at a suitable distance leads to an effective response. This was proved by research that was done by Tsioulou et al., (2021) who found that an emergency shelter

that is suitably accessible encourages people to evacuate on time when a warning about a future disaster has been disseminated. Thus, the evacuation center reads to the success of an early warning system.

4.3.3. The readiness of medical treatment at the evacuation center

From the results that were transcribed from the key-informant interviews and analyzed, all five respondents emphasized that medical treatment is readily available at the Savala Evacuation center. The evacuation center is stocked with first aid kits, this shows that the evacuation center has improved the communities' resilience to disasters. According to Fujita, (2010), merely having medical support at an Evacuation center protects victims from further harm caused by a disaster by treating the injured and the sick. However, this research found that it is not just about mere medical support, the medical treatment has to be readily available for an effective response and recovery from a disaster. Thus, readily available medical treatment results in victims being treated on time when they have been injured or affected by a disaster in any way, hence recovering faster. Subsequently, the construction of evacuation centers has reduced the deaths that are associated with disasters. Since delayed medical treatment or care can lead to the death of people (Boniatti et al., 2013).

In addition, this research has found that of all shelter after disaster options, Evacuation Centers have readily available medical treatment as compared to other shelters after disaster options for example schools and churches. This has also been evidenced by Anderson et al., (2017) who stated that Schools that are deliberately chosen by disaster management authorities to serve as shelters during disasters do not have readily available medical treatment, Thus, Designated Evacuation Centers hastens recovery of victims as compared to the informal emergency shelters.

4.3.4. The perceived effective mitigation measure in the area and the district.

Based on the results on the final objectives, a higher percentage of respondents admitted that they prefer the robust construction of evacuation centers in the flood-prone areas in Chikwawa to other mitigation measures. This was also complemented by semi-structured interviews with the chairperson of the ACPC, the three chairpersons of the three VCPSs, and the desk officer for disaster management at Chikwawa district council. All of them emphasized that the robust construction of Evacuation centers in flood-prone areas in the district should be a priority. Since looking at the few evacuation centers that have been constructed in the district, the Evacuation centers have eased the impacts that are associated with disasters as compared with the past. In the past, before the evacuation centers were constructed people could go and seek shelter in schools and churches set as camps. Most of the camps were overcrowded during disasters and others could find themselves sleeping on open ground and it could take more than 3 days or more before humanitarian actors start bringing tents to the area to shelter the victims (Masina, 2019). So, the construction of these structures is really necessary as it provides readily available shelter to flood victims. So, it is understandable, why more people believe evacuation centers are very important in flood-prone areas.

From field observations by the researcher, other disaster risk reduction measures cannot be effective if comprehensive risk assessment cannot be conducted in the area. The people in the area are very poor, they have substandard houses which cannot withstand several disasters that occur in the area apart from floods. Thus, despite how effective some measures are against floods, if they are implemented in the area, they cannot completely improve the resilience of the communities against other disasters and the flood itself. For instance, if a dyke is constructed along the rivers, the people are most likely to be displaced by other disasters for example heavy rains and strong winds. Thus, the people still need a shelter facility in the area to accommodate them when they have been displaced by any kind of disaster. So, the Evacuation center is effective and important in minimizing the impacts that are associated with disasters in the area.

However, the disaster management desk officer of Chikwawa stressed that the district needs more evacuation centers to completely reduce shelter problems after a disaster. Since the district has very few evacuation centers as a whole. Up to now, some people still go and seek shelters in schools and churches during and after a disaster has struck. This shows that Evacuation centers are what people living in disaster-prone regions need since a disaster is inevitable.

4.4. Limitation of study

The main limitation of this study was the covid-19 pandemic. Due to this pandemic, not all participants were willing to participate in the study for fear of contracting the virus. Thus, this resulted in the delay of my study. Besides, communication was also another limitation. This happened because the questionnaire was conducted in Chichewa but some other respondents are typical Sena people and it was difficult for them to easily understand what the question requires of them.

4.5. Chapter Summary

The chapter has presented the analysis, findings, and discussion of the research study. The data analysis has been aligned to the established research questions and objectives. The results demonstrated that the evacuation center has a positive impact on victims' social-economic activities, it is accessible, it has readily available medical treatment, and it is the most preferred mitigation measure. The results prove that the Evacuation center is effective and suitable in terms of its role in disaster response and recovery.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusion

After assessing the effectiveness of the Savala Evacuation center in disaster response and recovery in GVH Savara of Traditional Authority Makhwira in Chikwawa District. The evacuation center in the area is effective in terms of its role in disaster response and recovery. This has been proved by the following findings: The Evacuation center has a positive impact on the victims' social economic activities, medical treatment is readily available at the Evacuation center, the Evacuation center is accessible, and constructing Evacuation centers is perceived as the most effective mitigation measure needed in the area and the district as a whole. However, there is a need for an effective capacity-building program for the people of the Savara area. People need education and warnings about flood hazards and disasters. The people should be trained and empowered with disaster management skills so that they can contribute to finding more solutions to mitigate floods in this area.

5.2. Recommendations

This study unveiled the effectiveness of evacuation centers in disaster response and recovery in disaster-prone regions. Therefore, the following recommendations

should be taken into consideration.

1. The Malawi Government, NGOs, Donors, and Development Partners should construct evacuation centers in all disaster-prone areas in Malawi.

2. Malawi Government, NGOs, Donors, and Development Partners must inform disaster preparedness programs in Malawi rather than becoming responsive when the disaster strikes.

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