

**UNDERSTANDING THE ROLE OF SOCIAL CAPITAL
IN ENHANCING COMMUNITY RESILIENCE TO
NATURAL DISASTERS: A CASE STUDY OF
MUZARABANI DISTRICT, ZIMBABWE.**

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BY


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Declaration

I, Rosemary Kasimba, declare that I am the author of this thesis. The thesis has been done by me and it has not been previously accepted for a higher degree at any university. I have acknowledged where I made reference to the work done by others.

Signature  Date..... 22 January 2018

Dedication

I humbly dedicate this piece of work to my father (the late Mr. Lansford Manyika Kasimba) who made me realize the importance of community Social Capital and networks when I had not yet learnt about them. You always believed in sharing and helping fellow comrades in the community whenever you could. I remember the days during my school holidays, in my rural area, when you would invite very poor community members to your cotton field so that they would in turn help you pick cotton. You would reward them with cash and maize grains. You called yourself (**Kusimira Shamwari yevanhukadzi**) meaning a good friend for women. You would not accept payment or any token of appreciation from a community neighbour who would have borrowed your ox-cart during an emergency. In your tuck-shop, you had this thick-blue book where you would list the names of community members who used to come and buy food on credit. You had so much trust in people. I did not recognize that that behaviour was a component of Social Capital that is very vital in the community's health. You were acting as a buffer and you were really concerned about the problems that women encounter in life. Therefore, I humbly dedicate this thesis to you.

Abstract

The central focus of the study was to seek an understanding of the role that Social Capital plays in enhancing the resilience and adaptive capacity of the community to floods and droughts in Muzarabani District of Northern Zimbabwe. The study was conducted in two of the wards in Muzarabani District namely Chadereka and Kapembere. In addition, the study sought to understand the coping and adaptation strategies employed by the most vulnerable groups such as the elderly, child heads, women and single heads of households.

The specific objectives of the study were: to understand the effects of floods and droughts on residents' livelihoods and food security, examine residents' perceptions on droughts and floods and to document community-based strategies utilised by women, child-headed families and the elderly to improve their livelihood and food security in the face of floods and droughts, explore different types of Social Capital that exist in the study area especially with regard to household resilience to disasters, comprehend the basis of residents' resilience to floods and droughts and the extent to which vulnerable groups rely on Social Capital when coping with these disasters and to examine the repercussions of residents' strategies on the community's institutional structures.

The study was informed by Social Capital theory and the social network analysis. Social Capital plays a pivotal role in enhancing the resilience of the community to floods and droughts. Different types of Social Capital that exist and help people to deal with floods and droughts include linking, bonding, and bridging and victim Social Capital. Inhabitants within and outside villages support each other. Non-Governmental Organisations (NGOs) and the government are also working hand in hand with community members to reduce the negative impacts of floods and droughts. Volunteerism, generalised reciprocity and mutual understanding are also at the centre of interventions. The study employed both quantitative and qualitative approaches to achieve its objectives. Questionnaires, focus groups discussions, observations, transect walks, key informant interviews and some participatory methods were used to collect data. SPSS, content and thematic analysis were used to analyse data.

The study found that floods and droughts negatively impact on human security, causing acute food shortages, intensifying poverty, spread of water related diseases, increasing divorce rates, children dropping out of school, reduced livestock and crop production, family disintegration, chaos in religion, exacerbating local unemployment as well as negatively affecting the well-being of community members. On a positive note, floods in Chadereka cause the deposition of alluvial soils that are good for crop production.

However, in Kapembere, volunteerism is not very common; inhabitants are not yet trained about the concept. Community members have also formed cooperatives where they would give each other money or grain. In Chadereka, women have formed a mother-support-group to assist children with food in schools. Strategies being employed by the most vulnerable groups include casual labour, joining cooperatives, migration, taking children from school, hiring out cattle, selling of assets, riverine farming, growing drought-resistant crops, making use of indigenous knowledge systems, skipping meals and exploiting natural resources among others.

Some women have resorted to prostitution to increase their resilience to floods and drought impacts such as poverty and acute food shortages. The elderly also hire out their cattle. They also rely on support from the government and NGOs. There are a number of challenges faced by residents in dealing with floods and droughts. Community social relationships, migration,

casual labour and the sale of assets are the basis of the people's resilience against the impacts of floods and droughts.

The study identified the following issues which all stakeholders involved could take note of: the government should not always be suspicious of disaster-risk reduction strategies implemented by NGOs as this scares away some of them that are willing to offer untied or unconditional assistance; timely and impartial distribution of agricultural inputs to inhabitants would be extremely useful. Moreover, the government needs to provide resources that support local organisations (formed by the local people) to assist the most vulnerable people in communities. Community leaders, together with the government and NGOs, are encouraged to hold awareness campaign programmes that dispel tribal and ethnic stereotypes, to promote local Social Capital among members of the community. Further investigations in the following areas are critical: A more comprehensive assessment of the determinants of resilience to droughts and floods in Zimbabwe is necessary. A study on the challenges faced by the disabled people and women in polygamous marriages and how they are adapting to floods and droughts, needs to be conducted and a critical investigation on the Zimbabwean government's strengths and weaknesses in enhancing the resilience of the community to floods and droughts is necessary among others.

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List of Acronyms and Abbreviation

ACT	African Conservation Tillage
ACMAD	African Centre of Meteorological Application for Development
AGRITEX	Agricultural Research and Extension Services
AFM	Apostolic Faith Mission
ATR	African Traditional Religion
CA	Conservation Farming
CARRI	Community and Regional Resilience Institute
CART	Communities Advancing Resilience Toolkit
CBHFA	Integrated Community Based Health
C2ES	Centre for Climate Change and Energy Solutions
CDA	Civil Defence Act
CPA	Civil Protection Act
CPC	Civil Protection Committee
CPP	Cyclone Preparedness Programme
CPU	Civil Protection Unit
CRED	Centre for Research on the Epidemiology of Disasters
DA	District Administrator
DM	Disaster management
DNCP	Draft National Civil Protection
DRR	Disaster Risk Reduction
DWSSC	District Water supply and Sanitation Committee
EMA	Environmental Management Agency
ENSO	El Nino Southern Oscillation
FAO	Food and Agriculture Organisation
FTLRP	Fast Track Land Reform Programme
FGD	Focus Group Discussions
FRP	Flood Relief Programme
GDP	Gross Domestic Product
GoZ	Government of Zimbabwe
HFA	Hyogo Framework for Action
HIV	Human Immuno-Deficiency Virus
ICSU	International Council of Science
ID	Identity Card
IES	Institute of Environmental Studies
IDDRR	International Day for Disaster Risk Reduction
IKS	Indigenous Knowledge Systems
IRSS	Institute of Health and Society
ISDRR	International Strategy for Disaster Risk Reduction
IOM	International Organisation for Migration
IPCC	Intergovernmental Panel on Climate Change
KI	Key Informant
LEDC	Low Economically Developed Countries
MDC	Movement for Democratic Change
MDG	Millennium Development Goals
MeDRA	Methodist Drought Relief Agency
MEDCs	More Economically Developed Countries
MA	Minerals Act
MLGPWNH	Ministry of Local Government Public Works and National Housing
MSG	Mother Support Group

MOU	Memorandum of Understanding
MRDC	Muzarabani Rural District Council
MSD	Meteorological Services Department
NRMA	Natural Resource Management Act
NDRRR	National Disaster Resilience Roundtable Report
NCPCC	National Civil Protection Coordination Committee
NGOs	Non-Governmental Organisations
NPDM	National Policy on Drought Management
OECD	Organisation for Economic Corporation and Development
PAR model	Pressure and Release model
PHHE	Public Health and Hygiene Education
REWU	Regional Early Warning System
RSC	Red Crescent Society
RUPRE	Rhodes University Policy Research Ethics
RVVA	Regional Vulnerability Assessment and Analysis
SADC	South African Development Community
SAT	Sustainable Agricultural Technology
SPSS	Statistical Packaging for Social Sciences
UFI	United Family International
UN	United Nations
UNCT	United Nations Country Team
UNDP	United Nation Development Programme
UNICEF	United Nations Children's Fund
UNFCCC	United Nations Framework Convention on Climate Change.
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
U.Z	University of Zimbabwe
VDCCO	Village Development Committee
WMA	Wildlife Management Act
ZANU-PF	Zimbabwe African National Union- Patriotic Front
ZESA	Zimbabwe Electricity Supply Authority
ZAOGA	Zimbabwe Assemblies of God Africa
ZimVAC	Zimbabwe Vulnerability Assessment Committee
ZNCP	Zimbabwe National Contingency Plan
ZPF	Zimbabwe People First
ZPWMA	Zimbabwe, Parks and Wildlife Management Act
ZRA	Zimbabwe River Authority
ZRCS	Zimbabwe Red Cross Society
ZRCS	Zimbabwe Red Cross Society
ZRP	Zimbabwe Republic Police

CHAPTER 1

THESIS SYNOPSIS AND BACKGROUND TO THE STUDY

1.1: Introduction

This chapter provides a brief synopsis of the contents of the thesis. It gives the background, the statement of the problem, the research objectives, the research questions, the justification for the study and the research assumptions and organisation of the thesis. It also presents a brief overview of floods and droughts at regional, national and local levels. In addition, the chapter locates Zimbabwe in relation to its neighbours and describes the country's climate and vegetation. It also explains the contents of each chapter in the thesis in brief.

1.2: Background to the research

1.2.1: The occurrence of climate related disasters in human history

As asserted by Barnett (2010:1), "...throughout most of human history, constraints imposed by local environmental conditions and natural variability were powerful determinants of the security of individuals and societies". Accordingly, weather-related perturbations compromise human security in diverse ways. Therefore, it is crucial to examine the ability of communities to withstand the harsh conditions triggered by natural disasters in contemporary society. Disasters, such as floods and droughts, have become prevalent in modern society. In Low Economically Developed Countries (LEDCs), disasters "pose a greater threat to human life, health and well-being than in More Economically Developed Countries (MEDCs)" (Dewan, 2014:38). Climate change hazards such as floods and droughts have always been a matter of concern to the human race (Krysanova et al, 2008:1). According to Ward *et al* (2014:1), El Nino Southern Oscillation (ENSO) is the most dominant interannual signal of climate variability, and given that it is a strong indicator of floods and droughts, its influence on climate over large parts of the world is significant. In this regard, the International Strategy for Disaster Reduction (ISDR) (2004: 149) states that "The African continent is exposed to disaster risk from various natural causes, particularly those arising from hydro meteorological hazards".

The impact of the changing weather will continue to get worse over time unless strategies are designed and implemented to halt or reverse the carbon dioxide emissions responsible for the

global warming that is taking place (United Nations Development Programme (UNDP, 2007:107). In the case of Zimbabwe, “Flooding and drought are the most important types of hazards in Zimbabwe” (Baker et al: 2014:168). The evidence on the ground suggests that abnormally high rainfall is the primary cause of flooding. This may be due to the occurrence of tropical cyclones. Nevertheless, “there are many human-induced contributory causes such as land degradation; deforestation of catchment areas; increased population density along riverbanks; poor land use planning, zoning, and control of flood plain development; inadequate drainage, particularly in cities; and inadequate management of discharges from river reservoirs” (ICSU, 2007:5). Dam failures (constructed and natural) can also cause flooding.

1.2.2: Flood Disasters in Africa

The floods that occurred in Mozambique and in some parts of Zimbabwe in February 2000 are an example of a flood disaster. These floods affected a total of about 4.5 million people and caused 700 deaths. Associated losses were estimated at US\$500 million, and the GDP growth rate decreased from 10% to 2%” (ICSU, 2007:5). In 2004 to 2006, people in Southern Ethiopia, Somalia and Kenya were affected and displaced by flooding. Thus, human floods damage settlements and cause food shortages in addition to creating poverty. They also “damage transport networks and destroy human heritage” (Krysanova et al 2008:1). The occurrence of flooding creates problems that are yet to be solved in different communities. According to Stephenson et al (2014:201), floods have, during the last 30 years, caused over 200,000 fatalities and affected more than 2, 8 billion others world-wide. In addition, Sub-Saharan Africa experienced flooding in the 2016/2017 agricultural season.

1.2.3: Droughts in Africa

Conversely, Krysanova et al, (2008:2) observe that droughts are often related to heat waves, that is, to extended time intervals of abnormally hot weather lasting from several days to several weeks. Heat waves can be harmful to human health. Although arguably human-induced to some extent, “drought is a common recurrent natural induced phenomenon in the southern region of the African continent and Zimbabwe in particular, cannot be spared from this hazard by virtue of its geographical location” (Mawere 2015:5).

Going by current trends, the projections for the future suggest a net overall global drying trend according to which “the proportion of the land surface affected by extreme drought is predicted

to increase from 1% at present to 30% by the end of the 21st century” (ICSU,2007:6). Even though “droughts under current climate conditions affect many parts of the globe, they are a particular concern in sub-Saharan Africa” (ICSU, 2007:6). Droughts are being experienced in several parts of Africa.

1.2.4: Organisations that are working to combat effects of climate related disasters in Sub-Saharan Africa.

There are certain organisations that operate to combat drought in sub-Saharan Africa and some of these are: The Southern African Development Community (SADC) has, through its SADC Water Sector coordinating unit, approved a strategic approach for managing droughts and floods. The key institutional player is the SADC Climate -Service Centre in Gaborone, Botswana. The SADC Regional Early Warning Unit (REWU) collates information on weather threats and conditions as well as drought, and does so by working closely with the African Centre of Meteorological Application for Development (ACMAD). ACMAD’s mission is to provide weather and climate information to member countries through weather prediction, climate monitoring, technology transfer (telecommunications, computing, and rural communication) and research. Furthermore, the Zimbabwe National Contingency Plan (ZNCP) (December 2012-November 2013 :6) has highlighted the fact that drought in Zimbabwe occurs country-wide almost once every two years and is chronic in semi-arid regions from where it is gradually spreading to the other parts of the country because of seasonal shifts. As a result of this phenomenon, the Zimbabwe Vulnerability Assessment Committee (ZimVAC) has been “providing national assessments on food security and livelihood vulnerability for timely and accurate early warning information. The data that is gathered by ZimVAC during assessments is used for the programming purposes to mitigate the impact of drought on food security and livelihoods” (ZNCP 2012:14). ZimVAC is comprised of multi-stakeholders from government and non-governmental organisations together with the Southern African Development Community Regional Vulnerability Assessment and Analysis (SADCC RVAA). This cooperation shows the significance of Social Capital in enhancing the resilience of the community to disasters. However, the citizens of Zimbabwe cannot solely rely on ZimVAC for their day to day survival. Remote places like Muzarabani, a district in Zimbabwe, do not always benefit from early warning information about the occurrence of floods and droughts since such information is not effectively distributed.

1.2.5: Preliminary explanation of the main theory informing the study

Social Capital has multiple definitions and Putnam, Leonardi and Nanetti (1993: 167) define it as “features of social organisation such as trust, norms and networks that improve the efficiency of the society”. In addition, Ostrom (2000: 176) defines Social Capital as “shared knowledge, understandings, norms, rules and expectations about patterns of interaction that groups of individuals bring to a recurrent activity”. In simple terms the term Social Capital entails the cooperation among members of the community, the government and other stakeholders in mobilising resources for the benefit of the society. Social Capital is generally perceived as a set of informal values and norms shared among members of a community that permit cooperation among them and encourage coordinated efforts that can cure the maladies of the society. Social Capital is also a component of social networking and it encompasses informal relationships and interactions among actors in the community.

Communities, whether or not tied to a particular place, are posited as being crucial, but often overlook resources in both proactive and reactive phases of emergency management (Murphy, 2007: 297). The findings of the study confirm that communities are indispensable in enhancing disaster resilience. Thus, “within the local level, there is a complex relationship between municipalities and a plethora of communities including neighbourhoods, families, churches, service and hobby clubs and other civil society organisations” (Murphy, 2007: 298). According to Manyena (2013: 2), disasters can be a wake-up call to warn affected communities to take action concerning overlooked or neglected aspects of disaster risk reduction (DRR). This shows that the study of Social Capital is gaining momentum in determining disaster resilience. Studies outside Zimbabwe by Hurlbert et al (2000), Kirschenbaum (2004), Nikagawa and Shaw (2004), Schellong (2007), Mimaki and Shaw (2007), Murphy (2007), Li et al (2008), Barker (2011), Meyer (2013), Harada’s study (2012) in Japan and Cox and Perry (2011), among others, show that the possession of Social Capital and adequate social networks makes disaster resilience possible, but they also find that this possession can be problematic in that it can also reduce the capacity of a community to deal with disasters successfully. Patterson et al (2007:127) argue that in general “concepts like social resilience are related to the theories of Social Capital which stress the importance of social networks, reciprocity and interpersonal trust that allow individuals and groups to accomplish greater things than they would by their isolated efforts.” In line with this, Zimbabwe has also ratified the 15-year Sendai Framework which is a successor instrument to the HFA. The Sendai Framework was adopted by United Nations (UN)

member states on 18 March 2015 at the Third World Conference on Disaster Risk Reduction in Sendai City in Japan. The Framework is aimed at reducing disaster risks and losses in lives, livelihoods and health as well as the economic, physical, social, cultural and environmental assets of people. It indirectly embraces the importance of Social Capital as it requires a sharing of responsibilities among the state, private sector and other stakeholders while the state plays the primary role in disaster risk reduction strategies. The role of Social Capital in disaster resilience needs to be understood in the Muzarabani context.

1.2.6: Trends of climate related disasters in Zimbabwe and how people are affected

On the African continent, and particularly in Zimbabwe, most of the people living under conditions of extreme poverty are predominantly located in semi-arid regions where they rely heavily on rain-fed agriculture for their day to day living. Several parts of Zimbabwe have, over the years, been affected by both floods and droughts. In 2014 the flooding of the Tokwe-Mukosi Dam had severe effects on the district of Mwenezi to the extent that considerable damage was done. Valerie et al (2002: 56) note that “further research is required to explore how climate related hazards manifest in different regions and different time scales and how social and natural systems evolve.” This is very important especially if communities are to become resilient to these disasters.

Different groups of people in society are affected differently by floods and droughts and they respond differently because of their differences in education, wealth status, age and power, among others. In fact, “the degree of vulnerability to drought in communities is a function of many complex and intricate factors and issues and these include disposable household income, alternative means of livelihood, resilience of households and the role of government and other non-state actors in providing measures and programmes” (Mawere et al, 2015: 6). The elderly are more vulnerable to floods and droughts because they are not economically active. They cannot be involved in the many activities that enable them to earn a living in the event that a disaster strikes in their communities. Women are more vulnerable to floods and droughts as they are considered as providers of food and home-based care. This means that “responses to the impact of climate change need to be gender-aware. Otherwise, government and development programmes aimed at supporting adaptation can exacerbate gender inequalities” (Valerie, 2002:56). Furthermore, “rural livelihoods and gender and power relations are embedded in social, institutional and cultural contexts” (Valerie et al, 2002: 57). Therefore,

understanding the on-going struggles over livelihoods and community resources are of paramount importance when conducting research on floods and droughts.

Traditionally, the rains in Zimbabwe used to start around the months of October and November followed by a drier period in December and rain in January and February. People would know when to grow and when to harvest. Nonetheless, the pattern has changed and is still changing and makes “for more unpredictability and causing more erratic flooding patterns” (Baker et al 2014: 168). Droughts have also become a common phenomenon in the country, especially in Muzarabani. Chiroro (2013: 2) observes that although “droughts have been part of human existence since before the beginning of crop cultivation” they were not as common as they are today. The Horn of Africa and Sub-Saharan Africa (Ethiopia, Kenya, Malawi and Zambia) have been hard hit by droughts several times in different years. The effect of these droughts was a drop in GDP and food security. According to Benson and Clay (1998:241), “the most visible manifestations of drought are food insecurity and famine which are exacerbated by a sharp decline in the supply side within the agricultural system.”

The Muzarabani community has suffered from floods and droughts for many years due to climate change and the geographical characteristics of the area which make it more susceptible to these disasters. Consequently, the agriculture-centred livelihood activities of the residents are negatively impacted on with the result that the most vulnerable groups, such as aged people, women and children are severely affected. According to the IPCC (2007), floods and droughts are likely to get worse as it is predicted that the magnitude and frequency of floods and droughts will increase during the 21st century due to changes associated with climate variability. Given the increasing precariousness of their situation, residents in lower Muzarabani need to be resilient. They should be able to manage the period before they get external help. One way to do this is through increased community cooperation to coordinate efforts. This process of building social networks is part of the development of “Social Capital”. This study focused on how Social Capital and social networks have and could impact on residents’ resilience and their adaptive capacity to withstand natural disasters, specifically floods and droughts in the lower Muzarabani area of Zimbabwe.

The International Day for Disaster Risk Reduction (IDDRR) is celebrated on October 13 every year. Several initiatives towards raising awareness to risk and strengthening multi-hazard early warning systems have been put in place by the United Nations. Furthermore, Africa’s Agenda

2063 number 66 c states that there is a need for “significant advances by countries of the South to lift huge sections of their populations out of poverty, improve incomes and catalyse economic and social transformation. Multi-level networks are needed for the funding of multilateral approaches to humanity’s most pressing concerns including human security and peace, the eradication of poverty, hunger and disease, gender equality and climate change as well as the Common African Position on post 2015 Development Agenda” (Agenda 2063 document 2014: 11). Furthermore, environmentally sustainable and climate resilient economies and communities are recognised as the 7th goal under the first Ten Years of Agenda 2063. The goal prioritizes bio-diversity, conservation and sustainable natural resource management, water security, climate resilience and natural disaster preparedness, prevention and renewable energy. For all these to be achieved, the government, the NGOs and community members are required to work harmoniously. Zimbabwe is one of the countries that failed to achieve the Millennium Development Goals (MDG) by 2015. Goal number 1 (which is the Eradication of extreme poverty and Hunger, Goal number 3 (promotion of gender equality and empowering women and Goal number 7 (Environmental sustainability) were compromised by the country’s socio-economic and political instability. However, climate related disasters such as floods and droughts in some parts of the country, contributed to the failure of the country to achieve these goals. Based on Zimbabwe’s experience, it would appear that if communities are not resilient, Agenda 2063 on climate disasters will remain unattainable.

The Community and Regional Resilience Institute (CARRI) (2013:10), defines community resilience as the capability of the community “to anticipate risk, limit impact and bounce back rapidly through survival, adaptability, evolution and growth in the face of turbulent change”. Adaptive capacity was defined by the Inter-governmental Panel on Climate Change (IPCC) (2001: 6), as “the ability of the system to adjust to climate change (including climate variability and extremes), to moderate potential damages, to take advantage of opportunities or to cope with consequences”. The goals of both resilience and adaptive capacity are “to reduce the conditions of vulnerability that a community faces” (Nyamwanza 2012: 3). Worldwide, disaster resilience is exponentially attracting attention. The World Conference on Disaster Risk Reduction (from 18-22 January 2005) in Kobe, Hyogo Japan adopted the Hyogo Framework for Action (HFA) 2005-2015 that was aimed at building the resilience of nations and communities. This is a transparent indication of the significance of embracing and promoting resilience in disaster-prone areas. Zimbabwe also ratified the HFA.

The ability of the community and stakeholders to manage disaster encompasses the five fundamental phases, namely, prevention, preparedness, emergency response, recovery, and mitigation. Prevention involves the strategies taken to encumber or to obstruct the occurrence of a disaster. However, in Muzarabani, some of the floods are a result of the geographical location of the area that makes it susceptible to flooding whenever there is high rainfall. Kreps et al (2000:19) note that these activities include “disaster plans, the training of respondents, the maintenance of human, material and financial resources and the establishment of public education and information systems.” Emergency response includes services undertaken during the initial impact of the aftermath of a disaster to save lives and reduce the damage to property. Kapucu (2008: 244) defined recovery as the action undertaken after the initial impact to develop the socio-economic and environmental conditions destroyed by a disaster. This is done with the aim of achieving a return to normalcy. Furthermore, mitigation encompasses actions that are conducted to minimize or to reduce the magnitude of a disaster.

1.2.6: Climate related disaster studies that have been conducted in Muzarabani

Voluminous studies have been conducted on floods and droughts in Muzarabani (as indicated by Table 1 below). However, less attention has been given to the role that Social Capital is playing in enhancing the capacity of residents to cope with these disasters.

Table 1.1: Recent studies (20013-2016) undertaken in Muzarabani on floods and droughts

Author	Title	Status
Katanha and Masocha 2014	Schistosomiasis an Issue in Flood Prone Area of Dambakurima ward 1 (the ward is between Kapembere and Chadereka).	Journal
Muzeza (2013)	Community Based Flood Preparedness in Dambakurima Ward	Journal
Mudavanhu (2014)	The impact of disasters on child education in Muzarabani district	Journal
Chingombe et al (2014)	A Participatory approach in GIS data collection for flood risk Management ,Muzarabani District ,Zimbabwe (the study was conducted in Chadereka)	Journal
Tawona (2014)	Disaster Preparedness in Zimbabwe. A case study of Muzarabani district.	Bachelors' dissertation

Chanza (2014)	Indigenous Knowledge Systems and Climate change: Insights from Muzarabani, Zimbabwe	PhD Thesis
Mavhura et al (2013)	Indigenous knowledge, coping strategies and resilience to floods in Muzarabani (the study was conducted in Chadereka and Dambakurima)	Journal
Mudavanhu et al (2015)	The complexity of Maladaptation strategies to disasters: The case of Muzarabani, Zimbabwe.	Journal
Mudavanhu and Bongo (2015)	Children's coping with natural disasters: Lessons from floods and droughts in Muzarabani District	Journal
Manyani (2013)	The Sustainability of Rural Livelihoods in the face of climate change in Chadereka ward 1 of Muzarabani Rural District.	Journal
Mudavanhu et al (2015)	Disaster risk reduction knowledge among Children in Muzarabani district, Zimbabwe	Journal
Magoronga (2015)	The role of information and communication technology in flood risk reduction: The case of Chadereka ward in Muzarabani District.	Bachelor's dissertation
Collins et al (2016)	Disaster risk reduction knowledge among children in Muzarabani district, Zimbabwe	Journal

Table 1 shows that several studies on floods and droughts have been conducted in Muzarabani as with Hurricane Katrina in New Orleans, where several studies from different angles have been done. From all these studies, the Social Capital facet has not really been given much attention.

