An investigation into the challenges encountered by the community during the Tokwe-Mukosi rapid onset flood disaster in Zimbabwe

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Previous qualification (not compulsory)

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DECLARATION

I, Godfrey Muchapireyi, declare that this Dissertation is my own, unaided work. It is being submitted for the Degree of MSc in Geography and Environmental Management at the North-West University. It has not been submitted before for any degree or examination at any other University.

_____ (Signature of candidate)

15th day of NOVEMBER 2017 in ZIMBABWE

Dedication

This dissertation is dedicated to the love and memory of my late mother. She was a pillar of strength throughout my life. She always encouraged me to work hard and keep studying hard and that learning does not end. Without my mother who encouraged me to always aim for better knowledge, I would have stopped studying at Grade Seven. She suffered for several years from the effects of uterus cancer that she bravely faced and endured. May her soul rest in eternal peace.

Acknowledgement

I would like to express my deepest appreciation to my Supervisor, Dr Tanya le Roux, Co- Supervisor Gideon Wentink, who both had the patience of a vulture despite my sometimes failure to follow given instructions. They encouraged and coached me with all the patience and expertise until this dissertation came out to be what it is today. Without such genius, patience and ingenuity, this dissertation would not have been possible.

I would like to extend my heartfelt acknowledgements and big thank you to Tawanda Bvirindi and UNICEF Zimbabwe Emergency Specialist, Blessing Zindi, for encouraging me to do this course and for meticulously giving my work a second eye before submission to my Supervisor. Another big thank you goes to my family for always supporting my endeavours to continue learning and improve my knowledge.

In addition, I am grateful to all the respondents and whose enthusiasm for being part of this study had a permanent mark on the final product. I would again want to thank Africa Centre for Disaster Studies at the North-West University for permission to use some of the materials to enrich my dissertation. My acknowledgements would be incomplete if I do not thank management and staff of UNICEF Zimbabwe, Zimbabwe Red Cross Society, Plan International Zimbabwe, Catholic Relief Services Zimbabwe and Civil Protection Unit of Zimbabwe for providing invaluable support and information on the Tokwe-Mukosi rapid flood disaster.

My thanks for final editing my dissertation go to Dr Hilton Ratcliffe.

Abstract

The research investigates the nature of the challenges encountered by the community during a rapid-onset flood hazard in Tokwe-Mukosi, Zimbabwe which occurred in the 2013-2014 rainy season. The pressure and release model and the access model formed the theoretical frameworks which underpin this study. The study was grounded in a qualitative methodology, with focus group discussions and semi-structured interviews as the main tools for soliciting data. Purposive sampling was used in selecting participants for the study. The study examined challenges encountered during and after the flood disaster by the Tokwe-Mukosi community. It analysed difficulties facing community members during the disaster when flooding impeded attempts to evacuate to new and safer areas. The study further assessed community losses of livestock, food stocks, and important infrastructure such as schools and homes, as well as outcomes including deaths by drowning, and improper burials of the dead. The investigation reviewed issues of resettlement shelter, sanitation facilities, diseases associated with protracted humanitarian situations such as pneumonia, diarrhoea, measles, malnutrition, malaria, cholera and typhoid, and infrastructure, notably roads. In the longer term, the Tokwe-Mukosi community lacked schools in the new settlements. This led to school dropouts, and adolescent prostitution. The community also lacked medical facilities which resulted in patients defaulting on their treatments, especially those who were on Anti-Retroviral Treatment (ART), and children who had been received vaccines under the Expanded Programme on Immunisation (EPI), also failed to get vaccinated. The study also noted increases in domestic violence, notably violence against women. The study concludes with recommendations extrapolated from the research data for dealing with future rapid-onset disasters.

Key words: disaster, disaster risk reduction, floods, rapid-onset disasters

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Abbreviations

ACDS	Africa Centre for Disaster Studies
ART	Anti-Retroviral Treatment
BSAC	British South Africa Company
CCA	Climate Change Adaptation
CRS	Catholic Relief Services
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EPI	Expanded Programme on Immunisation
EWS	Early Warning Systems
FGD	Focus Group Discussion
HSCT	Harmonised Social Cash Transfer
IDP	Internally Displaced Persons
NGO	Non-Governmental Organisations
NWU	North-West University
PAR	Pressure and Release model
UNCT	United Nations Country Team
UNICEF	United Nations Children's Fund
UNISDR	United Nations International Strategy for Disaster Reduction.
USAID	United States Agency for International Development

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CHAPTER ONE:

1.0 Introduction and background

1.1 Introduction

The realities of the effects of rapid onset disasters such as cyclones, tsunamis, earthquakes, mudslides and floods, despite insinuations to the contrary, have generally been seen as severe, trying, and daring. It is for these reasons that the need to cooperate in helping the affected communities has characterised the collaborations of civil society organisations (CSOs), the non-governmental organisations (NGOs), and governments when confronted with perilous situations experienced by affected communities. It seems there is almost an uncodified moral convention of exercising humanity in situations of rapid onset disasters such as floods. However, providing help to communities affected by rapid onset disasters such as floods has obstinately presented a horde of practical dilemmas given the magnitude of the ensuing damages to property and people. Many factors, *inter alia* inaccessibility of the areas affected, the dearth of resources to give the necessary help, the lack of adequate facilities to cope with the disaster, added to the complexity of the situation. Considerations concerning the wellbeing of the victims of rapid onset disasters are often given insufficient attention, perhaps due to resource constraints. The inadequate assistance given to the Tokwe-Mukosi flood disaster victims illustrate this situation. The challenges faced by the Tokwe-Mukosi community were extremely challenging, and efforts to help victims were at best imprecise and negligent. Poor coordination and communication on how best to help the affected communities exacerbated the situation on the ground. The reticence of the Zimbabwean government to initiate rescue efforts during the disaster, combined with its inertia in relocating people to safety has been highly criticised as negligence exposing the victims of the flooding to risk and unnecessary suffering. This neglect led directly to increased incidence of cholera, dysentery and typhoid in the squatter camps they occupied immediately after the flood disaster.

The events that provided the impetus for this study were centred on the challenges faced by the Tokwe-Mukosi community during the rapid onset disaster of the 2013-14 rainy season. It would be helpful to understand the disaster risk reduction milieu of the Tokwe-Mukosi community to deduce how the community experienced the challenges

which ensued. The disaster risk reduction environment refers to specific disasters and their effects. Firstly, a hazard is defined as

> "a dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage" (UNISDR, 2009:30).

A disaster is

> "a serious disruption of the functioning of a community or a society involving widespread human, material, or environmental losses and impacts which exceeds the ability of the affected community to cope using only its own resources" (UNISDR, 2009:30).

Also, disaster risk refers to the potential (not actual and realised) for disaster losses, whether in lives, health status, livelihoods, assets, or services, which might occur in a community or society over a specified future period. The disaster risk reduction environment strives to ensure a sustainable future for communities by limiting risks (UNISDR, 2009:30). Disaster risk reduction (or just disaster reduction) is defined as

> "the concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse effects" (USAID, 2011:13).

Disasters are categorised by the pace at which they unfold. This study focused on a rapid-onset disaster, and sought to understand the challenges faced by the Tokwe-Mukosi community during and after the Tokwe-Mukosi flood disaster in the Masvingo province of Zimbabwe.

1.2 Background to the study

Rapid-onset hazards, as their name implies, befall communities, nations, or regions suddenly and without warning, leaving people in its path unaware of and unprepared for the imminent problem (USAID, 2011:5). Such rapid-onset hazards such as earthquakes, volcanoes, tsunamis, veld fires, and floods, have become commonplace

across the globe in the twenty-first century (Miskel, 2000:298). Despite tremendous technological advancements that can facilitate some early warnings for coming hazards as well as facilitate a better response during and after the disaster, the 21st-century world struggles to overcome the challenges[1] posed by rapid-onset hazards. Various rapid-onset hazards, like the cyclone Elene in Madagascar and Mozambique (2000-2001), the earthquake in Haiti (2010), floods in the Philippines (2014) highlight the manifold challenges[2] faced by those affected (Reliefweb, 2016:3; UN-ESCAP, 2015:4; Mbohwa, 2011:177; Nyamavuvu, 2014:13; Clarens, 2010:2). All the above events were classified as disasters, due to their significant impact on society in various ways. The community challenges mentioned in these articles include access to clean water, food, and medicine, which increases the communities' vulnerability to diseases and malnutrition. In many instances, these challenges are compounded by further by environmental factors like harsh weather.

Disasters in Zimbabwe have also been witnessed but have not been prevalent. Natural catastrophes in Zimbabwe have been driven by unpredictable climatic changes observed in the Southern-African region over the past decade (Gwindi, 2007:151). Floods and ensuing disasters in Zimbabwe are a consequence of localised heavy seasonal rainfall and run-off, which result in many rivers overflowing. The most frequent type of floods occurring in Zimbabwe is seasonal floods (Gwindi 2007:154-155). Zimbabwe usually experiences heavy rains in January and February at the peak of the rainfall season. Rivers overflow and dams burst, causing flooding downstream.

In Zimbabwe, cyclone Eline is on record as the worst disaster to befall Zimbabwe in the 21st century. In the year 2000, cyclone Eline was accompanied by intense storms. The eastern and southern parts of the country were particularly affected. These areas included the Zambezi basin in Mashonaland Central, Save river basin in Manicaland, the Limpopo river basin in the southern provinces of Matabeleland South and

[1] The challenges which come because of disasters include inter alia lack of safe drinking water, shortage of drugs to cure diseases, lack of shelter among other challenges which might be unique to the nature of the disaster.

2 In all these disasters, many challenges ensued as a result, water borne diseases such as cholera resulted. A notable example is the cholera outbreak which resulted because of the Haitian earthquake. Thus, challenges such as lack of proper sanitation facilities and lack of clean and safe water to drink are inevitable after a disaster.

Masvingo (UN, in Gwindi 2007:155). The floods caught the Zimbabwean people unaware and farmers were the worst affected. Large areas of farmland and tonnes of stored food were destroyed. In February 2000, cyclone Eline induced floods in the Zambezi basin leading to huge losses of life and property. This one flood alone left 700 people dead, over 500 000 people homeless, and over US$1 billion of infrastructural damage (Wamukonya, in Gwindi, 2007:151-152).

In March 2003, just a single season after the cyclone Eline, cyclone Japhet again brought flooding to the country, severely affecting the Guruve and Mzarabani districts in the Zambezi basin (Gwindi 2007:155). It is within this context that the Tokwe-Mukosi flood disaster happened during the 2013-2014 rainy season. Though the Tokwe-Mukosi disaster affected especially those living near the Tokwe-Mukosi Dam in Masvingo province, its ripple effects were as extensive as those of cyclone Eline, which covered numerous provinces. The Tokwe-Mukosi dam was built to kick-start a hydro-electric project by the government of Zimbabwe. The dam is Zimbabwe's largest inland reservoir built by harnessing the water from the Tokwe and Mukosi rivers about 72 km south of Masvingo in the Masvingo Province, Zimbabwe (Murungwara, 2014:4). The dam was completed in December 2016, with a total capacity to hold 1.8 billion cubic metres of water. It covers an area of more than 96 000 hectares. The completion of the dam meant nearby villages had to be relocated to a new area within Mwenezi District. The areas chosen as the ideal relocation sites were specifically the Chingwizi, Chisase, and Masangula lands (Murungwara, 2014:4). Unfortunately, the communities were not relocated before a heavy downpour during the 2013-14 rainy season, which led to flooding and mudslides. Relocations were done as a response to the disaster, with people relocated to resettlement areas with no proper shelter, infrastructure or preparation for other basic needs thus exposing communities to even more vulnerabilities. The Tokwe-Mukosi flood disaster has been declared as a rapid-onset disaster in the form a flood and affected the lives of 3 125 households (approximately 15,625 people, among them 10,000 children) in Tokwe-Mukosi in the Masvingo province of Zimbabwe which was subsequently declared a disaster (Murungwara, 2014:4; UNICEF, 2015:3) in 2014. It is against this backdrop that this study aimed to understand the challenges experienced by the Tokwe-Mukosi community.

1.3 The Zimbabwean DRR environment

Disaster management in Zimbabwe takes a holistic approach and a statutory instrument known as the Civil Protection Act of 1989 was crafted to deal with disaster-related issues (UNISDR, 2005:3). The provisions of the Act also aim to reduce or limit environmental degradation caused by activities such as mining. Within this environment, poor planning and limited resource allocation to the Civil Protection Department and local communities have exacerbated the impacts of natural hazards in Zimbabwe (Madamombe, 2004:4). Also, Gwindi (2007:156) notes that when the 2000 floods hit southern Africa, there was no available database on disaster risk reduction. The management of information on disasters is still being done at the institutional level through sharing reports, minutes, newsletters, and emails. This situation explains poor responses to disasters in the country (UNISDR, 2005:3). The Civil Protection Unit in Zimbabwe has no modern infrastructure to facilitate communication and networking between disaster risk reduction institutions and research centres (UNISDR, 2005:3).

Other non-statutory efforts also influence DRR in Zimbabwe. Through the economic blueprint called the Zimbabwe Agenda for Sustainable Socio-economic Transformation (ZIMASSET), the Zimbabwean government has been trying to promote accelerated economic growth. ZIMASSET seeks sustainable development and social equity through the "judicious exploitation of the country's human and natural resources" (Government of Zimbabwe, 2013). The blueprint is made up of four clusters which are: the food security and nutrition cluster; the social services and poverty eradication cluster; the infrastructure and utilities cluster; and the value addition and beneficiation cluster. Though results have not yet positively impacted on society, the blueprint aims to facilitate resilience in Zimbabwe by complementing on-going efforts in pro-poor growth, food and nutrition security, women's empowerment, the environment, livelihoods and basic service delivery, especially rural water supply, in a donor-funded programme called WASH and Disaster Risk Management (DRM) (UNDP, 2014).

Many outcomes were expected from all these programmes, among them improved food and nutrition security, sustainable livelihoods, strengthened adaptive capacities

to manage risks, and sustainable, inclusive growth and development at local, sub-national, and national levels (UNDP, 2014). Also expected were improved and healthy productive sector that provides more economic opportunities, access to employment, diversified nutrition-sensitive livelihoods, and increasing incomes, all of which would help the vulnerable transition out of poverty and away from food insecurity. The programmes were also expected to facilitate increased access to sustainable, quality, and adaptive social services, focused on education, health, safe water, and sanitation (WASH). Contrary to all this being in place, these were not implemented during the Tokwe-Mukosi flood disaster.

Improvement in social protection among the vulnerable including social safety nets, community empowerment, and transparent and responsive governance, were additional expectations. The available programmes are intended to implement an improved policy of resilience and effectiveness in DRM and Climate Change Adaptation (CCA). It was also foreseen that risk-financing mechanisms triggered by early warning systems (EWS) would lead to the timely release of income transfers when indicator thresholds are exceeded, thereby circumventing the selling of assets in response to shocks and stressors.

A 2014 review of cash transfers in emergencies found that delivering cash assistance was much more efficient than providing in-kind aid (Waites, 2014). Cash enables households to better absorb and adapt to shocks or stressors, offering important benefits of flexibility and dignity of choice for households, as well as efficiency in economic stimulation (Waites, 2014). Through harmonised cash transfers (HSCT), Zimbabwe has been making strides in improving the absorptive capacity of households and communities, hence facilitating their ability to cope with the impacts of shocks and stresses without incurring permanent, negative effects on their longer-term outlook.

In Zimbabwe, resilience programming involves DRR/DRM strategies supported by the Disaster Risk Management Strategy and the Disaster Risk Management Bill, which highlight “information management, prevention, mitigation, and strengthening resilience, preparedness and response and early recovery” (Government of Zimbabwe and UNCT Zimbabwe, 2014). There are also drought relief agencies and civil

protection committees existing within local government structures. There is also a climate change strategy, as well as a new irrigation policy, which aim to improve the adaptive capacity of communities in Zimbabwe. However, in the Tokwe-Mukosi flood disaster, the community did not benefit from these.

Although great strides have been made to manage disaster effects in Zimbabwe, due to its nature, disasters still pose a management challenge for Zimbabwe. In relation to what has been said above, the next section locates, describes and analyses the Tokwe-Mukosi disaster Within the DRR framework for Zimbabwe.

1.4 The Tokwe-Mukosi flood disaster

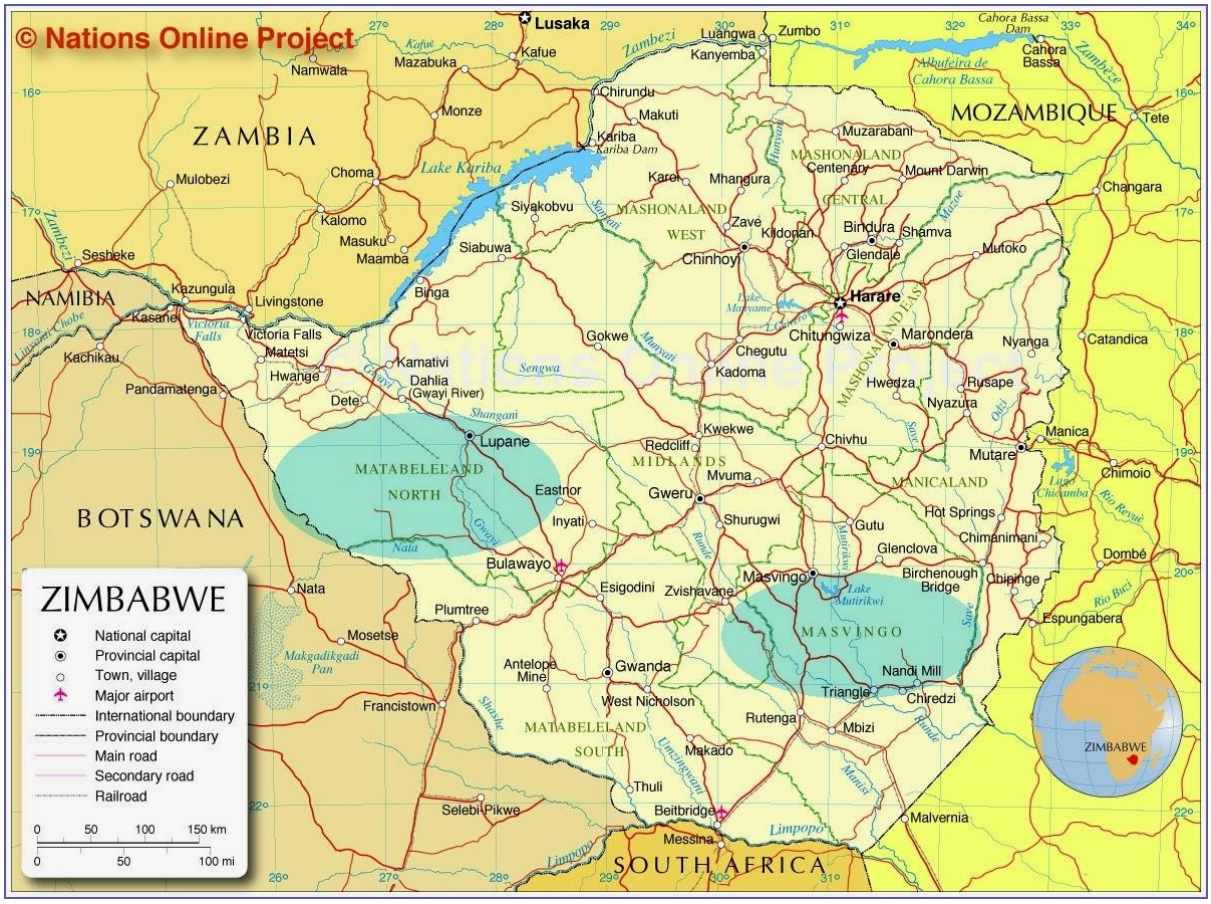

Figure 1.1: Map of Zimbabwe showing Masvingo and Matabeleland. (Source: NationsOnline.org).

Figure 1.2: A flooded homestead near Tokwe-Mukosi Dam (Anon, 2015)

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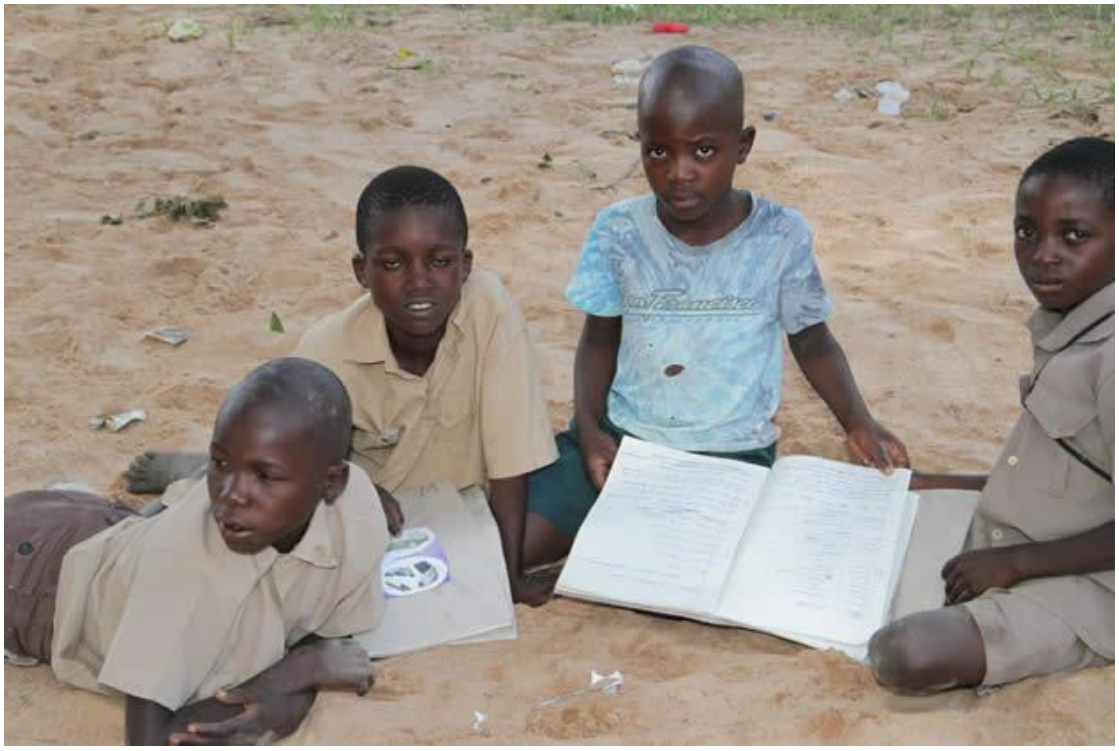

Figure 1.9: Children studying in open space (picture by John Manzongo).