In the context of Marxist analysis, different classes in society experience different everyday life realities and thus have different experiences with disasters (Wilhelm, 2011:19). Therefore, my study seeks to understand how the most vulnerable residents in Muzarabani deal with floods and droughts. In this way, the research considered, although minimally, the Human Ecology Approach “which is concerned with factors that contribute to different vulnerabilities of social groups, such as gender-related factors, economic situation, or cultural and ethnic differences” (Wilhelm, 2011: 20). Thus, the study looks at how the most vulnerable groups such as the elderly, women and child heads of families are affected and how they make use of Social Capital to increase their resilience to these disasters.

A study by Mavhura et al (2013:43) revealed that the 2008 flooding in Muzarabani was disastrous. It caused a massive loss of crops, the spread of diseases such as cholera and diarrhoea, damage to infrastructure, loss of livestock and food insecurity given that 75% of the households became food-insecure in Chadereka. There was also decomposition of human and domestic waste in stagnant water and submerged shallow wells and some boreholes. This indicates that residents in the area do not need only external help but they have to actively participate as a community to minimize the impacts of disasters such as these in their communities.

1.3: Zimbabwe's Geographical, Socio-economic, and Political context.

In this section, the study describes the geographical and socio-economic features of Zimbabwe. Zimbabwe is a land-locked country that is located in Central Southern Africa. It is surrounded by five countries namely; Mozambique to the east and north east, Botswana to the west, South Africa to the south, Zambia to the north and Namibia to the west. It is a semi-arid region with limited and unreliable rainfall patterns and temperature variation (Brown 2012: 3). "It lies wholly in the tropics stretching from 15.5 to 22.5 degrees latitude. The sun is overhead twice a year. The country does not experience direct effect of the ocean because it is surrounded by land" (Meteorological Services Department of Zimbabwe, 2015). Much of the country sits on the Plateau 1000m or more above the sea level. The main physical feature of Zimbabwe is the high water shed, which ranges from 1200m to 15000m above the sea level and runs from southwest to the north east" (Chengutah,2010: 3). To the east, there are mountain ranges with peaks as high as 2600m above sea level. The altitude decreases from the central plateau northwards towards the Zambezi River Valley and South into the Limpopo River Basin" (Chengutah, 2010: 3). Chengutah (2010:3) observes that "The land in Zimbabwe has been categorised into five agro-ecological or natural regions, based on average rainfall, altitude above sea level and other climatic conditions prevailing in each region" and that in addition the mean annual rainfall ranges from 300mm in the low lying Limpopo valley in the south to over 3000mm per annum in some high mountain areas to the east. In fact, the country used to have five agro-ecological regions that are now changing with climate.

Agricultural production in Zimbabwe is deteriorating annually largely due to the changes in rainfall patterns. The rain season in Zimbabwe is usually between mid-November to April

(United Nations Children’s Education Fund and the Institute of Environmental studies (UNICEF and IES, 2014: i). Currently, the climate is characterised by recurrent droughts and occasional floods in most parts of the country that are being exacerbated by climate change. “The timing and amount of rainfall received in Zimbabwe are becoming increasingly uncertain and the frequency and length of dry spells during the rainy season have increased while the frequency of rain days has been reducing” (UNICEF and IES, 2014: i). The country has a total area of 391,000 square kilometres and a total population of 13,061,239 (ZIMSTAT, 2013) with the majority of the population domiciled in the rural areas. Zimbabwe is divided into ten administrative and political provinces namely Mashonaland Central, Mashonaland East, Mashonaland West, Manicaland, Matabeleland South, Matabeleland North, Masvingo, Midlands, Harare and Bulawayo. Figure 1.1 below shows the position of Zimbabwe.

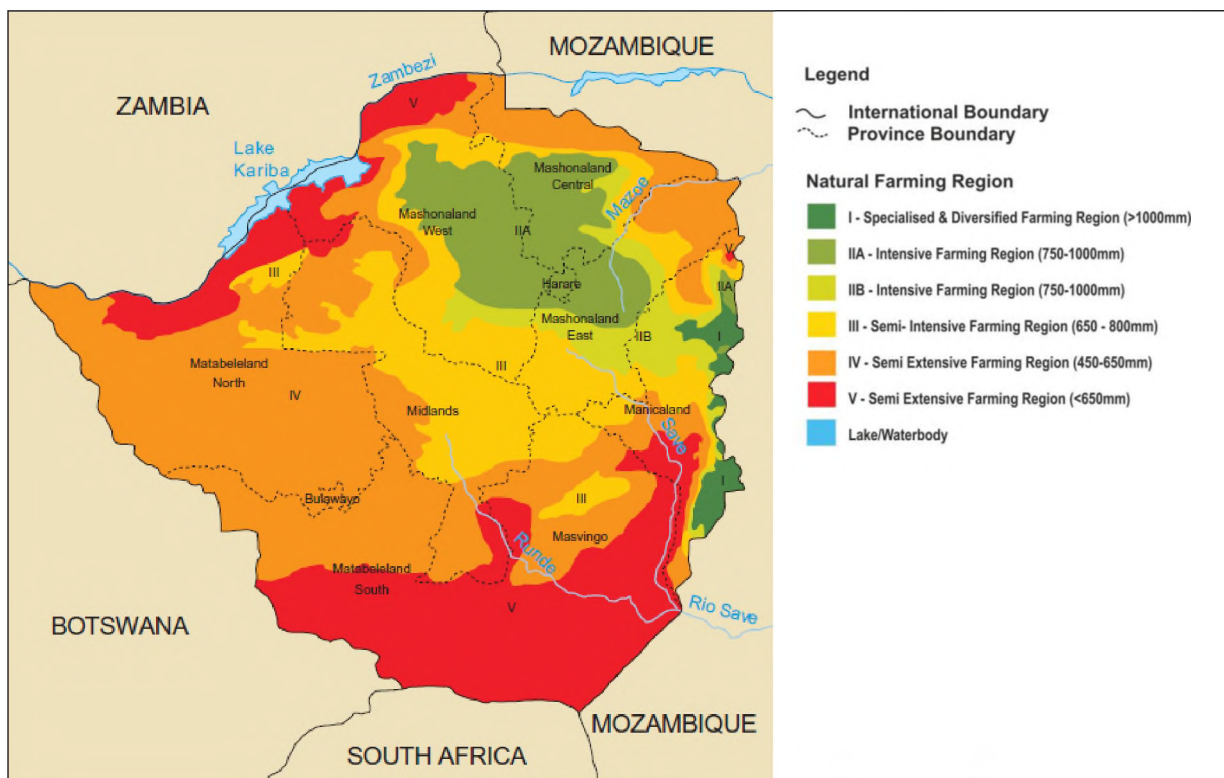


Figure 1.1: Position of Zimbabwe in relation to its neighbouring countries (South Africa, Botswana, Mozambique, Namibia and Zambia)

Source: Brown et al 2012:30

Rain-fed agriculture is central to Zimbabwe’s economy. The majority of people are directly and directly dependent on agriculture for employment and food security (Chengutah, 2010: 4). The urban population also depends on agriculture for its survival. The economy of the country is currently grappling with a crisis characterised by high unemployment and the shortage of

cash. The implementation of the 2000 Fast Track Land Reform Programme (FTLRP) contributed to the meltdown of Zimbabwe's economy. During this period, thousands of people who were employed on the seized farms had to relocate to rural areas such as Muzarabani. Moreover, Zimbabwe's Gross Domestic Product (GDP) fell by a cumulative 40% between 2000 and 2007, plunging a further 14% in 2008 (Chengutah, 2010:4). In 2008, the country experienced massive inflation rates that intensified poverty to levels that the country is yet to recover from. Poverty levels have been exacerbated to the extent that the majority of people now rely on the exploitation of natural resources. Zimbabwe is a multicultural society with two main languages (Shona and Ndebele) and 16 other languages. English is the official language of instruction.

The country attained independence from Britain in 1980. It is ruled by the Zimbabwe African National Union Patriotic Front (ZANU- PF) led by Mr. Robert Gabriel Mugabe. Zimbabwe is a patriarchal society where most top positions are dominated by men and the husband is generally considered as the head of the household. This description of Zimbabwe also provides an understanding of the factors that make people more vulnerable to disasters such as floods and droughts.

1.4: Problem Statement

The Chadereka and Kapembere Wards of Zimbabwe's Muzarabani District experience extreme weather conditions in the form of excessively high temperatures of between 35 up to 40 degrees Celsius during the hot season (September to November), with occasional floods and recurring droughts, respectively. The local people depend on livestock production, crop cultivation, and flood recession cultivation of maize, agro forestry, wild fruits (masawu) and irrigation farming. These livelihood activities are, however, affected by the high temperatures and recurrent floods. As a result of high temperatures, little rainfall and floods, people produce inadequate food to sustain themselves for the whole year. Despite experiencing droughts and floods that threaten their livelihoods and assets, the people in Chadereka and Kapembere continue to live in these perilous areas. Thus, it becomes necessary to carry out an investigation into the situation and to ask pertinent questions such as: Will the local people continue to be victims of these natural disasters (floods and droughts) since they have been suffering from them for a long period of time? What role is Social Capital playing in enhancing the people's resilience to floods and droughts? The lack of scholarly work on Social Capital in dealing with the effects

of floods and droughts in Muzarabani is also one of the problems of the study. Accordingly, the study also sought to document the basis of people's resilience to floods and droughts.

1.5: Objectives of the Research

The overall objective of this research is to understand the role of Social Capital in enhancing community resilience and the adaptive capacity of Muzarabani residents to natural disasters.

The specific objectives are:

- a) To understand the effects of floods and droughts on residents' livelihoods and food security.
- b) To examine residents' perceptions of droughts and floods;
- c) To document the community-based strategies utilised by women, child-headed families and the elderly to improve their livelihood and food security in the face of floods and droughts;
- d) To explore the different types of Social Capital that exist in the study area especially with regard to household resilience to disasters;
- e) To comprehend the basis of residents' resilience to floods and droughts and the extent to which vulnerable groups rely on Social Capital when coping with these disasters;
- f) To examine the repercussions of residents' strategies on the community's institutional structures.

1.6: Research questions

The main research question reads: "What is the role of Social Capital in enhancing community resilience and the adaptive capacity of its members to natural disasters?"

The specific research questions are:

- a) What are the effects of floods and droughts on residents' livelihoods and food security?
- b) What are the residents' perceptions of droughts and floods?
- b) What are the community-based strategies utilised by women, child headed families and the elderly to improve their livelihood and food security in the face of floods and droughts.
- c) What are the different types of Social Capital that exist in the study area especially with regard to household resilience to disasters?

- d) What is the basis of residents' resilience to floods and droughts?
- e) To what extent do the most vulnerable groups rely on Social Capital when coping with these disasters?

1.7: Research Assumptions

The assumptions of the study were:

- 1) Social Capital is indeed a significant instrument in disaster resilience in Muzarabani.
- 2) The achievement of community resilience is impossible without Social Capital.
- 3) Muzarabani residents have adopted transformation and mitigation strategies to reduce their vulnerability to floods and droughts.
- 4) The adaption strategies by the people of Muzarabani trigger some changes in the social institutions/ structures.
- 5) Strong social networks have an influence on capacity to respond to disasters.
- 6) Floods and droughts have undermined human security in Muzarabani.
- 7) The government is not playing a significant role in enhancing the resilience of the community to disasters.

1.8: Justification of the study

My interest in the study was driven by my aspiration to comprehend the role that Social Capital and social networks play in enhancing the resilience of the Muzarabani community to floods and droughts. In addition, literature from the works of Gwimbi (2004), Murwira et al (2012) and Mavhura et al (2013) shows that there is little research in Zimbabwe focusing on the linkages that exist between access and ownership of Social Capital on the one hand, and community resilience to natural disasters, on the other. Little has been done in terms of examining the local people's adaptive capacity to floods and droughts in Chadereka and Kapembere of Muzarabani District after the government and NGOs implemented programmes to reduce the impact of these natural disasters on human security. The Chadereka and Kapembere case studies add to the practical application of Social Capital to the people's resilience to floods and droughts. The results from this study can be useful for governmental policy-making. This study is likely to contribute knowledge to the prevailing academic literature in the sense that it informs local level responses to natural disasters, particularly by the vulnerable groups in society. Understanding the way local people makes use of Social

Capital and networks enhances multiple actor cooperation in responding to natural disasters in disaster-prone areas. The study also attempts to plug the knowledge gap with regard to the way in which the elderly, women and child headed families make use of Social Capital when coping with floods and droughts in Muzarabani. This research can contribute to knowledge pertaining to how the changes in social structure, Social Capital and networks in disaster-prone areas tend to affect the coping strategies of the residents. It also examines the dynamics of the changing social structures in areas that experience floods and droughts.

Women are vulnerable in different ways because they are culturally considered the sole providers of food in the family. Consequently, when disaster strikes, family members depend more on the mother regardless of whether or not the father is available. Furthermore, women with young babies have the burden of tending the baby as well as doing other household duties assigned to them by society. At the end of the day they get tired and some may not be able to do cross-border trading with their babies and this makes them more vulnerable to disasters. This has compelled the study to examine the way in which women as a vulnerable group are affected by floods and droughts in the lower Muzarabani area and how they are coping with these disasters together with other vulnerable groups such as child-headed households and the elderly. This makes the study different from previously conducted studies by Gwimbi (2004, 2007), Mavhura et al (2014) and Manyena (2013). These have tended to generalise their findings since they conducted their studies covering the whole population without looking at how these vulnerable groups are affected or how they are coping.

The study selected the Muzarabani community because it has been subjugated by historical and recurrent floods and droughts that have put people at risk. In addition, the area has structural challenges such as poverty, high illiteracy levels, poor infrastructure, low levels of development and food insecurity. The research also integrates human security, Social Capital and disaster resilience which is a new trend of scholarship that has not yet been examined thoroughly.

1.9: Preliminary approach and method of the study

The study employed a mixed method approach which involves the use of qualitative and quantitative methodology to increase the validity and the reliability of the research findings. In fact, the approach used was influenced by the theories (social capital and social networks)

which informed the study. The following were used as data collection methods, Questionnaire, Focus Group Discussions, observations, transect walks, key informant interviews and some participatory methods (wealth ranking, storytelling, gender analysis and social mapping). Statistical Packaging for Social Sciences (SPSS), content and thematic analysis were used to analyse data. Graphs and themes were used to present the findings. Several techniques (will be presented in Chapter Four) were employed to increase the validity and credibility of the research findings.

1.10: Organisation of the thesis

This chapter is the introductory chapter which has provided the overall goal of the thesis and how the goal was achieved. It has looked at phases which I followed in the research process. In fact, it summarises the thesis. It has provided a description of the general situation about floods and droughts at a regional, national and local level as well as policy interventions, research objectives, research questions, justification of the study, geographical location of Zimbabwe in relation to its neighbouring countries and its agro-ecological zones and a snapshot of the contents of each chapter.

Chapter Two focuses on conceptualisation and the emergence of Social Capital in the social science discipline as well as how the concept is employed by scholars and researchers in the social science discipline. The emergence of Social Capital is traced from the writings of Durkheim, Simmel, Hanfan, Granoverter, Loury, Coleman Bourdieu and Putnam. The chapter also highlights the components of Social Capital. Furthermore, the chapter looks into the intellectual development of social network theory across social science disciplines. The research also examines studies that employ Social Capital in dealing with disasters. In addition, the chapter operationalises main concepts that are used in the study such as food and livelihood security, mitigation and coping.

Chapter Three discusses the studies that were conducted in Muzarabani pertaining to floods and droughts. The chapter also highlights the loopholes of those studies and gaps that the current study seeks to fill. The chapter shows that most of the studies that were conducted did not dig deep into the role that Social Capital is playing in enhancing the resilience of the community.

Chapter Four looks at the methodology employed in the study. The study adopted mixed methodology which involves the use of both qualitative and quantitative research methods to corroborate the research findings as well as increase the credibility and reliability of the results. Qualitative research methodology dominated the study as the researcher wanted to really understand the role that Social Capital is playing in enhancing the resilience of people in Muzarabani as well as understand the coping and adaptation strategies that are being employed by the most vulnerable people such as women, the elderly and child headed families. In addition, the chapter unravels the ethics observed as well as the challenges encountered in the field.

Chapter Five provides an overview of the research area and the demographic characteristics of residents in Muzarabani. The social, economic and geographical organisation of the area is explained. Muzarabani is a low-lying area and it is more prone to flooding and drought. The majority of residents in Muzarabani are very poor and they earn less than US\$200 per month. Agriculture and exploitation of natural resources are the main economic livelihoods in the area.

Chapter Six looks at the local residents' perceptions on the floods and droughts that persist in the area and impact of floods and droughts on people's livelihoods and food security. Residents provided different views on droughts and floods. Floods and droughts are causing acute food shortages, exacerbating poverty and family disintegration due to migration.

Chapter Seven examines the connection between multi-institutional governance mechanisms and disaster resilience in Muzarabani. Basically, it looked at the relationship between Social Capital and community resilience in both Chadereka and Kapembere. The chapter explores the different types of Social Capital that are increasing the resilience of residents to floods and droughts. Social exchanges, social networks, norms of reciprocity, volunteerism (mainly in Chadereka), village to village support, institutional support (support from NGOS) and mutual understanding are enabling the most vulnerable residents (as well as the majority of Muzarabani residents) to survive under harsh conditions that are being imposed by floods and droughts.

Chapter Eight looks at autonomous adaptation strategies employed by the most vulnerable to increase their resilience to floods and droughts. Some of the strategies that people are taking include: natural resource exploitation, making use of indigenous knowledge systems, casual

labour, riverine farming, migration, prostitution, stealing, and social networks and taking children out of school among others. It also looks at the extent to which the most vulnerable people can rely on Social Capital. The challenges faced by the residents when coping with floods and droughts are also highlighted. In the same tenor, the chapter documents the common basis of their resilience to floods and droughts. The chapter also discusses implications of the strategies employed by people on institutional structures.

Finally, Chapter Nine provides the discussions, conclusions, recommendations, areas for further investigations and the limitations of the study. It also provides the theoretical contributions of the study to sociological theory of Social Capital and a sociological analysis of disasters in relation to gender and age. The study found that Social Capital is playing a greater role in enhancing the resilience of the community to floods and droughts. Below is a diagram that summarises the entire structure of the thesis.

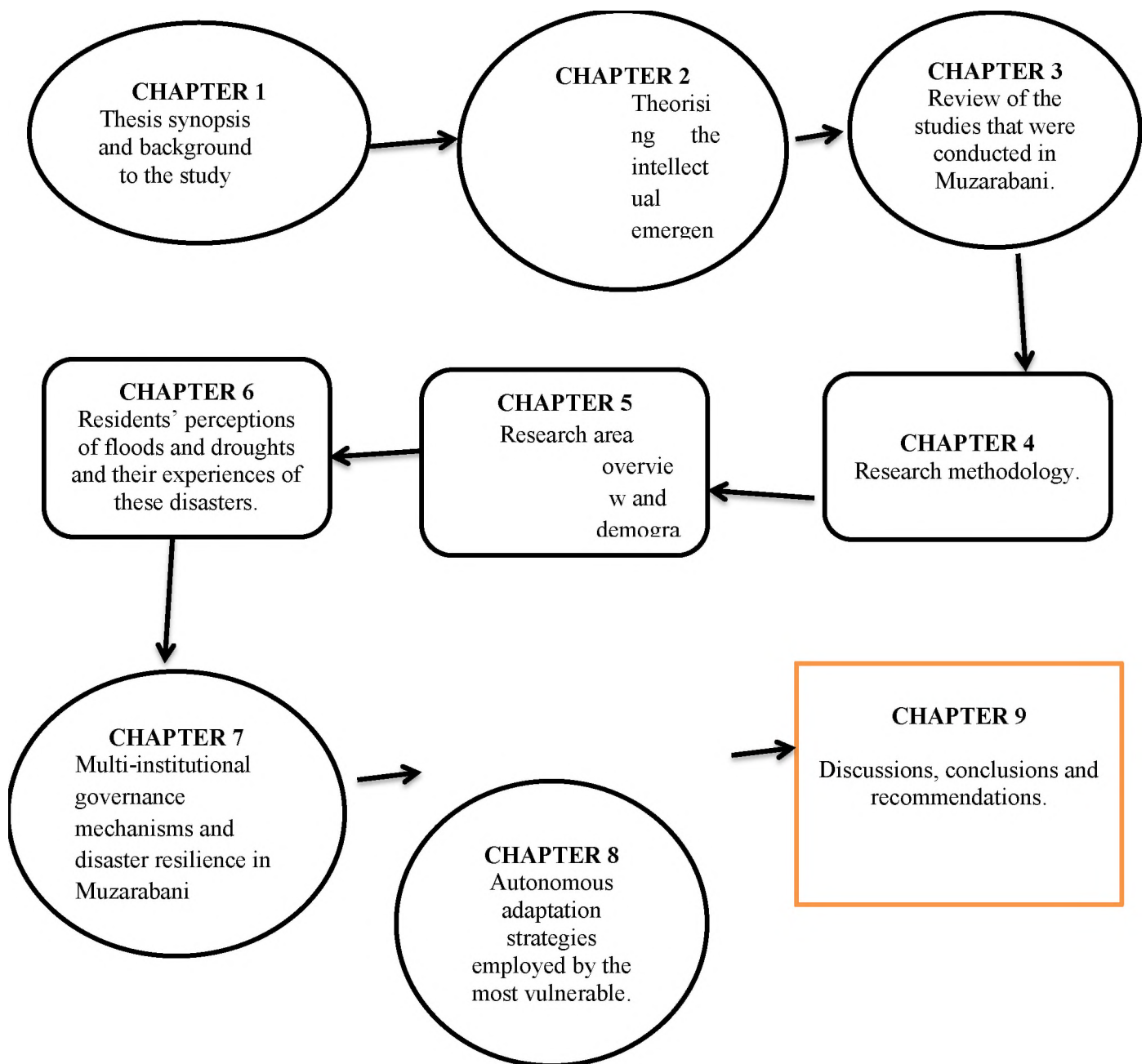


Figure 1.2: brief diagram showing the arrangement of thesis chapters

1.11: Conclusion

This chapter has provided an overview of the whole thesis. It highlighted the context of the research, the statement of the problem, the research objectives and the research questions. The chapter provided a justification of the study and its research assumptions in addition to outlining the organisation of the thesis. In brief, the chapter submitted a general overview of the research. The next chapter conceptualises the terms that are used in the thesis.

CHAPTER 2

THEORISING THE INTELLECTUAL EMERGENCE OF SOCIAL CAPITAL AND SOCIAL NETWORKS AND THEIR UTILITY IN DISASTERS

2.1: Introduction

The previous chapter provided the background of the study and its roadmap. This chapter discusses Social Capital and the analysis of social networks in the social sciences. It also looks at how these theories/ frameworks are employed to understand different disaster-prone communities in order to enhance resilience and adaptive capacity. A sociological development of the Social Capital approach and social networks analysis in sociological literature is examined in some detail. The chapter begins by defining Social Capital using arguments from various scholars in order to be able to deduce the prominent ideas behind the theory of Social Capital and in cognition of the reality that the theory is fraught with inconsistencies and disagreements, in terms of its operations and meaning, the strength and weaknesses of Social Capital theory and social network analysis is scrutinised.

2.2: Background to theoretical frameworks (Social Capital and social network analysis)

2.2.1: Definitions of Social Capital.

The term Social Capital is fraught with complexities and inconsistencies. Different scholars have provided definitions depending on their area of interest. Although the definitions given by the selected scholars diverge in some ways, they also complement each other in other ways. Table 2.1: below is a summary of the way different scholars understand Social Capital.

Table 2.1: Definitions of Social Capital by different scholars.

Author(s)	Definition
Ahn and Ostrom (2008:73)	“a set of prescriptions, values and relationships created by individuals in the past that can be drawn on in the present and future to facilitate overcoming of social dilemmas.”
Beard (2005:23)	“Social Capital is one type of social relationship characterized by trust, reciprocity, and cooperation that is associated with positive community-development outcomes (participation in civil society

Author(s)	Definition
	organisations that deliver public goods and services to communities.”
Bourdieu and Wacquant (1992:119)	“The sum of the resources, actual or virtual, that accrues to an individual or a group by virtue of possessing a durable network of more or less institutionalised relationships of mutual acquaintance and recognition.”
Brehm and Rahn (1997:999)	“The web of cooperative relationships between citizens that facilitates resolution of collective action problems.”
Burt(1992:9)	“Friends and colleagues, and more general contacts through whom you receive opportunities to use your financial and human capital.”
Chamlee-Wright and Storr (2011:276)	“A resource that facilitates collective action for mutual benefit.”
Dinda (2008:2020)	“A broad term containing the social networks and norms that generate shared understandings, trust, reciprocity, which underpin cooperation and collective action for mutual benefits and creates the base for economic prosperity.”
Fukuyana(1995:10)	“The ability of people to work together for common purposes in groups and organisations.”
Knoke (1999:18)	“The process by which social actors create and mobilize their network connections within and between organisations to gain access to other social actors’ resources.”
Lin (2001:19)	“Investment in social relations with expected returns in the market place (a market can be economic, political, labour or community.”
Nakagawa and Shaw(2004:7)	“Refers to the trust, social norms, and networks which affect social and economic activities.”
Pelling (2002:61)	“An asset, potentially providing opportunities for low income individuals and communities to access the resources they need to improve security and to reduce their vulnerability through coping and adaptive mechanisms.”
Sobel (2002:1)	“Describes circumstances in which individuals can use membership in groups and networks to secure benefits.”

Author(s)	Definition
Warren (2008:125)	“Individual investment in social relationships that have the consequences, whether or not intended, of enabling collective actions which return goods in excess of those the individual might achieve by acting alone.”

In the above definitions, it is logical to deduce that Social Capital is a nebulous term that needs to be critically examined using different lenses from different scholars. Only then can it be used to study such natural disasters as droughts and floods. The perceivable common thread in the above-tabulated definitions is that Social Capital is about social relationships, networks, trust and benefit. In fact, each of these definitions easily fits into one or two dimensions of Social Capital. Within these relationships and interactions, there are many mutual benefits that are gained by individual actors in such groups. Transactions and trade can occur with ease among these relationships and this will help them achieve their goals.

2.3: The Theoretical Emergence of Social Capital in Academic Disciplines

Social Capital, like many other theories, has a history of its own. There is in-depth and diverse literature on the development of Social Capital as a theory, and the debate on the term “Social Capital” has brought together sociologists, anthropologists, political scientists and economists in an endeavour to explain it in such a way that it can fit into their respective disciplines. The study traces its development from the writings of de Tocqueville (1863) to those of contemporary theorists such as Bourdieu (1986), Coleman (1988) and Putnam (2000).

De Tocqueville (1863) contends that the strength of American democracy was built on its citizen’s propensity to form civil associations to practise in common the object of their universal aspirations. These associations “maintain, educate people on cooperation, shape their public awareness and foster solidarity among their members, which eventually gave rise to a civil society” (Tocqueville (1863: 132). John Dewey (1899) made direct use of the term Social Capital in his monograph “School and Society”, but did not define the concept. It was Lydia Judson Hanifan’s 1916 discussion of rural school community centres that gave rise to the evolution of the concept. He was predominantly concerned with understanding “goodwill, fellowship, sympathy and social intercourse” among a group of individuals who compose the entity or the community.

Drawing on the example of West Virginia, Hanifan highlighted how the involvement of rural communities in enhancing school performance yields better living conditions for the entire community. Hanifan (1916: 130) argues that “the individual is helpless socially, if left entirely to himself. Even the association of the members of one’s own family fails to satisfy that desire which every normal individual has of being with his fellows, being of a part of the larger group than the family. If he may come into contact with his neighbours, there will be an accumulation of Social Capital which may immediately satisfy his social needs and which may bear a social potentiality sufficient to the substantial improvement of living conditions in the whole community”. These ideas directly influenced the development of Social Capital. The approach of contemporary theorists to the concept is predominantly rooted in Hanifan’s words. In this regard, the significance of this research lies in its attempt to examine how social interactions, networks, relationships and or associations are of assistance among those Muzarabani residents who are victims of floods and droughts. However, the research disagrees with Hanifan’s view of associations among members of the community as always being beneficial in that merely associating with a group does not yield benefits. The individual has to participate actively in the exchange process and invest in the group, if the individual is to benefit.

After Hanifan, the term disappeared and was reinvented in the 1950s by a set of urban sociologists, Seely, Sim and Loosely (1956) who studied the culture of suburban life in Crestwood Heights, a Canadian middle-class suburb, followed by an anthropologist, Fortes (1958) who in her “*Ritual and office in tribal society*” spoke in line with Social Capital theory. This was followed by an urban scholar, Jane Jacobs (1961) who wrote about neighbourliness in her book *The Death and Life of American cities*. Jacobs (1961) did not explicitly define the term but her usage referred to the value of social networks, which are one of the components of Social Capital. Furthermore, an exchange theorist called Homans, indirectly shed light on Social Capital elements or its defining features while Mark Granovetter (1973) also used the term indirectly when he wrote *The Strength of Weak Ties*. In 1977, Loury, an economist, proposed the idea again, explaining the determinants of income differences between members of different racial groups in the USA. According to Loury (1977: 176), “an individual’s social origin has an obvious and important effect on the amount of resources that is ultimately invested in his or her development and it may thus be useful to employ a concept of “Social Capital” to represent the consequences of social position in facilitating acquisition of the standard human capital characteristics”. Loury (1977: 156) further highlighted the importance

of Social Capital in people's day to day living when he stated that "the word of mouth referrals and informal contacts play an important role in the job allocation process". It was Loury (1977), Nan Lin (2000) and Mark Granovetter (1973) who influenced Coleman (1988), one of the prominent contemporary Social Capital theorists.

Without refuting the significant contributions of the above-mentioned scholars, contemporary Social Capital theory is predominantly drawn from the works of Bourdieu (1980, 1986), Coleman (1988, 1990) and Putnam (1993). The value of Social Capital was identified by Bourdieu (1986) and given a clear theoretical framework by Coleman (1988, 1990) who was the first to subject the concept to empirical scrutiny and develop ways of operationalising it for research purposes (Baron, Field and Schuller, 2000: 8). However, it is now most commonly associated with Putnam (1993, 1995, 2000) who successfully "exported the concept out of academia and into a wider media" (Harper, 2001: 8) where he "broadens the notion of Social Capital from the level of individual and collective actors to the level of organisations and communities" (Wollebaek and Selle 2002: 34). His ideas made Social Capital easier to be applied in different contexts. Today, Social Capital is widely accepted but with controversy. Much of the controversy surrounding Social Capital has to do with its application to different types of problems and its use in theories involving different units of analysis (Portes 2000: 2). Below is a critical examination of Bourdieu, Putnam and Coleman's conceptualisation of Social Capital.

2.3.1: Bourdieu (1930-2002) and his conceptualisation of Social Capital

Bourdieu explicitly conceptualised Social Capital in a sociological manner that was at variance with Loury (1977) who viewed it within an economic dimension. He acknowledged the existence of social inequalities in social relations or in groups and from my point of view, Bourdieu took a Marxist approach in his Social Capital conceptualisation. According to Carpiano (2006: 167), "Bourdieu developed the concept of Social Capital as he was thinking about the manner in which social class and other forms of inequality are socially reproduced".

Bourdieu (1985: 248) defined Social Capital as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition". Bourdieu's treatment of the concept, in particular, was "instrumental, going as far as noting that people intentionally built their

relations for the benefits that they would bring later” (Portes 2000: 2). According to Bourdieu (1986: 13), “the volume of Social Capital possessed by a given agent thus depends on the size of the network of connections he can effectively mobilise and on the volume of capital (economic, cultural and symbolic) possessed in his own right by each of those to whom he is connected”. Thus, if one does not contribute or help people (his/her colleagues) s/he will also not get help from them. The more you help, the more you increase your connections and this translates to a larger gain in the future because one will have lots of connections.

Bourdieu (1986: 249) also postulates that “Social Capital is collectively owned and generated” and Portes (1998: 3-4) interpreted this, as “resources that are jointly owned by associates”. This means that resources that are obtained from Social Capital are not owned by one individual but by all those who sacrifice to be part of the group by investing in the group. Bourdieu (1986: 249) further noted that, “the volume of Social Capital possessed by a given agent depends on the size of the network that he can effectively mobilise and the amount and types of capital (economic, symbolic and cultural) possessed by each of those to whom a person is related” (Hence, quantity of Social Capital per person is determined by the size of the network that the individual is aligned to). This compels one to consider “Bourdieu’s social theory not only as the existence of community social networks but also that of the resources (potential or actual) possessed by the network” (Carpiano 2006: 167). The resources that are available in the social network matter most in Bourdieu’s view of Social Capital.

According to Porder (2011:347), Bourdieu’s Social Capital “is acquired and available only to those who provide efforts”. This means that Bourdieu’s understanding of Social Capital requires the application of effort if the individual is to enjoy the benefits. If an individual sits and relaxes in the institution, the chances of accessing the resources will be limited. The individuals in a group are required to apply effort and invest in the group and this is different from Coleman’s (1988) understanding of Social Capital. Coleman (1998) is of the view that Social Capital is “given and accessible to all actors who are in the network without condition” (Porder, 2011: 348). Portes (1998: 3) concurs with this view and highlights that “Bourdieu’s treatment of the concept of Social Capital is instrumental, focusing on the benefits accruing to individuals by virtue of participation in groups and on the deliberate construction of sociability for the purpose of creating this group.” Thus individuals in the group are required to participate and invest.

Furthermore, in Bourdieu's (1986) view "actors gain a direct access to economic resources (subsidized loans, protected markets and investment tips) through Social Capital" (Portes 1998: 4). He is of the view that Social Capital has spill-over effects on the actors since "actors increase their cultural capital through contacts with experts or alternatively, they can affiliate with institutions that confer valued credentials" (Portes, 1998: 4). This means that in Bourdieu's view, there are three different forms of capital that exist in social structures and each of them operates in a different arena. As a result, Social Capital that encompasses interconnectedness, networks, obligations and expectations, is transferable to economic capital. Tzanakis (2013: 3) adds that "Bourdieu sees clear profit as being the main reason that actors engage in and maintain links in a network. That profit is not necessarily economic, but according to Bourdieu, it can be reducible to economic profit". Social profit that is obtained by actors is determined by their contributions and is, therefore, unequal and is differentiated. "This differential distribution of potential and control is a central notion in Bourdieu's theories of social reproduction and social space" Tzanakis (2013: 3). Thus, according to Bourdieu (1986), individuals only access benefits from the groups which they have joined.

Other scholars of Social Capital (Coleman, 1988 and Putnam, 2000), for example, view Social Capital as a network of social connections. Bourdieu uses it to explain the bitter realities of the concept. In his view, it is not what you know that matters but it is who you know in the system. This exacerbates inequalities in the society since it encourages the interactions of people who are economically on the same level. As a result, top paying jobs are taken by those who go to expensive and exclusive schools whilst those who go to substandard schools will find it a challenge to get a job even though they would have passed with distinctions. Thus, Bourdieu's version of Social Capital suggests explanations of the ways in which those at the top of a hierarchy remain in those positions by adopting strategies that keep the marginalised at the bottom.

In this case study, the searcher wants to understand how Social Capital enhances the resilience of Muzarabani residents to natural disasters such as floods and droughts. According to Bourdieu, the wealthier and more powerful groups purposely cultivate and manipulate Social Capital for their own benefit to the detriment of poorer people. The most vulnerable groups are comprised of the poorest people who may not be able to actively participate in mitigating the ravages of natural disasters. This may mean that such people are, at the end of the day, excluded by those who are more active and less vulnerable. The most vulnerable groups are sometimes

incapacitated to contribute to the community constantly because they sometimes lack resources and time and this renders them more vulnerable. Thus, Bourdieu's Social Capital helps me understand why the most vulnerable groups are excluded. In communities where floods and droughts are common, people help each other socially and economically (supporting each other in times of bereavement, lending each other money and/or giving each other food and clothes). The most vulnerable groups, however, usually have no material means to enable them to participate in this way and are, therefore, generally excluded.

2.3.2: Coleman's conceptualisation of Social Capital.

Coleman (1998) considers Social Capital as a means of support. In defining the term, Coleman (1988: 98) says "Social Capital is defined by its function. It is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspect of social structures, and they facilitate certain actions of actors... within the structure. Like other forms of capital, Social Capital is productive, making possible the achievement of certain ends that in its absence would not be possible. A given form of Social Capital that is valuable in facilitating certain actions may be useless or even harmful for others". This definition shows that Social Capital helps people to achieve what they want to achieve as they get help from others.

Coleman (1990: 301-302) acknowledges the contributions of economists and sociologists such as Loury (1977), Ben-Porath (1980), Lin (1982:1988) and Granovetter (1985), respectively, towards his understanding of Social Capital. He does not, however, acknowledge the work of Bourdieu although their approaches share some commonalities and differences. Coleman (1990: 302) says capital is productive "since it permits individual actors to achieve certain ends that remain otherwise unattainable". Thus, in his perception, individuals are merely empty or broke when they are not connected to others and this means that the structure predates the individual. "Unlike Bourdieu who is of the view that Social Capital is acquired and available to those who provide efforts, Coleman's Social Capital is beneficial and accessible to all in the network without condition and there is no inequality" (Porder 2011: 348). Thus, Social Capital is considered by Coleman (1988: 116) as a common collective good for the benefit of the public and not just private individuals alone.

From a methodological point of view, Bourdieu is a conflict theorist whilst Coleman is a consensus functionalist. Social Capital does not benefit individuals who have invested in it in Coleman's view. Rather, it benefits every individual who is part of that structure. For instance, social norms and sanctions that are enforced in the community sometimes work for the good of any member of that social structure. Thence, Coleman took the functional approach to understanding Social Capital. For him, Social Capital is inherently functional, and Social Capital is whatever allows people or institutions to act (DeFilippis: 2001: 784).

Coleman views Social Capital as having a positive effect on the creation of human capital for generations. To him, both Social Capital in family and community plays indispensable roles in the creation of human capital. Thus, he successfully established the interconnection between micro and macro sociological phenomena within which he extended his analysis beyond the family to bigger social institutions (such as church and school). Coleman (1988: 109) gave an example as to how family facilitates the creation of human capital. He notes that the family background provides the most needed capital for improved performance although it depends on the family's economic and social status. It provides forms of capital like study materials and financial resources to the family members so that they achieve their individual goals. This only happens when Social Capital is not missing. Moreover, "Social Capital that has value for young persons' development does not reside solely within the family" (Coleman, 1988: 113). Thus, family ties and community social organisations function as some kind of insurance, raising the actors' sense of obligation to uphold their part of the deal while the others can trust in the fulfilment of the commitment. Schaeffer-McDaniel (2004: 155-156) notes that Coleman recognised two components of Social Capital namely relational constructs and providing resources to others through relationships with individuals.

According to Coleman (1988) Social Capital in one community may not be available in another. He clearly highlights this when he gave an example of a nuclear family of eight members of the family that consisted of six children and parents who moved from suburban Detroit to Jerusalem. The mother of that family explained that the greater freedom her young children had in Jerusalem was the main reason why she had moved (Coleman 1988: 99). The woman felt safe in letting her eight year old take her six year old sibling across town to school on the city bus. The mother felt that her children were safe in playing without supervision in the city park as compared to where she lived before (Suburban Detroit). Thus, the normative structures of some communities ensure that "unattended children will be looked after by the

adults in the vicinity” (Coleman 1988:100). People in certain communities feel for each other and treat others the way they treat themselves and in such places, a child belongs biologically to the two parents, but socially belongs to the community. However, Coleman (1988: 100) also notes that “there was no such normative structure that exists in most metropolitan areas of the United States”. Hence, Social Capital differs from community to community, in Coleman’s view.

Coleman (1988:113) asserts that migration to new communities reduces Social Capital. For instance, he gives evidence that families who often move to new cities have less Social Capital because the parents are unable to establish the networks with other parents that allow them to share information about their children, such as the Social Capital available to parents of students at religious schools. This, he argues, affects the performance of students. Furthermore, (Coleman 1988: 116-17) asserts that “the decision to move from a community so that the father, for example, can take a better job may be entirely correct from the point of view of that family. But because Social Capital consists of relations among persons, other persons may experience extensive losses by the severance of those relations, a severance over which they had no control”. Thus, to Coleman (1988), migration from one city to the other reduces the chances of an individual to have an easy access to social resources and this reduces Social Capital.

In Coleman’s (1988) view, Social Capital is for both economic and non-economic benefits. I derive this from examples provided by Coleman (1988: 98). An example of this is the trust between Jewish diamond merchants in New York City, who often share family ties and religious affiliations. This is essentially a closed community where if one defects, one loses community or religious ties. Other examples include a student activist group in South Korea that organised themselves from study circles which regrouped youngsters coming from the same high school or town, or the greater sense of reassurance and security that a mother of six children felt in Jerusalem given “the normative structure ensuring that unattended children will be looked after by adults in the vicinity as well as that of the Khan El Khalili market of Cairo where boundaries between merchants are difficult for an outsider to discover as well as the system of bringing the customer to a friend’s shop. To Coleman (1988), the whole market is infused with relations. Social Capital works for improved economic and non-economic outcomes as shown by Coleman’s examples in the above. It is also clear that Social Capital exists in different forms and provides both economic and non-economic benefits.

Coleman (1988) situates his understanding of Social Capital in two theoretical traditions. These are: the functionalist theory (from Sociology) and the rational theory (from an Economics point of view). He tried not to destroy these two but to balance the dichotomy. In accordance with functionalist perspective, Coleman asserts that social action is conditioned by social structure. With regard to the rational theory (an Economics based view) Coleman (1988: 95) observes that goals are determined by utility maximising pursuit of his/her self-interest. Thus, to Coleman (1988: 7) “the choice of interacting and networking depends on individual actors’ cost and benefit evaluation”. Individuals are calculative to such an extent that they do not just over-invest before they assess the pros and cons of investing in the social unit. This is also similar to what Bourdieu (source) says.

Coleman (1988: 102-104) highlights five types of social relations that function as a resource for individuals namely obligations, expectations and trustworthiness of structures, information channels and norms and effective sanctions. In this study, some of these social relations are perceived as dimensions of Social Capital. Obligation and expectation denotes that in social relationships there are those who give or do something and those who are liable. For instance, “**A** does something for **B** and trusts that **B** will reciprocate in the future. This establishes an expectation in **A** and an obligation on the part of **B**. This obligation can be conceived as a credit slip held by **A** for performance by **B**” (Coleman, 1988: 102). Accordingly, there is need for a strong stock of mutual obligation within society. “When there is a weaker stock of mutual obligations within the society, Social Capital is more likely to be eroded” (Porder, 2011: 343). Porder (2011: 102) further notes that “people always do things for each other”. In order for this to succeed, people need to develop higher degrees of trustworthiness among themselves.

Moreover Coleman (1988) regards information as the basis for providing action. He postulates that “a person who is not greatly interested in current events but who is interested in being informed about important developments, can save time for reading a newspaper by depending on spouse or friends who pay attention to such matters” (Coleman 1988: 104). Thus, information is supportive and beneficial to individuals in the community. In the study of natural disasters, people may enhance their resilience through implementing what they hear from those who probably have attended workshops, listened to the radio, read newspapers and are able to search on the internet. Communication is absolutely an indispensable ingredient of any relief effort. Broadcasting crucial information about unsafe areas, survivor resources, and important health and public safety issues can help prevent further outbreaks of disease and post-disaster

traumas. Information is also important in providing early warning systems before the disaster strikes so that people can adopt strategies that help them prevent their lives being endangered.

Coleman categorises norms and effective sanctions as important components of Social Capital although the two have both positive and negative effects. Effective norms prohibit deviant behaviours that may also jeopardize the lives of many in the community. For instance, “effective norms that inhibit crime make it possible to walk freely outside at night in a city and enable old persons to leave their houses without fear for their safety” (Coleman 1988: S100). Putting norms in the social structure permits individuals to relinquish their selfishness and act in a way that may benefit the majority. This actually compels individuals to behave and act for the public good. However, norms can constrain others. Thus, Coleman (1988: 105) acknowledges that “the rejection of deviant behaviour can, therefore, reduce the capacity of innovation.”

Coleman (1988) considers closure as a precondition of the functionality of Social Capital. Closure connotes “networks in which everyone is connected such that no one can escape the notice of others or a dense network connecting people” (Burt, 2000: 8). Closure facilitates several forms of Social Capital including information channels, obligations and expectations. When people are not close to each other, it is very difficult to link with them or to pass information through the word of mouth. At the same time, it is difficult to build trust with people to whom one is not close to. In fact, Coleman (1988) puts much emphasis on the importance of dense networks that allow everyone to be closely connected to others and avoid being considered as a “broker” who will always face difficulties in accessing assistance from others in the event that a disaster falls upon the community.

Coleman (1998) undertakes to demonstrate the difference between Social Capital and other forms of capital (human, economic and physical) as well as to show how these can work together in certain circumstances. He also explains the difference between physical and human capital. Coleman (1998: 100) further notes that “Human capital is created by changes in the persons that bring about skills and capabilities that make them able to act in new ways”. Thus, human capital is inside people’s heads and Social Capital inheres in the structure of their social interactions. Conversely, physical capital is tangible and is embodied in tools, machines, infrastructure and other productive equipment. Thus, Social Capital is viewed as a public good from which every individual benefits. In this regard, human as well as physical capital becomes

private goods. Property rights make it possible for the person to invest in physical capital and to capture the benefits it produces and the motive to invest in this case is not depressed. In addition, human capital (the kind that is produced in schools) is also a private good since the person who invests in time and resources in building up this capital reaps its benefits in the form of a high paying job and the pleasure of greater understanding of the surrounding world. Economic capital is construed as existing in the form of money (bank accounts).

2.3.3: Coleman and Bourdieu: a comparison

One of the differences between Bourdieu and Coleman emerges from their understanding of the benefits and aspects of Social Capital. For Bourdieu, Social Capital reproduces social inequality but can increase integration within specific groups, whilst for Coleman; Social Capital secures the nature of a public good as a direct contribution by actors for the benefit of the whole. Like Bourdieu, Coleman (1988: S98) claims that Social Capital “inheres in the structure of relations between actors and among actors.” Social Capital is, therefore, in the associations and interactions that exist in a group.

2.3.4: Putnam’s Conceptualisation of Social Capital

The Sociology of networks and Coleman’s conceptualisation of the subject of Social Capital largely influenced that of Putnam. Putnam broadens the notion of Social Capital from the level of individual and collective actors to the level of organisations and communities (Wollebaek and Selle 2002: 34) and also includes all aspects of social life. He is seen as the most influential theorist within health and community development (De Philips, 2001: 782). According to Porder (2011: 338), Putnam is undoubtedly the author who has done more to popularize the concept of Social Capital, both inside and outside the academic arena. As highlighted previously, the emergence of Social Capital is attributed to the works of scholars from several disciplines (Political Science, Economics, Anthropology and Sociology). Putnam was a political scientist who identified Social Capital as a primary determinant of successful democracy and an engine for economic growth. He offered varied and often complementary definitions of Social Capital, depending on the time frame, the activities and series of events that were taking place in the time of his writing. For example, the disengagement of Americans from political involvement due to their growing distrust in their government. Putnam (1993: 167) specifically defines Social Capital as the “trust, norms and networks that facilitate

cooperation for mutual benefit”. Social Capital is also defined as “features of social organisation, such as networks norms and social trust that facilitate coordination and cooperation for mutual benefit” (Putnam, 1998: v). He describes it as networks of civil society that lubricate cooperative action among both citizens and their institutions. Without adequate supplies of Social Capital - that is without civic engagement, healthy community institutions, norms of mutual reciprocity and trust –social institutions falter. Putnam (2000: 19) asserts that Social Capital is the “connections among individuals’ social networks and the norms of reciprocity and trustworthiness that arise from them”. Despite the existence of competing definitions of Social Capital, Putnam emphasises the importance of social networks, norms of reciprocity and trust in the social structure.

Putnam’s treatment of Social Capital predominantly concurs with that of his predecessors (Bourdieu and Coleman) but with some modifications. He draws two conceptual elements from Coleman and these are trust and social networks where he puts much emphasis on the significant role that these play in creating a healthy community. Putnam’s theorisation of Social Capital has rapidly become central to the research and practice of community development. “He focused on the role of Social Capital in generating benefits beyond individuals at the neighbourhood and community level” (Aldrich and Meyer, 2014: 4). According to Putnam (2000), close or collective communities have greater Social Capital than those that are not. He is of the view that communities with higher levels of Social Capital are better able to organise themselves and communicate their demands more effectively to governmental institutions which will then respond to them. The implication is that, Social Capital can be applied to the study of how people respond to natural disasters. People in disaster-prone areas can pool their resources together (work together) after a disaster, to be able to recover or bounce back.

According to Putnam (200: 19) “some of the benefit from an investment in Social Capital goes to bystanders, while some of the benefit redounds to the immediate interest of the person making the investment. For instance, service clubs, like Rotary or Lions, mobilise local energies to raise scholarships or fight disease at the same time that they provide membership with business connections that pay off personally. Putman is thus saying that Social Capital has both a private and a public face. No one is discriminated. Rather, all those who are part of the structure benefit in one way or the other.

The notion of individualism is considered as an impediment in creating a healthy community. Putnam et al (1993) conducted a comparative study of successful and unsuccessful government in Italy that had been established at the same time. He found that a society with strong civic traditions and a participating population, created a successful government that achieved economic development while a society with weak civic traditions fostered a corrupt government and led to the impoverishment of the masses. Thus, he compares traditional life to modern community (and concludes that people in modern society exhibit a decrease in the sense of community and have few interpersonal relationships which are of any significance. What this means is that “a society of many virtuous but isolated individuals is not necessarily rich in Social Capital”. In other words, a society where people are not cooperating does not have strong Social Capital and people are more likely to suffer from diseases and poor living conditions.

Furthermore, Putnam (2000) enhances this argument by highlighting how the decline in Social Capital in the United States created an array of problems such as a decline in democracy, malfunctioning health systems, increased violence and inequality and impoverishment (Porder, 2011: 350). In this case, Putnam, just like Coleman, upholds the functionalist view given his interest in the role of Social Capital in creating an economically, politically and socially stable and prosperous society. Moreover, he notes that “the more integrated we are in our community, the less likely we are to experience diseases and premature deaths of all sorts” (Putnam, 2000: 326). Thus, in Putnam’s view, Social Capital is a necessity for the successful day to day operation of a healthy society. This means that the deterioration of Social Capital diminishes the sense of community in individuals and instils selfishness among them to such an extent that individuals are only motivated by a desire to satisfy and further their own interests.