Figure 1.10: A few belongings salvaged from flooded area (picture by John Manzongo).

Figure 1.11: Women scrambling to get food aid (picture by John Manzongo).

Figure 1:12: A mud-filled kraal as a result of the flooding (picture by John Manzongo).

1.6 Theoretical framework

The study sought to understand the challenges faced by the community during rapid-onset flood disaster in Towe-Mukosi, Zimbabwe and the PAR model and the access model underpinned this study. In this study, challenges were understood as the pressures that shape vulnerabilities to the hazard, which in turn can lead to resilience as described in the PAR model. To ensure a deeper understanding of the point of impact of the disaster, the access model also underpinned this study.

The PAR model holds that a disaster is the consequence of a link between two disparate forces. Thus, the processes produce vulnerability at one end, and natural hazard events or in some instances, a slowly-developing natural process at the other end. The PAR model addresses the causes of vulnerability and how they can be discerned from risky conditions and ties them with socio-economic pressures to key root causes. The model discusses the hierarchy of causal factors that constitutes the pre-conditions for a disaster. Understanding the nature of challenges encountered in rapid-onset flood disasters like the Tokwe-Mukosi flood disaster, and thus also getting an indication of actions needed to construct resilience, demands a review of the events leading to the disaster (Wisner *et al*., 2003).

The PAR model does not, however, provide a comprehensive illumination of the exact interfaces between the milieu and society at the “pressure point” the point at which the disaster begins to develop (Wisner *et al*., 2003:49). Any analysis of a disaster should as a starting point clarify the distinct vulnerability of economically challenged people to the impacts of disaster, compared with the relative immunity of those who are well off, and search for the reasons why children and women tend to face the impact of disasters more than men and adults (Wisner *et al*., 2003:49). Different groups defined by ethnicity, class, occupation, location of work, or domicile are likely to suffer differently. Additionally, the PAR model appears to be static and lacks a series of iterations through the trajectory of a disaster. The model seems unable to either suggest or account for change, whether before the onset of a disaster and more vitally during and after it. The model is illustrated diagrammatically in the figure below.

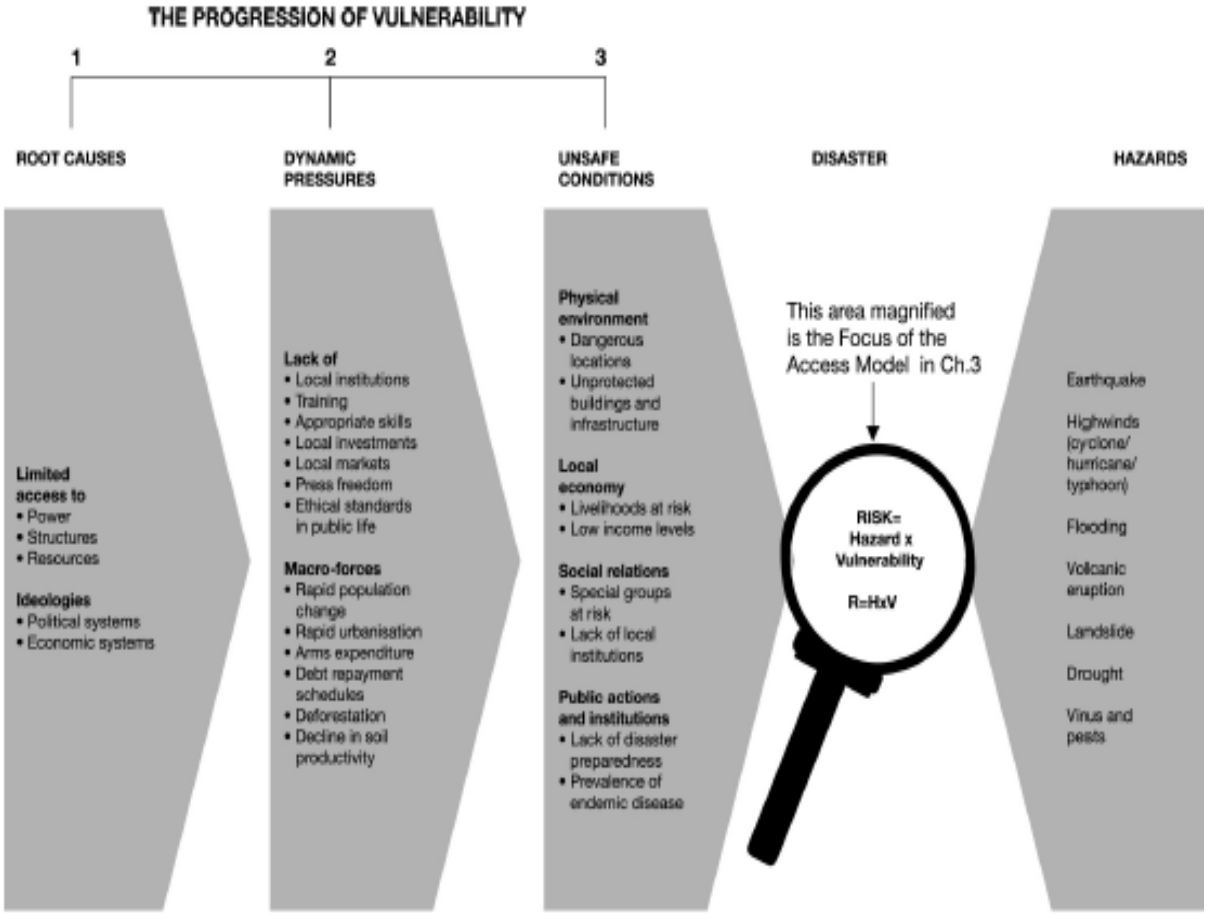

Figure 1.13: PAR model outline (Source Wisner *et al*., 2003:51)

The access model elaborates on the PAR model, thus bridging the gap left by the PAR model. The access model focuses on the processes by which a natural event affects people and their responses. The access model conceptualises how vulnerability is principally created by socio-political and economic processes and what takes place before, during and after disasters unfold. The access model is complementary to the PAR model, as it examines in precise detail what takes place at the pressure point between a natural event and longer-term social processes. It can signify this in visual terms.

The access model describes the multidimensional and diverse collections of social and environmental events and longer-term processes connected to a specific disaster (Wisner *et al*., 2003:50). The access model can define and categorise a disaster according to the natural hazards that caused it. In the case of Tokwe-Mukosi, the

hazards included droughts, which drove people to settle near the dam, thereby increasing their vulnerability during the 2013-2014 rainy season. The access model aims to explain, at a micro-level, the establishment and trail of vulnerability and its distinction between individuals and households. The access model deals with the effects of a disaster as it happens and with the role and agency of people concerned what the impacts are on them, how they deal with the impacts, how they develop recovery strategies and finally, how they network with other actors. This then makes the access model important in understanding the challenges encountered before, during, and after the Tokwe-Mukosi rapid-onset flood disaster.

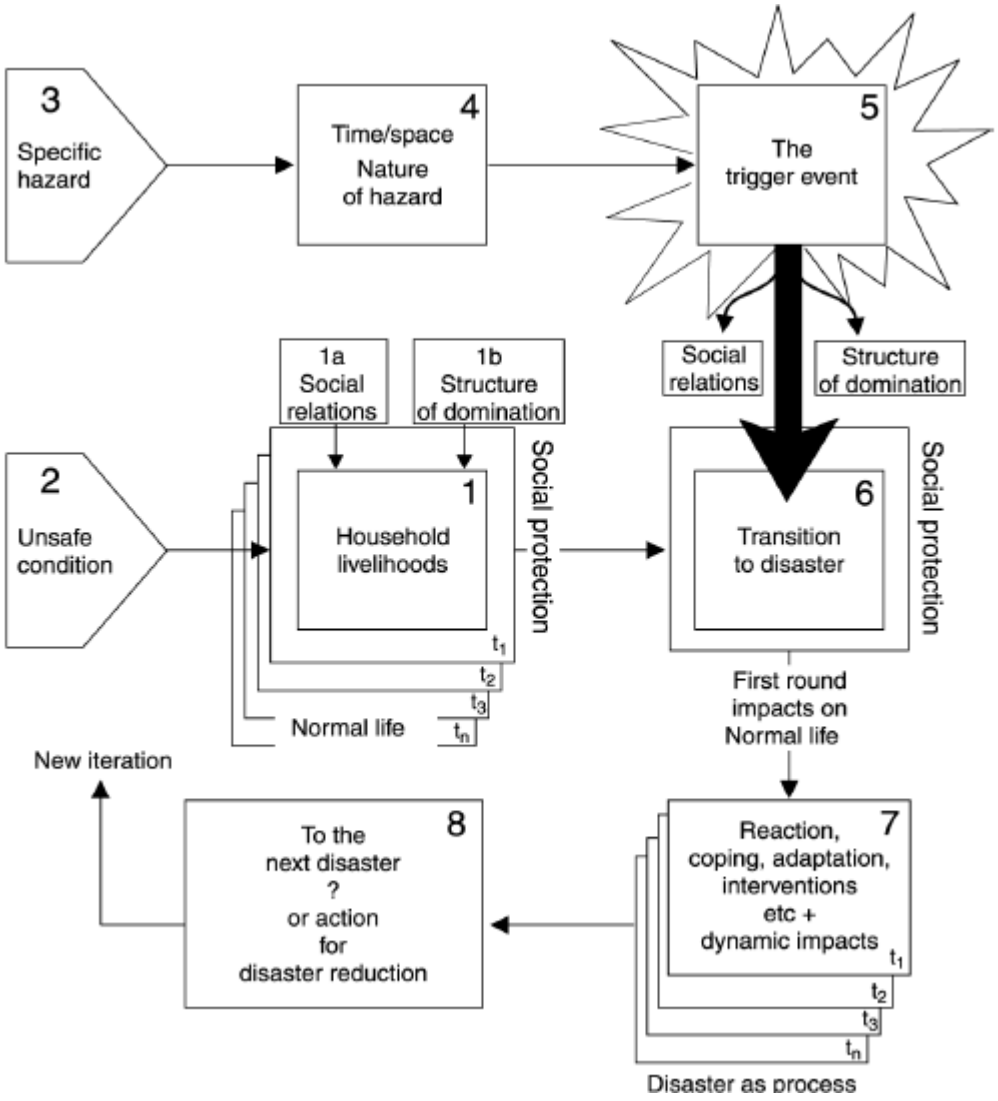

Figure 1.14: Access model outline (Source Wisner et al., 2003:89).

1.7 Problem Statement

This study seeks to assess a largely ignored area on disasters in Zimbabwe. It does this by investigating the challenges encountered by the community during a rapid-onset flood hazard in Tokwe-Mukosi. Literature on disasters was mostly done out of Zimbabwe and has generated a lot of studies (Mgquba 2002; Mgquba and Vogel 2004:32; Mahlangu and Braune 2010:10; Rambau 2011; Rambau *et al*., 2012:1; Ndiweni and Musarirwa 2014:14; Galea *et al*., 2005:80; Robine, 2008:173), although less attention has been paid to the challenges community faced because of floods in Zimbabwe. Through assessing the challenges encountered by the Tokwe-Mukosi community, the study aimed to bridge this hiatus by exploring the experiences of the community during and after the Tokwe-Mukosi rapid onset flood disaster. Thus, the study vied to understand how rapid onset flood disasters affect communities and their livelihoods. The Tokwe-Mukosi rapid onset flood disaster dislocated families and led to the loss of property and disturbed livelihoods hence posing critically vital questions with regards to the issue of community vulnerabilities, community resilience and disaster response. What were the challenges experienced during the Tokwe-Mukosi flood disaster? How did the Tokwe-Mukosi community respond to the challenges?

1.8 Research questions

The above problem statement leads to the following research questions:

- What were the challenges experienced during the Tokwe-Mukosi flood disaster?
- How did the Tokwe-Mukosi community respond to the challenges?
- What suggestions can be made for greater community resilience in the face of rapid onset disasters such as the Tokwe-Mukosi disaster?

1.9 Research objectives

The above research questions lead to the following research questions:

- To understand the challenges experienced during the Tokwe-Mukosi flood disaster;
- To explore how the Tokwe-Mukosi community responded to the challenges experienced during and after the Tokwe-Mukosi rapid onset flood disaster, and;

- To explore the possible actions that can be recommended to improve community resilience in communities affected by rapid on-set flood disasters.

1.10 Research Method

The study is an exploratory study guided by the qualitative research paradigm. Frankfort-Nachmias and Nachmias, (1996:22) note that qualitative research aims to understand behaviour and institutions by getting to know persons involved and their beliefs, values, and emotions. Qualitative methods are effective in identifying intangible factors such as social norms, socio-economic status, and religion, whose role in the research issue may not be clear (O'Connor 2011:30). While qualitative methods are not entirely antithetical to quantitative methods (Marvasti, 2004), it is the appropriateness of the methodology to the objectives of a study that determines the choice of methodology (Tombindo 2014:3). This study is exploratory research since it does not aim to provide the final and conclusive answers to the research questions but only explores the research topic to varying levels of depth. To be noted is that "exploratory research is the initial research, which forms the basis of more conclusive research. It can even help in determining the research design, sampling methodology and data collection method" (Singh, 2007:64). Exploratory research "tends to tackle new problems on which little or no previous research has been done" as is the case with Tokwe-Mukosi flood disaster in Zimbabwe (Brown, 2006:43).

Qualitative research methodology resonates well with the epistemological tenets of the interpretive paradigm, which emphasises the subjectivity of (social) reality, it's being situation-dependant and sensitive to multiple realities (Tombindo 2014:3). As suggested by Willig (2001:7 cited by Marvasti, 2004), this approach, in addition, explores how human experience is used by those involved. Such an approach proceeds in tandem with the common consensus in disaster studies, which is an approach to research that favours multiple realities on the challenges encountered during and after a rapid-onset hazard. By contrast, Marvasti (2004:4) sates that "modelling social research after the natural sciences (characteristic of the positivist paradigm) means treating the topic being studied as something whose meaning is independent of human cognition, time and place". Understanding the nature of challenges encountered during and after the Tokwe-Mukosi disaster can only be

inferred into through qualitative methods since the narratives by each participant are subjective and may differ individually and across time and space.

In line with the “emic oriented” nature of the study, it was important to give room to people to air out “the usually taken for granted ’imponderabilia’ of people’s everyday struggles that are necessary for their survival” (Tombindo 2014:4). Perspectives and narratives of people on the challenges brought about by the Tokwe-Mukosi disaster can be understood within the milieu of the lived experiences of the people concerned. This highlights the need for an open-ended qualitative approach, which leaves room for the study to probe the respondent’s experiences in more detail.

1:11 Selected data collection methods

Together with a literature study, semi-structured interviews and Focus Group Discussions (FGDs) were used to collect data.

1.11.1 Literature study

Though there is some research carried out on the Tokwe-Mukosi flood disaster, the focus of those studies is not the same as this study. Nevertheless, the following two studies specifically needed to be cited:

- A study by Murungwara (2014:vi) was an exploratory study guided by an exploratory, descriptive design. The study focused on the plight of IDPs caused by the Tokwe-Mukosi 2014 flood disaster which prompted the evacuations of thousands into Chingwizi, Chisase and Masangula lands transit camps.
- The study by Nyamavuvu (2014:4) employed the case study research design, intended to evaluate the adherence of the Zimbabwean government to the principles of the African Union’s convention on assistance and protection of internally displaced persons (universally called the Kampala Convention), using the case study of Tokwe-Mukosi. The study aimed to establish how the government of Zimbabwe responded to the plight of the internally displaced persons at Tokwe-Mukosi, in a bid to establish whether the response was by the Kampala principles. Nevertheless, it is crucially important to note that these studies followed the qualitative research orientation and elected to study the circumstances of IDPs *after* the disaster. Although the present study also adopted a qualitative research

approach, it aims to understand the challenges faced *during* and *after* the disaster, from the view of the government, relief organisations, and community. Therefore, the goal is to study the challenges encountered during the disaster, as well as the challenges faced in the aftermath. Additionally, and different from the studies by Murungwara (2014) and Nyamavuvu (2014), this study used the PAR and access models as the theoretical frameworks underpinning the study.

Numerous studies were done on other disasters, notably in South Africa. For instance, Mgquba (2002) investigated the challenges faced by a community in South Africa, and the study aimed to unpack the challenges faced because of Climate Change Adaptation (CCA). Moreover, researches by Mgquba and Vogel (2004:32); Mahlangu and Braune (2010:10); Rambau (2011:15); Rambau *et al*., (2012:1); Ndiweni and Musarirwa (2014) focused on disaster management in southern Africa and the aim was not precisely on the challenges faced by a community during rapid-onset flood disasters. Research related to these studies (which examined disaster risk and resilience) was also done outside of Africa. These studies include those by Galea, Nandi and Vlahov (2005:80), and Robine (2008:173).

Apart from the academic material already cited, other, context-specific material was also utilised here. For example, a report assembled after a workshop on lessons learnt after the Tokwe-Mukosi disaster is vitally important and insightful (Kudzatsa, 2014:5). The report entitled “Lessons Learnt Report on the Tokwe-Mukosi rapid-onset disaster” assembled by Kudzatsa (2014), gives an overview of lessons learnt by the government of Zimbabwe, DRM stakeholders, and their associates from rescue and relief agencies in the aftermath of the Tokwe-Mukosi flood. The report by Kudzatsa (2014) unpacks the complexity of responding to a disaster of Tokwe-Mukosi’s magnitude. Risk management assessors learnt of the achievements and challenges from an organisational perspective, and from institutional relationships (Kudzatsa 2014:5).

Many studies, especially in South Africa that investigated disasters include:

- Pyle and Jacobs (2016) did a qualitative and quantitative study of the 2012 flood event in Port Alfred in the Eastern Cape Province of South Africa, from both meteorological and disaster management standpoints.

- The study by Muyambo, Jordaan and Bahta (2017) evaluated the social vulnerability of communal farmers to drought in the O.R. Tambo district in the Eastern Cape province of South Africa by using the social vulnerability index (SoVI).
- The study by Moshodi, Coetzee, and Fourie (2016) is an assessment of the status of stakeholder management in the Merafong Local Municipality in South Africa as about the formulation of a holistic sinkhole risk reduction strategy.
- The study by Musyoki, Thifhufhelwi and Murungweni (2016) studied the effect of flooding and communities' perceptions towards responses to flooding in the cases of Maniini and Tshilungwi Villages in the Thulamela Municipality in the Limpopo Province of South Africa.
- Studies from other areas of the world include:
- The research by Likuwa (2016) looked into the impacts of flooding on the Nkondo community in Rundu, in the Kavango area of Namibia.
- Taukeni *et al*., (2016)'s research looked into the post-traumatic stress disorder (PTSD) on school children after floods in Zimbabwe, and it is purely qualitative.
- The study by Sakijege, Lupala and Sheuya (2012) was done in Keko Machungwa informal settlement in Dar es Salaam, Tanzania and focuses on the causes, risks, the extent of flooding and coping strategies of residents, the municipality and city officials.
- Mudavanhu (2014) provides an overview of flood disasters and their potential effects on children's access to quality education in Zimbabwe using both qualitative and quantitative data.
- Using the sustainable livelihood approach as the theoretical framework, Balgah, Buchenrieder and Mbue (2015) assessed the impacts of the Babessi floods in 2012 on livelihoods in the rural north-western region of Cameroon after the floods.

The studies mentioned above differ from the current study regarding theoretical focus, the geographical area under review and regarding research methodology. The studies do however provide background information that can be used as part of the literature study for the current study.

1.11.2 Semi-structured interviews

Neuman (2003:29) defined semi-structured interviews as interviews conducted using an interview schedule. Though conducting semi-structured interviews obliges one to use an interview guide, participants can be given room to be flexible and explain issues without any hindrances (Frankfort-Nachmias & Nachmias, 1996). One semi-structured interview was conducted with an official from the Provincial Civil Protection Unit, three semi-structured interviews were administered to officials working for NGOs who helped the community during and after the disaster, and four semi-structured interviews administered to community leaders (one from each area, since the disaster region, is divided into four). All respondents were regarded as key informants. Though there were some NGOs which provided help during the disaster, only three were chosen for this study (Plan International, UNICEF and Catholic Relief Services (CRS). The chosen organisations were the most vital because they responded to the disaster in one way or another, for example, some were responsible for the distribution of drugs and food to the affected communities, while others provided shelter and psychosocial support.

Purposive sampling was used to select suitable informants. Haque (1996:5) notes that when using purposive sampling, respondents are chosen by the researcher according to his or her estimation of their importance to the research. To Patton (2001:30), the power of purposive sampling lies in selecting “information-rich” cases for in-depth analysis related to the central issues being studied. This study chose the key informants by selecting the most appropriate respondents. The selection was made from focal persons from the Provincial Civil Protection Unit, from NGOs which were in Tokwe-Mukosi during the disaster, and from community leaders. These individuals were chosen for their first-hand knowledge of the challenges the community encountered. Community leaders have complete information on how the disaster unfolded, and the NGO officials gave information based on what they encountered themselves when they were helping the community. The interaction was limited to one interview per participant organisation.

The interviews were done at a time that was suitable for the participants. The researcher first called them to book an appointment and arranged the interviews two

weeks ahead to give them time to organise plan accordingly. All the interviews were administered by the researcher himself. Participants were asked if the interviews may be recorded. The researcher took notes to augment data gathered by voice recorder. Each interview session took 15 to 20 minutes. Interviews were conducted in offices in the case of the NGO officers and the Provincial Civil Protection Unit officer. Homesteads were used for the community leaders' interviews. An interview guide was developed by the researcher later, based on the concepts identified in the literature, and used during interview sessions. The interview questions revolved around the narratives of the participants on the challenges they encountered during the Tokwe-Mukosi disaster. Data gathered from semi-structured interviews were analysed using thematic content analysis based on the constructs identified in the literature.

To make the interview reliable and valid, the researcher consciously tried to avoid confirmation bias. In other words, during interviews, the researcher would not seek out information that supports a pre-conceived belief about the participant. Seeking out that kind of information would confirm a possibly superficial impression formed by the researcher. The researcher also avoided affective heuristics and superficial evaluations, so as not to influence the way interviews were administered. Anchoring (arbitrary expectations of an interviewee), which might influence the outcome of the interview, were strictly avoided. Finally, the researcher also avoided intuitions influenced by his emotions and memory which might influence objectivity were also avoided. Also, the interview schedule was derived from the themes identified in the literature, to ensure validity.

1.11.3 Transect walks

Transect walks were also used during data gathering. Efforts were made by the researcher to visit the flood area and the new areas in which people were settled. The researcher walked around to assess the damage done by the floods in the flood area and how people were living in the new areas.

1.11.4 Focus group discussions

To Neuman (1999:146), a focus group aims to "obtain in-depth information on concepts, perceptions and ideas of a group". FGDs were conducted on groups of participants. Each focus group discussion comprised of ten members. It was important to allow participants a chance to respond to the questions without influence. It is during this period that those who are illiterate or unable to understand the questions were assisted by the researcher, but without leading them to certain responses. To reduce the effect of power and status, the researcher made sure everyone from either gender were given a chance to air their views, hence facilitating openness in sharing their views. Participants were always given room to explain fully what they thought about issues, without interruption. Rubin and Rubin (in Marvasti, 2004:24) stated the major goal of an FGD thus: "…the goal is to let people spark off one another, suggesting dimensions and nuances of the original problem that any one might not have thought of. Sometimes a totally different understanding of a problem emerges from the group discussion."

FGDs were thus vital in this study as they allowed participants to air their views in a "multi-vocal nature", and they thus had the advantage of respondents reminding each other of vital information that one respondent may easily have forgotten. The researcher took notes during the discussions to augment the audio recording. FGDs were arranged two weeks in advance, and the coordination of participants was facilitated by the heads of each settlement. The homes of the settlement heads were used for the FGDs.

The researcher developed an FGD guide, with a set of prompting questions revolving around the challenges encountered during the disaster, as based on the literature study. Each FGD took 45 to 60 minutes. The researcher did not need translators during discussions. No incentives or compensation were given to participants in the discussions. Participants participated freely and had the right to withdraw at any time.

The stratified sampling technique was used to "ensure that the sample represented certain characteristics in proportion to their prevalence in the population" (Schutt, 2011:131). The stratified sampling technique strives to represent the characteristics of

the population. The settlement was divided into four areas, and therefore three FGDs were done per area, totalling 12. The data gathered from the FGDs were analysed through thematic content analysis. The content analysis was based on the constructs identified in the literature.

The researcher avoided inconsistency in questioning. In other words, asking different questions of each candidate leads to inconsistent answers and hence unreliable results. Questions crafted to get particular, consistent answers and reliable results can only be achieved in the framework of a core set of questions asked of all participants.

In order ensure the validity of the interviewing to be done during FGDs, it is vital to avoid stereotyping. The researcher avoided forming an opinion about how people of a given appearance, religion, race, gender or other characteristic think, act, respond or would perform during the discussions. To guarantee the reliability of the FGDs, negative emphasis was shunned. Therefore, the researcher did not reject answers given by the participants based on instances of negative information.

To sidestep non-verbal bias, undue emphasis was not placed on non-verbal cues that had nothing to do with the subject under investigation. In other words, the loudness of voice or softness of voice, and the use of other gestures during the discussions did not influence how points were noted during the discussions.

The researcher did not get into situations where one strong point about the challenges is laboured by a single participant. All were given a chance to air their views. This was done expressly to avoid the halo or horn effect during the FGDs.

1.12 Ethical Considerations

Frankfort-Nachmias and Nachmias (1996) note that research ethics include fundamental principles such as honesty, fairness, and respect for persons, to mention but a few. Informed consent is of paramount importance in this study as it helped respondents to understand why they were participating in the research. The process respected the right of participants to decide whether or not to take part. Participants should know that their involvement is voluntary at all times, and they should receive a

thorough explanation beforehand of the benefits, rights, risks and dangers involved with their participation in the research project (Frankfort-Nachmias & Nachmias, 1996). In this study, participants were informed about the nature of the study (an academic study) and no deceit was used to enticing them into taking part. They also did not receive a gift or benefit for taking part in the study.

The study observed voluntarism. Participants were free to withdraw from the study if they were no longer willing to continue. Respondents were not coerced into participating in the research. Only those who agreed to participate in the study voluntary were considered. The study also respected anonymity and privacy of the respondents. Also, the data gathered for the study will be kept for five years by ACDS according to the NWU practice.

1.13 Justification and Significance of the Study

Studying the nature of challenges encountered in rapid-onset flood disasters, such as the Tokwe-Mukosi flood disaster in Zimbabwe, can augment the existing literature on disaster risk reduction management of rapid-onset flood disasters. Also, understanding the challenges faced by the community could result in recommendations to increase this community's resilience.

1.14 Chapter Outline

The study consisted of five chapters.

- Chapter One, titled "Introduction", gives an overview of the research by introducing it, pointing out objectives, and laying the background, presenting a statement of the problem and the rationale for the study.
- Chapter two, "Theoretical Framework and Literature Review", gives the theoretical underpinnings informing the study, and reviews literature relevant to the study.
- Chapter Three, "Research Design and Methodology", outlines the research design and methodology to be employed in the study, data collection tools, and justification for their use. Ethical issues to be observed in the study are also included in this chapter.

- Chapter four, “Discussion of Findings”, presents, explains, and discusses the results of the field study about the theoretical frameworks informing the study.
- Chapter five, “Conclusions and Recommendations”, wraps up the study by giving a summary of the entire research project, drawing conclusions and proffering some recommendations from the research findings.

CHAPTER TWO: THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.0 Literature Review

2.1 Introduction

Vast frameworks and studies attempt to explain how disasters unfold and unpacking the ensuing challenges, carried out to 'help' the rural poor out of poverty. Contemporary disaster scholars such as Wisner *et al.,* (2003) have laid the bedrock of how disasters unfold and affect communities through crafting the PAR model and the access model. Practical disaster response strategies whose aim has been to respond to disasters such as floods, earthquakes, mudslides among others have been done by numerous players notably NGOs which usually collaborate with partners and governments of the affected communities. What boggles the mind, however, is that the challenges faced by communities bedevilled by disasters in Zimbabwe have rarely been given academic attention. The paucity of academic researches unpacking the challenges faced by the Tokwe-Mukosi community after the rapid onset disaster which took place during the 2013-2014 rainy season acts as an invitation to analyse the challenges faced by communities in the aftermaths of disasters in Zimbabwe.

The focus of this chapter is to discuss the models underpinning this study and analyse their application in the area of study to answer the specific research question: "What are the nature of challenges encountered in rapid-onset flood hazards and possible actions to create greater community resilience?"

First, key concepts underpinning this study are conceptualised. The second and third sections of this chapter discuss the two models underpinning the study. The sections aim to describe the two models and discuss how they work in diverse disaster risk environments. Ultimately, the chapter discusses the application of the models to the area under study. Thus, an integrated approach to the application of the models is taken in a bid to understand their application in studying the challenges encountered during the Tokwe-Mukosi disaster.

2.2 Conceptualisation of key terms

Defining the concept of disaster risk reduction requires a clear understanding of the term disaster. The intention of disaster reduction is not on any actual disaster event itself; although disasters remain its main focus. According to the USAID (2011:6-7), before one can concentrate on the more technical and sophisticated facets of disaster risk reduction and DRM, there should be a very clear conception of what a "disaster" actually entails. Different conceptualisations of the term disaster have been put forward. In some cases, defining a disaster has linked its existence to total losses sustained, in other words, the number of people killed and injured defines a disaster (Rambau 2011). Others hold that reaching or surpassing certain pre-defined thresholds triggers contingency measures and thus recognises a disaster, while still others judge disasters on their geographical extent and significance about "normal" conditions (Nyamavuvu 2014). Then there are those who express a disaster regarding the monetary value of its losses (USAID, 2011:7). Despite the numerous divergences, this study adopts the definition of a disaster by the UNISDR (2009:9) which defines it as "A serious disruption of the functioning of a community or a society involving widespread human, material, or environmental losses and impacts which exceeds the ability of the affected community to cope using only its own resources." According to the USAID (2011:8), the UNISDR goes on to indicate:

> "Disasters are often described as a result of the combination of: the exposure to a hazard; the conditions of vulnerability that are present; and insufficient capacity or measures to reduce or cope with the potential negative consequences. Disaster impacts may include loss of life, injury, disease and other negative effects on human physical, mental and social well-being, together with damage to property, destruction of assets, loss of services, social and economic disruption and environmental degradation."

USAID (2011:8) asserts that it is important to note that the term "disaster" has not been used, for the reason that it is inaccurate and misleading. Disaster risk reduction or just disaster reduction can be understood from USAID, 2011:13 as

> "...the concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property,

> wise management of land and the environment, and improved preparedness for adverse effects.... disaster reduction strategies include, primarily, vulnerability and risk assessment, as well as a number of institutional capacities and operational abilities."

The USAID (2011:13) further notes that the assessment of the vulnerability of critical facilities, social and economic infrastructure, the use of effective early warning systems, and the application of many different types of scientific, technical, and other skilled abilities are essential features of disaster risk reduction.

In studying disasters, one should keep in mind that the levels of vulnerability and hazard would determine their extent. Vulnerability is defined as a set of prevailing or consequential conditions arising from various physical, social, economic, and environmental factors which increase the susceptibility of a community to the impact of hazards (UNISDR, 2002:24). The combination of these two factors (vulnerability and hazard) would thus determine the extent of the disaster.

Disaster impacts can, however, be minimised if the resilience of the community or those affected is strengthened. Resilience is seen as "the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions" (UNISDR, 2009:30).

2.3 Vulnerability-Related Background Information

After 1980, when Zimbabwe was decolonised and got its political independence from Britain, disasters in Zimbabwe have been largely politically motivated (the Gukurahundi atrocities of 1982-1987; the violent land invasions of the year 2000, the cholera outbreak of 2008) and not particularly rapid (Zimbabwe Human Rights NGO Forum, 2005:12, Murungwara, 2014:30). That being the case, the reporting of such disasters inside and outside Zimbabwe was limited leading to inaccurate perceptions of the nature and extent of devastation caused by such disasters (Omaar, 2010). Quantifying, exploring and analysing the nature of the challenges in those disasters

have been difficult and inaccurate, arguably curtailed for political reasons (Zimbabwe Human Rights NGO Forum, 2005:12).

One such disaster was the Gukurahundi civil war, by some considered genocide, where thousands of lives were affected between 1982 and 1987 (Alexander, 1998:152; Alexander *et al*., 2000:140; Moyo, 2006:23). The prerogative of helping the victims was left in the hands of the philanthropic organisations. Also, limited state media coverage left a huge chasm in the literature on the challenges the disaster embodied (CCJP & LRF, 1997:5; Alexander *et al*., 2000:141; Eppel, 2004:24; Mabhena, 2006:19; 2007:16).

Similarly, the violent farm invasions of the early 2000s were also not reported in full, with only limited information available on the tribulations faced by affected communities (Fisher, 2010:203). This disaster, popularly known as Jambanja or third Chimurenga, commenced in the year 2000 and peaked in the year 2004. Large numbers of former farm workers (most of them of foreign origin) were displaced from formerly white-owned farms where they had lived for decades. This severely impacted on the victims' livelihoods (Fisher, 2010:20; Hughes, 2010:30; Sachikonye, 2004:17). Such disruption of their lives qualifies as a "disaster" in that farm workers were suddenly displaced and lost their livelihoods, but political constraints resulted in it not being declared as such (Sachikonye, 2004:24).

The year 2005 saw another disaster unfold named Operation Marambatsvina ("Clean-up the filth"). This urban clean-up campaign was propagated by the government and seen by some as a political ploy to clear the opposition's support base, made up of what the government termed the "totem less" supporters of the opposition (Fisher, 2010:210). It should be noted that most people who were affected by the farm invasions were again affected by this "second disaster" (Tibaijuka, 2005:8; Fisher, 2010:201; Dawson & Kelsall, 2011:25). Once again, reporting on this politically charged calamity was limited, thereby limiting analysis of challenges experienced by the communities.

In 2008, Zimbabwe experienced another man-made rapid-onset disaster in the form of a cholera outbreak that affected most urban suburbs claiming the lives of 4 288

people (WHO 2009:7). Cholera is a severe intestinal disease caused by the bacterium *Vibrio cholerae*. The bacteria are usually found in water bodies notably lakes and rivers. It is transmitted to people or animals mainly through water contaminated by faecal material from infected individuals. Cholera causes severe diarrhoea, vomiting, dehydration, and shock, and can cause death within hours (Centre for food security and public health (CFSPH)). It was in this context where the Tokwe-Mukosi disaster happened.

The inhabitants of Tokwe-Mukosi are of the Karanga ethnic group. Their settlement in the Masvingo area dates back to the earliest occurrence of the Bantu[3] people in the thirteenth- and fourteenth-centuries. Colonisation under the agent of the British imperialist named Cecil John Rhodes and his British South Africa Company (BSAC) changed how people in the Masvingo area lived after settlers set up farms and mining claims (Masvingo, later named Fort Victoria, became the first town to be set up by the BSAC). The settlement of the British colonisers and the enunciation of statutes resulted in the appropriation of land from the indigenous people. Legislation such as the Land Apportionment Act of 1930 saw the indigenous Karanga people displaced to areas which were mostly rocky, sandy, and inhospitable (Gelfand 1968).

Ideally, whenever there is involuntary displacement, the affected communities should be compensated for the disturbance of livelihoods and loss of basic amenities such as housing, to make relocation to the new environment run as smoothly as possibly. The dispossessing of the Karanga people was never compensated for. Displacement subjected them to a severe vulnerability in an area that is susceptible to persistent droughts, a situation which prompted some to opt to settle near rivers (Gelfand 1968).

Despite disaster experts pointing to the exposure of everyone (rich or poor, rural or urban) to vulnerability, the case of the Karanga people in the Tokwe-Mukosi area was constrained by limited livelihood diversification options and; where diversification was attempted, the chance of realising a viable livelihood was meagre due to incessant droughts. According to the PAR model, the root causes of disaster appear to reflect

[3] Although sometimes considered a sensitive term, the word ‘Bantu’ refers to a specific group of people in a historical context. It is used in this context in this research.

the exercise and distribution of power in a society. Blaikie and Brookfield (in Wisner *et al*., 2003:53) agree. They assert that economically marginal urban squatters or people who live in environmentally "marginal" environments, meaning those who are usually isolated, live in arid or semi-arid, flood-prone coastal or forest ecosystems, or occupy steep, flood-prone urban locations, are of marginal importance to those who hold economic and political power (Blaikie & Brookfield cited by Wisner *et al*., 2003:53).

Vulnerability occurs if people have no access to secure, rewarding livelihoods and resources. This means they are likely to be a low priority for government interventions intended to deal with hazard mitigation. Reminiscent of the classical development of capitalism, Tokwe-Mukosi is an example of a "neo-enclosure" of productive assets from the poor peasants; with successive governments since colonialism to date, not paying particular attention to the vulnerabilities and susceptibility of the Tokwe-Mukosi community to hazards and disasters. The livelihoods of the Tokwe-Mukosi community were largely subsistence agriculture, sometimes complimented through fishing and gardening facilitated by the Tokwe and Mukosi rivers. The Tokwe-Mukosi area was and still is characterised by chronic poverty as a result of limited social and educational development, isolation from markets, poor soils, and erratic rainfall. The Tokwe-Mukosi area lies in Zimbabwe's natural region four, which is semi-arid and prone to persistent droughts. Regardless of the fact that the Tokwe-Mukosi community critically depended on the Mukosi and Tokwe rivers for their living, the government of Zimbabwe embarked on a hydro-electric project and chose to build a dam in the river basin (Murungwara, 2014:4).

The Tokwe-Mukosi dam is a vast inland dam, built by harnessing the water from the Tokwe and Mukosi rivers about 72 km south of the town of Masvingo in the Masvingo Province of Zimbabwe (Murungwara, 2014:4). Zimbabwe's largest dam was completed in December 2016, covering an area of 96 000 hectares., The completion of the dam called for the immediate relocation of the Tokwe-Mukosi villages to new areas at the Chingwizi, Chisase and Masangula lands (Murungwara, 2014:4). The communities were not relocated timeously, and a heavy downpour during the 2013-14 rainy season led to flooding and mudslides, which were in due course officially named the Tokwe-Mukosi disaster (Murungwara, 2014:4). Relocations were done in response

to the disaster, and people were relocated to Chingwizi, Chisase, and Masangula with no proper shelter, sanitation infrastructure.

There is literature on flood disasters and some studies done on the Tokwe-Mukosi flood disaster. However, these studies' focuses are different from the present study as was shown in the following discussion. The following two studies specifically needed to be mentioned as studies that also focused on the same area as the present study:

- A study guided by an exploratory, descriptive design by Murungwara (2014:vi) focused on the plight of IDPs triggered by the Tokwe-Mukosi 2014 flood disaster which led to the evacuations of thousands into transit camps in Chingwizi, Chisase and Masangula lands.
- Nyamavuvu (2014:4) assessed the adherence of the Zimbabwean government to the principles of the African Union's convention on assistance and protection of internally displaced persons commonly called the Kampala Convention using the case study of Tokwe-Mukosi. The study aimed to establish how the government of Zimbabwe responded to the plight of the internally displaced persons of Tokwe-Mukosi to establish if the response was in line with the Kampala principles. The study made use of a case study design.

To be noted, however, is that these studies had a qualitative orientation intended to study the circumstances of IDPs *after* the disaster. This research also took a qualitative approach but looked into the challenges faced *during* and *after* the disaster. Thus, the focus was on studying the challenges encountered during the disaster, and also the challenges faced in the aftermath of the disaster. Also, and different from the studies mentioned above, thus, studies by Murungwara (2014) and Nyamavuvu (2014), and this study in particular used PAR and access models to guide the research, which offered a wider view on the disaster than just focusing on the plight of IDPs.

Outside the Tokwe-Mukosi disaster and Zimbabwe, and particularly in South Africa, some studies have been done on related topics. For example, Mgquba (2002) looked into the challenges faced by a community in South Africa, and the focus of the study was to understand the challenges faced in the face of CCA. Further, studies by

Mgquba and Vogel (2004:32); Mahlangu & Braune (2010:10); Rambau (2011:15); Rambau *et al*., (2012:1); and Ndiweni & Musarirwa (2014) looked into the disaster management issues in southern Africa with the focus not specifically on the challenges encountered by a community during rapid-onset flood disasters. Studies with a similar focus were also done outside Africa, which included Galea Nandi and Vlahov (2005:80), and Robine (2008:173). The focus of most of these studies was on disaster risk reduction, as well as on resilience of the communities.

In addition to the academic material consulted, context-specific material was also consulted. Reports on the Tokwe-Mukosi disasters also have insights on the Tokwe-Mukosi disaster. For instance, a report compiled after a workshop on lessons learnt from the Tokwe-Mukosi disaster is insightful (Kudzatsa, 2014:5). The Lessons Learned Report on the Tokwe-Mukosi rapid-onset disaster compiled by Kudzatsa (2014) provided a strategic level overview of lessons learnt by the government of Zimbabwe, DRM stakeholders, and its partners from rescue and relief activities in the immediate aftermath of the Tokwe-Mukosi flood disaster of 2014.

The report investigates the complexity of responding to a disaster of the magnitude the Tokwe-Mukosi disaster. It investigated what the DRM community learnt from the achievements and challenges from an organisational perspective, and also from institutional relationships (Kudzatsa, 2014:5). Numerous studies notably in South Africa investigated disasters from different vantage points and locales. Pyle and Jacobs (2016) examine a 2012 flood event from both meteorological and disaster management perspectives, using a combined qualitative and quantitative research approach in Port Alfred in the Eastern Cape Province of South Africa. Findings of the study by Pyle and Jacobs (2016) pointed to a critical lack of coordination among the various role players before, during, and after the disaster. The study recommended improved proactive and coordinated DRM and disaster risk reduction for the region. This study was done in a different locale, and unlike the study by Pyle and Jacobs (2016), this study was purely qualitative.