Putnam (1995), like Bourdieu (1986) and Coleman (1988), views Social Capital as something that is inherent in social relationships and puts much emphasis on the role of networks. He believes that networks provide several functions that work for the good of the society. This means that for him, networks foster norms of generalised reciprocity, something like: I do this for you in the expectation that you will return the favour in the future. This generates trust, facilitates coordination and cooperation as well as mutual obligation. It allows dilemmas to be resolved and facilitates collaboration. From these functions, one can see that networks, as an element of Social Capital, lubricate the society so that it can function effectively. Thus, Social Capital works as a public good. Central to this the researcher believes that Putnam’s

conceptualisation of Social Capital can easily be imported to the Sociology of Development where disasters are considered as obstacles to development. The role that Social Capital plays as construed by Putnam, shows that a community can successfully bounce back or recover following a disaster.

Continued relations give rise to a “norm of generalised reciprocity” (Putnam, 2000: 21). Similarly, Putnam like Coleman (1988) holds that information flow and trust among others can be boosted by regular personal interactions. Information is very important to individuals so that they stay updated on current events and developments. For example, in the study of floods and droughts, information circulation is used to warn people early before the disasters strike and this helps people to find strategies to enable them to survive during and after a disaster. Individuals in the community are, therefore, required to interact constantly with each other so that their relationships and networks will not fade. This facilitates the influx of important information. Once networks become weak, the community, in Putnam’s view, is more likely to suffer from a variety of problems including diseases, poverty and premature deaths.

Putnam (1993, 2000) shows a broader view of Social Capital. He makes it inclusive of different aspects so that it can fit in a range of issues that affect people in contemporary society where people are losing their sense of community. He categorises the concept into two main groups, namely bonding (exclusive) and bridging (inclusive) Social Capital. These are explained in detail in a subsequent section under forms of Social Capital. Putnam et al (1993) also highlights two other types of Social Capital, namely horizontal and vertical Social Capital. Horizontal ties are woven between equal actors such as those that are formed in voluntary association. Vertical ties are woven between actors of unequal power in relationships of hierarchy (Porder, 2011: 349). These promote norms of reciprocity which in turn foster trust, exchange and collective engagement. In this case, Putnam offers a broad range of Social Capital to make it a useful theory in the study of different issues that are prevalent and affecting people in the modern society.

Putnam (2000: 19) also shows a genuine desire to distinguish Social Capital from other forms of capital (human, economic and physical). He observes that “whereas physical capital refers to objects and human capital refers to the properties of individuals, Social Capital refers to connections among individuals”. Economic capital is in people’s banks. Putman, therefore,

views Social Capital in the same way as Coleman and Bourdieu. Both Coleman and Bourdieu acknowledge that Social Capital is embedded and inherent in social relationships.

Putnam, in his book *Bowling Alone* (2000), indicates that television is the main cause of social decline. “He notes that in the 1950s, 10% of homes in America had a television set but that by 1959, over 90% had television sets, and were busily watching them, hence leaving less time to socialise” Harper (2001: 10). Thus, Putnam’s conceptualisation of Social Capital includes face to face interaction among individuals in the community. People should show an interest in public affairs if they are to successfully achieve common goals. The bottom-up approach is crucial when people are dealing with disasters. Their participation is important in the period before external assistance becomes available. Although Putnam’s Social Capital paradigm informs this study, Bourdieu and Coleman’s Social Capital models are also relevant and applicable to the study of natural disasters.

From Putnam’s conceptualisation of Social Capital, the study deduces the following core elements of Social Capital: reciprocity (social exchanges), voluntary associations, networks and trust. These elements, and those deduced from Bourdieu, when combined, produce a vivid illustration of Social Capital. The study, therefore, was guided predominantly by Putnam and Coleman’s conceptualisations of Social Capital in exploring how networks, relationships, information circulation, obligations, trustworthiness and norms and penalties enhance people’s resilience to floods and droughts. The foregoing examination of Social Capital from different scholars (Bourdieu, Coleman and Putman) has shown that they had diverse but complementary understanding of the concept.

2.4: Forms of Social Capital

The complexity and nature of Social Capital gave rise to confusion in scholarship since relationships or connections between and among actors are located at different levels. As a result, Putnam (2000: 22) divided Social Capital into two main groups namely bonding (exclusive) and bridging (inclusive) Social Capital which are respectively considered as homogenous and heterogeneous Social Capital by Lin (2001). In addition, some scholars like Woolcock (2000 and 2001) spoke of linking Social Capital which resulted in the categorisation of the term Social Capital into three main groups. Below is a detailed explanation of these three types of Social Capital.

2.4.1: Bonding (exclusive) Social Capital

The bonding (exclusive) type of Social Capital generally refers to the association of people who have strong bonds such as the family, kinship members or people who share the same belief systems. It is also defined as the social interactions and support of individuals among homogeneous groups and intimate (close) friends. It is similar to the notion of “strong ties” (Granovetter, (1973) and that of “homophilous interactions” (Harper, (2001: 11) and Lin, (2001) since it constitutes a kind of sociological super glue that binds people together in spite of the factors that can separate them. Individuals in this category have a strong sense of belonging.

Putnam (2000: 22) further postulates that “bonding Social Capital is good for undergirding a specific reciprocity and mobilising solidarity.” Everyone in this group has boosted confidence in that there is maximum support behind and ahead. Putnam (2000: 22) provides examples of this type of Social Capital as inclusive of ethnic fraternal organisations and church-based women’s reading groups. These are also regarded as dense networks and, according to Putnam (2000: 22), dense networks in ethnic enclaves, for example, “provide crucial social and psychological support for the less fortunate members of the community”. This can also be supported by the results of the study that was conducted by Bokwa et al (2013: 189) in Southern Poland where they examined the impact of network capacities on the response by local communities to flooding. They found that “bonding Social Capital enabled the strengthening of memories about earlier events of natural disasters and the exchange of information about the possibility of a natural disaster, its mechanisms and possible mitigation behaviour”. This explanation indicates that bonding Social Capital has the strength to provide immediate support in the event that a mishap or disaster strikes an area because individuals have strong feelings for each other. Actors, unconditionally, feel that it is their obligation and responsibility to organise, arrange and act in such a way that everyone in the circle benefits since people in the group are drawn close as they already know each other” (Gittell and Vidal, 1998: 15).

Negative effects are common under bonding Social Capital because “by creating strong in-group loyalty, strong out-group antagonism is certain” (Putnam, 2000: 25). Community resilience to disasters is more likely to be reduced when “social groups that are more resourceful in terms of power relations and financial constraints (local elites and privileged

groups) exclude other groups such as minorities, the poor, elderly and less educated from altruistic communities, especially during the response and recovery phase of risk management (Pelling, 1998: 41).

2.4.2: Linking Social Capital

In linking Social Capital, connections are established between people who are either in power, or are in influential positions (politically or financially) and those in less fortunate circumstances. In this respect, Social Capital simply denotes the “relations between individuals and groups in different social strata in a hierarchy where power, social status and wealth are accessed by different groups” (Cote and Healy, 2000: 42). This form of Social Capital can “broaden the number of people who access various, generally limited resources and can work to reduce hierarchical inequalities and bureaucratic limitations” (McOrmond and Bobb, 2005: 13). Individuals can also build relationships with institutions and individuals who have relative power over them (Woolcock, 2001). The availability of these people during and after a disaster lessens the burden for the victims.

Linking Social Capital may include civil society organisations (NGOs, voluntary groups), government agencies (service providers for example; the police), representatives of the public (elected politicians, political parties and the private sector (including banks) (Grant, 2001). Linking Social Capital becomes more valuable in terms of increasing access to key resources from formal institutions and outside the community when residents in disaster prone areas are to successfully increase their resiliency. Victims themselves can do little to enhance their resilience and adaptive capacity to a disaster, but with external assistance the chances are higher that they can bounce back in the aftermath of a disaster. Islam and Walkerden (2015) conducted a study where they examined how household links to NGOs promote disaster resilience and recovery. Although there were some challenges that people faced, their study proved that linking Social Capital increased the resilience of the community as the majority of the respondents highlighted how links had helped them to survive following a disaster. Linking Social Capital has its own limitations.

Unlike bonding, bridging and linking Social Capital are characterised by exposure and development of new ideas, values, perspectives (Woolcock, 2001). The discussion of all these three types of Social Capital emphasizes that each form is useful for meeting different needs

and has its own strength and weaknesses as has been discussed in the above. In certain circumstances, all the three types can be used in the one community during and after a disaster. Hawkins and Maurer (2010: 1788) note that they “found instances in which bonding, bridging and linking Social Capital were instrumental in aiding participants to prepare for, endure and mutually aid one another before and during the storm, in addition to recovery following the floods in New Orleans.” Thus, linking, bridging and bonding Social Capital played pivotal roles in enhancing the adaptive capacity of the community to successfully cope with flooding.

2.4.3: Bridging (inclusive) Social Capital

Inclusive Bridging Social Capital refers to the relations that exist among individuals without strong bonds. It can also be explained as the social networks between and among socially heterogeneous groups (heterophilous interactions). These are generated from weaker connected groups or individuals. It is more prominent in a collective-action-situation where distressed and frantic group of people who have related aspirations come together in a civil rights movement in a community. This encompasses people from diverse social cleavages such as the civil rights movement as well as many youth service groups and ecumenical religious organisations (Putnam 2000: 22). It is a direct opposite of the operations of bonding Social Capital and, according to Putnam (2000: 11), bridging Social Capital brings together people who are dissimilar. This type of Social Capital enables people to move ahead especially during and after a disaster because it allows individuals to interact with new people who can also bring in new ideas. The new people do not only bring new ideas but become part of an interaction process that allows cross breeding of ideas which can help the victims of a disaster move ahead. This form of Social Capital allows the larger part of the community to be engaged in flood risk management and this translates to an enhancement of community resilience to disasters. This means that government officials, community leaders, NGOs, community members and church organisations, among others, need to work together to reduce the effects of disasters. In this case, vertical and horizontal Social Capital which were discussed by Putnam (1993) and Porder (2011: 349) are considered as useful. Furthermore, in order to reduce the impacts of disasters, community inhabitants need to have a sense of community ownership, mutual understanding and social support. This way it increases the capacity of the community to be more resilient to disasters.

According to Fukuyama (2000: 4) the “radius of trust” is increased under this form of Social Capital and residents in disaster-prone areas then have more access to resources during or following a disaster. According to Hawkins and Maurer (2010: 1789), bridging Social Capital, too, was instrumental in helping people survive the immediate aftermath of the flood in Hurricane Katrina in New Orleans, Louisiana 2005. Connections across geographical, social, cultural and economic lines provided access to essential resources for families. They further noted that the type of bridging Social Capital is common and indispensable following disasters, both natural and manmade. Moreover, bridging Social Capital allows different people to share and exchange information, ideas and innovation and it builds consensus among groups that have diverse interests. In natural disaster research, this type of Social Capital can be of assistance to residents in disaster-prone areas as there will be a cross pollination of information that helps people to successfully deal with natural disasters. This brings to the fore, the postmodern theory in the study of disasters as some of its tenets (celebration of differences, equality, freedom and flexibility) may strengthen local community disaster management strategies.

2.5: Dimensions of Social Capital

After a detailed examination of the conceptualisation of Social Capital by different theorists, Bourdieu, Coleman and Putnam, the study outlines the dimensions of Social Capital. These include participation, the celebration of diverse and different ideas, aggregate social support, rich information circulation, trustworthiness, understanding, volunteerism and pro-social behaviour. Below is a detailed explanation of these dimensions of Social Capital.

2.5.1: Networks and social interaction

Networks can generally be defined as relationships and social interaction. According to Adler and Kwon (2002: 97), networks simply means informal face to face interaction or membership in civic associations or social clubs, “how people are connected and interact, how they support each other [or not], and how individuals play different roles within a network can significantly impact decision-making and eventual outcomes” (Graham Whiteford, Murphy, Jones and Christopher McCarty (2014: 14). While many researchers acknowledged the importance of networks as a source of social support, the way they define it varies considerably. Harper (2000: 3) defines the term as personal relationships which are accumulated when people interact with

each other. Similarly, Harper (2000: 3) categorised networks to distinguish different types of Social Capital that is, bonding, bridging and linking Social Capital.

According to Harper (2002: 15) “social networks and aggregate social support is measured by the frequency of seeing and speaking to relatives, friends and neighbours, how many close friends and relatives live nearby, who can be relied on to provide help and many more”. Coleman (1988) regards the “closure” of networks as a source of Social Capital. He argues that closure of the network structure – the extent to which contracts are connected - facilitates the effectiveness of norms and maintains trustworthiness of others thereby strengthening Social Capital (Adler and Know, 2001: 98). Adler and Know (2001) further noted that in an open structure where there are no networks, violations of norms are more likely to go undetected and unpunished. In addition, people will not trust each other and as a result, Social Capital becomes weak. However, the same researchers, for example Burt (1992), in contrast with Coleman, are of the view that frothy or sparse networks with few redundant ties often provide greater Social Capital benefits (Adler and Know 2001: 98). Jacobs (1961), one of the pioneers of the concept of Social Capital explained much about the impatience of brokers in public community as she highlighted that brokers who interact with many different community members facilitate the circulation of news that is of interest to the communities, without imposing sociability among people. Therefore, the study does not dismiss the ideas proposed by Burt (1992) and Coleman (1988). Rather, its perception is that closure and sparse networks are of great importance when people are dealing with disasters.

The importance of social networks in all stages of disasters was shown by the different examples of disasters outlined above. For instance, Graham et al (2014) conducted a study in Ecuador and Mexico around two landslides/flood areas and active volcanoes. They found that social networks serve important purposes in the disaster environments and influence levels of vulnerability and resilience. However, different networks work at different levels and this was recognised by Graham et al (2010: 19). Their study found that medium density sub-group networks with good bridging or connectivity to different subgroups were better adapted to the demands of the disasters and evacuations than those with denser networks and limited bridging. Close ties provided greater support mechanisms in fostering reciprocal relationships amongst their contacts and “such networks reported more sharing of labour, materials, tools and food than other networks” (Graham 2010: 20). Although they vary in their usefulness, they have helped victims in disaster prone areas to withstand harsh conditions.

Although social networks help residents in disaster-prone areas, its application “raises a number of research questions across a wide range of disciplines including emergency management, geography and sociology only to mention a few. An individual may be faced with a choice between available but potentially unreliable information; information synthesized by volunteers, and authoritative yet possibly unavailable information from government agencies” Goodchild and Glennon (2010: 234). It is very difficult to validate information generated by volunteers as well as the information posted on the website. Thus, social networks pose some challenges in disaster resilience. This, as well, makes Social Capital questionable in disaster resilience. However, the density of social networks is also very important to people’s ability to make use of Social Capital. In line with the above, social networks work in diverse ways though they are of multiple types and dimensions as has been discussed.

2.5.2: Participation

Participation denotes the active engagement of an individual to the social structure. This concept is borrowed heavily from Putnam’s (2000) conceptualisation of Social Capital where citizens are encouraged to participate for the enhancement of democracy by voting. Individuals are not passive recipients. Therefore, they should play an active role in the interaction process. “One of the concepts in Social Capital is the participation in various networks through family, neighbourhoods and work,” (Chenoweth and Stehlik, 2003: 62). For individuals to participate, “they must be well informed about local and national affairs and there must be confidence in civic institutions” (Harper 2002: 5). Thus, in line with this study, participation requires individuals to take part in community activities that are meant to address and prevent the impacts of floods.

2.5.3: Trustworthiness, obligations and Expectations as dimensions of Social Capital

According to Chenoweth and Stehlik (2003:63), trust denotes mutuality by people in supportive ways and not harming each other and the principle of reciprocity rest on this basic requirement. Trust is mostly considered as the heart of Social Capital that exists among and between actors in the Social Capital structure. Trustworthiness makes the social structure function effectively. Without trust, individuals will never be willing to assist each other. Ostrom and Ahn (2003:

XV1) define trustworthiness in terms of preferences that are consistent with conditional cooperation even in the absence of material incentives.

Adler and Know (2000: 101) highlight the confusion in the literature as to the relationship between trust and Social Capital. Fukuyama (1995) equates trust with Social Capital while Putnam (2000) sees it as a source and a form. Trust and Social Capital are mutually reinforcing. Trust is a psychological state that develops among individuals in the social structures. Trustworthiness goes hand in hand with expectations and obligations and this translates into the strengthening of Social Capital and the stability of social structure. Consequently, the resilience of the community will be increased. Understanding is very crucial under this form of Social Capital. According to Coleman (1998: S102), “If A does something for B and Trusts B to reciprocate in the future, this establishes an expectation in A and an obligation on the part of B.” Thus, in such a case, people always do things for each other and the system continues for the benefit of everyone who makes up the community. “Without the degree of trustworthiness among members of the group, the institution cannot exist (ibid: 103). Schaefer-McDaniel (2004: 162) further notes that to benefit from relationships with others and to use them as resources, one needs to be able to trust that network members are provided with correct, helpful and genuine support. Without trust, people will not engage in helpful behaviour and hence they will become more vulnerable to disasters.

Central to this, Pretty (2003: 9) postulates that trust lubricates cooperation and reduces the transaction cost between people. Individuals do not need to monitor others and instead use trust. Ostrom (1999: 177) further notes “that investments made in one-time period in building trust and reciprocity can produce higher levels of return in future time periods even though the individuals creating trust and reciprocity are not fully conscious of the Social Capital they construct.” This means that trust is a very important element of Social Capital. However, trust takes time to build up and establish, but it does not even take a minute or a second to break.

2.5.4: Volunteerism and pro-social behaviour

Volunteerism is generally defined as the actions that help or benefit another individual or group. Pro-social behaviour can be used interchangeably with reciprocation or social change;

however, prosocial behaviour has always remained a challenge in the academic circles. Rao, Han, Ren, Bai, Zheng, Liu, Wang, Zhang and Li (2011:64) note that “when threatened by natural hazards such as earthquakes, droughts, floods and cyclones among others, an individual seems to be helpless and powerless.” As individuals struggle to survive, they aid each other. This is then labelled as pro-social behaviour. Gintis (2000: 172) described this process as strong reciprocity, which is why the researcher stated earlier own that pro-social behaviour can be used interchangeably with reciprocity. This mutual aid can serve as an adaptive mechanism to increase an individual’s survival opportunity when they are at a disadvantage (Bai et al (2010: 64). Pro-social behaviour is the process of helping others and there are so many reasons as to why people help each other. These are the survival biological theories (role of genetics, evolution, and survival of the fittest) that are given as an explanation as to why people help, and there are internal factors like emphatic responses, negative personal state, and other personal motivations (Silva, Marks and Cherry, 2009: 220). Pro-social behaviour is different from reciprocity in the sense that the former does not necessarily require the favour back to the helper. It is an element of Social Capital.

Cherry et al (2009: 219) note that when disasters strike, many people rise to the challenge of providing immediate assistance to those whose lives are in peril. This is a kind of a pro-social behaviour. Relatives, friends and neighbours can help each other. Strangers can also help strangers under pro-social behaviour. Fritz and Williams (1975: 48) purports that “during the first few days or weeks following a major community wide disaster, persons tend to act toward one another spontaneously, sympathetically and sentimentally on the basis of common needs rather than in terms of pre-disaster differences in social and economic status “That is, regardless of their differences, people have natural instincts of helping others sometimes.

Pro-social behaviour requires people to be volunteers. People do not need to be compelled to offer help to their neighbours, friends, relatives and strangers. Volunteer actions are basically altruistic and occasionally sacrificing. Volunteerism is the readiness of individuals to make themselves and their resources available to others in the community with no regard to personal interest (Shaskolsky 1967: 1). Volunteerism involves altruistic emotions and behaviours that encompass benevolence, unselfish concern for the welfare of others and helping without expecting a reward or recognition.

2.5.5: Collective efficacy and aggregate social support

Collective efficacy is one of the main facets or dimensions of Social Capital. It instils a sense of belonging to a group and hence pushes an individual to work together with other people for the benefit of every individual in the society. Sampson, Raudenbush and Earls (1997: 918) defined it as “social cohesion among neighbours combined with their willingness to intervene on behalf of the common good.” This means that it is not just their relationships that strengthen Social Capital and benefit the society, but is also the willingness of individuals in the community that is very important and necessary. Bandura (2000) is of the idea that collective efficacy, just like self-efficacy, that promotes individuals’ belief in their ability to complete tasks and motivates goal attainment, motivates groups to commit to their mission, promotes resilience to adversity across a range of settings and affects performance of group activities. According to Sampson (2004: 108), collective efficacy “captures the link between cohesion, especially working trust and shared expectations for actions.” Individuals who are facing similar experiences and challenges can develop a strong sense of social cohesion and common interest. For instance, residents in disaster prone areas can develop a strong sense of togetherness whereby they all become willing to engage in a social action that will help them achieve their aspirations. In addition, collective efficacy is considered as a facet of Social Capital because it forms the foundation of Social Capital.

In a study on disaster resilience, collective efficacy as a dimension of Social Capital allows individuals to act as a group and be able to successfully deal with adverse impacts of disasters. Solomon, Swatt, Uchida, and Varano (2013: 3) further define collective efficacy as the “degree to which neighbours provide a sense of safety and to intervene if something problematic happens”. Bandura (1997: 477) notes that a “group’s shared belief in its conjoint capabilities to organise and execute the courses of action required to produce given levels of attainment are important factors that impact collective outcomes”. Thus, responding effectively to threats requires solidarity among the people.

In my view, collective efficacy is also a dimension of Social Capital whose absence may weaken Social Capital. “Groups with high collective efficacy are more likely to set goals, mobilise better resources, coordinate and perform behaviours that increase their group’s chances to succeed and preserve in spite of initial setbacks or growing opposition” (Thaker, 2006: 29). Furthermore, Bandura (2000: 77) notes that a “high sense of collective efficacy

promotes a pro-social orientation characterised by cooperativeness, helpfulness and sharing” and this translates to community resilience to a disaster. This is due to the fact that members of the community that is more vulnerable to disasters collectively take coordinated actions to reduce the negative impacts of a disaster before external help is offered.

Without a sense of collective efficacy, individuals will not be willing to assist each other. Benight (2004) conducted a study on collective efficacy following a series of natural disasters in Creek, Colorado, and found out that individuals with low perceived collective efficacy experienced higher distress than individuals with high collective efficacy. Thus, collective efficacy can be considered as a basic requirement when people are dealing with disasters. Collective efficacy motivates individuals to work for the common benefit of the group and this is the most important element of Social Capital because for most of the elements of Social Capital to function smoothly, a sense of collective efficacy should be there. Collective efficacy fits well in Putnam’s (2000) conceptualisation of Social Capital where all individuals who belong to that group can benefit. Expectations, trust, reciprocity, information sharing, understanding and participation are all driven by the sense of collective efficacy.

2.5.6: Norms, common rules and sanctions.

Common rules, norms and sanctions are used by groups to maintain their relation. Although these have a constraining effect on individuals, solidarity and harmony can be achieved easily. These will give individuals confidence to invest in collective groups knowing that others will do so (Colchester 2001: 211). In the community where there are mutually agreed rules and norms, very few people will break the rules because they know that they will be punished. These are normally considered as the rules of the game. Norms are important in this study in that they help individuals to unselfishly help each other and protect the interest of the community. These norms of generalised reciprocity “resolve[s] problems of collective action and binds communities” (Adler and Kwon 2001: 99). They encourage individuals to develop a sense of the community togetherness that works for the “common good.” In addition, there are rules that are also explained as the basis of Social Capital. Rules are different from norms in the sense that the former are written down and the latter are passed by the word of mouth though their functions are the same.

Effective norms come with mixed blessings. They can either strengthen Social Capital or make it fragile. For example, Coleman (1990: 310) notes that effective norms that inhibit crime in a city make it possible for women to walk freely outside at night and for old people to leave their homes without fear. Coleman (1990: 311) further notes that “norms in a community that support and provide effective rewards for high achievement in school greatly facilitate the school’s task”. Norms allow individuals to forgo self-interests and focus on achieving the interest of the group. Thus, “norms that are reinforced by social support, status, honour and other rewards form the basis of Social Capital which builds young nations, strengthens families by leading members to act selflessly in the family interests, facilitates the development of nascent social movements from a small group of dedicated, inward looking, and mutually rewarding persons and as a result, leads to work for the public good” (ibid: 311). Norms can also constrain and restrict innovation when they are disapproved by the society. This has also been highlighted by Merton (1968: 199). He noted that effective norms in an area reduce innovativeness in that area and can constrain, not only deviant actions that harm others, but also deviant actions that can benefit everyone.

2.5.7: Information circulation

Information should circulate effectively because it provides the basis for activity even though its acquisition is considered costly by Coleman (1990: 310). “An important form of Social Capital is the potential for information that inheres in social relations,” (ibid: 310).

Information can be acquired from so many sources but social relations that are maintained for other purposes can supply information which helps individuals in their day to day lives. For instance, in disaster prone areas, people need information about how to cope with disasters so that those not affected can provide help. There is also need for information about the severity of a disaster. Coleman emphasized much on information circulation as an important form of Social Capital. Thus, social interaction and information distribution are mutually reinforcing. For example, “a social scientist who is interested in being up to date on research-related fields can make use of his everyday interactions with colleagues to do so, if he can depend on them to be up to date in their fields” (Coleman 1990: 310). In this case relationships are necessary for the information they provide and not for the credit they provide in the form of obligations that one holds for other’s performances (Coleman 1990: 310). Sutton and Benight (2014: 1) note that “in any disaster, access to information can mean the difference between life and

death”, that is, the inability to get safety information reduces one’s ability to make decisions about protective action. Sutton and Benight’s (2014) study of the two California communities (Lake Arrowhead and South Lake Tahoe) found that access to information across all stages of a disaster was important for individual and community resilience before, during and after a disaster. However, their study focused on information that circulated through the internet.

The area under study is a poor remote rural area where people do not have easy access to the internet. In the same area, the circulation of information is very important in disaster management. Information does not circulate via the vacuum but through networks and relationships and this clearly shows that without relationships, Social Capital will not exist as well. Coleman (1988) argued that Social Capital arises because of dense interactions between social actors that create an intricate web of relational network. These interactions speed up the exchange of information which is helpful to people in disaster prone community. The information should be diverse and rich if individuals are to successfully cope with disaster impacts. It is not just about the information on the disaster but also on the markets where people embark on certain business activities such as trading, to earn a living after being struck by a disaster. They need information on markets and how to reach those markets as well as the type of products that will be on demand. This will result in increasing profits and this translates to community resilience to disasters.

Information that is passed from one person to the next is very crucial in all stages of the disaster such as preparing, planning, recovery and mitigation. Residents can be informed about the future disaster so that they can take measures that will help them withstand harsh conditions imposed by the disaster or people can quickly relocate to areas that are not prone to a disaster. However, the transmission of information is only made possible through interaction and networks with others. Under Social Capital, rich information circulates so that individuals are informed of the disaster before it strikes and this may reduce the negative impacts of the disaster.

2.5.8: Social Exchange and reciprocity

Reciprocity is different from social exchange but the two can be interchangeably used. The study treated the two terms as the same although reciprocity seems more suitable. Reciprocity simply refers to the symmetrical exchange of goods and services between and among groups

or people in the community. Under reciprocity, people are guided by the belief that there are no free gifts. This is known as social exchange and through this social exchange, “people tend to obtain a sense of generalised reciprocity” (Kobayashi, Ikeda and Miyata, 2006: 582). Generalised reciprocity was defined by Kobayashi et al (2006: 582) as a “normative recognition that if someone helps another person, he or she will receive help from other people [not only from the person who is helped] within the community or society”. This keeps people participating in the community and builds Social Capital. Thus, the exchange of goods and services is not merely for economic advantage, but it has a social value that helps individuals to survive smoothly in the society. Levi- Strauss (1996: 19) further supported this view when he said that the exchange of goods in the community as “vehicles and instruments for realities of another order; influence, power, sympathy, status, emotion and the skilful game of exchange consist of complex totality of manoeuvres, conscious or unconscious, in order to gain security and to fortify one’s self against risks incurred through alliance and rivalry”. Although his explanation is long, it clearly shows that social exchange practices are a “survival value,” (Komter, 2007: 93) among members of the community.

Reciprocity and social exchanges increase trust among the people in a group. Furthermore, Coleman (1990) and Putnam (1993) categorise reciprocity into two groups namely specific reciprocity and diffuse reciprocity. The former was defined by Pretty and Ward (2001: 211) as the “simultaneous exchanges of items of roughly equal value” and later as “continuing relationship of exchange that at any given time maybe unrequited, but over time is repaid and balanced”. Diffuse reciprocity has the power to cement relationships that exist among people and, in disaster-prone areas, reciprocity may enhance the resilience of the community as people will be in a position to assist each other in the event that a disaster hits the area. However, it should also be acknowledged that reciprocity has got its own weaknesses. For example, Gouldner (1973) says “that reciprocity not only means that gifts are followed by counter-gifts, but it can also take the negative form of revenge answered by counter-revenge: an eye for an eye, a tooth for a tooth.”

2.6: Social Capital Illustration and dimensions

Detailed discussion of the dimensions or facets of Social Capital compelled me to come up with an illustration of Social Capital. The illustration encompasses all the dimensions of Social Capital as is shown in the diagram below. The dimensions are not completely different but they

sometimes complement each other as has been discussed above. In addition, the components highlighted above fit into the three types of community resilience (transformation, absorptive and adaptive capacity) which will be explained in chapter three.

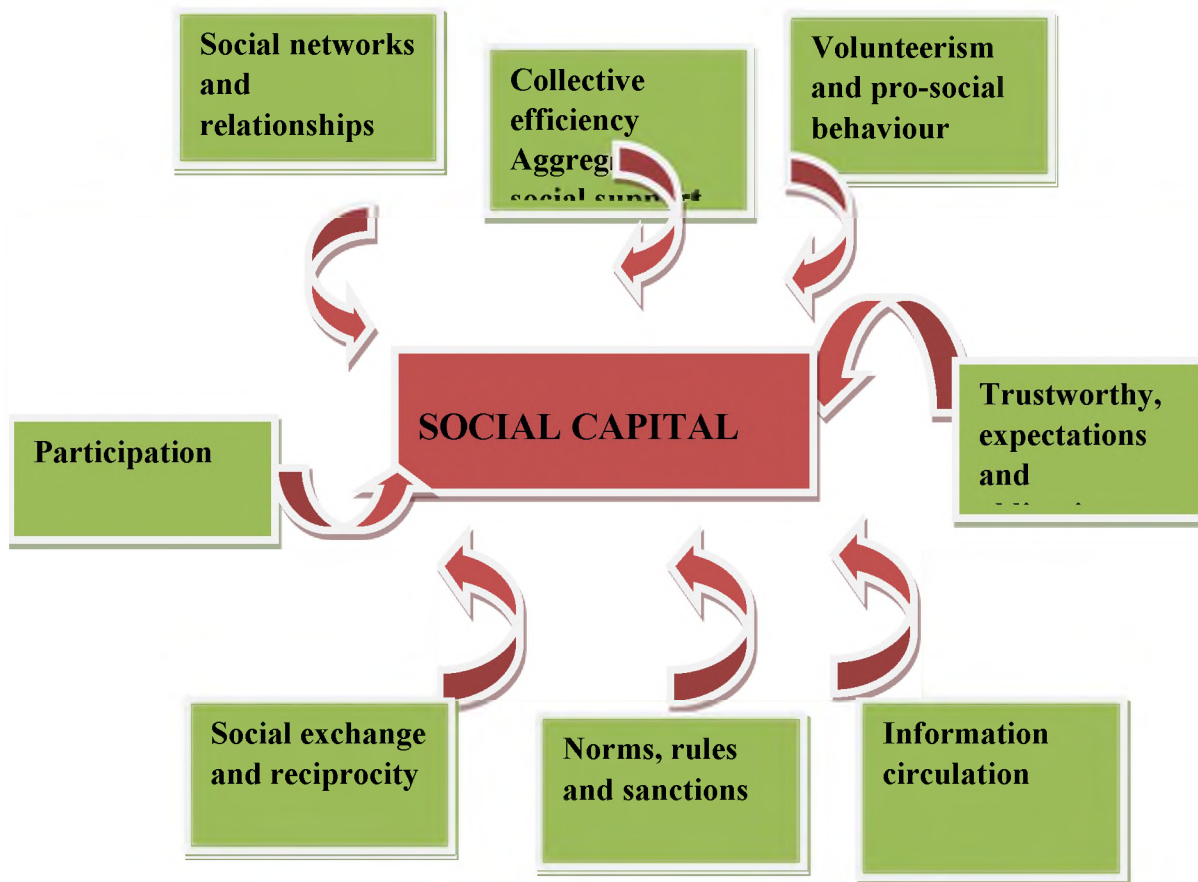


Figure 2:1: Dimensions of Social Capital
Source: Formulated by Rosemary Kasimba

2.7: Critique of Social Capital

The incorporation of Social Capital in disaster resilience is controversial. It has been criticized because it sometimes “focuses on individual gains without regards to the broader community” (Delgado and Delgado-Hume 2013: 54). According to Delgado and Delgado-Hume (2013: 109), Social Capital is occasionally constructed as a way of improving people’s life without considering the influence of social structures and the negative side of social interactions. Thus, Cleaver (2005) contends that Social Capital is of no use when it comes to development because it underplays the crippling impact of inequitable social structures on the very poorest. The fact that Social Capital has shown an exclusionary element shows that it may not be a useful tool to employ when dealing with issues that affect the society even though it has got its own strength. Ganapati (2012: 78) also notes that “some networks in Social Capital are designed

exclusively for and or by women whereas others were more inclusive in terms of their target group and membership.”

The study by Aldrich and Crook (2008) emphasised how Social Capital hindered important projects that were controversial yet perhaps necessary for speedy recovery. For example, these communities resisted trailer parks to temporarily house disaster victims. To some extent, this shows that disaster victims do not solely rely on Social Capital. The researcher concurs with Davies (2001) who suggests that the concept of Social Capital can be criticised heavily for being gender blind. The work of Bourdieu, Coleman and Putnam did not acknowledge the fact that there are power dynamics/struggles that exist between men and women in the social structure. For example, in disasters, women and men are affected differently, yet Social Capital theorists ignored these aspects.

Broadly, Social Capital illuminates the value of social relationships and networks to societies and individuals (Holt 2008: 20), but it is a contested concept as the three key theories of the concept have shown much divergence in the way they conceptualised it. The study agrees with Holt (2008: 229) who is of the view “that Putnam’s accounts demonstrate troubling ontological tendencies as he endeavours to produce an objectivist and even universal account of the theory”. Measuring Social Capital is very problematic. It can be measured in a number of ways, but obtaining a single “tie measure is not possible”. This is because of the fact that the most comprehensive definitions of Social Capital are multi-dimensional, encompassing different levels and unit analysis. In addition, it is very difficult to measure ambiguous properties of Social Capital such as community, networks and trust and norms of reciprocity. However, some researchers such as Knock and Keefer (1997) and Narayan and Pritchett (1997) and Temple and Johnson (1998) measure Social Capital using different processes and that means Social Capital can be measured although with some challenges. Furthermore, “Putnam’s work has certainly had something to say about gender, but gender has only been of interest to the extent that it might play a role in explaining the decline of Social Capital or else in replenishing its dwindling stocks” (Gidengil and O’Neil, 2006: 2).

Investing in Social Capital is, however, a risky venture. For example, “given that a member of the network may fail to perceive or act upon a mutual obligation, any investment may fail to yield any positive result” (Holt 2008: 232). This raises doubts about the links between Social Capital and public good. Some people may adopt a “wait and see” approach or they just become

lazy because they know that others are participating on their behalf. So they will benefit from there. The elderly and other more vulnerable people find it difficult to participate and invest; this intensifies their marginalisation. In other words, Bourdieu's approach is an important reminder that Social Capital can be exclusionary and in this case, it may not, therefore, enhance the resilience of the community to disasters since some members of the community will be excluded. Hence, the few will only be able to bounce back successfully.

In sociological debates, Coleman's definition was received with some criticism as it was thought to be too broad and vague. Coleman had a horizontal understanding of persons where he disregarded the fact that people have different positions in the social structure (class, gender, ethnicity, sexuality and ability). He ignored the existence of vertical inequalities. Hence, feminists have also reacted against his approach. Feminists see that there are power dynamics between men and women which Coleman did not mention in his theory. He puts women under oppression as he viewed the influx of women into labour market as associated with the decline of Social Capital. Thus, according to Tzanakis (2013: 5), Coleman's communitarian approach is blind to both gender related inequalities and to social changes associated with gender roles in society. According to Edwards, Franklin and Holland (2003: 9-11), Coleman's view has a conservative overtone that disregarded structural inequalities and relations of power that exist in the society.

Noticeably, Coleman's perception of Social Capital shows that Social Capital is nothing but a people's ability to cooperate as a group or as a part of an organisation to embark on activities that benefit members of the group. For Coleman (1990), social structure precludes the agent who can use embedded Social Capital as a resource. Thus, he put much emphasis on the important role of social relations as a resource that an individual cannot do without. According to Portes (1998: 5) and Quibria (2003: 4), "Coleman is faulted for failing to distinguish between resources and the ability of network members to obtain them". They have noted that recipients and donors of Social Capital have different motivations that cannot be fully accounted for by a rational action framework. When Social Capital shifts from an individual-level relationship to a feature of a community, it becomes conceptually fuzzy.

Coleman can be blamed for failing to explain such a transition. From my own point of view, Coleman's Social Capital theory can be criticised for being lenient and soft in explaining how people in the community interact and actively participate for their benefit. When all individuals

are meant to benefit from the group, it means that there is a tendency of some individuals to be free riders and not being active participants. Diffusion of responsibility in that scenario is very possible. Some individuals do not want to participate in community activities and they wait for others to do so on their behalf, but they want to enjoy the benefits at the end of the day.

Furthermore, Coleman's insistence on closure as a precondition for the functionality of Social Capital-based networks is questioned by other scholars such as Lin (1999) and Adler and Kwon (2002) who snubbed closure as a prerequisite for Social Capital. For Lin (1999), closure is required only in goal-specific pursuits of actors. "When members are searching for and maintaining resources, closure is needed. However, when members are searching and obtaining resources, they require bridges with other network members and so closure is neither needed nor desired. Closure may create negative externalities" (Tzanakis 2013: 6). "Putnam argues that Social Capital and civil society [comprised of voluntary associations] promote economic growth, but there is little theoretical or empirical support for this assertion" (De Philips 2001: 792). There are so many factors that can contribute to economic development besides Social Capital. People may work together in harmony, but if they lack adequate resources such as human, physical and economic capital, it will be very difficult for them to achieve economic development.

Social Capital particularly that of Putnam, is criticised for being vague. Bebbington (1999: 871) notes that "Social Capital belongs to an alarmingly long list of terms in development that are notoriously difficult to define". This shows that Social Capital is an elusive concept that lacks clarity. This is even noted from the way Putnam defined it. He used several definitions and according to Narayan and Pritchett (1999: 871), "Social Capital while not all things for all people, is many things to many people." This lack of "clear and precise definition of the phrase Social Capital seriously hampers the integration of various conceptual and empirical works done on the subject" (Porder, 2011: 351). Furthermore, Putnam's (2000) work can be criticised for regarding Social Capital as a societal good whilst there are well documented examples of its downside. Portes (1998: 15) lists the downside of Social Capital as the exclusion of outsiders, restriction on individual freedom and a downward levelling of norms. Halpern (1999) suggests that organised crime or gangs involve a social network which entails shared norms but they do not constitute a societal good.

According to Tzanakis (2013: 7), “Putnam (1993a; 2000 and 2006) is mainly critiqued for his treatment of trust as an aggregate indicator of Social Capital and for the ways this is linked to associational participation, economic growth and democratic ethos at regional or national levels. This treatment exhibits fundamental, conceptual and methodological loopholes. From the researcher’s point of view, trust is not a core indicator of Social Capital but understanding. This is because of the fact that human behaviour is unpredictable. A person does a favour to his neighbour thinking that in future, that person will help him when there is a need. The person who is expected to return that favour when it is needed, might not want to give any assistance. Therefore, understanding is the foundation of Social Capital followed by trust.

Furthermore, Putnam can be criticised for being silent on conflicts between civil society and the state among people in the community. He only focused on the integrative functions of voluntary associations. According to Siisiainen (2000: 7), “Putnam only mentions in passing, that civil society is the seedbed of social conflicts. Thus, he did not consider conflicts that exist in the social structure.”

2.8: Social Network Analysis (SNA) and its historical development in the academia

Social network analysis is one of the few social science endeavours in which people influence one another in such a way that they all work together to build a cumulative body of knowledge (Freeman, 2004: 6). Wasserman and Faust (1994: 4) note that the concept is based on the assumption “of the importance of relationships among interacting units. Freeman (2004: 2) defines social network analysis as “the structural approach that is based on the study of interaction among social actors”. Scott and Carrington (2011: 4) described it as a specific application of graph theory in which individuals and other social factors, such as groups and organisations, are represented by the points and their social relations. That is, the concept is “premised on the view that social life is created primarily by the relations and patterns formed by these relations” (Marin and Wellman, 2011: 11). It often examines acquaintances among groups.

The emergence of contemporary social network analysis was influenced by the confluence of social theory and “application with formal mathematical, statistical and computing

methodology” (Wasserman and Frost, 1994: 10). In other words, it is an interdisciplinary endeavour that had evolved out of diverse strands ranging from social to behavioural sciences.

The sociological development of social network analysis can be traced back to the writings of Comte (1798/1857), Tonnies (1855/1936) and Durkheim (1893/1964), Spencer, Horton and Cooley (1909/1962) who attempted to make use of the idea in different but complementary ways. “Comte 1822 was the first scholar who proposed a way of looking at society in terms of its interconnections among social actors” (Freeman 2004: 7).

Furthermore, “Tonnies (1855/1936) used the word *gemeinschaft* to characterise the traditional social form that involved personal and direct social ties that linked individuals who have shared values and beliefs” (Freeman 2004: 11). Durkheim (1893/1964) also followed when he said that (mechanic solidarity (*solidaritémechanique*) linked similar individuals with repressive regulations and he distinguished it from the modern society where the division of labour led individuals to form cooperative links based on organic solidarity (*solidaritéorganique*). In the same tenor, Spencer (1897) and Charles Horton Cooley (1909/1962), “both described small scale societies in which individuals were linked by intimate primary relations and they both contrasted those in modern, large scale societies where individuals are often linked by impersonal secondary relations” (Freeman 2004: 14).

Early sociologists attempted to examine different ties that link individuals in different structures of the society or groups and they all shared a structural perspective. Late nineteenth and early twentieth century social thinkers such as Simmel (1908/1971) also talked about social networks using the structural perspective. Thus, (ibid: 23) postulated that “society exists where a number of individuals enter into interaction”. He went on to say that “collection of human beings does not become a society because each of them has an objectively determined or subjectively impelling life-content. It becomes a society only when the vitality of these contents attains a form of reciprocal influence, only when one individual has an effect, immediate or mediates upon another, is mere spatial aggregation or temporal succession transformed into society. If, therefore, there is to be a science whose subject matter is society and nothing else, it must exclusively investigate these interactions, these kinds and forms of association” (ibid: 24-25). In these statements, Simmel had clearly expressed main properties that are embedded in the modern social network analysis. Thus, Simmel’s ideas contain most of the “theoretical concepts that had influenced the development of social network analysis and these are; social

group, reciprocity, exchange, social position, mutuality, balance, conformity, social cohesion, subgroup, social role” (Wasserman and Frost 1994: 14).

After the writings of Simmel, there are three main traditions that later on influenced the rise of the current social network analysis. In other words, in the 1930-1940, there were sociometrists as well as researches on interpersonal relations. In this era, there was Moreno who pioneered the systematic recording and analysis of social interaction in small groups (sociometry) and the Harvard group that was led by Warner and Mayo which investigated interpersonal relations at work. Radcliffe–Brown (1940) also urged the systematic study of networks. From this period, the concept of social networks became silent for almost a decade.

In 1950-1960 anthropologists such as Gluckman and Mitchell used the concept when they investigated community networks in Southern Africa, United Kingdom and India. Mitchell often distinguished networks of interpersonal relations from structures of institutional relations. Mitchell had departed from Nadel’s (1957) aspirations for the general framework of Structural Sociology rooted in social network analysis and “this proved fateful for development of social network analysis in Britain, which largely failed to attract adherents from outside the area of community studies” (Scott, 2013: 34).

Moreover, in the 1960-1970s White and his students theorised more on networks. His colleagues, as well, began to produce torrents of papers that have firmly established social network analysis. This period involved the works of Ivan Chase, Bonnie Erickson, Harriet Friedmann, Mark Granovetter, Nancy Howell, Joel Levine, Nicholas Mullins, John Padgett, Michael Schwartz, Barry Wellman and Tilly, who focused on networks in political and community sociology and social movements, and Stanley Milgram, who developed the "six degrees of separation" thesis, among others. Among these, Mark Granovetter and Barry Wellman are White’s former students who have elaborated and popularized social network analysis.

In addition, apart from the above-mentioned researchers, many independent researchers were also doing independent research on social networks. It was only in the 1970s, during a period Freeman describes as “the Renaissance at Harvard” that social network analysis finally became a generalized paradigm for research. The man most responsible for this turn of events was Harrison White. It should, however, be noted that in the 1970s, social network analysis was not

yet fully fledged until in the period 1980 and 1990; the period which he labelled Getting Organised, when an integrated community of researchers from different disciplines was formed.

2.9: Core features of Social network analysis

After delving deeper into a thorough analysis of social networks analysis, the researcher deduced what she assumed were the concepts that formed the core of network analysis and these were: actor, relational tie, dyad, triad, subgroup, group, binding, adaptation, exclusion, relation and networks, among others. Actors are simply defined as discrete individuals or cooperate or collective social units in the social structure. For example, actors in Chadereka and Kapembere can be individuals or the community or people in a ward or nation state.

Relational ties denote the linking of actors to another by social ties. Actors are brought together in a relationship by blood, marriage or situation. Wasserman and Faust (1994: 18) gave examples of relational ties and these are evaluation of one person by another (friendship liking and respect), transfer of material resources, association and affiliation, behavioural interaction, (talking together and sending messages), movement between places or statuses, physical connections, formal relationships and biological relationships. In addition, dyads and triads are also the defining features of social networks analysis. Dyads are ties between two actors and triads are types of relationships that exist among larger subsets of actors who are more than two. For instance, if actor **R** likes **S** and actor **S** likes actor **T**, **R** will like actor **T**; and that means if actors **R** and **S** like each other, then they should be similar in their evaluation of **T**; and if **R** and **S** do not like each other, it means that they will differ in their evaluation of **T**.

Group relations are also core concepts of social networks. Although a number of social scientists provided different definitions of the word group, Wasserman and Faust (1994: 19) define it as a collection of all actors in which ties are to be measured. “A group of people who are interconnected by some type of relationships [ties] is called a network” (Matous, Todo and Yadate (2011: 2. These networks are also considered as core components of social network analysis. Relations are defined as a set of ties or friendship that develops among actors.

Adaptation and binding are also regarded by the researcher as some of the core components of social network analysis. According to Marin and Wellman (2011: 18), adaptation occurs when

two people make the same choices because they have similar network positions and thus exposed to similar constraints and opportunities. People make decisions not because they have acquired new knowledge, but because they want to successfully respond to similar network constraints. Marin and Wellamn (2011: 18) gave an example whereby “California wine makers could make wines from grapes sourced primarily in one region, allowing them to market their wines as Panoma Country or Napa Valley wines while blending grapes from different sources may create higher quality wines, losing place based appellations would lower the status associated with wine and cause wine drinkers to react similarly by drinking something else.” In this example, wine makers are not making decisions about how to blend their wines because they are transmitting knowledge of wine-making to another but because they are responding to similar network constraints. People in a network adapt to activities and situations that can make them survive or enable their businesses to flourish by maintaining good relations with their customers. In addition, binding occurs when a network is bounded together to act as one unit. This facilitates the diffusion of information which will help members to achieve their goals especially in areas that are prone to disasters such as floods and droughts.

Moreover, Social Capital is also considered as a network phenomenon by Tindall and Wellman (2001: 276). Wilson (2001) posited that social networks constitute Social Capital to the extent that they contribute to civic engagement. Furthermore, Wasserman and Faust (1994: 4) added some concepts which they thought are crucial in understanding social network analysis. These are:

- a) Actors and their actions are viewed as interdependent rather than independent or autonomous units.
- b) Relational ties (linkages) between actors are channels for the transfer or flow of resources (either material or non-material)
- c) Network models focusing on individuals view the network structural environment as providing opportunities for or constrains on individual action.

Network models conceptualise structure (social, economic, political and so forth) as the last patterns of relations among others. Moreover, one of the core characteristics of social network analysis is that social networks exist in a multi-level environment. That means actors form ties under contextual constraints and interact given social psychological and neurological capacities. For example, “an individual’s network ties within religious sphere exist within geographic areas that themselves have a structure of religious network types and a more general

Social Capital profile” (Pescosolido,2006: 211). That person may also have ties with other people within the organisation and other organisations. This means that there is no clearly defined boundary of a social network. It moves from the family, school, workplace, church, and clubs among others. Furthermore, Streeter and Gillespie (1993: 41) note that “in every social network there is connectedness”. Although the link can be direct or indirect, members maybe peripheral in the network or almost isolated. Each must be connected to other members if an individual is to be considered part of the network. This means that even though network exists in different levels, every individual must be connected to the network somewhere somehow.

Properties of social network analysis were categorized into two by Streeter and Gillespie (1992) namely relational and structural. Relational properties seek to understand why a network exist and establish the functions performed by relations among members. According to them, there are two aspects of relational properties and these are transaction content and the nature of relationships. Transaction content denotes the things that can be exchanged in networks such as resources, information, influence and social support. Nature of relationships is described as the qualities that are inherent in the relationship between members of the network.

In addition, structural properties explain the way in which members can fit together to form social networks. These are also categorised into three that is individual members, subgroups and total networks. Individual members are described as differences among connections to other members of the network and these differences can be used to identify the roles that individuals can play in a network. Clusters denote areas of concentration that have more linkages or connections between or among members than others. Total network consist of the overall relationship among all members in a network. This explanation shows the degree and extent of complexity of the social network analysis as it touches on several aspects. These properties also reveal that the concept has its own strengths and weaknesses. Social network analysis is a structural approach which conceives social network as a social structure. Its core concern is “to understand how social structures facilitate and constrain opportunities, behaviours and cognitions” (Tindall and Wellman, 2001: 266). That means community relationships facilitates the sharing of resources.

Although social structures have powerful influences on people’s lives, network analysts have also focused upon individuals as social agents; how people actively work to construct and

maintain relationships and structures that help them to sustain themselves in times of need and facilitate the creation of opportunities. In other words, social network analysts do not start with assumption that norms, values and attitudes are a primary force in guiding behaviour nor do they assume that high levels of social solidarity and shared norms are the baseline state of the society (Wellman, 1988) or the absence of these conditions is an indication of social pathology. Rather, social network analysts focused on the types of structures in which individuals are embedded and for them these are more important for understanding attitudes and related phenomena.

2.10: Weaknesses of social networks

Social network analysis, like Social Capital, has its own loopholes. The most prominent loophole is that of exclusion. People who are not part of the network are excluded and in times of crisis, it is very difficult for these people to cope. The inability to cope makes them vulnerable. Hachen and Davern (2006: 271) note that becoming connected to a network opens doors and opportunities to members whereas those who are not affiliated to ties are excluded and have limited opportunities. This perpetuates inequalities among members. In the network, people facilitate the diffusion of ideas that may help them to survive and exchanges are made easy. No one is completely self-sufficient and that means a person has to exchange with others to obtain things that he or she may need to do what he or she wants to do. Thus, if one is not affiliated to a group, he or she is more likely to be excluded in activities that may help them survive and this renders them more vulnerable.