Muyambo, Jordaan and Bahta (2017) assessed the social vulnerability of communal farmers to drought in the O.R. Tambo district in the Eastern Cape province of South Africa using a survey data and SoVI. Results from the study suggest that an SoVI

estimated for O.R. Tambo district was very high, with a Likert scale of 5 for cultural values and practices, security or safety, social networks, social dependence, preparedness strategies, and psychological stress. This was attributed to the high value of social vulnerability to drought. The study noted that the government of South Africa's involvement in drought risk reduction is limited; and as a result, the study recommended that a national, provincial, and municipal policy on drought risk reduction and mitigation should be developed. Unlike the study by Muyambo, Jordaan and Bahta (2017), this study was a Zimbabwean study, and it focused on a rapid-onset disaster. These studies are of paramount importance to this study since they underline the need for coordination and governance when studying about disasters.

Balgah, Buchenrieder and Mbue (2015) used the sustainable livelihoods framework as a comprehensive approach to assessing the impacts of the Babessi floods in 2012 on livelihoods in the rural north-western region of Cameroon after the floods. Balgah, Buchenrieder and Mbue (2015) noted that floods have serious economic, social, human and food security impacts on victims, that both government and non-governmental support were jointly important for household recovery, and that comparatively high levels of recovery were attributed to the low loss of human lives. Balgah, Buchenrieder, and Mbue (2015) concluded that there was a need for combining formal and informal instruments in post-disaster management in rural areas.

Moshodi, Coetzee and Fourie (2016) reviewed the status of stakeholder management in the Merafong Local Municipality in South Africa, as it pertains to the formulation of a holistic sinkhole risk reduction strategy. Moshodi, Coetzee and Fourie (2016) argue that improved stakeholder management, characterised by improved two-way communication between the municipality and community stakeholders, fostering a relationship based upon trust and equality among stakeholders, would lead to a mutual commitment by all stakeholders to address the risk.

Musyoki, Thifhufhelwi and Murungweni (2016) examined the impact of flooding and communities' perceptions towards responses to flooding, in the cases of Maniini and Tshilungwi Villages in the Thulamela Municipality in the Limpopo Province of South Africa. Findings from the study by Musyoki, Thifhufhelwi and Murungweni (2016)

indicated that communities were vulnerable to flood disasters, and these disasters had a significant impact on infrastructure and the livelihood of the selected communities. Musyoki, Thifhufhelwi and Murungweni (2016) noted that there was a need to strengthen coping mechanisms by local governments and communities themselves to cope with the impact of flooding. It should be noted that this study was done in South Africa and used a mixed method design to gather data. By contrast, the current study was purely qualitative and was done in Zimbabwe.

Likuwa (2016) studied flooding and its impact on the Nkondo community in Rundu, in the Kavango area of Namibia. The study is a historical piece that draws on unique oral-history regarding flooding and its impact. Moreover, it is a story about power, politics and colonial dynamics and forced relocation using flooding as a pretext. The study indicates that flood-prone communities may fear to relocate permanently due to cultural, social, and economic factors hence, the government should not use force to relocate communities but should address communities' fears and provide them with support in relocated areas. Unlike the study by Likuwa (2016), this study is not a historical study. It is a study on rapid-onset flood disaster in Zimbabwe and is purely qualitative.

Taukeni *et al.,* (2016) studied PTSD in school children as a result of the floods. Taukeni *et al.,* (2016) suggested that it is important for the government and other stakeholders to provide the necessary psychological and emotional support in the event of future floods or similar disasters. This study was done in Zimbabwe and was purely qualitative.

Sakijege, Lupala and Sheuya (2012) did a study in Keko Machungwa informal settlement in Dar es Salaam on the causes, risks, the extent of flooding and coping strategies of residents as well as municipality and city officials. According to Sakijege, Lupala and Sheuya (2012) risk associated with flooding include water and air pollution, diseases, waterlogging and blocked accessibility. This study was Zimbabwean, and its focus was on a rural community. The above studies which were done outside Zimbabwe are important to this study in that they emphasised the need to build strategies for greater community resilience in the face of disasters.

Using both qualitative and quantitative data, Mudavanhu (2014) provided an overview of flood disasters and their potential effects on children's access to quality education in Zimbabwe. Mudavanhu (2014) recommended that a culture of safety be promoted through disaster education, development of good road networks and enforcement of building codes during construction of school infrastructure. Findings from Mudavanhu's study also supported the need for adaptation strategies to ensure that the risks specific to school children are addressed. Contrary to the mentioned study, the current study's focus was not on children, and it was purely qualitative.

To gather the data for the literature study, the following databases were consulted:

- Catalogue of books: Ferdinand Postma Library (North-West University)
- NRF: Nexus
- Emerald Online
- ScienceDirect
- Sabinet Online
- EbscoHost

Also, research scripts from various universities, and context-based documents as mentioned above were accessed. From the above, it is clear that there was sufficient information to explore this study's research problem.

The data gathered in the literature study were used to answer specific research question 1.

2.4 The PAR Model

Central to the PAR model is the notion that a disaster is the connection of two disparate forces, namely the processes producing vulnerability on the other side, and the natural hazard on the other side. The PAR model is designed to show how the causes of vulnerability can be mapped out from unsafe conditions, through socio-economic pressures, to core causes. The model outlines the hierarchy of causal factors that constitute the pre-conditions for a disaster. Understanding the nature of challenges

encountered in rapid-onset flood disasters such as Tokwe-Mukosi demands a review of events leading to the disaster. Refer to Fig 1.13

The PAR model is a tool used to show how a disaster unfolds when natural hazards affect vulnerable people (Wisner *et al*., 2003:50). The PAR model holds that an explanation of disasters entails tracing the nexus between the impact of a hazard on people and a series of social factors and processes that generate vulnerability. Wisner *et al*., (2003:52) note that explaining vulnerability should take into consideration three sets of links that join the disaster to processes that are situated at decreasing levels of specificity to the victims of a disaster. The most distant of these sets is the causes set, which comprises an interconnected array of widespread and general processes within a society and the world economy. These sets can be ranked hierarchically. Thus, those seen as spatially distant arise in the centre of economic or political power. Those seen as temporally distant are in history. Those seen as distant are seen as profoundly bound up with cultural assumptions, ideology, beliefs, and social relations in the actually lived existence of the people concerned, who tend to believe they are "invisible" and "taken for granted" (Wisner *et al*., 2003:52; Adger, 2006:270).

To the PAR model, the most important causes that give impetus to vulnerability are economic, demographic, and political processes[4]. These produce vulnerabilities over time. According to the PAR model, these causes influence the allocation and distribution of resources among various clusters of people. Wisner *et al*., (2003:52) notes that these causes are a function of economic, social, and political structures, and legal definitions and enforcement of rights, gender relations, and other elements of the ideological order.

Causes of vulnerabilities, according to the PAR model, are also linked to the function or dysfunction of the state, and ultimately, to the nature of the control exercised by the police, the military, good governance, the rule of law, and the capabilities of the administration. Long civil wars may also dent the ability of governments to prevent

[4] In the Zimbabwean milieu, political processes have been the impetus behind the vulnerability of the Tokwe-Mukosi community. The lack of political will led to procrastination in resettling people to new and safe areas. This has been linked to economic issues as well, lack of adequate financial resources to facilitate the evacuation of people led to the disaster.

hazard events, as they can corrode the trust between government and citizen required for prevention and mitigation of hazards leading to disasters.

The PAR model holds that causes reflect the exercise and distribution of power in a society. For instance, economically marginal urban squatters, or people who live in environmentally "marginal" environments are more susceptible to disasters (Blaikie & Brookfield, cited by Wisner *et al.*, 2003:53). Vulnerability takes effect when people have no access to secure and rewarding livelihoods and resources. This means they are likely to be a low priority for government interventions intended to deal with hazard mitigation. Furthermore, Wisner *et al.,* (2003:53) note that people who are economically and politically marginalised are more likely to stop trusting their methods for self-protection, and thus lose confidence in their local knowledge.

The PAR model holds that dynamic pressures are processes and activities that "translate" the effects of causes, both temporally and spatially, into unsafe conditions[5]. These dynamic pressures are more contemporary or immediate conjectural manifestations of general underlying economic, social, and political patterns (Wisner *et al*., 2003:53; Kelly & Adger, 2000:330). Dynamic pressures channel the causes into certain forms of hazardous conditions that have to be taken into consideration. Dynamic pressures include among others, epidemic disease, rapid urbanisation, current (as opposed to past) wars, and other violent conflicts, foreign debt, and certain structural adjustment programmes. There are other factors which can have more benign effects on food security and the livelihoods of people (Wisner *et al*., 2003:53; Kelly & Adger 2000).

Unsafe conditions are the explicit forms in which the vulnerability of a population is shown in time and space in juxtaposition to a hazard, according to the PAR model. Unsafe environments are dependent upon the initial level of well-being of the people, and how this level varies between regions, micro-regions, households, and

[5] These in the case of Tokwe-Mukosi maybe the inertia of the Tokwe-Mukosi community itself to heed the calls of the government to evacuate to new places. They may also include continuing to build houses near the Tokwe and Mukosi rivers hence increasing vulnerabilities of the community.

individuals[6]. Causes, dynamic pressures, and unsafe conditions are all subject to change according to the PAR model.

Causes in the PAR model usually shift because of disputed power and claims on resources (financial, physical, and informational), as well as identities (Platt *et al*. 1999; Oliver-Smith & Hoffman 1999; and Caplan 2000, all cited by Wisner *et al*., 2003:60). The vulnerability may, therefore, change as a result. The PAR model holds that mass suffering due to the disaster may lead to the overthrow of elites and dramatic realignments of power (Wisner *et al*., 2003:60).

The PAR model, however, does not provide a comprehensive examination of the exact interfaces of environment and society at the "pressure point" (Wisner *et al*., 2003:49; Füssel & Klein, 2006:315). The pressure point is a point where and when the disaster starts to unfold (Wisner *et al*., 2003:49; Sposito, 2006:20). As a starting point, any analysis of a disaster should connect differential vulnerabilities with a disaster environment. It should also analyse the impacts of a disaster on people of different social strata within society. In other words, it should analyse why wealthier people tend to suffer less than poor people. It should also analyse the reasons why females and children tend to face the brunt of disasters more than men and adults. The analysis should also establish why various groups defined by ethnicity, class, occupation, and location of work or domicile are likely to suffer differently from others. Also, the PAR framework was seen by Wisner *et al.* (2003:49) to be static, lacking a series of iterations along the trajectory of a disaster. The PAR model seems unable to either suggest or account for the change, both before the onset of a disaster and more importantly, during and after it (Wisner *et al.*, 2003:49). Despite its weaknesses, the access model was therefore crafted as a continuation of the PAR Model thereby making the two models eclectic and work hand in glove.

[6] The case of the Tokwe-Mukosi community, the living of the people near rivers which were later harnessed to make the dam constitute the unsafe conditions which later exposed the community to the flood disaster.

2.5 The Access Model

The access model (Fig 1.3) is an extension of the principal elements of the PAR model. It relates to human vulnerability and exposure to physical hazards and focuses on the process by which natural events impact upon people and their responses to these events (Wisner *et al*., 2003:50; Sposito, 2006:23). Wisner *et al*. (2003:50) note that the access model analyses in depth how vulnerability is initially generated by economic, social, and political processes, and what then happens as a disaster unfolds. It seeks to understand intricate and diverse sets of social and environmental events, and long-term processes that may be associated with a particular disaster (Wisner *et al*., 2003:88; Sposito, 2006:24). The model picks up the state of "normal life" and explains how people sustain a livelihood with differential access to material, social, and political resources.

The access model holds that hazard events can change the set of resources available to households, mainly through the destruction of crops or land by, for instance, mudslides or floods, thereby altering the patterns of recoverability of different groups of people (Wisner *et al*., 2003:51).

The access model emphasises the processes by which natural events impact upon people and their responses to those events. The access model analyses how vulnerability is created primarily by socio-political and economic processes, and what unfolds before, during, and after disasters take place (Wisner *et al.,* 2003:49). According to the Wisner *et al.,* (2003:49), the access model complements the PAR model by dwelling on the specific detail of what happens at the pressure point between the natural event and longer-term social processes and reports this visually.

The access model was developed to describe multifaceted and diverse collections of social and environmental events, as well as long-term processes that are associated with a specific disaster (Wisner *et al.,* 2003:50). The access model asserts that a disaster may be defined and categorised according to the natural hazard that prompted it. The access model sets out to explain, at a micro-level, the establishment and trajectory of vulnerability, and its variation between individuals and households. The access model focuses on the precise detail of what happens at the pressure point

between the natural event and long-term social processes (Wisner *et al*., 2003:87). It deals with the impact of a disaster as it unfolds, the role and agency of people involved, what impacts are felt by them, how they cope, develop recovery strategies, and interact with other role players.

The access model further holds that the process of eking out a living is a set of decisions made at the household level. It notes that individual decisions are always made in a political-economic environment. The model reiterates that life in normal times is characterised by repeated decisions about how to obtain a livelihood. These decisions may include a cropping strategy, investment in new inputs or agricultural equipment, changing the nature of employment, or starting up a small shop or handicraft enterprise (Wisner *et al*., 2003:90; Füssel, 2007a:159). This constitutes the political economy according to the access model.

The political economy in the access model is exhibited by two correlated systems. The first system constitutes social relations. Social relations encompass the flows of goods, money and food surpluses between different actors in a social setting. The second system constitutes structures of domination which include the politics of relations between people at different levels in society. Relations within the household, between men and women, children and adults, seniors and juniors, are included in the second system. According to Wisner *et al*., (2003:94) these relations shape, and are shaped by, existing rights, obligations and expectations that exist within the household. These relations affect the allocation of work and rewards which are fundamental to absorbing the shock and stress that accrue as a result of a disaster. The structures of domination also encapsulate the wider family and kinship ties of reciprocity and obligation at a more extended (and usually less intensive) level. It also includes relations between economically defined classes (such as employer and worker, patron and client) and between members of different ethnic groups (Wisner *et al*., 2003:94; Füssel, 2007a:159).

Lastly, the structures of domination also comprise the most extended and highest level, relations between individual citizens and the state. These are diverse and are important in times of shocks and stress. They include issues of law and order, and whether these are exercised with impartiality and personal discretion, with particular

degrees of intensity and efficiency, with differing degrees of coercion, or sometimes with levels of violence (Wisner *et al*., 2003:94, Füssel, 2007b:269).

The access model, as noted earlier, focuses on the way unsafe conditions arise about the economic and political processes that allocate assets, income, and other resources in society (Wisner *et al*., 2003:92; Füssel, 2007a:158). In the case of the Tokwe-Mukosi disaster, the ideas of the access model are reinforced if one takes into consideration procrastination in the relocation of community members, and the inertia of the government in allocating relocation resources. The access model also integrates nature with the explanation of the impact of hazards, especially the extremes of nature as they are experienced by people with different characteristics in a certain milieu (Wisner *et al*., 2003:92; Eakin, 2005:1926). The access model holds that nature itself establishes a part of the resources that are allocated by social processes, and under these conditions, people become more or less vulnerable to hazard impacts. The access model as an extension of the PAR model shows how social systems create the conditions in which hazards have a differential impact on various societies and different groups within society. In the case of the Tokwe-Mukosi disaster, the model can be helpful in unpacking how women and children in different households were affected.

The access model according to Wisner *et al.* (2003:96) is basically dynamic and iterates through time to provide a precise understanding of how the trajectories of people are impacted by a hazard event. It is a micro-level, disaggregated model which is shaped by, and in turn, shapes all-encompassing political processes at diverse levels. The access model is an economistic model; in the case of the Tokwe-Mukosi disaster, it was precise and deterministic. The causes, dynamic pressures and unsafe conditions which the PAR framework deals with are treated as qualitative inputs into the access model and must be specified in more detail through the dynamic operation of structures of domination and social relations. As Wisner *et al.,* (2003:97) note, the access model is economistic, structuralist and isolates vital economic and political-economic processes of normal life.

Nevertheless, despite the strengths of the access model, it is very difficult to predict or find regularities in agency or inventiveness (Wisner *et al*., 2003:97-98; Brooks,

Adger, & Kelly, 2005:160). From this vantage point, the political aspect of a DRR environment can be capricious. Since the model in isolation does not directly incorporate political factors. Therefore, by using the PAR model concurrently with the access model in understanding the challenges encountered during and after the Tokwe-Mukosi disaster, the loopholes inherent in one model are bridged by the other model. In this instance, since the access model does not incorporate political factors in its analysis, the PAR model, which is much less precise but more holistic in unpacking the analysis of the DRR can be very helpful in understanding the political factors and their influence in during and after the Tokwe-Mukosi flood disaster.

The access model does not explicitly include national policies or world systems in the way that the PAR model does, although the impact of national and international actions can and should be incorporated in the analysis of any DRR framework. Thus, by using the access model together with the PAR model which explicitly includes what the access model omits, issues such as land distribution, famine relief programmes, food-for-work programmes, and rural reconstruction programmes done after the Tokwe-Mukosi disaster are all taken into consideration during the analysis. Analysis of all these issues helps one to understand their impact in shaping access profiles, access qualifications, payoffs, and a range of income generating opportunities which arose after the Tokwe-Mukosi disaster.

2.6 Application of the Models to DRR and Resilience

The PAR model can be used for community-based self-study of vulnerability and capability, but it was used in this research based on the community vulnerability and its resilience capabilities. Communities and groups can adopt the concept of vulnerability to enquire into their exposure to damage and loss (Wisner *et al.,* 2003:83). The concept of vulnerability, therefore, becomes a tool in understanding the finer details of resources allocation in a DRR environment. In this milieu, the PAR model is ideal for analysing vulnerability besetting the Tokwe-Mukosi, and how they struggle for resources allocated by a recalcitrant government, which has since seen its support waning in the area.

Using the PAR model, community-based vulnerability assessment has become quite elaborate, utilising a range of techniques to map and make inventories, seasonal calendars, and disaster chronologies. With the PAR model, lay people in citizen-based groups can participate in environmental assessments that involve technology not previously accessible to them, such as geographical information systems (GIS) (Pickles 1995; Levin & Weiner 1997; Liverman *et al*. 1998; Maskrey 1998, cited by Wisner *et al*., 2003:84). The model also provides the people with the opportunity to decide what risks are acceptable to them (Morrow, 1999:11 cited by Wisner *et al*., 2003:84). The PAR model can be useful in creating a platform for the Tokwe-Mukosi community to define its vulnerabilities and capabilities, without the interference of outsiders.

The employment of the concept of vulnerability as a tool of analysis by the community involves a thorough examination by the community of their resources and capacities (Wisner *et al*., 2003:84). It is in the hands of local people, as in the case of Tokwe-Mukosi, where the logic of their situation and the phenomenology of their living with risks, forces them to be aware of their strengths and capacities, thereby evaluating these together with their weaknesses and needs (Wisner 1988a; Anderson and Woodrow 1998 cited by Wisner *et al*., 2003:84).

The PAR model, however, has frailty in that the generation of vulnerability is inadequately integrated with the way in which the hazards themselves affect people. It is therefore seen as a static model (Wisner *et al*., 2003:91-92). Wisner *et al*., (2003:92) note that in fact, nature forms a part of the social framework of society as is evident in the use of natural resources for economic activity. Hazards are also interwoven with human systems affecting the pattern of assets distribution and livelihoods among people. For example, this can affect the land distribution and ownership after floods.

The weaknesses of the PAR model are thus complimented by the access model, especially when it comes to discussing the issues of resilience. Resilience is omnipresent in both these frameworks, but more so in the access model. Vayda and McCay (1975), cited in Davidson-Hunt & Berkes (2000), drew from the work of Holling (1973) and suggested that the concept of resilience can be useful if one aims to

understand human adaptation as stability and resistance (Vayda and McCay 1975; Holling 1973; as cited in Davidson-Hunt & Berkes 2000). Vayda and McCay (1975) concluded that the resilience concept abandons the equilibrium centred view, and instead allows individuals and societies to adjust in response to environmental challenges, and this can be termed social resilience (Davidson-Hunt & Berkes 2000). Resilience was defined by Adger (2000:350) as the ability of groups or communities to cope with external stresses and disturbances as a result of the social, political, and environmental change.

Resilience can also be defined as the ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, including ensuring the preservation, restoration, or improvement of its essential basic structures and functions (Field *et al*., 2012:5 cited in Wisner et al., 2003:114). Coping is the way people act within the limits of existing resources and range of expectations to achieve various ends (Wisner *et al*., 2003:114). According to Wisner *et al*., (2003:114), this involves no more than "managing resources", but usually it means how it is done in unusual, abnormal and adverse situations.

This, therefore, implies that coping can encapsulate defence mechanisms, active ways of solving problems, and methods for handling stress (Murphy and Moriarty 1976 cited in Wisner *et al*., 2003:114). Often it is assumed that the objective of coping strategies is survival in the face of adverse events. While this is indeed common, it masks other important purposes. In the face of a disaster or a threat, people may be forced to engage in livelihood activities that in the period before a disaster would have been seen as undignified or even unsustainable. The survival of the individual in the short term may be the only attainable objective of coping.

All in all, by using the two models as the research frameworks, the impacts of policies used for identifying vulnerable populations and for predicting the probable outcomes of extreme natural events can be revealed. Since the access model provides a dynamic and moving map of a disaster, it complements the seemingly static PAR model, hence creating a springboard for analysing the challenges encountered during the Tokwe-Mukosi disaster in a more complementary and robust manner. Through

using these two models, the study chooses which aspects need attention and thereby proposes possible actions for greater resilience when analysing the challenges encountered at Tokwe-Mukosi.

2.7 Conclusion

Disasters have been bringing catastrophic consequences to communities. With the unpredictability of most disasters in Southern Africa, Zimbabwe the consequences of disasters have been severe. Most studies on disasters have been done outside Zimbabwe and most rarely unpack the challenges encountered during and after rapid onset disasters. There is need therefore to unpack the challenges encountered during and after the Tokwe-Mukosi rapid onset flood disaster. Of crucial importance is the fact that the challenges faced during and after disasters are unique to the particular disaster and differ across households in relation with differing capital endowments that people have access to. The role of institutions is crucial in disaster studies as they enhance or constrain the capacity of households to cope with stress and shocks. A unitary analysis of the effects if disasters on certain communities are problematic as it often misses intra and inter-household dynamics which determine exposure to the vulnerability.

The preceding chapter discussed the models underpinning this study and analyses their application in the area of the study. Firstly, key terms underpinning this study were analysed. Secondly, the vulnerability related background information was discussed. The same section also reviewed the literature on other studies which were done on disasters notably in Southern Africa. Parallels were therefore between these studies and the current study. The third and fourth discussed the two models underpinning this study. The main aim was to describe models and how they work in diverse disaster risk environments.

The PAR model was first unpacked, and efforts were made in analysing the key tenets making up the study. The access model was subsequently analysed. Much the same as what was done with the PAR model, efforts were also made in analysing the key issues underlying the model. Efforts were eventually made in applying these models

to the Tokwe-Mukosi milieu. Thus, an integrated approach to the application of the models was taken in applying the two models in the study.

The next chapter covers the methods used to gather data.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

3.0 Research Method

3.1 Introduction

The chapter outlines the research methods used in this study to gather information to answer the specific and general research questions. It outlines the research approach the study adopted, as well as the research instruments used in collecting data. It discusses the various steps taken in collecting the data and discusses how validity and reliability were ensured. Ultimately, the chapter reported the ethical considerations guiding this study. This study was purely qualitative, with focus groups; transect walks and semi-structured interviews used as data gathering tools. While qualitative methods are not entirely antithetical to quantitative methods, it is the appropriateness of methodology about the objectives of a study that determines the choice of methodology in a study. In this study, with an overarching aim to infer into the challenges faced during and after the Tokwe-Mukosi rapid onset flood disaster, a qualitative methodology proved ideal. The challenges faced during and after the disaster could only be understood through the lived experiences of the people under study which also could be rooted in their beliefs and values. The qualitative research design was chosen among other designs because it resonates well with the epistemological tenets of the constructionist/interpretive paradigm which emphasizes the subjectivity of (social) reality, its being situation-dependant and sensitive to multiple realities. Such an approach is in line with the common consensus within disaster studies, thus, an approach to research which values multiple realities and how different households respond to the shocks which may come up as a result of disasters. The perceptions of people from the Tokwe-Mukosi community regarding the flood disaster could only be inferred into through qualitative methods since all such themes are subjective and may differ from place to place, household to household and across time and space. One could not, for instance, go for quantitative instruments in trying to assess the vulnerability context of the Tokwe-Mukosi community.

3.2 Research design

The study followed an exploratory qualitative design. This study is exploratory since it does not aim to provide the final and conclusive answers to the research questions,

but only explores the research topic with varying levels of depth. An exploratory research design is ideal for this study since little information is available on the challenges encountered in a rapid-onset disaster such a Tokwe-Mukosi in Zimbabwe. Thus, an exploratory study enabled the study to unravel the fundamentals of the challenges encountered during the Tokwe-Mukosi disaster. Exploratory research "tends to tackle new problems on which little or no previous research has been done" (Brown, 2006:43). To be noted is that exploratory research is the initial investigation into a research problem and would "...help in determining the... sampling methodology and data collection method" (Singh, 2007:64). In short, the relevance of the research design about the objectives of a study would influence the choice of the methodology used in the study (Tombindo, 2014:3).

Taking from the exploratory nature of the study, data collection was done according to a qualitative research approach. According to Frankfort-Nachmias and Nachmias (1996:22), qualitative research tries to understand behaviour and phenomena by unpacking and getting to know people's beliefs, values, and emotions. O'Connor (2011:30) notes that qualitative methods are effective when it comes to identifying intangible factors such as social norms, socio-economic status, and religion, whose role in the research issue may not be readily apparent. Tombindo (2014:3) adds that to this argument by stating that that qualitative research methodology is sensitive to a multiplicity of realities and therefore the findings were situation-dependant.

Qualitative research methods can, therefore, be used when understanding the nature of challenges encountered during and after the Tokwe-Mukosi disaster since it allows for the narratives by each participant to be subjective and differing from one individual to the other across time and space. Therefore, in alignment with the exploratory and qualitative nature of this study, it was vital to give room to respondents to air out what Tombindo (2014:4) terms "the usually taken for granted 'imponderabilia' of people's everyday struggles that are necessary for their survival". Viewpoints and accounts of people on the challenges brought about by the Tokwe-Mukosi disaster were derived from the background of the lived experiences of the people that experienced the disaster. The research design further allowed the researcher room to investigate the respondent's experiences in a detailed manner.

3.3 Research methods

For this study, a literature study, semi-structured interviews and FGDs were used to collect data. The following table is a summary of the research questions, the research methods that were used to gather data to answer the question, as well as a justification for the chosen method.

Table 3.1: Description of research methods per research question and justification

Specific research question:	Research method and justification
1. What were the challenges experienced during the Tokwe-Mukosi flood disaster?	Method: Literature study Justification: To provide a theoretical foundation for the study. Method: Semi-structured interviews with Provincial Civil Protection Unit Managers and NGOs that assisted during the Tokwe-Mukosi flood disaster Justification: The semi-structured interviews give participants room to be flexible and narrate their stories on the challenges they encountered during the Tokwe-Mukosi disaster while providing relief.

2.How did the Tokwe-Mukosi community respond to the challenges?	Method: FGDs with the Tokwe-Mukosi affected communities Justification: FGDs allow participants to air out their experiences in a "multi-vocal nature", and they have the advantage of participants reminding each other of vital information that one respondent may easily have forgotten. Method: A comparison of the information gathered to answer the previous three questions Justification: A comparison of the information gathered could provide insight into the challenges experienced during the Tokwe-Mukosi flood.
3. What suggestions can be made for greater community resilience in the face of rapid onset disasters such as the Tokwe-Mukosi disaster?	Method: Deducing suggestions from the abovementioned analysis Justification: A deeper analysis of the findings may lead to suggestions to improve community resilience.

Each of the research methods is detailed below.

3.3.1 Semi-structured interviews

According to Neuman (2003:29), semi-structured interviews are interviews conducted using an interview schedule. Frankfort-Nachmias and Nachmias (1996) note that through conducting semi-structured interviews one is obliged to use an interview guide and participants can be given the opportunity to be flexible and explain issues without any interruptions. Hence, semi-structured interviews became ideal in this study since

they gave the participants ample room to elaborate on the challenges encountered during the Tokwe-Mukosi rapid-onset disaster.

Key informants to this study were sampled using the purposive sampling technique. When using purposive sampling, participants are chosen by the researcher according to her or his judgement of their applicability to the research (Haque, 1996:5). The strength of purposive sampling is in selecting information-rich cases for in-depth analysis related to the key issues being studied (Patton, 2001:30).

Interviews were administered to one (1) official from the Provincial Civil Protection Unit, three (3) NGOs who helped the community during and after the disaster and a total of four (4) community leaders (one from each area since the area is divided into four sub-sections). Although there were numerous NGOs which assisted the people of Tokwe-Mukosi during the flood disaster, only three major role players were chosen: these were UNICEF, Plan International, and Catholic Relief Services (CRS). These specific organisations were selected as they were central in the process of distributing medicine and food to the affected community. One interview session was done per participant resulting in a total of eight semi-structured interviews.

The interview sessions with the key informants were done during their lunch hours, or any other free time the key informants found appropriate, so as not to interrupt their work. The researcher first telephoned the respondents to arrange for appointments. The researcher administered all the interviews to all study participants. The interviews were recorded using a voice recorder, and the researcher took notes. Afterward, the interviews were transcribed. It is expected that the interviews last 45-60 minutes each. The interviews were done in the participants' offices (in the case of the NGO officers and the Provincial Civil Protection Unit officer) and in the homes of the community leaders chosen to participate in this study, or a venue indicated as suitable to and by the respondent.

The researcher developed an interview guide to be used, and this was based on the concepts identified in the literature and used during interview sessions. Hence, the interview questions focused on the narratives of the participants on the challenges they faced during the Tokwe-Mukosi flood disaster. Table 3.2 below summarised the

semi-structured interview questions and the relating themes as identified in the literature.

Table 3.2: Semi-structured interview questions with the Civil Protection

Semi-structured interview questions	Themes related to literature
According to the Civil Protection Unit (CPU), how can a disaster be defined? Can you kindly give examples of your explanation, please? Given this definition, how does the CPU view a hazard, vulnerability, and resilience? Can you kindly give examples of your explanation, please?	Disaster definition Vulnerability definition Hazard definition Resilience definition
Were the Tokwe-Mukosi floods seen as a disaster by the CPU? Please elaborate on your answer / why?	
What was the role of the CPU during the Tokwe-Mukosi floods? Did you focus on disaster management, recovery, rehabilitation, vulnerabilities, and future resilience?	Governance role of the state.
What was the nature of challenges encountered during and after the Tokwe-Mukosi floods by --CPU? Causes of vulnerability Dynamic pressures Unsafe conditions Reaction, coping, adaptation, interventions etc., to disaster Economic and political processes that allocate assets, income and other resources Socio-political and economic processes	PAR model Causes of vulnerability Dynamic pressures Unsafe conditions Hazard access model Household livelihoods Unsafe conditions Specific hazards Nature of hazards The trigger events Transition to disaster Adaptation/coping
What was the nature of challenges encountered during and after the Tokwe-Mukosi floods by the community? Causes of vulnerability	

Dynamic pressures Unsafe conditions Reaction, coping, adaptation, interventions etc., to disaster Economic and political processes that allocate assets, income and other resources Socio-political and economic processes	Actions for disaster reduction
How did the CPU deal with the challenges encountered during the Tokwe-Mukosi floods?	
How did the community deal with the challenges encountered during the Tokwe-Mukosi floods?	
What possible suggestion can be made by the CPU for greater community resilience during and after a disaster, such as the Tokwe-Mukosi floods?	Lessons learnt during and after the disaster Suggestions which can be made for greater community resilience

Table 3.3: Semi-structured interview questions with the NGOs

Semi-structured interview questions	Themes
How did your organisation help during and after the Tokwe-Mukosi floods? Can you kindly explain the nature of help your organisation gave? Given the nature of the help you gave, how did the lives of those affected change? Can you kindly explain how the lives change and how?	Assistance role of NGOs Nature of help given Aim of the help given Effects of help given
What were the challenges encountered during and after the floods? Causes of vulnerability Dynamic pressures Unsafe conditions Reaction, coping, adaptation, interventions etc., to disaster Economic and political processes that allocate assets, income and other resources Socio-political and economic processes.	Challenges definition Challenges explanation Explanations of the manifestations of these challenges. PAR model Causes of vulnerability Dynamic pressures Unsafe conditions Hazard
Who were the most affected by the floods? Can you kindly explain how you identified those who were affected the most? Were there any benchmarks used to categorise those affected? How were vulnerable groups affected by the floods? How did your organisation attend to their needs?	Access model Household livelihoods Unsafe conditions Specific hazards Nature of hazards The trigger events Transition to disaster Adaptation/coping Actions for disaster reduction
What do you suggest should be done for greater community resilience during and after floods such as the Tokwe-Mukosi floods?	Lessons learnt during and after the disaster

	Suggestions which can be made for greater community resilience

Table 3.4: Semi-structured interview questions with community leaders

Semi-structured interview questions	Themes
How long have you stayed in this area? Were you there when the floods started?	Time of residence in the area stated. Knowledge of the area explained.
How did the floods unfold? Which areas of your homesteads were first affected by the flooding? Which areas were affected the most? What was the nature and extent of the damage?	Explanation of how the floods unfolded. Identification of the areas affected the most. Explanation of the nature and extent the floods affected the community. PAR model Root causes to vulnerability Dynamic pressures Unsafe conditions Hazard Access model Household livelihoods Unsafe conditions Specific hazards Nature of hazards The trigger events Transition to disaster Adaptation/coping

	Actions for disaster reduction
What did you do as community leaders to make sure people were safe after the flooding?	Coordination and advisory role of community leaders.
What challenges did your area face during and after the floods? Causes of vulnerability Dynamic pressures Unsafe conditions Reaction, coping, adaptation, interventions etc., to disaster Economic and political processes that allocate assets, income and other resources Socio-political and economic processes	PAR model Causes of vulnerability Dynamic pressures Unsafe conditions Hazard Access model Household livelihoods Unsafe conditions Specific hazards Nature of hazards The trigger events Transition to disaster Adaptation/coping Actions for disaster reduction
Is there any suggestion you would like to make that create better community resilience in the face of a disaster/hazard of this nature or any other kind in future?	Lessons learnt during and after the disaster. Suggestions which can be made for greater community resilience.

3.3.1.1Semi-structured interview data analysis

Data gathered from semi-structured interview scripts were analysed using thematic content analysis based on the constructs identified in the literature. Thematic analysis is a method for identifying, analysing, and reporting patterns (themes) within data. Braun and Clarke, (2006:83) noted that thematic analysis organises and described the data set in rich detail. They interpreted various aspects of the research topic. To Braun

and Clarke (2006:91), thematic analysis involves searching across data sets gathered from interviews, focus groups, or a range of texts to find repeated patterns of meaning.

To make the interview reliable, the researcher avoided confirmation bias. Thus, during interviews, the researcher did not seek out information that supports a pre-conceived belief about the participant. Seeking out this information would confirm a possibly shallow impression the researcher would have formed pre-interview as opposed to having a more open outlook on the interviewee.

To make the interview valid, the researcher avoided affective heuristics. Thus, superficial evaluations, such as the level of attractiveness of the interviewee not influence the way questions are going to be asked. Anchoring is also going to be avoided. Anchoring which usually leads the researcher to place an arbitrary anchor of expectations of an interviewee which influences the outcome of the interview was avoided. Ultimately, the issue of intuition which influenced by emotions and memory of the researcher usually leads the researcher not to objectively take into consideration what some interviewee might have said was avoided.

The data gathered in the semi-structured interviews were used to answer specific research questions 2, 3, 4 and 5.

3.3.1.2 Practical challenges experienced

Although the interviews could be deemed successful and proceeded well, some challenges were experienced. Initially during interviews respondents were reluctant to be recorded. However, after a clear explanation of the goals of the study and use of the recordings, this was overcome.

There was much surveillance from state security agents who wanted to ascertain that this was purely and academic exercise, which made some respondents uncomfortable. Once again a clear explanation by the student on the goal of the study and use of the information provided a solution to this challenge. Future studies should, however, keep these challenges in mind when planning a study in this particular area.

3.4 Transect walks

These were also used during data gathering. The researcher visited the flood area and the new areas in which people were settled and walked around to assess the damage done by the floods in the flood area and how people were living in the new areas.

3.5 Focus group discussions

FGDs are going to be conducted with groups of participants from the community. A focus group aims to "obtain in-depth information on concepts, perceptions, and ideas of a group" (Neuman, 1999:146). The major goal of an FGD: "… is to let people spark off one another, suggesting dimensions and nuances of the original problem that any one might not have thought of. Sometimes a totally different understanding of a problem emerges from the group discussion". (Rubin and Rubin, as quoted in Marvasti, 2004:24) FGDs are therefore critically important in this study because they allow participants air their views in a multi-vocal nature, and they have the advantage of participants reminding each other of vital information that one respondent may easily have forgotten or omitted.

These FGDs were arranged two weeks in advance, and the coordination of the people who participated was facilitated by the settlement heads of each area. A stratified sampling method was used to "ensure that the sample represents certain characteristics in proportion to their prevalence in the population" (Schutt, 2011:131). Purposive sampling was used in selecting people who participated in the FGDs. Thus, those who were available at the time the researcher was carrying out the FGDs were selected. The settlement was divided into four clusters. Thus, three FGDs were done per area (totalling 12). Ideally, ten members of the community made up each FGD. The homesteads of the settlement heads are going to be the meeting paces for the discussions.

The researcher developed an FGD question schedule from which the research might deviate to prompt and probe answers on the challenges faced during the Tokwe-Mukosi flood disaster. The FGD schedule was drafted according to the themes identified in the literature. To augment the data gathered through an audio tape, the

researcher was taking down some notes during the discussions. The discussion was then transcribed and analysed through qualitative thematic content analysis. Data gathered from the FGDs were analysed through thematic content analysis based on the key issues identified from the literature. According to Braun and Clarke, (2006:83), thematic analysis is a method for identifying, analysing, and reporting patterns (themes) within data. Thematic analysis unites and defines the data set in rich detail and infers numerous aspects of the research topic (Braun and Clarke, 2006:91). According to Braun and Clarke (2006:91), thematic analysis encompasses searching across data sets gathered from interviews, focus groups, or a range of texts to find repeated patterns of meaning.

During the FGDs, the participants were given a chance to respond to the questions without any influence. It is during this period that those who are not able to read and write, or those that may be unable to understand the questions, were assisted by the researcher without leading them to certain responses. To reduce the effect of power and status, the researcher made sure everyone regardless of gender was given an opportunity to state their views, thereby facilitating their openness in sharing their views. In other words, efforts were made in making sure that both females and males were given the opportunity to air out their views. Participants are going to be given room to fully explain what they think about the issues without intermissions. Each FGD took 45-60 minutes. The researcher did not need translators during discussions as the language spoken in this region is understood by the researcher.

Table 3.5 FGD questions and relating themes identified in the literature.

Focus group discussions questions	Related theme from literature
How did the flooding occur? What time did it take for you to see the necessity of evacuating? What actions did you take in a bid to protect your property from damage? Which property was affected by the floods the most?	Events during the disaster explained. Reaction/copying strategies explained. PAR model Causes of vulnerability Dynamic pressures Unsafe conditions Hazard Access model Household livelihoods Unsafe conditions Specific hazards Nature of hazards The trigger events Transition to disaster Adaptation/coping Actions for disaster reduction.
What challenges did the community face during and after the disaster? What challenges did you face during the evacuations? What challenges did the community face after the evacuation to the new areas?	PAR model Causes of vulnerability Dynamic pressures Unsafe conditions Hazard Access model Household livelihoods Unsafe conditions Specific hazards Nature of hazards The trigger events Transition to disaster Adaptation/coping

	Actions for disaster reduction.
Did you get any help during and after the evacuations? What help did you get from either the CPU or NGOs? What role did the community leaders play during and after the disaster? How were the vulnerable groups assisted during and after the evacuation?	Governance role of state. Assistance role of NGOs. Coordination and advisory role of community leaders. Nature of help given. Aim of the help given. Effects of help given.
What possible suggestion do you suggest for greater community resilience in the face of a disaster or hazard which might befall your community in the future?	Lessons learnt during and after the disaster. Suggestions which can be made for greater community resilience.

To ensure the validity of the FGDs, stereotyping was avoided. Thus, the researcher avoided forming an opinion about how people of a given gender, religion, race, appearance, or other characteristic think, act, respond, or would perform during the discussions.

The researcher also avoided inconsistency in questioning. Thus, asking different questions of each candidate led to inconsistent answers, and hence unreliable results. Questions designed to get consistent answers and reliable results could only be achieved in the context of a core set of questions asked of all participants.

To guarantee the reliability of the FGDs, negative emphasis was avoided. Thus, the researcher avoided rejecting the answers given by the participants based on instances of negative information a common occurrence.

Halo or horn effect was avoided during the FGDs. Thus, the researcher evaded situations where one strong point about the challenges encountered during the disaster overshadowed or had an effect on some other challenges.

To avoid cultural noise, the researcher prepared questions that probe for specific examples and stay away from questions that elicit “yes” or “no” answers.

To avoid non-verbal bias, undue emphasis was not placed on non-verbal cues that had nothing to do with the subject under investigation. Thus, the loudness of voice or softness of voice and the use of other gestures during the discussions would not influence how points were noted during the discussions.

Contrast effect was avoided during FGDs. Thus, stronger group members who were going to air their views after weaker group members were not going to be given precedence. Thus, notes were taken during the discussions to avoid this.

3.5.1 Practical challenges experienced

As mentioned previously one expects challenges when conducting research. Some focus group interviewees could not attend the FGDs on time because the interviews were done at a time when respondents were expected to hold elections. That being the case, some people could not arrive on time and attended discussions late. Fortunately, the interviewer was flexible, and in most cases, all interviewees were accommodated in the FGDs.

Once again, the influence of state security agents assigned to ascertain that this was purely an academic study, made some respondents uncomfortable. By clearly explaining the purpose of the study, as confirmed by a letter from the NWU, this challenge was overcome.

The data gathered in the semi-structured interviews were used to answer specific research questions 3, 4, and 5.

3.6 Ethical Considerations

Research ethics included fundamental principles such as honesty, fairness, and respect for persons, to mention only a few (Frankfort-Nachmias & Nachmias, 1996).