Social science researchers scrutinised social network Analysis approaches observing that methodologically it is not feasible to conduct studies or analyse them objectively using the social network analysis. This is because of the fact that the concept/term is too broad and vague. Emirbayer and Goodwin (1994: 1414) note that disagreements emerged over the very definition of its fundamental concepts and this renders it unsuitable to be used in social science researches. Researchers dispute the manner in which ideas such as social structure, network centrality, distance, cohesion and social network itself are used in the concept although it (the concept) borrowed heavily much of its tenets from sociological theory. In addition, Emirbayer and Goodwin (1994: 1414) criticized the Social Network Analysis saying that it is not a “formal or unitary theory that specifies distinctive laws, propositions or correlations but rather a broad strategy for investigating social structure”. Thus, social network analysis is being criticized for its vagueness just like Social Capital.

In addition, community networks may also play a role that is detrimental to their members or to society at large. For example community cohesion in disaster response may encourage members to remain in vulnerable locations because they have a false sense of security or desire to maintain community solidarity (Patterson et al, 2009: 139). “Certain shared practices and beliefs may lead communities and their members to act in ways that make them more vulnerable and some communities may also act in an exclusionary fashion with respect to non-community members” (ibid: 139). Some members of the community may attempt to monopolize resources and information among others for own benefit and exclude others who are also vulnerable and are in need of these services.

Social network analysis is widely accepted in sociological discourse and it holds assumptions that are fundamental in sociology and to the study of disasters. It looks at the relationship between an individual and the society and the relationship between micro and macro and the structuring of social action by objective “supra-individual patterns of social relationships” (Emirbayer and Goodwin, 1994: 1414). However, it rejects explanations of social behaviour as a result of individuals’ common possession of attributes and norms rather than as a result of their involvement in structured social relations (Wellman 1983: 165).

2.11: The role of Social Capital and networks in promoting community resilience to disaster: Empirical studies.

Bourgeoning literature has been taking into cognisance how endogenous social practices in the community influence disaster response, preparedness, perception and resilience of the community. There are so many empirical studies that have tried to link Social Capital and community resilience to disasters. As disasters tend to occur in certain geographical areas, it is very crucial to comprehend how endogenous strategies lead to greater community resilience and adaptive capacity.

Mutual help within disaster prone communities is critical in the recovery phase. “This mutual help can include physical help (tools, living space and food), or information sharing and financial aid. Information sharing is important in allowing victims to ascertain where support is being provided, and it can provide an important means for governments and non-governmental organisations (NGOs) to reach vulnerable people (for example the elderly and

disabled) in disaster-affected areas” (Go Shimanda 2014: 156). Paton and Johnston (2001: 45) also supported the view that Social Capital promotes community resilience to disasters as they argued that “social ties and networks enable communities to respond to adversity whilst retaining their core functions”. This can be seen in Granovetter’s (1974) study of the United States labour market where he found out that social networks raised the efficiency of the job matching process, and sped up the job search for workers. Thus, in the event that a disaster has occurred people can move to other places to look for a job through connections and they will be able to send remittances to their families so that they will be able to buy food and other things that make their lives miserable, in the event that they do not access them.

Social Capital theory has two main dominant features that makes it more crucial in disaster resilience and these are networks and norms, trust and reciprocity. Norms, trust and reciprocity smoother the functioning of networks that are indispensable in disasters. Networks provide the resources that are needed to “solve collective problems and pursue specific goals in the larger society” (Paton, 1999: 6). There are vast researches that have shown that Social Capital and social networks enabled people in disaster communities to be able to bounce back following a disaster. Defining features of Social Capital/dimensions of Social Capital such as participation, networks, provision of support, reciprocity and trustworthiness are theorised as critical in promoting community resilience in the aftermath of a disaster. In most cases, after disasters, “it has been observed that tight bonds between relatives and neighbours led to collective action on the part of the community and the efficient allocation of resources, catalysing communication to access assistance” (Go Shimada, 2013: 156). Thus, Social Capital can be considered as a significant tool in disaster resilience. Through the use of networks, residents can urgently cement communication and knowledge on how to address the situation and how it can be communicated among members. This enables them to make use of scarce resources more efficiently so that they can survive. This is very difficult in communities where there are no networks.

“Concepts like social resilience are related to theories of Social Capital which stress the importance of social networks, reciprocity and interpersonal trust” (Patterson, Weil and Patel, 2009: 127). These allow disaster victims to successfully “bounce back,” recover, and respond than they can do in isolated efforts. Patterson et al (2009: 137) further highlighted that community responses to Hurricane Katrina demonstrate the importance of local knowledge, resources and cooperative strategies in determining their survival and recovery and that is their

resilience. They show examples of community's behaviours during Hurricane Katrina and clearly elaborated how local community members worked in preparedness, evacuation, rescue, relief, and recover to the impacts of the disaster. On recovery stage, "as soon as water had been drained from their neighbourhood, the Vietnamese community returned and began rebuilding, assisting each other, starting from one roof down whilst cooking and eating as a community. Despite some challenges that they faced, working together lessened their burden to recover. The city and utility companies had initially declined to reconnect water and electric services but church leaders collected hundreds of signatures to prove that community members were back in residence and successfully pressed for the establishment of services." (Patterson et al, 2009: 138). In this case, people did not rely on external help in the first place but on their relations, networks and understanding of one another. Each one of them had the zeal to work for the benefit of the community and that is why they were able to go back in the area which was initially devastated by the disaster. This clearly indicates that the community has an important role to play in enhancing disaster resilience and community's adaptive capacity.

Dyne (2005: 15) notes that disaster research has shown concretely that isolated individuals are "less likely to be rescued, seek medical help, and take preventative action such as evacuate, or receive assistance from others in the form of shelter". From local to international levels, formal Social Capital improves disaster response and recovery (Varda et al, 2009). Communities with more trust, civic engagement, and stronger networks can better bounce back after a crisis than fragmented, isolated ones (Aldrich, 2008). "In disaster after disaster, parents find and pull their children from the rubble and residents struggle with shovels to extricate elderly neighbours from collapsed houses and by the time domestic or international rescue personnel arrive on the scene, many victims are already rescued by locals or are dead" (Aldrich, 2010: 5). In other words, Social Capital brings bonding amongst people.

Several studies outside Zimbabwe show that Social Capital plays a significant role in disaster resilience. Brouwer and Nhassengo (2006) found that Social Capital played an important role in the recovery of poor households after the 2000 floods in Mabalane district, Mozambique. Mogues' (2006) study also showed that social networks play an important role in asset recovery and growth after environmental shocks in Ethiopia. Barker's (2011) study in Brima, Australia showed that the collective unit enhances community resilience as strangers helped strangers and local residents helped each other. Furthermore, Kien (2011) conducted a study in the Vietnamese Mekong River Delta and found that Social Capital (relationships with neighbours)

is crucial in enhancing household resilience to floods. The importance of Social Capital in enhancing community resilience to disasters was identified by Hawkins and Maurer (2010: 1789) who found instances in which “bonding, bridging and Social Capital were instrumental in aiding people to prepare for, endure and mutually aid one another before and during the storm, in addition to recovery following the floods in New Orleans”. They found that residents in New Orleans helped each other within the community. Furthermore, Hawkins and Maurer (2011: 1780) note that “Social Capital not only helped the survivors of Hurricane Katrina survive the storm but to also relocate and rebuild their lives and revitalise their communities.”

As droughts and floods continue to get worse, understanding residents’ resilience to floods and droughts has become a necessity in the contemporary world where disasters are ever-increasing. Studies on community resilience to natural disasters have become an issue in the contemporary world where development agencies such as the Department of International Development (DFID) are “committed to build disaster resilience into all its programmes by 2015” (DFID, 2011: 14) and where “increasing attention is paid to the capacity of disaster affected communities to recover with little or no external assistance following a disaster” (Manyena, 2009: I). Ang, Oeur and McAndrew (2007) carried out a study where they sought to understand Social Capital in response to floods and droughts in the San Kor rural district of Cambodia. They found that residents helped each other to evacuate family members, watch over animals and ferry children to school. Once flood waters had receded, residents worked together to repair community infrastructure. During severe droughts in San Kor, “relatives and neighbours from villages helped each other to replenish rice seeds and assist vulnerable people” (ibid: 12).

Chamlee-Wright and Storr (2011) examined how Social Capital in the form of collective narratives affected post disaster recovery in Katrina of Bernard Parish which is an area that was hit by flooding. They found that Social Capital in the form of collective narratives shaped post disaster recovery efforts. “Community members who had returned within the first few years after Katrina needed to have embraced a self-reliant strategy in which they relied on their own efforts and on informal support from their family and their neighbours”(Chamlee-Wright and Storr, 2011: 280). Their study also found that in the post Katrina context, in which the state and federal assistance was characterised by frustrating and slow progress, an independent posture proved to be an advantage, particularly when combined with the working class values of self-reliance.

Although the study found some flaws that are associated with Social Capital (in the form of collective narratives) in facilitating community resilience after a disaster, the major findings revealed that Social Capital is very useful in enhancing community resilience as is shown by the explanation above. The shared identity of St Bernard as a closely knit family oriented community comprised of hard workers emerged as a dominant narrative on how people described “who they were” and how they responded to the challenges of the rebuilding effort Chamlee-Wright and Storr (2011: 280). However, their study is different from the present study in the different dimensions. These are the study context (that is, their study was conducted in a developed country). Their study did not also look at how the most vulnerable groups such as the elderly, child-headed families and women responded to floods and other environmental changes, using Social Capital. In addition, they employed a specific element of Social Capital that is, collective narrative, whilst this study took the following elements of Social Capital; collective efficacy, social interaction and networks, trustworthy and understanding, aggregate support, volunteerism and pro-social behaviour, information circulation, celebration of diversity and different ideas and participation. Furthermore, their study did not examine how Social Capital helped residents in preparedness and prevention. Rather, they looked at the recovery phase. This study scouts deeper on how Muzarabani residents make use of Social Capital in enhancing their resilience to floods and droughts from preparedness, response and recovery to the mitigation phase.

The study of the flooding in Brisbane, Australia by Barker (2011) concurs with Murphy (2007: 300) who indicated that “researchers have found that there is a strong positive relationship between Social Capital and community resilience”. The role of Social Capital in disaster resilience cannot be underestimated the world over. According to Chamlee-Wright and Storr (2011: 266), Social Capital facilitates community level planning for disaster mitigation, preparedness, evacuation and provision of shelter before a disaster. Residents in St Bernard utilised Social Capital to coordinate emergency management and community return to provide material resources (in the form of portable water, food, shelter and clothing) to the vulnerable and to rebuild damaged houses, business and other special spaces in their communities (Chamlee-Wright and Storr 2011: 266). This also goes in tandem with Magis (2010: 402) who notes that members of resilient communities intentionally develop personal and collective capacity that they engage to respond to and influence change, to sustain and renew the community and develop new trajectory for the community’s future.

A Study by Dynes, Quarentelli and Wenger (1990) demonstrated the usefulness of Social Capital when they examined the 1985 Mexico City Earthquake, which they used as a sample of the entire city population. They found that 10% of the respondents highlighted that they had left their homes a year later after the earthquake and 86% went to relatives and another 5% went to friends. This has shown that Social Capital has helped some communities to deal with the negative effects of natural disasters.

If community residents view their lives to be vulnerable to hazards, they are more likely to cooperate in order to enhance their resilience. This is also supported by Patton, Johnson, Smith and Miller (2001: 49) who note that community members who perceive their lives or livelihoods to be especially vulnerable to hazards are more likely to cooperate in relevant disaster preparedness initiatives than those who do not. That means Social Capital in the name of “who we are” helps vulnerable residents to enhance their resilience to disasters as has also been shown by Allen’s (2006) study of Philippines where he found out that family and cultivated kinship networks also frequently provide access to important resources and opportunities to improve an individual or household standard of living or support adaptation to change. Although there were some flaws, Social Capital assisted residents in the Philippines to withstand harsh conditions that were triggered by climate change.

Moreover, the study by Aghabakhshi and Gregor (2007) revealed that Social Capital is of much importance when it comes to community resilience to natural disasters since it helped earthquake victims in Bam and Tehcon. They noted that “a sense of solidarity reported in Iranian newspapers with many individuals from surrounding areas travelling to the city to offer assistance and injured people were transported haphazardly to the neighbouring city of Kerman for medical care in cars, vans and even rubbish trucks” (Aghabakhshi and Gregor, 2007: 349). Without Social Capital, it would have been difficult for the people to assist each other. Even though relief supplies were inefficient, victims got assistance quickly and this helped them to survive.

Social Capital and social networks are used to guard disaster victims against foreigners (poor people from other communities that are not affected by disasters) who may want to take the disaster as a great opportunity to enrich themselves. People who are in communities that are not affected by disasters take this as an opportunity to loot belongings of disaster victims whilst

the victims are battling for life. In addition, these cunning neighbours can also come out and claim to be residents of the community that would have been affected by the disaster so that they receive relief assistance from Non-Governmental Organisations. For example, in Bam, “genuine survivors of the earthquake found that their immediate needs were not being met because of the rapid influx of poor people from the surrounding unaffected areas claiming relief and food” (Aghabakhshi and Gregor, 2007: 349). Furthermore, it was reported that the majority of survivors preferred to remain among debris of their former home to protect it from looting by non-community members. This was because of the fact that their Social Capital was destroyed by the disaster which had claimed the lives of many and it became difficult for them to identify endogenous residents of the community. There were very few people whom they could trust. This clearly shows the need to have Social Capital and networks in the community so that people will be able to identify who belongs to their community and who does not, so that assistance can go to those who really deserve it. If Social Capital and networks were not destroyed, non-community members would not have entered and would know that they are being watched and can be arrested. Thus, Social Capital, though it has got its own loopholes, plays a significant role in promoting resilience. The absence of Social Capital and networks makes life difficult for the disaster victims. Community volunteers and other members can help identify the vulnerable population and establish a register for the survivors so that external assistance can be channelled to the right people who have been affected by the disaster and not non-community members who were not directly affected by the disaster.

The researcher adopted Putnam’s Social Capital theory and social networks analysis as suitable frameworks in understanding how the local people in Muzarabani are responding to floods and droughts. Although the study by Patterson et al (2009) did not clearly elaborate how vulnerable groups made use of Social Capital to withstand harsh conditions that are imposed by floods and droughts, their findings have demonstrated that Social Capital and social network analysis are crucial in disaster preparedness as residents took actions that enabled them to successfully recover in the aftermaths of a disaster. In relation to this study, people in the lower Muzarabani area can develop relationships that are independent of blood so that they can secure each other in times of crises, especially when hit by disasters. Freeman (2004: 2) notes that the “social network approach is grounded in the intuitive notion that the patterning of social ties in which actors are embedded has important consequences for those actors”. Thus, disaster victims can achieve some benefits by helping each other when a disaster strikes.

Abheuer, Eich and Braun (2013) examined the role of Social Capital in coping with the impacts of severe floods of 2009 in Dhaka's slums using both qualitative and quantitative methodologies that were also employed in this study. Their study found that community social resources did not disappoint households substantially; rather households were disappointed by the government and Non-Governmental Organisations (NGOs). The majority of their respondents used their "Social Capital to access loans which were mostly provided through bonding and linking ties which they used to repair damaged houses" (Abheuer, Eich and Braun, 2013). In addition, Social Capital helped people to find work in the aftermath of the flood. "Neighbours helped each other in critical situations and some respondents indicated that they received help from other people in the form of exchange of material objects of everyday use such as clothes, money, food and assistance to repair houses and to provide shelter for people who lost their homes" (ibid: 291). Despite fragile livelihoods and disadvantageous living conditions, slum dwellers were in most cases able to cope with even more floods because they employed Social Capital which enabled them to receive social support. High prevalence of trust enabled slum dwellers to borrow food, clothes and money. Thus, Abheuer et al (2013: 34) note that Social Capital and informal modes of transactions made urban households resilient, as both allow them to react to and to cope with natural extreme events.

Abheuer et al's (2013) study provided a solid background to the present study where the researcher sought to understand the role of Social Capital in community resilience to floods and droughts in Muzarabani. However, their study applied Social Capital in the urban context where there are more formal employment opportunities and money circulates in larger amounts, which is a different case from one of Zimbabwe's rural areas. The present study has been conducted in a rural area where residents are very poor and there are very few if not none, formal employment opportunities. Abheuer et al's (2013) study did forego the strategies that were adopted by women, child headed families and the elderly to deal with floods, which is one of the objectives of this study. Their survey was conducted in November and December 2009 in cooperation with colleagues from Universities of Rajshahi and Dhaka where seven research assistants were employed to conduct interviews. Thus, the time period was too short to provide adequate answers as to how people in the area made use of Social Capital to increase their resilience to floods. In this present study, the researcher, employed observations where she had to reside in the study site for nine months, investigating in detail how residents make use of Social Capital in dealing with floods and droughts. The study is purely ethnographic in nature where the researcher gathered detailed, first-hand information from residents in their

natural settings. In addition, their study was limited to floods only whilst this study included droughts.

Disaster researchers have built up a strong body of evidence about the role of social cohesion and networks during and after catastrophe (Aldrich and Meyer, 2014: 6). This shows that social networks can provide financial and non-financial resources that can help individuals to successfully respond and recover from a disaster. Elliot, Haney and Sams-Abiodun (2010) conducted a study where they compared disaster outcomes for residents of two communities in New Orleans, the lower Ninth Ward, a poor, majority African American community, and Lakeview, an affluent, majority white community. They found that while Ninth Ward residents relied on bonding Social Capital for informal support during hurricane Katrina, they received less overall support in the year following the event. They then concluded that a lack of bridging Social Capital to people outside the affected area and ties with individuals with more resources resulted in reduced resilience for Ninth Ward residents compared with those in Lakeview (Aldrich and Meyer, 2014:8).

Social relationships that exist among victims sometimes do not really bring fruitful results because everyone will be crying for help where the resources are limited, even if people would be wanting to help each other as is the case in Elliot et al's (2010) study. However, this does not refute the role that Social Capital in general plays in enhancing community resilience to natural disasters. The study by Elliot et al (2010) is different from this study in the sense that their study compared the use of Social Capital, particularly that of bridging and bonding Social Capital in two different communities, whilst this study seeks to understand the role of Social Capital in enhancing community resilience to droughts and floods. In addition, the researcher seeks to understand the forms of Social Capital that exist in Muzarabani area. As has been shown by definitions, Social Capitals exist in different forms and according to Kien (2010: 10), different forms of Social Capital are important at different times. This was also proved in the study by Hawkins and Maurer (2009) which concluded that close ties (bonding) were important for immediate support during disastrous events though bridging and linking Social Capital are vital for long term and wider community revitalisation after a disaster.

Bangladesh experiences disasters quite frequently and it has developed a successful mechanism that utilises Social Capital to recover and rebuild after each disaster hit the country (Mathbor, 2007: 358). Similarly, Muzarabani regularly suffers from droughts and floods and therefore,

there is need for the implementation of effective local mechanisms and initiatives that can work with external stakeholders to be able to successfully withstand harsh conditions that are exacerbated by floods and droughts. Thus, understanding the role of Social Capital in Muzarabani becomes a crucial aspect in understanding the role of Social Capital in enhancing community resilience to natural disasters.

Buckland and Rahman (1999) studied the Red River Flood in Canada and found that communities characterised by higher levels of physical, human and Social Capital were better prepared and more effective in responding to natural disasters. In addition, Social Capital confirmed to be an effective tool in enhancing community preparedness to disaster. Social Capital has been used by the local people in Bangladesh to increase their resilience to floods. Local people came forward to join the Cyclone Preparedness Programme (CPP) voluntarily and they became well-trained cadres in disaster management programmes. These cadres were familiar with their community and its resources, including the location of safe shelters, relief and rehabilitation programmes and evacuation plans that were to be followed in the event of a disaster (Mathbor, 2007: 365). Interaction among and between CPP members and the people helped to avoid mistrust and misunderstanding in the development process and the society recognised relentless efforts by the CPP volunteers. Volunteers had engaged in public awareness activities, stage dramas and films and these activities had helped the local people to be well prepared before the disasters and this preparedness translates to community resilience. Furthermore, Social Capital in this case consisted of volunteerism where people had to participate in disaster prepared initiatives without being coerced. However, the study by Mathbor (2007) looked at coastal regions whereas this study is mainly focusing on a low veld area in Zimbabwe. In addition, little is known about the forms and basis of Social Capital in the Muzarabani area.

LaLone (2012) did a micro level examination of the Social Capital mobilisation process that occurred after tornadoes unexpectedly struck a rural Appalachian region of the United States in April 2011. She found out that when disasters or hard times hit, community members assisted each other as a regularised norm of behaviour and people would help each other without requiring an immediate return of value. Residents had informal socially based community resilience strategies.

Although Social Capital has its own loopholes, its positive role is well- documented by several scholars who found that Social Capital helps community members to withstand harsh environmental changes that would result in droughts and floods, to just mention a few. Several researchers have shown that residents in most communities that are hit by disasters adopt the system of “helping each other out” (LaLone, 1995: 214). For example, social connections and resources were beginning to be mobilised more informally immediately after the tornadoes hit. As soon as the emergency shelter was made available, volunteers from the Red Cross came to staff the shelter and were quickly joined by volunteers from other charitable organisations. Individuals and community groups right away supplied the emergency shelter with water, food and cash donations (ibid: 214). Victims got assistance from friends and relatives and this is a clear indication that Social Capital helped residents in disaster prone areas to quickly recover.

According to Manyena (2006: 438), “viewing disaster resilience as a deliberate process [leading to desired outcomes] that comprises of a series of events, actions, or changes to augment the capacity of the affected community when confronted with singular, multiple, or unique shocks and stresses on the role of the local residents in disasters”. This clearly elaborates that local people have a critical role to play in promoting disaster resiliency. Thus, community agency is now regarded as an indispensable tool in lessening community vulnerability to disasters. The direct effect of adaptation is to reduce social vulnerability (Adger et al, 2004: 36) and this translates to resilience of the community. Thus, the study intends to focus on the role of Social Capital in enhancing residents’ resilience to floods and droughts in Muzarabani.

Several studies were conducted in Muzarabani on how local people are responding to floods and droughts but little has been documented on how vulnerable groups are coping and how Social Capital and social network analysis is being employed to increase the resilience of the community to natural disasters. Tawona (2014) conducted a study in Muzarabani where he assessed disaster preparedness measures and activities undertaken by the government and its stakeholders to enhance resilience to various disasters. However, this study is focusing on two disasters namely, floods and droughts. This study is also premised on the bottom up approach where local people or residents of Muzarabani community are considered as core determinants of community’s resilience to floods and droughts, unlike Tawona (2014) who assessed measures that were taken by the government to increase the resilience of the community.

2.12: Conclusion

The chapter unpacked the terms 'Social Capital' and 'social networks analyses'. It also explained the sociological emergence of these two terms (Social Capital and social networks analysis) in academia. The chapter explained the three types of Social Capital, namely bonding, bridging and linking Social Capital as well as highlighting examples. It also highlighted the dimensions of Social Capital and these are collective efficacy and aggregate support, volunteerism, pro-social behaviour, trustworthy, expectations and obligations, participation, social exchange, reciprocity, norms, rules and sanctions, information circulation and social networks and relationships. In addition, the chapter explained the two properties of social networks namely relational and structural social networks. The weaknesses of both Social Capital and social networks were highlighted in the chapter. The chapter provided examples of where Social Capital and social networks have been used for the benefit of individuals in different communities. It also operationalised the following terms: food and livelihood security, coping, adaptation and mitigation as they are important terms in the thesis. The next chapter provides empirical studies that have been conducted on adaptive capacity and disaster resilience in Muzarabani.

CHAPTER 3

EMPIRICAL STUDIES ON ADAPTIVE CAPACITY AND DISASTER RESILIENCE IN MUZARABANI.

3.0 Introduction

Chapter two operationalised Social Capital and social networks analysis highlighting their intellectual development. The previous chapter also looked at the empirical studies on Social Capital and it conceptualised the terms livelihood and food security. This chapter traces the development of the concepts of resilience and adaptive capacity and how these have thus far been applied in the study of natural disasters such as droughts and floods. It also examines the trends of floods and droughts in Muzarabani. Furthermore, the chapter examines the strategies employed by the people of Muzarabani to cope with floods and droughts as documented by other researchers. Several terms such as human security, coping and mitigation are also going to be defined in this chapter. The methodologies, strengths and weaknesses of the studies are also analysed in this chapter in order to explain the gaps that this research seeks to fill. The chapter starts by defining floods and droughts and ends with highlighting the significance, in Sociology, of studying floods and droughts.

3.1: Definition of terms

3.1.1: Floods

There is no single operational definition of the word “flood”. Generally, it is described as the overflow or influx of water beyond its normal confines. Guha-Sapir, Vos, Below and Ponserre, (2011: 36) define floods as a “significant rise of water level in a stream, lake, reservoir or coastal region”. There are different types of floods but the most common types of floods in the area of Muzarabani along the lower Zambezi are riverine, rain- induced flash floods. In addition, there are floods that occur as a result of dam failure. According to Miller (1997: 13), riverine flooding “occurs in relatively low-lying areas adjacent to streams and rivers”. A flash flood “is a local flood of short duration with a relatively high peak discharge generally resulting from heavy rainfall in the immediate vicinity” (Miller 1997: 14). Thus, flash floods can occur after a heavy storm following a period of drought when heavy rain falls onto very dry, hard and bare ground that impedes the infiltration of water into the ground. The unpredictability of

flash floods poses a colossal threat to human life and property. Dam failures can also cause flash floods.