Informed consent was of critical value to this study because it helped respondents to know why they were participating in the research. The process respected the right of participants to exercise the freedom to decide whether to take part or not. Informed consent entails that participants know that their involvement is always voluntary, and they should be given a thorough explanation beforehand of the benefits, rights, risks, and dangers involved with their participation in the research project (Frankfort-Nachmias & Nachmias, 1996). Participants in this study were informed that the study was purely academic. They were told the topic of the study and informed on how the data were to be used. Each respondent gave written or verbal consent. No deceit was used to entice them into taking part. Participants knew they would not receive a gift or other benefit for taking part in the study. Respondents also supplied their written or verbal consent in recording the interview for analysis purposes.

Voluntarism was observed in this study. Participants were free to withdraw from the study if they were no longer willing to continue participating. Thus, participants were not forced to participate in the research. Only those who agreed voluntarily to participate in the study were considered. The issue of anonymity and privacy was also prioritised. An alias was therefore used to protect the identities of the participants.

Additionally, the data gathered for the study will be kept for five years by ACDS according to the NWU practice.

3.7 Conclusion

Chapter 3 outlined the research methods used to gather data to answer this study's research questions. It outlined the research approach and instruments used in collecting data. The chapter also discussed the various steps taken in collecting the data and discussed how validity and reliability were guaranteed. Ways through which the data collected were analysed was discussed. This study was purely qualitative. Focus groups; transect walks and semi-structured interviews used to elicit the data. Though qualitative methods are not completely adversative to quantitative methods, it is the suitability of methodology about the objectives of a study that governed the choice of methodology in a study. Since the overreaching aim of the study was to infer

into the challenges faced during and after the Tokwe-Mukosi rapid onset flood disaster, a qualitative methodology became the most appropriate.

In other words, the challenges faced during and after the disaster could only be understood through the lived experiences of the people under study. This it was noted could be rooted in their beliefs and values. The qualitative research design was chosen over other designs notably because it echoes well with the epistemological tenets of the constructionist/interpretive paradigm which emphasises the issue of the subjectivity of (social) reality, it being situation-dependant and sensitive to multiple realities. This approach inheres with the common consensus within disaster studies, i.e., an approach to research which values multiple realities and how different households respond to the shocks which may come up as a result of disasters. The views of people from the Tokwe-Mukosi community concerning the flood disaster could only be inferred into through qualitative methods since all such themes are subjective and may differ from place to place, household to household and across time and space. The quantitative research design was therefore not chosen for it cannot adequately help in trying to assess the vulnerability context of the Tokwe-Mukosi community.
Finally, the chapter outlined how the study was done ethically.

The next chapter is a discussion of the data gathered through the methods mentioned in this chapter.

CHAPTER FOUR: DISCUSSION OF FINDINGS

4.0 Presentation of Findings

4.1 Introduction

Findings of this study were presented and discussed using a thematic approach. Themes which emerged from the fieldwork were formulated in line with objectives of the study, as well the theoretical models underpinning this study, namely the PAR model and the access model.

The chapter starts off by giving some background information to the study area provided using secondary sources. After the presentation, the views on, and roles of the government, NGOs and community during the Tokwe-Mukosi rapid-onset flood disaster is discussed. The challenges faced by government, NGOs and the community during and after the disaster follows, and the chapter concludes with suggestions for greater community resilience.

As the discussion proceeded, mention was made of “Tokwe-Mukosi community”, but this should be taken only a convenient sociological term which does not refer to the uniformity of settlements with regards to, say, vulnerability, and resilience. Different settlements in the Tokwe-Mukosi community are heterogeneous and are differently affected by shocks from disasters such as flood disasters and even droughts. Hence, facing challenges required the devising of different resilience strategies.

4.2 Overview of Respondents’ View on the Flood Disaster

Findings revealed that the CPU which represents the government, the NGOs which helped the Tokwe-Mukosi community during and after the floods, and the Tokwe-Mukosi community itself, all regarded the floods and mudslides as a disaster. Interestingly, slight differences were seen in their conceptualisation of a disaster. The professionals’ definition of a disaster tended to be more technical than that of non-professionals or the community.

The definition is given across the board for a disaster revolved around the issue of the serious disruption to the functioning of the Tokwe-Mukosi community on a large scale

due to the flooding and mudslides, which then led to vulnerability. Since this led to human, material, economic and environmental damages, all respondents concurred that the Tokwe-Mukosi floods qualified as a disaster.

In the case of the government, NGOs and community, when referring to what a disaster is, reference was made to the 2008 Cholera outbreak[7] which was declared a health emergency and disaster (WHO, 2009), and the El Niño induced drought, which affected most parts of Zimbabwe during the 2015-2016 agricultural season (UNISDR, 2016). Thus, in the Tokwe-Mukosi context, the floods were seen as a disaster given the rapid-onset nature of the floods, which curtailed the ability of the communities to cope and ultimately relocate to safer places without external support. Within these confines, the respondents, therefore, defined a disaster as a severe disruption of the functioning of a community or a society at any scale due to flooding events, which interacted with conditions of exposure and vulnerability, leading to human and material losses.

One could argue that the community, government and NGO's exposure to such events has sensitised them to the term "disaster" and its meaning.

4.3 Role of Government, NGOs, and the Community

The research showed that government and the NGOs saw their role during the disaster as mostly ancillary. Although the ancillary roles which the government, through the CPU, offered do differ, both saw their roles as mainly auxiliary. The government saw its role as providing the community with transport to new areas, and ultimately sourced help from well-wishers and international donors. In tandem with the above, the NGOs also saw their role as mainly confined to assisting the Tokwe-Mukosi community by offering mainly tents for shelter, drugs to the needy, and supplementary food, notably food to children and the elderly.

From the FGDs, it became clear that the Tokwe-Mukosi community members acted as the key drivers of building and rebuilding their community. Community members

[7] In 2008, a cholera outbreak affected most urban communities in Zimbabwe. As a result, dozens lost their lives and this was declared a national disaster (WHO, 2008).

and leaders saw themselves as very important, indicating that they needed to be at the epicentre of any activity that directly impacted their community during and after disasters. According to them, government and NGOs did not collaborate with them on finding solutions to their community's plight. They complained that lack of recognition of what they know about their environment and situation left most of them feeling like victims who were mere passive recipients of external support. From the responses of government officials, nothing was mentioned on the need to include community members when it comes to rebuilding communities. It was therefore deduced that government and NGOs' failure to include the community members in their plans was a result of mistrust in the methodologies used by the community to build resilient social groups.

4.4 The Challenges Faced by the Tokwe-Mukosi Community

The challenges faced by the Tokwe-Mukosi community during the flood is described in the section that follows, followed by a discussion on how the findings matched with the PAR and access models.

4.5 Government, NGOs' and the community's view on challenges experienced

The government, NGOs and the local community expressed views on the challenges they faced during the Tokwe-Mukosi flood disaster. The following table gives a summary and detailed discussion of the findings.

Table 4.1: The challenges faced by the Tokwe-Mukosi community during and after the flood disaster

Themes	Sub-themes	Issues raised
Evacuation challenges	Failure to evacuate to new areas due to flooding and mudslides.	Community members faced challenges to evacuate to safer areas as a result of flooding and mudslides. Roads became unnavigable and were completely damaged and submerged. Their oxen which facilitate their movement to safer areas either died or went astray. This made it difficult to move to safer areas.
Deaths and the inability to properly bury the dead.	Overwhelming deaths leading to challenges in properly burying them.	Scores of people died as a result of drowning. Community members were overwhelmed and could not bury the dead according to custom and timeously. Most could be buried in shallow graves.
Shelter challenges.	Lack of proper shelter.	Since community members were taken to the new areas, the areas had no proper shelter. That being case, it became a challenge for the community members to have proper shelter in the new areas.
Hunger issues	Lack of proper foodstuffs.	Community members were not able to take enough foodstuffs to the new areas as a result of flooding. Their food was lost due to destruction of granaries by floods. This led community members facing food shortages hence starvation and malnutrition.
Lack of schools	Lack of classrooms for children.	Since the new areas had no schools, most pupils found it very difficult to learn. Pupils ended up learning underneath trees. There was no continuity of education.

Lack of education facilities	Surging numbers of school drop outs.	As a result of improper learning facilities and teachers' absenteeism, a lot of pupils dropped out of school. Female students dropped out and ended up engaging into prostitution.
Lack of funds to replace lost property.	Lack of money to replace property and equipment.	People who lost, houses, food, household property and animals did not have the money or means to replace these things.
Water, Sanitation and hygiene challenges.	Lack of proper sanitation and hygiene facilities led to water-borne diseases.	The new areas had no proper sanitation and hygiene facilities. This led to the surge of water-borne diseases. Lack of clean water also resulted in water-borne diseases.
Drug shortages.	Lack of critical drugs to the needy.	Since the roads during the disaster became unnavigable, it became difficult for the needy to access drugs. After the disaster, the new settlements had no proper roads. This made it difficult for drugs to reach to the needy hence shortages. The community also became uncooperative when it came to registration by the government; this was inimical to the proper distribution of drugs to the needy hence shortages. Patients who were on ART and children who were receiving vaccination antigens defaulted their treatments.
Gender-based violence issues.	Surging cases of gender-based violence.	Men became abusive after the disaster. Cases of wife battering and sexual assault surged.

Vulnerable, poor communities have been known to settle in areas susceptible to disasters with no clear-cut strategies available to deal with the ripple effects when a disaster strikes (Wisner *et al*., 2003). In the case of the Tokwe-Mukosi inhabitants, it

was more of a conundrum when a heavy downpour led to flooding and mudslides. This exasperated the lack of strategies and disaster response systems that were offered by the government of Zimbabwe. The consequent lack of strategies led to many new challenges during and after the disaster. The seeming lack of systematic, coordinated response by the government seemed to be a lack of resources and clear-cut planning. From the responses, it was noted that the government did not have preparedness and response plans in place for disaster-related contingencies, instead, they tended to rely on donor assistance when it came to dealing with disasters such as the Tokwe-Mukosi disaster.

It emerged from the study that during the flooding and mudslides, communities had faced obstacles during the evacuation to safer areas. Due to flooding, the road network was disrupted as the villages were submerged in water. A community member explained it thus:

> "…the roads were completely submerged, and this made it impossible for us to evacuate. The area (Tokwe-Mukosi) has always been characterised by poor road networks, a situation which made ox-drawn carts the only mode of transport…but during the flooding the poor roads we were damaged and submerged in water, a situation which made it difficult for us to evacuate and move our belongings (mostly foodstuffs) to safer places."

Before the flooding, oxen were the main source of draught power which that facilitated the movement of bulky goods. In addition to the collapsed road network, the transport system which was provided by ox-drawn carts was effectively ruled out due to some animals (including oxen) drowning during the flooding, while others went astray. Villagers experienced great difficulty with the smooth relocation of their belongings and their foodstuffs.

The PAR model describes how vulnerabilities and unsafe conditions are the explicit forms in which the vulnerability of a population is shown in time and space in juxtaposition to a hazard. To the PAR model, unsafe environments are reliant upon the initial level of well-being of the people, and how this level varies between regions, micro-regions, households, and individuals. The unsafe conditions in which the people

of Tokwe-Mukosi were living in made it impossible for them to use the resources at their disposal to facilitate a smooth evacuation to areas of safety. Under those conditions, the Tokwe-Mukosi community failed to evacuate timeously, with the result that they lost most of their belongings and foodstuffs. A community member explained:

> "…our oxen have been of vital importance when it comes to relocating and transporting bulky goods. The flooding led to the drowning of some which could not manage to break out of the kraals. Some just got astray and moved to places we could not find them when we greatly needed to get the carts ready for the evacuation. The roads were completely submerged, and it proved a mammoth task for us to evacuate using the carts."

The Tokwe-Mukosi community members revealed that during the disaster, some elderly people and children drowned, while some died from the collapse of their houses during the heavy rains. Some houses were completely submerged, while others were washed away entirely. This resulted in many people that had to be buried while the flooding persisted.

Burying the dead became an insurmountable difficulty. The heavy downpour made it impossible for people to gather for funerals. It was the same with digging the graves, since the cemetery areas were increasingly being submerged. The result was that large numbers of people could not be buried for days. This situation became insurmountable for community members trying to evacuate the flooded area while simultaneously trying to bury their dead. Representatives of the government and NGOs did not mention any of this. Their efforts were more focused on rescue efforts than burying the dead.

The disruptions caused by the flooding led to severe disruptions in social systems, which have been well described in both the access and the PAR models (Wisner *et al*., 2003). It is of paramount importance to assert that the same social systems that allocate duties in a society to ensure that the bodies of the dead are buried timeously, were disrupted by the flooding and the mudslides. Therefore, it became very difficult for the community members to execute their duties properly. This situation became a great challenge for the community. It substantiates the argument by both the PAR

models and the access model that social systems create conditions in which hazards have a differential impact on various societies, and in different groups within society, as a community member explained:

> "…usually bodies of the dead according to our customs are supposed to be buried within two days. Those who died could go for more than three days before being buried a situation which caused a lot of problems in the community."

The same sentiments were also attested to by another community member:

> "The inability to bury the dead becomes a serious challenge when the rains continue. Our situation was even made worse by the fact the cemetery area was drowning and became completely submerged in water. We simply failed to dig the graves and hold proper funeral and burial proceedings. It was a conundrum really."

During transect walks, shallow graves could be seen in areas not far away from the flood area. Proper traditional burials were not made and as according to the customs, the dead are supposed to be buried in a designated cemetery area (usually near the relatives of the deceased). As a result of the flooding, new areas not far away from the dam were used for the burials, as explained by a participant: "Our ancestral fields of burial were totally submerged, and this made it completely impossible for us bury the dead properly." In a similar vein another community member said:

> "We ended up digging very shallow graves for our relatives because we could not cope with the pile of the bodies which needed to be buried. It ceased to be a proper traditional burial, we were just putting bodies in those pits improperly…with no coffins at all."

There was however a slightly different view with regards to the subsequent flooding. While most of community members believed that for government and NGOs, housing was the major challenge faced after the relocation. However, a divergent view emerged. It asserted that it was the loss of food reserves because of the immersion of granaries and the failure to move the foodstuffs to safer places after the flooding, that led to hunger and starvation for the community after the relocation to Masungula and

Chisase. This divergent view supported what was articulated by the access model, which was that hazard events can change the set of resources available to households mainly through the destruction of crops or land by mudslides or floods, thereby altering the patterns of recoverability for different groups of people (Wisner *et al.*, 2003:51).

Thus, in an environment without incentives from the government for alternative livelihood options, the community became susceptible to hunger. This also aligns with the PAR model. It suggests that economically marginal urban squatters or people who live in environmentally marginal localities are usually isolated, and live in arid or semi-arid, flood-prone coastal or forest ecosystems, while flood-prone urban locations are of little consequence to those who hold economic and political power (Blaikie & Brookfield cited by Wisner *et al*., 2003:53). Vulnerability then surfaces if people have no access to livelihoods and resources that are secure and rewarding. They are likely to be a low priority for government interventions, intended only to deal with hazard mitigation, and in this instance, efforts to alleviate hunger. This view was supported by community members and NGOs who noted that the Tokwe-Mukosi community is a peripheral community. Thus, the community was not given high priority by the government, leading to incidences of hunger after the disaster. The government did not, however, mention anything on this, probably because certain government ministers were implicated in the aid looting scandal of goods which were donated to the Tokwe-Mukosi community[8].

Furthermore, people who are economically and politically marginalised are more likely to stop trusting their own methods for self-protection and tend also to lose confidence in their own local knowledge (Tombindo, 2014). This sheds light on popular" African environmental degradation" narratives that blame the rural poor for being a danger to the environment (Tombindo, 2014).

Since the schools in the old settlements were destroyed, findings revealed that children ended up not having proper learning spaces, a situation which led most of them to learn under trees and other unsuitable places. Said one adult: "Our children

[8] This story has been fully covered in numerous newspapers. See for instance allafrica.com/stories/2014072002.html

ended up learning under trees since their schools were destroyed during the flooding." Similarly, another responded: "Teachers ceased reporting for duty, and it just became chaotic, our children could not attend school anymore."

Findings also revealed that some children ended up dropping out of school. It has been noted that many female students who had reached secondary school ended up getting into prostitution after dropping out of school, as reported by one participant:

> "Prostitution boomed my friend; our girls became vulnerable to vultures [older men who wooed the girls into prostitution]. It's still a disaster and most have gone wild."

This is in sync with the access model with reiterates that hazard events can change the set of resources available to households, mainly through the destruction of crops or land by, for instance, mudslides or floods, thereby altering the patterns of recoverability of different groups of people (Wisner *et al*., 2003:51). In this instance, the dropping out of school of children and the subsequent entry of some into prostitution buttresses the fact that disasters can alter the patterns of recoverability of various groups of people.

Settlements in the new areas made the community susceptible to diseases, mainly water-borne diseases. Since the newly settled places had no proper water infrastructure and sanitation facilities, the community was prone to water-borne diseases such as typhoid and cholera. An overarching concern was to make sure that the communities were safe from diseases, but no proper resettlement roadmaps were available to make sure that communities work collectively to make sure that proper sanitation facilities were put in place. While there were no proper government strategies governing the plot allocation and proper building of sanitation facilities, the community members found themselves getting water from unsafe sources. With no proper toilets in place, community members were left with no option but to use the bush as toilets. The challenges which resulted were evident in the reported cases of typhoid and cholera in the Tokwe-Mukosi community.

Apart from the reported cases of typhoid and cholera, a few communities made efforts to make sure that proper sanitation facilities were put in place through collective community efforts. It needs to be stressed however that this seeming inertia in making sure that proper sanitation facilities were put in place through community structures was since there was no proper government planning and plot allocation. Therefore, community members stopped making long-term plans and started building in areas they were not sure they could live in the long run. Indirectly though, this partly contributed to the continued incidences of typhoid and cholera, since no proper sanitation facilities were put in place. The NGOs echoed those sentiments and criticised the lack of a clear roadmap by the government as the key reason behind the tardiness of community members to construct proper sanitation facilities. The government however said nothing about this mainly because it is to blame for the lack of proper planning needed.

With undeniable evidence of haphazard settlements during this research, leading to the susceptibility of the community to diseases, respondents were quick to point to the uncertainty surrounding their stay in the area as a major reason for the continued challenges they face. Most of them tended to blame the government for the obstacles facing, as articulated by a community leader:

> "My friend, you have to come here and experience the hardships that we have been facing since moving here. If you could spend just a day and see how our people suffer from water-borne diseases, you will understand that we are living in hell and need help."

Reinforcing the above respondent's sentiments were views by other community leaders on the tribulations befalling the community as a result of poor sanitation facilities and the resulting spread of diseases. They noted that when the rainy season comes, human waste is washed into open water sources used by the community. Also cited were animal waste, which is also washed into water sources. These deposits make the water to be unsafe to drink, but the community is left with no other option but to continue using this water for domestic purposes without even boiling it. This invariably leads to high incidences of water-borne diseases during the rainy season, as explained by a community leader:

> “Incidences of water-borne diseases are high during the rainy season. Human and animal waste is deposited in the open water sources the community use here. The water becomes contaminated, and we have been having cases of typhoid and cholera often since we moved here from our ancestral lands.”

The persistence of water-borne diseases was however forcing NGOs to embark on portable water distribution exercises during the rainy season. Despite the NGOs’ efforts to pressure the government to embark on a proper settlement exercise, it has not been forthcoming. Due to the reluctance of the government to do what was needed, the NGOs were left with no option but distribute portable water, which is an expensive project, as explained by an NGO official:

> “Because there is no proper settlement scheme, we cannot help these people through drilling boreholes, we only distribute the needed water through huge tanks we usually hire and it’s usually expensive.”

The government was notably silent on why water-borne diseases persisted in the new settlements. This is arguably a result of the lack of clear planning, which in this case the NGOs and the community members agreed was the reason behind the tardiness squarely blamed on them.

Gender-based violence was also prevalent during the discussions. Most female participants complained about increased gender-based violence after the relocation. It was reported that this violence usually manifested itself through sexual assault by their spouses and in some instances, by strangers:

> “Men have just become wild animals [extremely violent]. I think it is because of the dislocation which came as a result of the flooding. Most have since ceased to be as gentle as they used to be.”

Another respondent agreed:

> “Cases of gender-based violence seem to be on the rise my brother. We are susceptible to sexual assault by strangers since we no longer have the privacy we used to have…we use the bush as toilets and even bathing, that has seen us susceptible to vultures [rapists].”

4.6 Challenges faced by NGOs and their perspectives on the challenges

Comparatively speaking, the challenges faced by the NGOs that assisted the Tokwe-Mukosi community differed from those faced by the community. Although both the community and NGOs mentioned the harsh weather conditions and unusable road network, the influence of this was described differently by the NGOs. The NGOs explained that during the disaster, the distribution of essential drugs and the rescue efforts were hampered by harsh weather conditions and roads that were not usable due to flooding and mudslides. Also, after the disaster, the NGOs faced the task of reaching out to some areas of the new settlement to effectively distribute drugs. Due to the poor road conditions, the distribution of essential drugs to some inaccessible areas had to be done on foot. This led to essential drugs, for instance, to cure cholera, not reaching the designated areas on time, and thereby exacerbating the challenges faced by the community. Overall, distribution of essentials was seen as the major challenge faced by NGOs during and after the Tokwe-Mukosi disaster. The Tokwe-Mukosi community ended up facing drug and relief shortages. This was explained by an NGO official:

> "Though there are slight differences now, (because the new settlement is not prone to flood) we still face challenges to access some areas due to poor roads in the new area. The disease is usually rife during the rainy season, and some drugs should be distributed urgently, but that we cannot do because of poor accessibility of the areas. This leads to deaths which would otherwise have been avoided. Sad as it may sound, but we have no option. Drug shortages became one of the challenges faced by the Tokwe-Mukosi community today."