3.1.2: Droughts

There is no single authoritative definition of the term “drought”. Various scholars provide different definitions of the term and base these on their disciplines. According to Smith and Petley (2009: 41), drought “...is a period of serious water deficiency that usually develops slowly and can affect a region”. The Public Fact Sheet (2008: 1) defines drought as “deficiency in precipitation over an extended period, usually a season or more, resulting in water shortage and causing adverse impacts on vegetation, animals, and/or people. It exists in different forms and the main types of drought are meteorological, hydrological, agricultural and socio-economic droughts. A meteorological drought means that the “cumulative precipitation for the entire growing season is less than the amount required to produce a crop” (Smith and Petley, 2009: 46) and “... is usually measured from how far the normal precipitation has ever been over some period of time” (Disaster Handbook, 1998: 2).

An agricultural drought occurs when there is not enough soil moisture to meet the needs of a particular crop at a particular time. According to the Disaster Handbook (1998: 2), an agricultural drought “happens after meteorological drought.” It is caused by a variety of factors such as dry spells, water losses from fields via run off, drainage of soils and evaporation rates (Enfors and Gordon, 2008). A hydrological drought refers to deficiencies in surface and subsurface water supplies. It normally occurs when precipitation is reduced over an extended period of time resulting in the decline of surface and subsurface water levels. Socio-economic droughts happen when physical water levels start to affect people individually and collectively (Disaster Handbook, 1998: 3).

3.2: Trend of floods and droughts in Muzarabani, Zimbabwe.

According to the Draft Disaster Risk Management Strategy of Zimbabwe (DDRMSZ) (2012-2015: 8) “floods have been common in Zimbabwe and have been officially recorded over the last 100 years and occur every year”. In 2000, Cyclone-Eline-induced floods in the Zambezi Basin which “left 90 people dead, over 250,000 people affected, and [caused] approximately US\$7.5 million in economic losses” (ibid: 8). These floods tend to occur “in the Southern and Northern low lying areas of Zimbabwe, in between river confluences, and downstream of major

dams, which include Middle Sabi, Muzarabani, Tsholotsho, Kamativi-Confluence of the Gwayi and Shangani, Malipati-Mwenezi and Bubi, Tuli-Shashe, and Gokwe” (ibid: 8).

Severe flooding occurred in the 1999/2000 rain season of Zimbabwe. This was a result of the effects of Tropical Cyclone Eline in the Zambezi valley. Following this severe flooding, “the United Nations Disaster Management Team (UNDMT) (2000) estimated that about 500 000 people were affected by the floods and cyclone and 96 000 of them would require urgent help in food, shelter, health, water and sanitation, agriculture, education and communications and transport” (United Nations Country Team (UNCT), 2000: 2). Muzarabani district was affected to such an extent that bridges were wiped out and there was a rapid increase in the number of people who died as a result of water- borne diseases. A study by Gwimbi (2004) on the 2000 flood impact in the lower Muzarabani of the Zambezi Basin showed that floods damaged crops and led to the flooding of homes and to flood-related illnesses. He, however, did not look at how vulnerable groups such as elderly women, child-headed families and people living with disabilities were coping as his objective was largely to investigate the effects of floods on the residents of Muzarabani in general. By contrast, this study, although not looking specifically at how people living with disabilities are coping, looks at how the most vulnerable groups manage to withstand the harsh conditions that occur as a result of floods and droughts in Muzarabani.

Madamombe (2004) confirms there was flooding in March 2003 in places like Muzarabani and Guruve in the Zambezi Basin. Trees were uprooted by heavy winds which also destroyed asbestos roofs, electricity and telephone power lines. Many roads were washed away as the heavy rains continued. In this particular instance, the flooding affected some 6,000 people in the district. Their homes were swamped and their crops were washed away. Further strong flooding in Muzarabani occurred in 2007 with 1000 households affected and 400 losing almost all their belongings. Infrastructure was destroyed and there was no easy access to other parts of the country. In addition, the floods resulted in the loss of livestock and the destruction of bridges such as the bridges in Kairezi, Hoya, Nzoumvunda, Kadzurre and Chadereka. Over and above that, small businesses had problems when it came to procuring supplies for their shops deep in the Zambezi valley. In the 2014/2015 season, more flooding occurred in Mashonaland Central Province of Zimbabwe and left 500 families displaced. The areas affected included Mushumbi Pools, Mbire, Kanyemba, Chikafa, Mukumbura and Muzarabani District. In this flooding episode, 13 bridges were destroyed (UNICEF, 2013: 2). Crops including maize

and cotton were swept away. Several people's lives were claimed by crocodile attacks and reptile bites. The severely affected areas included Chadereka, Ndove, Bore and Museredza. Most pupils stopped going to school.

Available evidence shows that Muzarabani was also severely devastated by droughts in the 1993 and 1994, 2002, 2004 and 2012 seasons which also affected the community livelihoods. In 2004, Muzarabani suffered reduced crop productivity due to the drought. Scoones et al. (1996), make the observation that the 1992 drought was the worst that the country had experienced in living memory and the National Civil Protection Co-ordination Committee (1993) also highlighted that the same period had had the worst water crisis since 1914/15. A state of disaster was declared on 6 March 1992. The majority of communal farmers had a poor harvest and people became more vulnerable to poverty. In 2004, the Muzarabani community, which suffers from droughts on a yearly basis, experienced a drought that rocked their livelihood strategies. Characteristically, the area suffered another serious drought in the year 2011/2012 with the result that there was food insecurity.

3.2.1: Community resilience

There is a considerable number of definitions of the term 'community resilience' because of the different epistemological orientations and methodological practices. The "variety of academic definitions and concepts of resilience can confuse or invite confusion" (Twigg, 2007: 5). Community resilience is defined as the ability of community members to continuously adapt to adversity and to the negative consequences of a change or misfortune. Community resilience is viewed by several scholars as the ability of the community to bounce back in response to adversity or alternatively, it is the ability of a community to adapt to changes (Holling (1996), Waller (2001), Klein et al (2003), Adger et al (2005), Mileti (1999), Patton (2001), Perrings (2006), Ganor and Ben-Lavy (2003) and Butler et al (2007). The definition of community varies. "Communities are composed of built, natural, social and economic environments that influence one another in complex ways" (Norris et al 2008: 128). In this study 'community' denotes the people resident in an area that is geographically defined, such as Muzarabani. A plethora of definitions are also given by different scholars from a variety of disciplines. Below is a table of a selection of scholars and their definitions of community resilience.

Table. 3.1: definitions of community resilience by different scholars

Mayunga (2007: 2)	“...the capacity or ability of a community to anticipate, prepare for, respond to, and recover quickly from impacts of disasters”.
Plodinec (2009: 7)	“...the capability to anticipate risk, limit impact, and bounce back rapidly through survival, adaptability, evolution, and growth in the face of turbulent change”.
Holling (1973: 14)	A measure of the persistence of systems and their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables.
Aldrich(2012: 7)	The ability of the neighbourhood, ward, or area to engage in a positive networked adaptation after a crisis or a neighbourhood capacity to weather crises such as disasters and engage in effective and efficient recovery through coordinated efforts and cooperative activities.
Ainuddin and Routray(2012: 26)	The ability of the social system to respond to and recover from disasters. It includes those inherent conditions that allow the system to absorb impacts and cope with an event.
Walker et al., (1981: 495)	“...the ability to adapt to change by exploiting instabilities” and that it is <i>not</i> simply “the ability to absorb disturbance by returning to a steady state after being disturbed”.

Source: Generated by Rosemary Kasimba

It is considerably difficult to select one best definition from a variety of definitions given by different scholars because each of them, despite the weaknesses it may have, makes a positive contribution to the study of disasters. Patoni, Violanti and Smith (2003: 63) are of the view that the basic idea of community resilience derives from the idea of bouncing back and that means that the ability of the community to cope with a change is the core tenet of community resilience. In other words, community resilience can be described as the ability of the community to continuously cope with change.

According to Gunderson et al (2002: 5), “resilience can be defined from two different perspectives namely ecological and engineering perspective”. Engineering refers to “the speed of return to the steady state following perturbations” (2005: 5). It also refers to “a single stable state or equilibrium, to which a system has to return after a major disturbance” (Wilhelm 2011: 35). This understanding of resilience is applicable in the disciplines of physical science and material engineering. “Ecological resilience recognizes multiple equilibrium states or domains

of attraction, within a basin of attraction” (Wilhelm 2011: 35). Allison and Hobbs (2004: 6) note that “ecological resilience focuses on three fundamental themes that include resilience and adaptive change from one state to the other in systems with multiple stable states; cross scale interactions (panarchy) and lastly, reorganisation and renewal after perturbations and disturbances using heuristic models or metaphors of adaptive cycles linked across spatial and temporal scales”.

As a result of the existence of multiple, contradictory and complementary definitions, Mayunga (2007: 31-32) postulates five main defining features of resilience as follows:

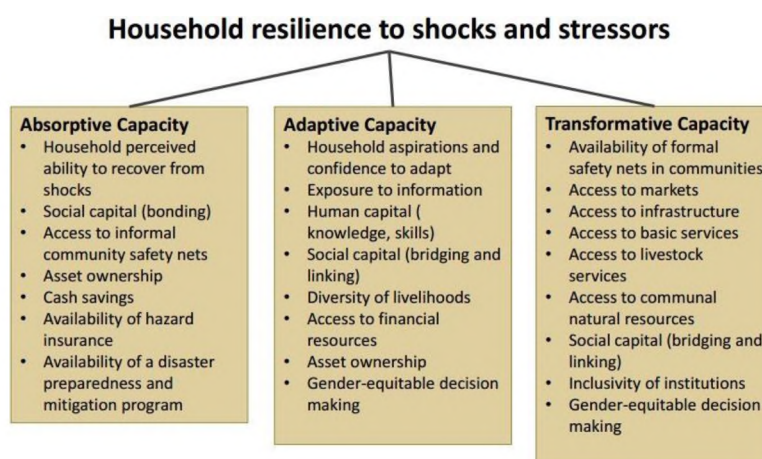
- a) Resilience focuses on the functioning of the system and its self-reorganising capacity following a disaster. This means that the community should be able to adapt quickly following a disaster and it should be able to function effectively, as was the case before it was hit by a disaster. However, this is to some extent questionable since a disaster can damage infrastructure and disrupt some livelihood activities. Such a scenario makes the lives of community members more vulnerable.
- b) Resilience takes a long-term perspective which involves a long-term recovery process after a disaster. This means that resilience can be measured in terms of the time it takes to recover or come back to normalcy (equilibrium). A resilient community in Mayunga’s view is “...one that resumes its previous growth trajectory quickly”.
- c) Resilience is also understood as the opposite of vulnerability. This means that “The more resilient the community, the less vulnerable the community is regarded” (Handmer and Dovers, 1996: 487).
- d) Resilience contains the notion of sustainability which Mayunga (2007: 4) defines as long term survival at a non-decreasing quality of life. This concept allows the community to use resources wisely and more sustainably.
- e) Adaptation is also regarded as being of the core of community resilience. Adaptation can be described as the ability of a system to adjust to a disaster in order to reduce its vulnerability and enhance its resilience. That means individuals should be able to adapt or adjust to adverse conditions imposed by a disaster.

Although “it is not clear as to how this concept should be measured and or mapped” (Mayunga, 2007: 1), adaptive capacity and community resilience emphasize the ability of people to cope with disasters or to bounce back following a disaster. The concept of community resilience to disasters became prominent especially after the adoption of the Hyogo Framework for Action:

Building the resilience of Nations and Communities to disasters during the World Conference on Disasters that was attended in January (18-22) 2005 in Kobe, Hygo, Japan. Moreover, adaptive capacity, just like community resilience, is a relative and dynamic concept that does not have a specific definition. “It is context specific and varies from country to country, community to community, among social groups and individuals over time” (Smit and Wandel, 2006: 287). There is a wide range of definitions (of the phrase adaptive capacity) given by different scholars and for the purposes of this study, the definitions given by Gallopin (2006), Smit and Wandel (2006) and the IPCC (2007) were chosen.

Community resilience can be broken down into three types and these are transformative, absorptive and adaptive capacity. Absorptive resilience is described as the ability to minimise exposure/sensitivity to shocks and stressors through preventive measure and appropriate coping strategies to avoid permanent, negative impacts (Starr and Tabaj, 2015: 5). Adaptive resilience is also described as the ability to make proactive, informed choices and changes in livelihood strategies in response to long term social, economic and environmental change (ibid: 5). Transformative resilience involves government mechanisms, policies, regulations, cultural and gender norms, infrastructure, community networks, and formal and informal social protection mechanisms that constitute the enabling environment for systemic change (ibid: 10).

Indicators of resilience Capacity



Source: Starr and Tabaj, (2015: 14).

The components of each of these three types of resilience illustrated above link well with the components of social capital set out in Chapter Two. The links will be explored below.

According to Gallopin (2006: 300), adaptive capacity is described as “the capacity of any human system from the individual to human kind to increase (or at least maintain) the quality of its individual members in a given environment or range of environments”. Thus, what the term suggests is regarded as the ability of people to keep on conducting their day to day routines in different environments regardless of whether or not a disaster occurs. However, this definition is too general. If the environmental change is too intense, people are more likely to be affected negatively no matter how ready they might be.

Smit and Wandel (2006: 287), define adaptive capacity as the “general ability of institutions, systems and individuals to adjust to potential damage, to take advantage of opportunities or to cope with the consequence”. This definition is not limited to individuals or people but includes institutions and systems and their ability to cope with changes. The researcher believes that this definition is water tight and, therefore, appropriate for this research. It explains the ability of people, institutions and systems to adjust to environmental and other potential changes. This definition acknowledges the fact that people, institutions or systems are more likely to be affected in the event that there are environmental changes even though they might have the resources. It therefore, encourages people, systems and institutions to adjust and adapt to the changes. In addition, the IPCC (2007: 727) defines adaptive capacity as the “ability or potential of a system to respond successfully to climate variability and change which includes adjustments in behaviour, resources and technologies”. Like the Smit and Wandel (2006: 287) definition, this definition expresses the ability of the system to be able to withstand the harsh conditions resulting from climate change. It indicates that individuals should be able to respond successfully to changes.

These definitions assert that the term ‘adaptive capacity’ means the ability of people to adjust to changes. Thus, the above explanations on adaptive capacity show that although the term can be interpreted in different ways, there are similarities in terms of its meaning. Generally, the term explains the ability of systems, people and institutions to be able to adjust to changes. However, the study is guided by a definition of community resilience that is inclusive and which reads as follows: “the capability to anticipate risk, limit impact, and bounce back rapidly through survival, adaptability, evolution and growth in the face of turbulent change” Community and Regional Resilience Institute (CARRI), (2013: 10).

3.3: Intellectual emergence of the terms community resilience and adaptive capacity.

As a result of being encumbered with contestations and debates surrounding these two concepts, that is, ‘resilience’ and ‘adaptive capacity’, several researchers traced the intellectual development of the concepts of resilience and adaptation. However, the study does not want to duplicate those efforts. It will offer a brief background to the evolution of these terms in academic circles. Bhatasara (2014) traces the historical formulation of the term adaptation back to the writings of Charles Darwin on biological determinism. She, however, notes that “in Social Science as a whole, the concept has been widely utilised in respect to human – environment interactions in human and cultural ecology, natural hazards research, ecological and cultural anthropology, sociology, psychology, geography and ecological economics” (ibid: 50). In addition, Nyamwanza (2012) and Gallopín (2006) also trace the historical development of adaptive capacity but note that it has its roots in biology “where it was used to indicate the ability of species or organisms to become adapted to [be able to live and reproduce in] a certain range of environmental contingencies” (Nyamwanza 2012: 3). Adaptive capacity has, however, become popular in contemporary debates where it is widely used in the climate change field where it is described by the IPCC(2006: 6) as the “ability of a system to adjust to climate change [including climate variability and extremes] to moderate potential damages, to take advantage of opportunities or to cope with consequences.”

The historical development of resilience was also explored by Torrens Resilience Institute (2010), Folke (2006), Tusaie and Dyer (2004), Nyamwanza (2012), Manyani (2006), Cutter (2008) and Cutter et al (2010), among others. In addition to these, Norris, Stevens, Pfefferbaun, Wayche and Rose, (2008: 128) state that “Community resilience raises the same concerns as the concept of resilience per se but it is further complicated by variation in the meaning of community”. There are varied and complex explanations on how the term resilience came to be what it is today in the study of climate change and disasters. “Resilience was derived from the Latin *resalire*, to spring back or to jump back” (Klein, Nicholls and Thomalla, 2003 and CARRI, 2013: 2). It was first used in the physical sciences to denote the behaviour of a spring (ibid: 2). Waller (2001) notes that the interest in resilience began in the 1940s with the studies of children and trauma in the family. This was mainly accredited to Garmezy, Werner and Smith. These pioneers in the study of resilience were interested in the study of risks and the negative effects of adverse life events on children such as divorce, war and neglect. It was then used in ecology where it gained currency after Holling’s (1973) seminal work entitled

‘Resilience and Stability of Ecological Systems’. logical or the ecological with the behavioural emerged.

After close scrutiny of the terms, ‘adaptive capacity’ and ‘community resilience’, I found the two complementary and their differences are unclear. Adaptive capacity can result in enhancing community resilience. The two can be used interchangeably. Both of them are used in the study of climate change and disasters. In addition, the burgeoning literature on community resilience and adaptive capacity has sparked a debate as to how the two are defined and related. In this regard, Adger, Barnett, Brooks, Lim and Woodward (2004: 168) state that “In practical terms, adaptive capacity is the ability to design and implement effective adaptation strategies or to react to evolving hazards and stresses so as to reduce the likelihood of occurrence and or magnitude of harmful outcomes resulting from climate related hazards”. This translates into resilience of the community to disasters such as floods and droughts, among others. Therefore, the researcher concurs with Hill and Engle (2013: 178) who argue that adaptive capacity enables resilience.

Even though the two might seem different, as has been noted by other schools of thought, they share some commonalities and their major outcome is to lessen vulnerability. Becker et al (2011: 1) also note that “resilience is an adaptive capacity-that is society’s capability to draw upon its individual, collective and institutional resources and competences to cope with, adapt to and develop from the demands, challenges and changes encountered before, during and after a disaster”. In other words, these scholars do not see any difference between the two terms contrary to scholars such as Nyamwanza (2012) and Magis (2010). Adger (2000) views these two concepts as similar given that they are both antonyms of vulnerability. In concurring with this assertion, Nyamwanza (2012: 3) posits that “adaptive capacity and community resilience are used together in most cases and there is arguably a thin line dividing their conceptualization”. This means that there is a slight difference between the two, in his view. However, Folk, Colding and Berker (2003) consider the two to be different. They view resilience as the only precondition of adaptive capacity. The community has to be resilient to be able to adapt. I tend to disagree with them since I am of the opinion that adaptive capacity results in resilience. Residents in a disaster-prone area need to adapt to the harsh environment and this translates to their resilience. Manyena (2006: 439) also highlights the difference between the two when he says that “resilience has a futuristic dimension as adaptation occurs

in the post disaster phase”. Despite these differences, the two serve similar purposes of reducing costs that are incurred by a disaster.

Adger et al (2004: 168) note that adaptive capacity, as actions, serves to enhance a system’s coping capacity which consequently reduces the vulnerability of the victims. There is a close link between and among Social Capital, social networks, adaptive capacity and community resilience. Social Capital and social networks allow vulnerable communities to act collectively so that they can easily adapt to catastrophic failures or misfortunes and, therefore, enhance their resilience to these changes and failures. Adger et al (2004: 168) support this and assert that “adaptation will not be successful unless there is willingness to adapt among those affected, as well as a degree of consensus regarding what type of actions are appropriate”. Accordingly, the residents in affected communities need to work together if they are to successfully cope with a disaster. The literature shows that the determinants of adaptive capacity make the community more resilient to catastrophic failures, climate-related hazards or disasters. The IPCC (2001: 67) has highlighted some of the determinants and these are: available technological options, resources, structure of critical institution and decision-making authorities, stock of human capital, the stock of capital including the definition of property rights, the systems access to risk spreading processes and information management and the credibility of information supplied by the decision makers and the public’s perceptions of risks and exposures. Even though it is difficult to measure the importance of these factors empirically, Social Capital and networks are documented in several studies as determinants of adaptive capacity which also enhance the resilience of the community. “There are examples where Social Capital, values, traditions, social networks and levels of cognition affect the capabilities of communities to adapt to risks related to climate change” (IPCC 2007: 727). For instance, Adger and Barnett (2001: 57) assert that “communities in Samoa in the South Pacific rely on informal non-monetary arrangements and social networks to cope with storm damage, along with livelihood and financial remittances through extended family networks”. In addition, other scholars such as Meyer (2013) and Aldrich and Meyer (2014) have also observed that adaptive capacity is not only influenced by economic development and technology but also by social factors.

3.4: Vulnerable groups in disasters

“Literature on disaster management reveals that vulnerable populations tend to be the ones that suffer most” (Mathbor, 2007: 358). Natural disasters disproportionately affect people in disaster-prone communities. Sensitivity to risk, gender inequalities, inequalities in exposure, capabilities and access to resources and opportunities thoroughly disadvantage certain members of the community, making them more vulnerable to all sorts of disasters both natural and man-made. Plumper and Neumayer (2007) examined the gendered nature of natural disasters in a sample of 141 countries over the period 1981 -2002, where they analysed the effect of disaster strengths and the interaction of disaster with the social economic status of women and the change in the gender gap in life expectancy. They found that it is the socially constructed gender specific vulnerability of females built into everyday socio-economic patterns that leads to relatively higher female disaster mortality rates compared to that of men. Women are therefore more vulnerable to disasters. In this research, I sought to understand the coping strategies that are adopted by the most vulnerable groups in Chadereka and Kapembere.

According to Gutman and Yon (2014: 1) “there has been growth in recent years in the prevalence, incidence and risk factors for morbidity and mortality of seniors in disasters and on elder abuse”. They go on to say that research, specifically on elder abuse and neglect in disaster situations, was limited only to the 19 articles found. The number of articles that were written on disasters and the elderly are of course found to be relatively few according to Gutman and Yon (2014: 2). Despite this, there are quite a number of research projects which were conducted to investigate the challenges faced by the elderly in disasters. However, there are very few studies which were conducted in the lower Muzarabani looking at how the elderly are affected by floods and droughts as well as how they respond to these disasters. The abuse and neglect of older persons is increasingly being recognised in many parts of the world by many researchers as a prominent social problem that requires urgent attention by policy makers as well as government officials in their respective countries. For that reason, the study incorporated vulnerable groups inclusive of the elderly in this research.

The Institute of Environmental Studies, (2014: 11) notes that “Children are an especially vulnerable group and are at increased risk from disasters that result from extreme events”. The Institute of Environmental Studies at the University of Zimbabwe (U.Z) in partnership with UNICEF (2014), conducted a study on the vulnerabilities of children to the impacts of climate change and climate variability (floods and droughts) and how these interact with children’s social and physical vulnerabilities in some parts of Zimbabwe (Chimanimani, Gweru, Mbire,

Harare and Chiredzi). The research involved soliciting children's views, knowledge and experiences as well as their coping mechanisms. The study took into consideration the fact that children are also vulnerable to disasters. Similarly, the present study includes other vulnerable groups. However, the Institute did not look at how the elderly were affected. Thus, this study aims to fill the gap that was left by the Institute of Environmental Studies and UNICEF (2014) by incorporating the most disadvantaged groups. Mudavanhu (2014) conducted a study on the impacts of flood disasters on children's education in the Muzarabani District and found that "disasters result in disruptions of school children's learning, loss of contact hours, high rates of absenteeism, and loss of qualified personnel affecting the quality of education in Zimbabwe" (Mudavanhu, 2014: 8). This indicates that, disasters are known to have contributed to the failure of achieving universal primary education, which is one of the Millennium Development Goals that were to have been achieved by 2015.

Children are more vulnerable to disasters because of their unique physiological and development attributes (Mudavanhu, 2014: 1). This means that children's ages have a bearing on their ability to cope with disasters. Disasters also affect children in two main ways, manifested through the emotional consequences of the loss of beloved family members and friends and the loss of the protective functions of their parents, putting their basic survival at risk.

3.5: Empirical studies on how floods and droughts have been affecting people in Muzarabani and how people responded.

3.5.1: Impacts of floods and droughts on people's livelihoods and food security in Muzarabani

Droughts and floods pose severe problems to both people and animals. Homes, roads, telephone and electricity supply equipment, agricultural assets, crops, domestic and wild animals can be washed away by floods. Drought has negative impacts on agriculture, food availability, water supply and sanitation as well as hydropower. Prolonged drought also leads to chronic, recurrent food insecurity and persistent threats of famine among millions of people in Southern Africa. Floods in the region threaten people's lives, their livelihoods and impede socio-economic development. The World Bank (2005) reported that in the year 2000 devastating floods in Mozambique cost an estimated \$550 million and lowered the GDP growth rate from 7.5 to 1.5 percent. As a result of floods in the region, crops and livestock are washed

away leading to food insecurity and loss of livelihoods. In addition, houses and other infrastructure, such as roads, are damaged. Consequently people are forced to move and reside in areas that are not suitable and very difficult to live in. However, floods sometimes bring benefits (such as bringing alluvial soil which is fertile for farming) to the local people but these are outweighed by the costs incurred. Studies conducted in Muzarabani (2000, 2013, 2014 and 2015) indicated that floods and droughts are a menace to human security.

Droughts and floods hinder sustainable development in Southern Africa since they affect the livelihoods of people in the region and as they have been affecting people in Muzarabani as was shown by the studies that were conducted by Mudavanhu (2014) Mavhura et al (2013), Madzana (2013), Gwimbi (2004) and Mavhura et al (2015) among others. Madzana (2013) conducted a study in the Chadereka ward of Muzarabani where he looked at the impact of floods on rural livelihoods and found that floods have both positive and negative impacts. She found that floods brought fertile soils in areas near the river, killed livestock, washed away crops, destroyed infrastructure and caused the spread of diseases.