Research also reveals that after the disaster, the haphazard nature of the new settlement area made it very difficult for the CPU (government) and the NGO officials to determine who was in most need of help. This was especially true about the elderly, who needed drugs for hypertension, diabetes, and other illnesses they used to get treatment for before resettlement to new areas. It should be noted that this, though it seems directly affecting the work of the CPU and the NGO officials, has been indirectly contributing to the persistence of challenges faced among the community members, as an NGO official explained:

> “The haphazard nature of the new settlement has been making it difficult to pick up the beneficiaries of essential drugs. It became difficult to know where exactly they are now settled but through the coordination of community leaders, we have been able to pick some of them. Some, unfortunately, we have not been able to pick them up.”

Cooperation with some of the community members in registering everyone within the area to facilitate future government programmes has been poor. Findings reiterate that a registration exercise that was to be coordinated by the CPU and the Registrar-General’s office was shunned by most community members, who have since lost trust in any government-initiated activities. Also, donations from philanthropists intended to help the community were said to have been looted by senior government officials. This resulted in the Tokwe-Mukosi community feeling betrayed and no longer willing to cooperate with any government initiative at all.

Representatives from the CPU and NGOs criticised this lack of cooperation as one of the issues leading to poor support of the community when it comes to the distribution of building materials. The government and NGOs need records of the community to conduct their work, but they were met with resistance from the community. This, therefore, meant that the challenge of poor shelter persists in the Tokwe-Mukosi community. An NGO official explained:

> “When we help these communities, records are vitally important, and the government has the mandate to provide those who are willing to help with such records. After the donations debacle, we wanted to register people and give them building material since most have been living in tents, but we failed. Thus, the poor cooperation meant that most are not properly sheltered hence the community is still facing challenges when it comes to shelter.”

Very specific challenges faced by the community were identified. Interestingly, even though the community, government, and the NGOs would identify the same challenges, such as impassable road networks, the implications of the problem were interpreted differently. For instance, the community spoke of the difficulty of moving their assets, whereas NGOs were more concerned with the distribution of medicine.

The government, NGOs and community agreed on all the other issues raised, save for the gender-based violence and child prostitution issues. On gender-based issues and prostitution issues, the community members noted with grave concern the way gender-based violence and prostitution increased virulently because of the upheavals brought about by the floods and mudslides. This was mentioned by neither the NGOs nor the government.

4.7 Matching the Findings of the Challenges to the PAR and Access Models

A critical analysis of the above findings yields one credit. In evaluating the output of the PAR model, what was perceived by the respondents as challenges is nested in the unsafe conditions section of the model. Since the access model builds from the PAR model, much of what the respondents noted is nested in the access model, notably issues concerning livelihoods, reaction, resilience, and adaptation. As the results show, since the community felt marginalised and driven to the periphery by the government, community members became passive recipients of most of what came from the government and NGOs. That being the case, results tended to revolve around issues which are articulated more in the access model.

Findings depicted that most people who are affected by floods are engaged in an unremitting struggle to secure a livelihood in the face of adverse circumstances a disaster might bring. This has been clearly articulated in the access model. The access model holds that hazard events can change the set of resources available to households, notably through the destruction of crops or land by, thus altering the patterns of recoverability of different groups of people (Wisner et al., 2003:51). This analysis, therefore, provided a valuable framework for understanding the challenges faced by the Tokwe-Mukosi community after the rapid onset flood disaster. Findings unpacked the actualities of the lives of poor and vulnerable groups in an attempt to determine how these groups find themselves living in unsafe conditions which then drive and orient vulnerabilities to disasters such as the Tokwe-Mukosi flood disaster which affected the Tokwe-Mukosi community. In unpacking the nitty-gritty of the circumstances which make people vulnerable hence making their living in the context

of risk and stress difficult to manoeuvre, the PAR model became an essential analytical tool.

The PAR model thus became very much applicable for the analysis of the factors which created unsafe circumstances which created vulnerabilities among the Tokwe-Mukosi community members. Thus, the issue of dynamic pressures which has been well articulated in the PAR model was of paramount importance and inhered with what was noted by the community members in their articulation of how the faced challenges during the disaster. The PAR model holds that dynamic pressures channel the causes into certain forms of hazardous conditions that must be taken into consideration. This was in line with how the community member explained how they found themselves failing to evacuate and take their food stocks with them to safer areas a situation which led to food shortages in the new areas they eventually moved to. The diagram below illustrates the PAR Model and the highlighted areas are areas which have been of paramount importance to this study.

The diagram below shows dynamic pressures on the community members, who believe that a lack of proper education on disasters negatively affected the abilities of the community to adequately deal with the consequences of the floods.

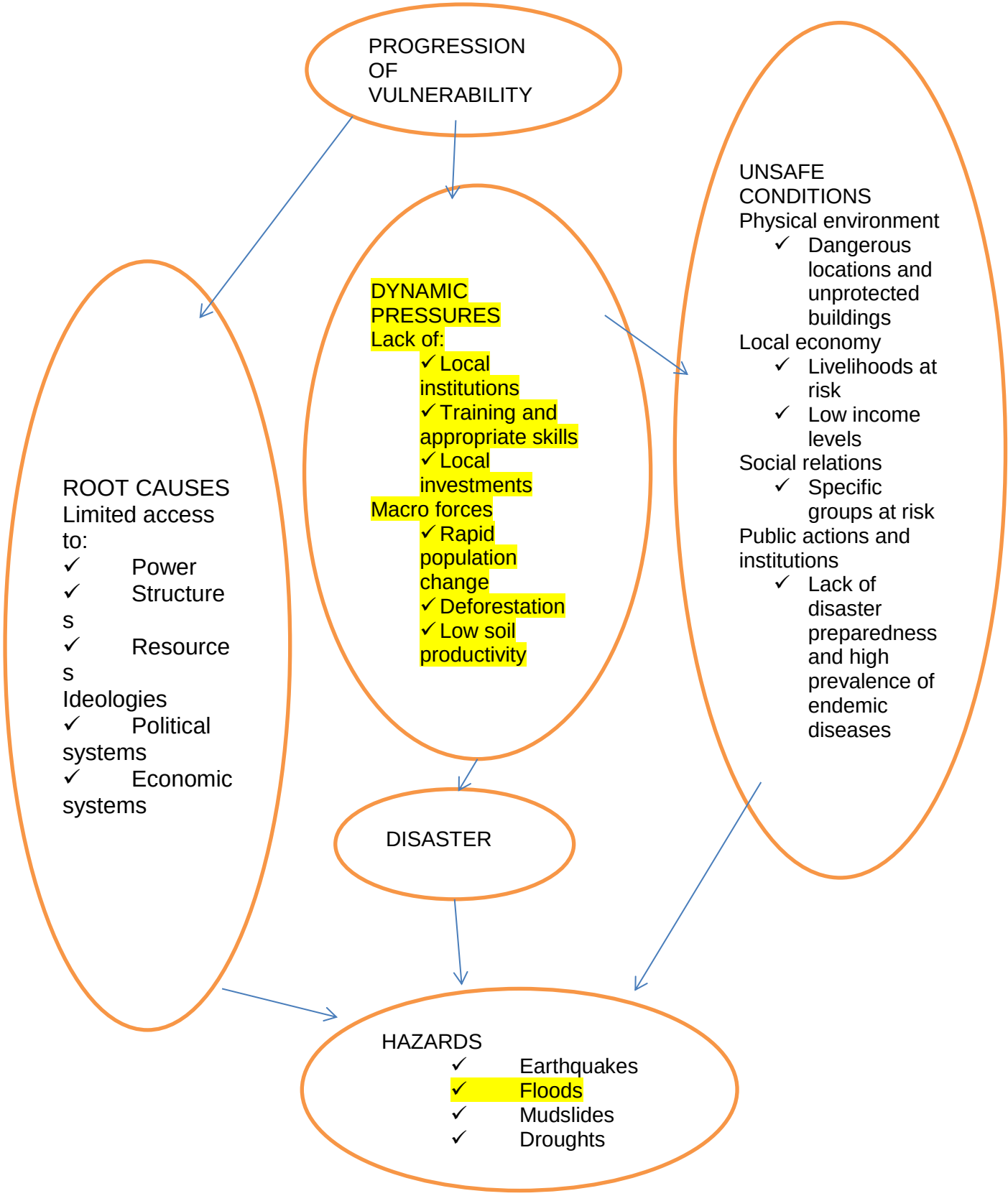

Figure 4.1 Dynamic pressures on the community

To its credit, the access model emphasises the processes by which natural events impact upon people and their responses to those events. It (the access model) also analyses how vulnerability is created primarily by socio-political and economic processes, and what unfolds before, during, and after disasters take place. The model has also been complimentary to the PAR model by dwelling on the explicit detail of what happens at the pressure point between the natural event and longer-term social processes and reports this visually. Considering what has been noted by the community members, the NGO officials who helped during the Tokwe-Mukosi disaster and the government official, it has been noted that vulnerability was created by the socio-political and economic processes which made the Tokwe-Mukosi community members be susceptible to flooding[9]. In other words, an understanding of how and why people became susceptible to the flooding was best understood by unpacking how vulnerability is created. Thus the PAR model and the access models became very important analytical tools in this regard. To this end, findings to this study inhered well the access model's focus on the precise detail of what happens at the pressure point between the natural event and long-term social processes (Wisner *et al*., 2003:87). It is critical to note that the access Model deals with the impact of a disaster as it unfolds, the role and agency of people involved, what impacts are felt by them, how they cope, develop recovery strategies, and interact with other role players. Considering the issue of the need to prioritise the indigenous knowledge systems of the people affected by the Tokwe-Mukosi flooding, the issue of the role and agency of people involved articulated in the access model was authenticated hence making the model a useful analytical tool in this regard.

By adopting an etic oriented approach, the study attempted to understand how the community encountered various challenges during and after the flood disaster from the outsider's point of view, in a bid to understand how people they balance the effects of the flooding to their livelihoods because of the flooding and destruction of their property. The concern with sustainability emanated from the two models which underpin this study notably the access model. The access model states that the process of eking out a living is a set of decisions made at the household level. For the

[9] The forced displacement of the Karanga people by the colonial government during colonisation and the subsequent economic marginalisation of these people by the postcolonial government of Zimbabwe led to the proneness of these people to flooding.

access model, individual decisions are always made in a political-economic environment. The model also states that life is characterised by repeated decisions about how to obtain a livelihood and these decisions may include a cropping strategy, investment in new inputs or agricultural equipment, changing the nature of employment, or starting up a small shop or handicraft enterprise (Wisner *et al*., 2003:90; Füssel, 2007a:159). In an area largely characterised by unsustainable livelihoods which have been driven by the flooding, findings buttress the notion by the access model that decisions to cope and continue eking out a living are incumbent upon the affected communities notably individual households.

Findings depict that resilience entail sustainable livelihoods after a disaster strikes. A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. The models show that in different contexts, sustainable livelihoods are achieved through access to a range of livelihood resources (natural, economic, human and social capitals) which are combined in the pursuit of different livelihood strategies (agricultural intensification or intensification, livelihood diversification and migration. Of importance for the attainment of sustainable livelihoods are assets as these are used to construct livelihoods and circumvent the poverty trap. Various assets include natural capital, physical capital, financial capital, human capital and social capital. This has been clearly articulated again in the access model. In the articulation of what constitutes the political economy, the access model states that social relations encapsulate the flows of goods, money and food surpluses between different actors in a social setting. The second strata constitute structures of domination which include the politics of relations between people at different levels in society. Relations within the household, between men and women, children and adults, seniors and juniors, are included in the second system. According to Wisner *et al*., (2003:94) these relations shape, and are shaped by, existing rights, obligations and expectations that exist within the household. Findings of this study reiterated the need for partnerships between different actors working in the DRR environment if an affected community is to continue surviving after a disaster. From this standpoint, it can be noted that the models used in this study were of paramount importance. The diagram below illustrates the issues which are most important in this study.

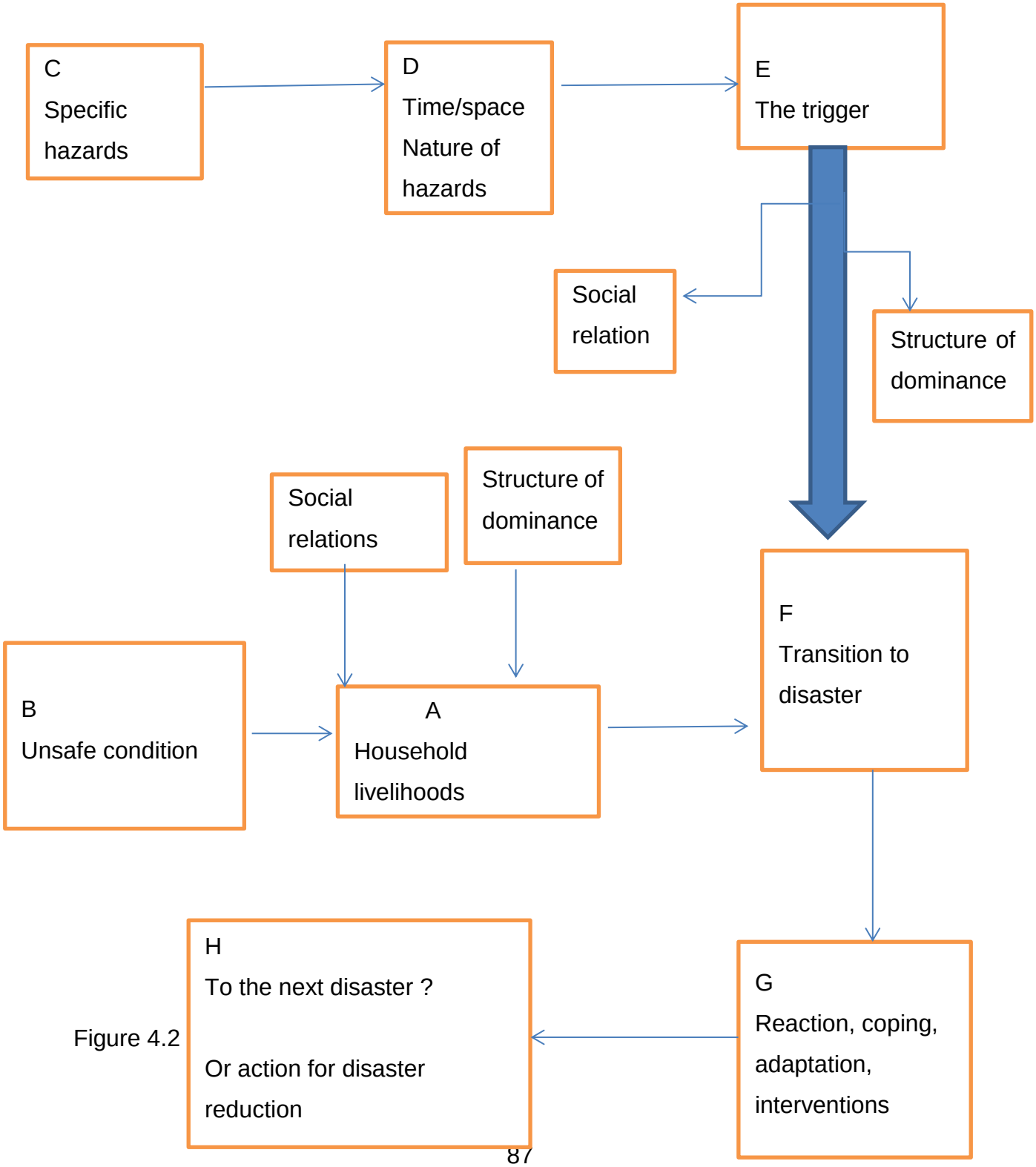
C
Specific hazards
D
Time/space
Nature of hazards
E
The trigger
Social relation
Structure of dominance
Social relations
Structure of dominance
F
Transition to disaster
B
Unsafe condition
A
Household livelihoods
H
To the next disaster ?
Or action for disaster reduction
G
Reaction, coping, adaptation, interventions

Figure 4.2

Both models are useful analytical tools which were in a position to fully conceptualise what challenges the Tokwe-Mukosi community faced during and after the flood disaster. Thus, since the models are eclectic and interwoven, what was noted in the preceding discussion authenticated what is encapsulated in both models.

4.8 Possible Actions Suggested for Greater Community Resilience

The table below summarises in detail suggested actions that can be taken to increase community resilience in this specific case.

The magnitude of the Tokwe-Mukosi disaster led to innumerable challenges which call for actions for greater community resilience. As noted from the preceding discussion, community vulnerability and susceptibility to hazards and the ripple effects of the disaster usually prelude the disaster itself. As clearly articulated in the PAR model, an explanation of disasters entails tracing the nexus between the impact of a hazard on people with a series of social factors and processes that generate vulnerability. Wisner *et al*., (2003:52) note that explaining vulnerability should take into consideration three sets of links that join the disaster to processes that are situated at decreasing levels of specificity from the people impacted upon by a disaster. The most distant of these sets are causes which are an interconnected set of widespread and general processes within society. The PAR model further notes that causes reflect the exercise and distribution of power in a society. In other words, suggested actions ought to be centred on minimising the pre-existing risks to hazards in a given community before the actual disaster unfolds. The more a given society is susceptible to hazards, the more unlikely it is to avert the negative consequences of a disaster. Strategic positioning or settlement of communities away from what this study terms the “hotspot” areas (areas susceptible to flooding, earthquakes, volcanoes, mudslides, and other hazards which can turn into disasters) create a platform for better community resilience. In support of this view, an NGO official noted:

> “I think greater community resilience can only be enhanced if communities are settled in areas far away from areas such as these (near areas susceptible to flooding and mudslides). That way, communities were able to build better livelihoods which can enhance their capacity to cope in times of shocks imposed by unpredictable weather conditions like these.”

Where communities are settled in areas not prone to flooding, for instance, they (the communities) are better positioned to produce what would satisfy their families. In some instances, they were in a better position to produce surpluses, which they could use to acquire other assets which might help protect them in times of disasters. As the PAR model notes, vulnerability is prevalent where people have no access to livelihoods and resources that are secure and rewarding. In these instances, people are likely to be a low priority for government interventions intended to deal with hazard mitigation. Moreover, people who are economically and politically marginalised are more likely to stop trusting their own methods for self-protection and tend to lose confidence in their own local knowledge. That being the case, for communities to be resilient when disasters strike, they should be settled in areas where they feel confident in their aptitude with traditional knowledge systems in a way that would enhance their abilities to ward off catastrophic contingencies. A community leader explained:

> "We wish to be settled in areas we feel confident to implement our ingenuities and indigenous knowledge systems in a way that would make us produce more from the God-given natural resources we have. We do not want any help from anyone...what we need is to be given access to the best land God gave us so that we can be able to live safe lives. Good food production and surpluses can give us the impetus and be better resilient to disasters which might befall our communities."

Considering the preceding point, indigenous knowledge systems were seen as an important factor in making sure that a community is better positioned to be resilient in disasters. Scott (1985) in "Weapons of the Weak" describes the various ways by which "less powerful" people silently but significantly resist more powerful structures and use their indigenous knowledge systems to deal with vagaries of environmentally induced strain on their lives and livelihoods, and in some instances even policy frameworks. Thus, the government, the key player in resettlement after disasters, should accept the indigenous knowledge systems of the concerned communities to enhance better community resilience in instances of environmental shocks and disasters. A community leader explained:

> "What we know about the environment ought to be taken on board. We need not to be stupid and we do not want our knowledge on the environment pushed to the periphery. All initiatives taken by the government and anyone but directly influencing how we live should take on board what we know. That would enhance our capacities to cope in times of contingencies such as floods."

As people are hard-pressed to make a living, over time they develop coping strategies that can seem alien to outsiders but are meaningful to those being threatened, primarily by malnutrition and chronic hunger. In the Tokwe-Mukosi disaster, different households pursued different livelihood portfolios to facilitate recovery. The resources needed to enact these plans depended on capital, especially human capital.

Those with sufficient human capital regarding technical know-how to engage in long-term occupation or work, consequently experienced a quicker recovery. This is line with what has been articulated in the access model. It suggests that the process of eking out a living is a set of decisions made at the household level. The access model holds that individual decisions are always made in a political-economic environment. The access model reiterates that life in normal times is characterised by repeated decisions about how to obtain a livelihood. These decisions may include a cropping strategy, investment in new inputs or agricultural equipment, changing the nature of employment, or starting up a small shop or handicraft enterprise (Wisner *et al*., 2003:90; Füssel, 2007a:159). It is crucial to note that all these decisions are dependent on human capital. Findings reveal that to enhance better community resilience, improving the human capital in the Tokwe-Mukosi community could enhance their resilience. This would then improve the capacities of community members to optimally site water sources and other sanitation facilities within their communities. As a community member mentioned:

> "Education is key my friend. People who are well-versed on how to cite places where water sources should be put and are needed in a community like ours to improve our hygiene. Outsiders can help yes but we need our children to have that knowhow so that we can be in a better position to copy and resist in times of disasters."

As was highlighted in the introduction to this chapter, the notion of community is a convenient sociological term which sometimes conceals the heterogeneity of households. Most households in Tokwe-Mukosi were found to be incapacitated regarding making sound decisions about the safest place of settlement (during the time of their settlement in the Tokwe-Mukosi area). Most people settled on sloping areas near rivers. This lack of what one might term inadequately developed human capital made people more vulnerable to the hazardous conditions which later proved disastrous. The people's agency of settling near rivers should not, however, be blamed solely for their vulnerability. The displacement they were subjected to during colonialism left most with little livelihood options. Thus, overemphasising the inability of people to settle in relatively less hazardous locales in the Tokwe-Mukosi area may lead one into a grand speculative narrative which homogenises people in Tokwe-Mukosi. The result would be that the peculiarities of different households and their respective success or failure to settle in less hazardous areas, would not be succinctly understood. Regardless of the foregoing point, it remains paramount to note that improved human capital among the community members is of critical importance in enhancing greater community resilience in disasters.

Cooperation between the government, the NGOs, and the community has been of vital importance during and after disasters. Cooperation during the disaster can be indispensable during rescue operations and evacuation processes. Through cooperation between the three, duplication of efforts could be avoided. Thus, through working together, resources can be combined and used for a common goal. Further, when the government, NGOs, and community work together, a better-combined focus on disaster and relief needs could be achieved. Through combined efforts and giving each other a platform to contribute to a certain problem or goal (building resilient communities for instance), common goals can be achieved with little problem.

In summary, the community sees itself as key to the building of a resilient and independent community, able to ward off the shocks of a disaster in future. From the preceding presentation, it was noted that the community complained about the lack of recognition of what they know about their environment (indigenous knowledge systems) and noted that it is vitally important for their indigenous knowledge systems to be taken into consideration if their communities are to be resilient from the shocks

of disasters. In the same vein, community members bemoaned the lack of adequately developed human capital among their community members. As a result, the community members noted that it is important to improve the human capital resources of their community so that their communities would be better able to deal with the ripple effects of disasters in future.

Findings indicate that NGOs and other non-community members saw that settling people in areas that are free from hazards is vitally important for building resilient communities. Results from this study showed that according to NGO officials, settling people in hazard-free environments can enhance the communities' capacities to plan for the future. Also, it would be done in a more robust and meticulous manner than when communities are settled in an unsafe environment. It would seem differences between community leaders and other respondents in suggestions on what should be done for greater community resilience point to their various worldviews, and how best to build resilience after disasters. The reason behind such differences, one might argue, is because of the differences between victim and non-victims, an issue which is rooted in the centre versus the periphery dichotomy that is central to the developmental discourse. Thus, community members as the victims and the periphery tend to view the world differently from the other respondents regarded in this study as non-victims.

Table 4.2: Possible actions suggested for greater community resilience

Themes	Sub-themes	Issues raised
Settlement issues	Settlement of the community in a hazard free environment.	The community should be settled in areas which are not prone to disasters. Resettlement should also then be in hazard-free environments. This can help the community to be better positioned to deal with disasters when they strike.
Indigenous Knowledge systems	Supporting and respecting the communities' indigenous knowledge systems.	The communities' indigenous knowledge systems ought to be supported and respected if communities are to be more resilient to disasters. Respecting the know-how of their environment can put them in a better position to deal with disasters as they come.
Human capital issues	Enhancing and improving the capacities of community individuals to plan properly before and after disasters.	The capacities of community members to cope with the effects of disasters ought to be enhanced. These capacities it has been noted can be enhanced through programmes which can teach individual how to plan properly before and after a disaster thereby enhancing their capacities to cope.
Collaboration between government, NGOs and the community	Enhancing collaboration and understanding between the government, NGOs and community before and after disasters.	When the government, NGOs and community work together, a better combined focus on disaster and relief needs could be identified. This could also assist in ensuring cooperation between the parties.

4.9 Conclusion

From the semi-structured interview and FGDs, it was determined that the community faced many challenges during and after the Tokwe-Mukosi flood disaster. During the disaster, flooding made it virtually impossible for community members to move their belongings, especially foodstuffs, from the flooded areas. Due to flooding, the roads were totally submerged, a situation which made it possible for people to move their belongings and evacuate to safer areas. The destruction of the road network made evacuation a mammoth task. Flooding also led to scores of deaths. Due to the rapidity of the disaster, people could not properly bury the dead. Furthermore, the cemetery area was flooded, a situation which made it very difficult for community members to access the designated areas to bury the dead in a dignified manner. This later led the dead to be buried in shallow graves in an undignified way. NGOs and the CPU also faced challenges in rescuing those who needed to be rescued, since the road networks were destroyed, making the navigability of the area very difficult.

After the disaster, challenges persisted. It was noted that the haphazard nature of the new settlement areas made it difficult for NGOs to distribute essentials to the needy. The bane of disease has continued to affect the resettled community because no proper sanitation facilities are in place. Poor cooperation by the community to get registered also made it difficult NGOs to give the required humanitarian assistance, a situation which is indirectly contributing to the persistence of challenges in the community.

The study also revealed that a lot needs to be done when it comes to enhancing greater community resilience during and after disasters. First, it was noted that suggested actions ought to be centred on minimising vulnerability to hazards in a given community way before an actual disaster happens. The more a given society is susceptible to hazards, the more unlikely it is to avert the negative consequences of a disaster. Strategic settlement of communities away from areas susceptible to flooding, earthquakes, volcanoes, mudslides and other hazards can create a platform for better community resilience.

Indigenous knowledge systems were a vitally important component in making sure that a community is better positioned to be resilient during disasters. It has been noted that the government is the critical player in resettlement after disasters, as was the case in this instance, and they should incorporate the indigenous knowledge systems of the concerned communities to enhance better community resilience in instances of disasters. To enhance better community resilience, this research found that improving the human capital in the Tokwe-Mukosi community would enhance better community resilience.

The PAR and access models helped to frame the study theoretically. They were also used to guide the data collection tools and reporting of the findings.

By using the PAR model, community-based vulnerability assessment became quite clear. It used an array of methods to draw and make records, seasonal timetables, and disaster sequences. The PAR model enables nonprofessional people in citizen-based groups to participate in environmental assessments that include technology which would have been previously inaccessible to them. The PAR model also gives people the chance to make decisions on the acceptability of risks. The model was vitally important in empowering the Tokwe-Mukosi community to conceptualise its vulnerabilities and capabilities, without outside interference.

The concept of vulnerability as an analysis tool by the community included a detailed investigation by the community of their resources and capacities. Findings show that what was articulated by the PAR model was within the understanding of the Tokwe-Mukosi community. They were able to grasp the scope of their situation and consider their living with risks. This knowledge encouraged them to be aware of their strengths and capacities, enabling the discussion of these along with their weaknesses and needs.

The PAR model, however, did not fully articulate how vulnerability can adequately conceptualise the way in which hazards themselves distress people. From the findings, the PAR tended to dwell much on the separation of hazards from social processes in its effort to stress the social causation of disasters.

The interpolations in the PAR model were then complimented by the access model, notably in explaining and discussing the issue of resilience. It is the issue of resilience that is well articulated in the access model, as was the understanding of the adaptation of the Tokwe-Mukosi community members after the disaster.

Thus, findings reveal that in line with the PAR model, what was observed by all respondents as challenges encountered during and after the Tokwe-Mukosi disaster, has its substratum in the unsafe conditions section of the model. Since the access model is an offshoot of the PAR model, most issues raised by the respondents, especially on livelihoods, reaction, resilience, and adaptation, lie in the access model. Findings depicted that since the community felt neglected by the government, community members became mere passive recipients of what came from the government and NGOs. As a result, findings from the study tended to revolve around issues which are fully explained in the access model.

Overall, both models were valuable analytical tools. They fully conceptualised what challenges the Tokwe-Mukosi community faced during and after the flood disaster, especially effective because the models borrow from each other and are interlaced. Thus, what was noted from the findings validate what was captured in the two models.

CHAPTER FIVE

5.0 Conclusions and recommendations

5.1 Introduction

The preceding chapter presented and discussed the findings of this study. The findings were presented and discussed under themes which emerged from this study. This chapter gives a summary of the study and ultimately, its conclusions. The chapter starts off by presenting the main findings of the research. First, the government and NGOs' views on the challenges experienced by the community are presented. NGOs and the government represented by the civil protection Unit bemoaned the inaccessibility of the areas they aimed to give help due to damaged roads. This, as a result, made it a mammoth task to make the necessary distribution of drugs and other essentials. Next, the community's view on challenges experienced during the disaster. Community members bemoaned the destruction of property and food stock as the significant challenges which were faced during the disaster. After the disaster, community members bemoaned lack of proper shelter and the haphazard nature of the new settlements a scenario which to them has been leading to the spread of diseases. Results are the compared next before solutions for greater resilience are proffered.

5.2 Main findings of the study

Government and NGOs view on challenges experience by the community

The research question reads: What is the nature of challenges encountered in rapid-onset flood hazards according to government departments and NGOs that assisted during the Tokwe-Mukosi flood disaster?

The CPU and NGO officials noted that severe weather conditions and poor road networks proved challenging. The NGO officials explained that during the disaster, distribution of indispensable drugs and rescuing the affected were thwarted by the severe weather conditions. When the flooding came to an end, the NGOs reported that they still faced obstacles when trying to reach some new settlement areas. Their bid to effectually dispense drugs to some areas of the new settlement was severely limited. Because of impassable roads, distribution of the essentials had to be done on

foot. As a result, drugs which were greatly needed could not get to where they were needed timeously, a situation which further aggravated the tribulations faced by the community. Overall, the distribution of important drugs was seen as a key challenge faced by NGOs during and after the disaster.

Furthermore, even after the disaster, the unsystematic nature of the new settlement area made it a mammoth task for the CPU (government) and NGO officials to establish who was in need of assistance the most. Also, when seeking the cooperation of the community, the NGO and CPU officials who participated in this study lamented about the lack of cooperation. They indicated this as having caused poor service to the community when it came to the distribution of essentials, thus resulting in a breakdown of trust between themselves and the community.

The community's view on challenges experienced during the disaster

FGDs were used to answer the specific research question (i): What is the nature of challenges encountered in rapid-onset flood hazards according to the Tokwe-Mukosi community?

From the FGDs various challenges were identified:

- It was shown that during the flooding and mudslides, communities faced challenges in trying to evacuate to safer areas. The roads were damaged and were no longer usable. The transport system facilitated by ox-drawn carts was unusable after oxen went astray or drowned, making the transportation of goods to safer areas virtually impossible.
- It was stated during FGDs that some community members drowned. The large death toll made it difficult for the community members to properly bury their dead timeously.
- Lack of proper shelter was also a challenge during and after the disaster.
- Hunger also resulted from community members' inability to evacuate with their food reserves. The limited food reserves the community members did manage to carry with them to the new settlements could not sustain them for long, hence the onset of hunger and starvation.

- The community members noted that schools were non-existent in new areas. As a result, teachers did not report for duty, and most pupils dropped out of school. It was also noted that some female students who had reached secondary school level ended up engaging in prostitution after dropping out of school.
- Diseases (mostly water-borne) also affected the new settlements. The new settlements had no proper sanitation facilities in place. As a result, community members pointed out that the community became prone to water-borne diseases, which include typhoid and cholera. A predominant concern was to make sure that the communities were protected from diseases, but because there were no proper resettlement plans to ensure that communities work as collectively to address problems, nothing was done to construct proper sanitation facilities.
- Gender-based violence was also noted. Community members were concerned that sexual violence had increased dramatically as a result of dislocation caused by floods. They reported that violence regularly manifested itself through sexual assault by their spouses and in some instances, by strangers.
- The community also indicated that they were not consulted in relief efforts, resulting in a lack of trust between themselves, government, and relief organisations.

The challenges indicated by the community showed a severe disruption to their functioning and resilience.

5.3 Comparing the Results

The data gathered were compared to answer the specific research question (iv): How do (a) the literature, (b) the view of government department and NGOs that assisted during the Tokwe-Mukosi flood disaster, and (c) the Tokwe-Mukosi community, compare?

The challenges faced by the NGOs that helped during and after the Tokwe-Mukosi disaster diverged from what was noted by respondents from the community. Though the community and NGOs both noted that the harsh weather conditions and impassable road network had a negative impact on their operations, the effects were differently explained by the two parties. To the NGOs officials, the supply of crucial drugs and the rescuing of victims during the disaster was hindered by the poor and

difficult weather conditions. Additionally, after the disaster, the NGOs had difficulties in reaching some of the new settlement areas which needed drug supplies. Consequently, the delivery of essential drugs was eventually done on foot. As a result, drugs did not reach the needy on time. Due to this, the community members ended up short of drugs.

Overall, distribution of essentials became a major challenge faced by the NGOs during and after the disaster. The community interpreted this challenge as a lack of trust and willingness to assist them. The community was also less concerned with the distribution of drugs and more concerned with moving their belongings to safer areas. Even though the community, government, and NGOs identified the same challenges, the results showed that the challenges were understood differently.

It seems the government, NGOs, and community converged on all the other issues raised, except child prostitution and gender-based violence issues.

Solutions for Greater Resilience

Specific research question (v) stated: What possible actions can be suggested for greater community resilience by (a) literature, (b) the government departments and NGOs that assisted during the Tokwe-Mukosi flood disaster, and (c) the community?

These questions were answered by deducing suggestions from the analysis of data produced.

Findings reveal that the community saw itself as critical to the construction of a resilient and sovereign community, which could deal with the shocks of a disaster in future. From the findings, it was also noted that the community deplored the lack of recognition of their environmental knowledge. They noted that the indigenous knowledge systems are critical and ought to be taken into regard to enhancing community resilience in times of disasters such as these.

On the same note, community members lamented the lack of adequately trained persons in their community to assist during disasters. That being the case, it was argued that it is critical to improving the human capital resources of the community so

that they would be better able to deal with the after-effects of disasters such as these in future.

This research shows that NGOs and other non-community members proposed the settlement of people in hazard-free areas as vitally crucial in fostering resilient societies. In the same vein, according to the NGO, the officials settling people in hazard-free environments can improve the communities' abilities to plan better than when they are left in hazardous locations.

Findings show that differences in suggestions between community leaders and other respondents on what ought to be done for greater community resilience show the divergences in the ways best resilience can be fostered after disasters.
The nature of challenges experienced by the community and recommendations for greater resilience

The general research question guiding this study is:

What is the nature of the challenges encountered by the community during a rapid-onset flood disaster in Tokwe-Mukosi, Zimbabwe, as analysed using the PAR and access models?

After understanding these challenges, the aim was to understand actions that could create greater resilience.

From the findings, it was learnt that the Tokwe-Mukosi community faced numerous challenges during evacuation from the flooded areas to the new safer areas. The roads were damaged and were no longer viable. The transportation methods, which were usually facilitated by ox-drawn carts before the flooding, were brought to a standstill since some oxen drowned while the remaining went astray. Some community members, especially the elderly and children, lost their lives. The surges in deaths during the flooding made it a mammoth task for community members to timeously and properly bury the dead during the flooding and mudslides. Due to the destruction of the old settlements and the collapse of houses and schools, shelter became a great challenge. Since community members could not evacuate with enough foodstuffs to

the new areas, food shortages also followed. Schools were destroyed, and the new areas had no schools, so children ended up learning in improper places. Some dropped out of school when teachers no longer showed up for duty. Female students who had reached the adolescence ended up engaging in prostitution. As a result of improper sanitation facilities, water-borne diseases were rife in the new settlements. Gender-based violence also resulted from the dislocation and disturbances of the community life. Sexual violence (sexual assault) was also one of the challenges experienced by the Tokwe-Mukosi community. Women reported being sexually assaulted by their spouses and at times by strangers. It is thus clear that the effects of the disaster did not end with the floodwaters, but continued into wider social issues, as indicated in the literature.

This research also found that the community saw itself as critical to the construction of a resilient and autonomous community, with the ability to deal effectively with disasters in future. The community was offended by the lack of official recognition of what they know about their surroundings. They noted that it is essential for the government and other outsiders to take on board what they know (their indigenous knowledge systems) to foster greater community resilience in a time of disasters.

From the same standpoint, community members suggested a need to adequately develop human capital among their citizens if greater community resilience is to be enhanced. NGOs and other non-community members regarded the settling of people in areas not prone to disasters as vital in building resilience. The NGOs emphasised enhancing the communities' capacities to map out their future in a robust and scrupulous manner, rather than be settled in an unsafe environment.

It would thus seem that empowering the community itself can greatly assist them in dealing with the challenges created by a disaster.

In summary, then cooperation between the community, government and NGOs is central to increasing the community's resilience to disasters. The view of relief aid during a disaster as the only assistance, are challenged in that the ability of the victims to assist themselves should also be considered. Also, proactive relocation, education, or taking other preventative actions, would also benefit the community. These findings

are supported by the PAR and access models, which indicate that the disaster itself cannot be halted, but measures to increase resilience would assist community members to better deal with disasters and their results.

Limitations of the Study and Suggestions for Further Research

The limitation of the study is that it was purely qualitative research; hence findings tend to be based on narratives that could otherwise be augmented through a quantitative study. Thus, carrying out mixed methods research, which combines both qualitative and quantitative methodologies, can answer the interpolations inherent in this study. Further, the study only focused on the challenges faced during, and after the Tokwe-Mukosi flood disaster, greater clarification of issues might come from an analysis of the effects of the flood disaster on specifically vulnerable households such as female-headed households.

5.4 Conclusion

From the previous chapter, it is undeniable that most of the findings in this study tally with common assumptions which are inherent in the PAR model and the access model. However, peculiarities could be seen in this case as differential aspects of people's challenges, and responses to the disaster were seen. This, therefore, must not be ignored in any disaster analysis as it determines the role of people's agencies in the face of different vagaries which might come because of disasters, in this instance flooding. Such a subjective analysis which takes cognisance of peculiarities which are community specific or peculiar to a household which is reflective of the relative differences that different communities and households are subjected to in the face of a disaster allows one not to homogenise regarding the understanding of the challenges communities face in the event of disasters. In other words, this study deduced that challenges faced by communities during and after disasters are context specific and has differentiated susceptibility to vulnerability as well as the strategies that people employ to cope.

The study also resonates well with the PAR model and the access model as well as previous literature in that communities faced by the vagaries which ensue as a result of a disaster trying to find avenues for survival and to cope in the face of vulnerability

to livelihoods constraints. The way community members highlighted the need for their agency to be respected itself is an indication of people's attempts to stand on their own in the face of challenges which might befall them. The capacity of people in the study to cope regarding activities that are beyond individual households, just as the access model postulates. They are incumbent upon the abilities of different households to form synergies and depend on each other to continue surviving. Thus, it was noted resilience is depended on an array of capital endowments not least but inclusive of human capital (knowledge), access to natural capital and social resources. Hence both the PAR and access model them being eclectic proved to be useful frameworks for analysis in this regard.

The role of outside players proved to be crucial too. NGOs and the government were seen to be of paramount importance in making sure that the Tokwe-Mukosi community continues to exist after the flooding. In this regard then it can be concluded that in any vulnerability context is confronting livelihoods particularly those of the poorly resourced, institutions may play a fundamental role in enhancing the capabilities of the concerned households to be resilient and overcome ill-being. In the case of this study, institutions proved to be indispensable and were seen very important to the Tokwe-Mukosi community after the flood disaster.

From this study, the role of institutions can also be safely asserted as having enabled and helped households to adapt to the ripple effects of the disasters through the provision of drugs, clean and safe water among other indispensable supplies which were of paramount importance to this community. Such help especially by NGOs while invaluable, however, needs not to be exaggerated as it was at times seen by the community members as rooted in the top-down mentality which did not mainly pay attention to the knowledge systems of the Tokwe-Mukosi community. A question, which is not unique to this study which thus remains is what role should external support play regarding aiding communities during and after disasters? In other words, one might ask: Are there boundaries to helping communities affected by disasters, if so, what determines those boundaries?

In tandem with the access model and its prioritisation of the need to commit to community resilience and sustainability through an assessment of the capacity of any

activities by a community to sustain itself through its own capital endowments, the study can conclude that it is of paramount importance for indigenous knowledge systems of a certain community to be respected and taken into consideration in the face of disasters such as flooding. The study thus argues that contrary to top-down approaches which tend to guide the actions of external players such as NGOs and governments, it is the consideration of the views of local communities which can help to effectively deal with the challenges which ensue because of disasters. Rather than castigating local people as incapable of making sound decisions in the face of disasters, external players such as the government and other NGOs create the vulnerability context which leads to unsustainable livelihoods activities as people try to adapt to the constant failure of livelihoods and severe ill-being. This then perpetuates the unsafe conditions which are articulated in the PAR model.

The significance of capital endowments cannot be undermined and due to an observation of poor human capital development community members bemoaned the lack of proper planning by community members a factor which has been having led to continued challenges in the new settlements. Thus, poor human capital development (specifically through formal education) also militates against meaningful livelihoods construction in the new settlements hence the lack of this skill proved detrimental as households that did not have it bemoaned the lack of traction they so need to manoeuvre their way out of the ripple effects of the disaster. It is a point of emphasis from this study, therefore, that the government of Zimbabwe must invest in educating vast numbers of households in communities such as Tokwe-Mukosi.

It has also been noted that inter- and intra-household stratification along the lines of capital endowments and capabilities need not to be ignored because such dynamics determine the success or failure of individuals to cope or be resilient during times of livelihoods stress and shocks especially after a rapid onset disaster. The vulnerability of livelihoods to stress and shocks, just like poverty, is also gendered as this study revealed through female-headed households that appeared less able to ‘constructively react’ and meaningfully ‘cope’ with the ripple effects of the disaster.

Overall, the challenges faced during and after disasters in Zimbabwe cannot be generalised as they tend to be imbued with different ecological conditions which

determine people's respective reactions to the vulnerability conditions to which households find themselves subjected. There are many invaluable analytical tools situated in the PAR and access models which however need to be treated sceptically when analysing a disaster.

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