Mavhura et al (2015) found that more than 85% of the people in the Zambezi Valley stated that crop productivity was reduced and those that could harvest would only enjoy that food for three months. According to Mavhura et al (2015: 4) “the poor harvest in Muzarabani had resulted in maize price increases from \$12 dollars to \$60 per 50 kg bag between May and December 2012”. A further exacerbation was that “At the same time prices of their livestock had dropped by 15% which was caused by market competition and oversupply at the market as the majority needed money to procure food for their families” (ibid: 4). Mavhura et al (2015: 4) further note “that drought had reduced fodder and grazing pastures to an extent that the livestock lost weight, leading to poor health”. Consequently, the livestock fetched low prices when sold at the market and some would even die due to shortage of food. This evidently shows that droughts cause shortage of food to the local people and their livestock. Thus, droughts have serious implications for people’s livestock. This is problematic given that people in rural areas such as Muzarabani predominantly rely on those animals and crop cultivation for their survival.

Mudavanhu pointed out that parents/guardians in Chadereka of Muzarabani took the following measures as a way of coping with floods: promoting early marriages, training children to engage in paid labour and taking them out of school. Promoting early marriages for young girls helps the family to get money (paid as bride-price) to buy food; training children to engage in

paid labour also enable families to have money to buy food and taking them out of school enable families to save money (which they are supposed to buy uniforms and stationary and pay school fees). This money will be used to buy food in their households. There are indications that the measures that people take in Chadereka are not sustainable as they create future problems as well as poverty. They threaten children's future lives. For instance, taking them out of school may limit their future chances of getting employed and this tends to exacerbate poverty.

The magnitude of the impact of drought and floods varies from area to area. For example, Mavhura et al (2013) found that the 2008 flood in Muzarabani affected Chadereka and Dambakurima differently. They found that in Chadereka about three quarters of the land area was eroded while in Dambakurima only a quarter of the land area was eroded. Their findings show that floods improved soil fertility as a result of alluvium deposits in the flood plain in both areas (Chadereka and Dambakurima) and the same findings were reported by Mudzana (2013). However, the Mavhura et al (2013) study did not look much into the strategies that the elderly, child-headed families and women are taking to cope with this disaster. They simply looked at the role of indigenous knowledge systems in promoting community resilience to disasters.

Some floods lead to family disintegration and divorce. Lack of food in the household emotionally affects women who are culturally considered as the sole providers of food in the household. As such, most of the women end up engaging in cross-border trading, especially in Mozambique, and they end up getting married there leaving behind their children and their husbands. Men also migrate to urban areas to search for jobs so that they are able to remit money and food to support their families in the rural areas (Muzarabani). Consequently, the family is forgotten.

Mudavanhu et al (2014) found that children who are supposed to be in school were dropping out of school as a result of floods and droughts. They were also barred from going to school by their parents or guardians because of the shortage of school fees. Some parents decide to buy food for the family rather than pay school fees and buying stationery and uniforms for their children. Many cases of such circumstances have been discovered.

3.5.2: Residents' survival strategies

Floods and droughts in Muzarabani have affected people since time immemorial, hence the studies on survival strategies carried out by several researchers. In addition, the disasters are exacerbated by climate change. Phiri et al (2014) observe that the majority of the people practise farming along the river banks in a bid to fight against hunger due to drought. They also note that people evacuate the areas during the flooding period and come back after the floods; building foot bridges so that they can cross over and practice livestock production to reduce the negative impacts of floods. Moreover, their findings indicate that people in Muzarabani have adopted house construction techniques that enable them to successfully cope with flooding. They “deepen their foundations and raise their doorsteps as well as making sure that their [people in Muzarabani] houses face the direction opposite to where the flooding water normally flows from to block water from entering their houses”. Phiri et al (2014: 21). These are some of the strategies that people in Muzarabani adopt as survival strategies. However, some of the practices such as stream bank cultivation are very harmful to the environment as they cause siltation in the rivers thereby exacerbating the occurrence of floods since siltation in rivers cause backflow.

Muzarabani residents have been able to cope with disasters using indigenous practices, but these have proved to be weak as they failed in recent disasters. Tawona’s (2014) study in Muzarabani found that people in the Chadereka community resorted to farming all year round in gardens along the Zambezi River but the major challenge to these gardens is that they are affected by floods every time the Zambezi River is flooded. This clearly shows that people in Muzarabani have been implementing some strategies to reduce negative impacts of floods and droughts such as food insecurity. All year round, gardens enabled them to have a constant supply of adequate food in the household.

The residents of Muzarabani are well-known as cotton farmers. Residents turned to the production of cash crops like cotton as a way of reducing the impact of droughts. Mavhura et al (2015) and Tawona (2014) show that many people in Muzarabani engaged in cotton farming so that they could get money to be able to buy food. Cotton requires low rainfall. Accordingly, they could grow cotton, sell it and buy food. That is why the people resorted to the production of cotton although prices were very low. However, it is currently impossible for people in Muzarabani to completely rely on cotton as cotton prices have continued to decrease to such an extent that people get less than what they expect and the income that they gain from growing cotton is thus insignificant.

The Zambezi River Authority (ZRA) and the Meteorological Services Department (MSD) have also been used by people to reduce the impacts of floods and droughts. ZRA monitors river flows and gives warnings of possible floods in the event that the river flow starts rising at high speed. The Meteorological Services Department forecasts the amount of rainfall each season and gives warnings of possible floods or droughts. These often act as early warning systems on the likelihood of either flooding or droughts so that people can make decisions that do not make them more vulnerable to floods and droughts. However, the fact that people in Muzarabani are still being negatively affected by floods and droughts clearly indicates that the early warning systems by the Meteorological Services Department and the ZRA have some weaknesses and cannot be used as effective institutions to reduce the impacts of floods and droughts.

Some methods adopted by Muzarabani locals to mitigate the effects of natural disasters, as was found by Phiri et al (2014) are, to a large extent, questionable in terms of their sustainability. For example, deforestation worsens the flooding and causes global warming which also results in the creation of more disasters. Moreover, making foot bridges exacerbates the occurrence of floods and droughts. Footbridges are built by the people using local resources (cutting down trees) and these bridges are not strong enough, buses and cars cannot pass through. In the event that heavy flooding has occurred these bridges can easily be washed away since they were not built of strong materials which can withstand both tension and compression forces. Although the local people have adopted several methods to survive in disasters, some of them are not user-friendly in terms of environmental sustainability as has been explained.

Phiri et al (2014) conducted their study in Chadereka Ward 1 only and their aim was to examine the progression of the Muzarabani community towards vulnerability to hazards and to assess how the strategies adopted made the community more susceptible to disaster risks. Furthermore, they focused on floods only while this study focuses on both floods and droughts. This study also includes Kapembere, a ward that is more prone to droughts. Their study is both similar and different from the current study in terms of methodology and theoretical frameworks respectively. Their study employed an eclectic methodology which is the use of both qualitative and quantitative methods as is the case in this study. However, this study used Social Capital and social network analysis while Phiri et al (2014) used the Pressure and Release model (PAR model) that was proposed by Wisner, Blaikie, Cannon and Davis et al

(2004). The PAR model traces the connections that link the impact of hazards on people to a set of political and social processes. In addition, the Social network analysis looks at how people's connections and relationships with others help them to withstand harsh conditions imposed by disasters. Similarly, Mavhura et al (2013) conducted a study in Muzarabani where they sought to explore people's indigenous survival strategies and variations in their ability to cope with floods in two flood-prone villages namely Chadereka and Dambakurima. Their study revealed that indigenous knowledge systems played a significant role in reducing the impact of floods and droughts in Muzarabani. They found that people employed indigenous strategies to save their food, life, shelter, poultry and livestock as well as water.

To save food, people in Muzarabani reported that they reduce the number of meals per day and they sometimes sold their assets such as cattle, pigs, goats and chickens to buy food and avoid starvation. In addition, people in Muzarabani use polythene bags to stockpile dry food and seeds which they then put into a special hut (*dura*) for future use. A smaller number of people in Chadereka also practise *mudzedze* (flood recession cultivation of maize) to improve food security (Mavhura et al (2013: 21). People use different food survival strategies at different times. This is evidenced by Chanza's (2014) study in Muzarabani where he interacted with elderly villagers and identified three vital strategies adopted by the local people in Muzarabani to increase food security. Chanza (2014) found three strategies such as *Zunde Ramambo*, rain-petitioning ceremonies and *nhimbe* as the chief strategies adopted by people to enhance food security. According to Chanza (2014) *Zunde Ramambo* is a rural project for enhancing social nets for disadvantaged members of a community. Rain -petitioning ceremonies are meant to enlist the intercession of the *mhondoro* (spirits) in order to bring rain especially before the onset of the rain season, or during the mid-season dry spells.

Depending on the area, corresponding terms are used for the same things. For example, the terms *Huruva*, *Nuhwera* and *Makoto* correspond with *Zunde RaMambo* Rain petitioning and *nhimbe*. *Nhimbe* entails the use of collective community labour where people pool their resources together for field work and other community tasks. It encompasses mutual aid through the collective sharing of resources by community members. According to Chanza (2014), the practice of *nhimbe* facilitates agricultural activities such as planting, weeding and harvesting so that they are done speedily and expeditiously. Although Chanza (2014) did not dwell much on the survival strategies adopted by the most vulnerable groups such as women, child-headed households, people living with disabilities and old people, he did shed some light

on the role of Social Capital in enhancing disasters, resilience and adaptive capacity. He noted that Social Capital is shared to such an extent that it incorporates such other vulnerable members in the villages. Thus, the benefits of adopting strategies to improve food security by members of the community who are not vulnerable can also benefit vulnerable members of the community.

Mavhura et al (2015) conducted a study where they sought to investigate the impact of drought on food security and the strategies that were adopted by smallholder farmers to cope with drought in the Zambezi Valley covering Muzarabani, Mbire and Mt Darwin. They found that drought had caused serious draining of large amounts of resources from households. People sell their livestock and household property at low prices and use their savings to procure food. According to Enfors and Gordon (2008), this strategy is explained as an asset depletion response to drought. In the context of this study, this strategy is not sustainable and it postpones the pain. It reduces resident's capacity to successfully cope with future disasters. When they sell most of their livestock and assets, they will not have anything to sell in the event that floods and droughts occur again and they will not be able to cope successfully.

To protect their crops from droughts, people in Muzarabani grow drought-resistant crops such as pearl millet, cotton, rapoko and early maturity varieties of maize during the short rain season (Mavhura et al, 2014). They also practise zero tillage (a way of growing crops or pasture from year to year without disturbing the soil through tillage). In addition, the study by Mavhura et al (2014) found that important assets for the household such as livestock and poultry were moved to safer places on higher ground during floods so that they would not be swept away by floods. Chanza (2014) also found the same in Muzarabani where people were growing drought resistant crops such as millet, groundnuts, beans and drought resistant maize. Mabaya et al (2010) also reported on these strategies in Zambia and Zimbabwe. Unlike Mavhura et al (2013), Chanza (2013) found that the local people in Muzarabani used the *zai* planting method, a technique involving filling dug holes with compost in order to retain moisture when rain falls. Chanza (2014) calls this process *Timbaugute /Dhigaugute*. This method is to a large extent indigenous and is a drought adaptation strategy.

Kaseke (2006) and Mapfumo et al (2010) share the same sentiments with Chanza (2014) when they argue that strategies such as *Zunde Ramambo* strengthen local safety nets against climatic aberration. They also argue that “weakening local food secure systems and the increasing

collapse of traditional social safety nets are major drivers of vulnerability to food insecurity brought about by climate change in many rural African communities” (Chanza 2015: 112). Similarly, Mavhura et al (2014) found that people in Muzarabani employed different strategies to save their shelter. These included avoiding the use of materials that are susceptible to cracking and building traditional huts and houses which float during flooding. In addition, some community members sow coach grass (*Cynodan Dactylon*) around their houses to guard against erosion. Mavhura et al (2014) found that the indigenous strategies adopted by people in different wards were also different. In the case of the study by Mavhura et al (2014), the strategies adopted by the community helped them to survive. This is in tandem with Troster (2002: 43) who argues that “to be resilient, communities must generally demonstrate the ability to cope, learn and adapt during and after the disturbance”.

The study by Mavhura et al (2013) indicates that floods severely destroyed crops in Chadereka and Dambakurima and the local people ended up relying on cheap food stuffs such as vegetable, leaves and wild fruits. Their study also found that Muzarabani residents borrow money from each other after a flood to earn a living and sell their assets (livestock). Most of these strategies are unsustainable and they exacerbate poverty. However, I do not concur with Chanza (2014) when he says that rain petitioning ceremonies are a strategy that can increase food security. Although he found this from the study, this method works in places in Africa where people believe that their ancestors have powers to influence the climate system (Mararike, 2011 and Chanza, 2014). The people in Muzarabani hold this belief. Nevertheless, the method does not really enhance people’s resilience to floods and droughts. Therefore, I concur with Mawere (2013 and 2015) who scrutinized the term rain- making ceremonies and concluded that the ancestors or forebears never professed that they had the ability to make rain through these ceremonies (Chanza 2015: 111).

Floods claim human lives and household items in Muzarabani and the study findings by Mavhura et al (2013) show that people elevate their beds using bricks and stones to avoid property loss and being drowned by floods. The “Residents in Muzarabani also raised platforms outside their houses as shelter and others sought safety on relatively higher ground” (Mavhura et al 2013: 43). Moreover, women in Muzarabani adopted several measures to save their utensils from being washed away by the floods by keeping their utensils on mud shelves built in the kitchen at a height that is above a metre or two from the ground. Furthermore, the residents in lower Muzarabani have been involved in trading with people in Mozambique and

those in the Upper Muzarabani where floods are minimal. They sell okra, livestock and wild fruits to their trading partners and in return they get money to buy food. The strategies that the most vulnerable group in this community employ are not widely-documented. Several studies that were conducted in Muzarabani reveal that lower Muzarabani residents are not passive recipients who are only victims but that they take measures (such as growing drought resistant crops when there are droughts, constructing bridges so that they can cross to some other parts of the country to look for food) to enable them to survive in the event that floods and droughts occur in their area. Consequently, this increases their resilience.

Moreover, the study by Mavhura et al (2015) in the Zambezi valley shows that residents in flood-prone areas (Mt Darwin, Mbire District and Muzarabani) take measures before the drought, during the drought and after the drought. Before the drought, they hold a ritual known as *doro remukwerera* in Shona, before the rain season. The ritual is meant for asking their ancestors and God for abundant rainfall so that they can harvest enough for their consumption (Mavhura et al, 2015: 5). Several rules and regulations have been established. The rules explain the planting decisions, when to refrain from working in the fields and how to make their ancestors happy so that they can have a bumper harvest. However, from my own point of view, this method does not guarantee food security since droughts can be explained scientifically and as a result of climate change, communities need to take solid actions to help them cope with droughts because it is a reality and its impacts cannot be avoided by honouring ancestors.

Mavhura et al (2015) note that during a drought, small holder farmers used water conservation techniques such as run-off water harvesting and flood diversion in order to improve their crop harvest. Water conservation techniques are sustainable; but food for work programmes are not sustainable because if the government pulls out, people will not be able to survive on their own. However, the above explanation does not clearly show how the most vulnerable groups of people cope with floods and droughts in Muzarabani. Several studies conducted regarded people as homogenous and did not pay much attention to the most vulnerable people such as women, child-headed families and the elderly in terms of how they cope.

3.5.3: Strategies employed by the most vulnerable groups to cope with floods and droughts in Muzarabani.

Child-headed families are more vulnerable to droughts and floods than other family types and these are initiated into child labour where they are rewarded in cash or kind so that they are

able to buy food. Apparently, the literature on the strategies that this group has been adopting to be able to withstand the hard conditions that are imposed by floods and droughts in Muzarabani is inadequate.

The study by Chanza (2014) showed that the elderly possess ideas on how to cope with floods and droughts. He found that the elderly have knowledge about the occurrence of droughts and floods and that they, therefore, start instituting measures to reduce the impacts. They make use of indigenous knowledge systems such as predicting rainfall amounts and the occurrence of drought. They also grow crops that are suitable for the conditions of their area. However, floods in Muzarabani are not only a result of climate change but also the backflow of the Nzoumvunda and Hoya Rivers which results in flooding. This does not require any prediction. In addition, floods are also a result of the opening of flood gates in Kariba when the dam is full. In that case the use of traditional belief systems to cope with such types of floods is subject to criticism. Just like with child-headed families, literature on the strategies adopted by the elderly is still scanty and that is why the study sought to understand the strategies that are being adopted by them.

3.5.4: Implications of institutional arrangement on people's livelihoods in Muzarabani.

The need for institutionally coordinated systems with the necessary resources and capacities needed for immediate responses to natural disasters, is now recognized in most countries. According to Muhonda et al (2014), there is an institutionalized framework for the management of floods in Zimbabwe, supported mainly by the Draft National Civil Protection Policy (DNCPP), National Policy on Drought Management (NPDM) and an Operation Manual for the Management and the Civil Protection Act of 1989.

Prior to Zimbabwe's independence the management of disaster risks was referred to as Civil Defence. After independence, disaster risk reduction issues continued to be administered through the Civil Defence Act of 1982. Civil Defence was designed to serve the values, interests and preferences of the minority white population during the liberation war. Manyena (2013: 6) notes that "it was a top down model of disaster response with more clarity of responsibility at the national level than at local levels". However, the Disaster Risk Approach in Zimbabwe evolved from the Civil Defence to the Civil Protection Act (CPA) (Chapter 10:6) in 1989 (Government of Zimbabwe 1989). The Act was revised in 1992 and 2001 and "now there is an established Civil Protection Organisation (CPO) providing for the operation of Civil

Protection Services in times of disasters” (Mavhura 2015: 7). The CPO is a national legislative framework made up of line departments, state enterprises, the private sector and NGOs whose regular activities are related to Disaster Risk Reduction (DRR) (Mavhura (2015: 7). The Civil Protection Act directs every province and district to take responsibility for the protection and preservation of the lives and property of its citizens. The Act established the national Civil Protection Fund whose objective is to finance civil protection activities (DCP) which fall under the Ministry of Local Government Public Works and National Housing (MLGPWNH) responsible for the administration and implementation of the Civil Protection Act. The DCP cannot successfully work independently but is supported by the National Civil Protection and Planning Committee (NCPCC) which comprises the Secretary for the Ministry of Health, Red Cross Society, military commanders, the Director of Prisons, the Director of the Fire Brigade and Civil Aviation. Although membership of these subcommittees appointed by the NCPCC is vague in the Act, the NCPCC appoints the national power utility, ZESA and agencies such as the United Nations Development Programme (UNDP), the United Nations Children’s Emergency Fund (UNICEF), the United Nations Office for the Coordination of Humanitarian Funds (UNOCHA), the International Organisation for Migration (IOM) and NGOs such as the Zimbabwe Red Cross Society, Save the Children, Oxfam and World Vision. However, Muhonda et al (2014) expose the weaknesses of the legislative framework and observe that “the framework puts much emphasis on mitigation measures such as the construction of physical structures or barriers which can restrict water to the river channels only” (Muhonda et al 2014: 67). Furthermore, they highlight that there is no clear arrangement in the legislative framework to strengthen the capacity of the local community’s structures to effectively cope with disasters. In addition, “the issues of gender and natural disasters are not addressed in the legislative framework” (Muhonda et al, 2014: 67).

The management of floods and droughts in Muzarabani involves traditional institutions such as the elders and the chief, village heads and spirit mediums. These institutions predict the likelihood of floods and droughts and encourage people to employ traditional strategies to curb the negative impacts of floods and droughts. These pass ideas on to the rest of the community and the younger generation on floods and drought and how to reduce the impacts of droughts and floods.

The Environmental Management Agency (EMA) has a running project of creating fire guards in the country and as of 2011, has done so in 15 districts including Muzarabani. EMA imposes

heavy fines and has put in place intensive law enforcement measures in relation to the environmental management in the country. Traditional chiefs are also empowered by the Traditional Leaders Act to fine those who commit environmental offences. However, this also affects people's survival strategies. For instance, people cut down trees to make houses yet this practice, being a real threat to the environment, is accordingly proscribed.

In Muzarabani, there is a Zimbabwe Republic Police (ZRP) Sub-Aqua Department that deals with rescuing people in floods and other flood-related problems like drowning. However, the department does not have adequate rescuing equipment such as a helicopter, cruise boats and even communication channels to inform the government. This renders the preparedness levels low and they have to wait for help as well from their superiors whilst people perish. This clearly means that the local people themselves need to be proactive to increase their resilience to disasters rather than rely on external aid. The Zimbabwe Parks and Wildlife Management Authority facilitates the sustainable utilization of resources including wild animals. The Zimbabwe Parks and Wildlife Management Authority (ZPWMA) (2011: 5) notes that Zimbabwe's Parks and Wildlife Act of 1975 allows hunting and ranching of non-endangered species in both communal and commercial farming areas, under the logic of the sustainable utilization philosophy. However, following the killing of the iconic Cecil (the Lion) outside Hwange National Park on the 1st of July 2015, the Zimbabwe Parks and Wildlife Management has increased its hunting regulations in all areas outside the Parks Estate. Several regulations have been formulated in a bid to promote wildlife conservation and to reduce the illegal harvesting of wildlife. The implications of these regulations that are formulated by the Zimbabwe Parks and Wildlife Management are not yet documented as the majority of the rural people, especially in Muzarabani, predominantly depend on harvesting wildlife resources and agriculture.

3.5: Understanding Human security in Sociology

Mills (1959: 101) notes that "Men often feel that their private lives are a series of traps". This is true of contemporary society where disasters are becoming more pronounced. Worldwide, disasters are threats to human security. Human security is dominant in Political Science and International Relations. Literature on how floods and droughts as disasters impact human security in developing countries (especially in Zimbabwe) is still scanty. However, scholarship on how disasters affect human security in Sociology as a discipline is gaining momentum in

the 21st century where disasters (climate-related, earthquakes, epidemics and technological disasters) have become prevalent. Human security, just like any other concept, is fluid and it relates to the well-being of individuals.

Definition of human security varies according to discipline. In the context of climate change, it is defined as “a condition that exists when the vital core of human lives is protected, and when people have freedom and capacity to live with dignity (Adger et al, 2014: 759)”. Equally important, O ‘Brien and Leichenko (2007/8: 3) state that “human security relates to the well-being of individuals in their communities, including both freedom from fear and freedom from wants”. It also includes the following: security from physical violence, food security, livelihood security, environmental security, health security and energy security. The concept emerged in the early 1990s when the first Human Development Report was published by the United Nations Development Programme, with the aim of placing people at the centre of the development process. It was widely welcomed by scholars and policy makers promoted it as an all-encompassing concept that promotes human development which is also considered as key to economic development.

The UNDP (1994: 23) observes that human security “can be said to have two main aspects. Firstly, it means safety from such chronic threats as hunger, disease and repressions. Secondly, it means protection from sudden and hurtful disruptions in the patterns of daily life-whether in homes, in jobs or in communities. Such threats can exist at all levels of national income and development.” The International Commission on Human Security (2003: 4) explained the concept of human security as being “to protect the vital core of all human lives in ways that enhance human freedoms and human fulfilment” and which encompasses “human rights, good governance, access to education and health care...the freedom of future generations to inherit a healthy natural environment”. In this study, human security was taken as the concept which requires the protection of individuals in their communities from threats. “Human security has been received with wider criticism as being vague, ambiguous and too broad to use” (Rabie 2008: 842). The study had to adopt the approach which termed human security the “vital core meaning capabilities related to survival, livelihood, and dignity” (Akire 2003: 24). Thus, it narrowed it down to food and livelihood security. The study also looked at how climate related disasters (floods and droughts) impacted livelihoods and food security which are important components of human security. Thus, the researcher had to conceptualise both

livelihood and food security before looking at how these were being impacted by floods and droughts in Chadereka and Kapembere.

3.6: Food and livelihood security Conceptualised.

3.6.1: Defining livelihood security

The term “livelihoods” is often confused with income-generating activities. In fact, it is a broad term which encompasses all activities that are conducted with the aim of improving one’s life. Understanding how floods and droughts affect residents’ livelihoods security, requires one to understand what livelihood security entails. Many of the definitions of livelihood security currently derive from the work of Chambers and Conway (1992), (Frankenberger, Drinkwater and Maxwell, (2000: 70). Household livelihood security has been defined “as adequate and sustainable access of income and resources to meet basic needs (including adequate access to food, portable water, health facilities, educational opportunities, housing, time for community participation and social integration” (Frankenberger, 1996: 4) Household livelihood security has been defined by Frankenberger (1996) as being adequate and sustainable access to meet basic needs. This, therefore, means the ability of the community or individuals to conduct activities that can make them earn a living and be able to meet their day to day needs. One other way of looking at livelihood is to say:

A livelihood comprises the capabilities, assets (stores, resources, claims and access) activities required for a means of living; a livelihood is sustainable when it can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long-term (Chambers and Conway, 1992: 7).

In the view of Frankenberger, Drinkwater and Maxwell (2000: 70), “Livelihoods consist of farm and non-farm activities that together provide a variety of procurement strategies for food and cash”. Thus, the community can “have multiple sources of entitlement which constitute its livelihood” (Frankenberger, 2000: 70). Drinkwater and Risnow (1999: 4) further note that “the idea of livelihood security as defined embodies three fundamental attributes that are possession of human capabilities (education, skills, health and psychological orientation), access to other tangible and intangible assets (social, natural and economic capital) and the existence of

economic activities”. In fact, the term livelihood security is highly complex as it also entails managing and coping with relationships in the family and community, dealing with uncertainties and at the same time responding to new opportunities” (Matondi, 2011: 5). Therefore, the community or family is said to have livelihood security when it is able to withstand the harsh conditions that are imposed with uncertainties.

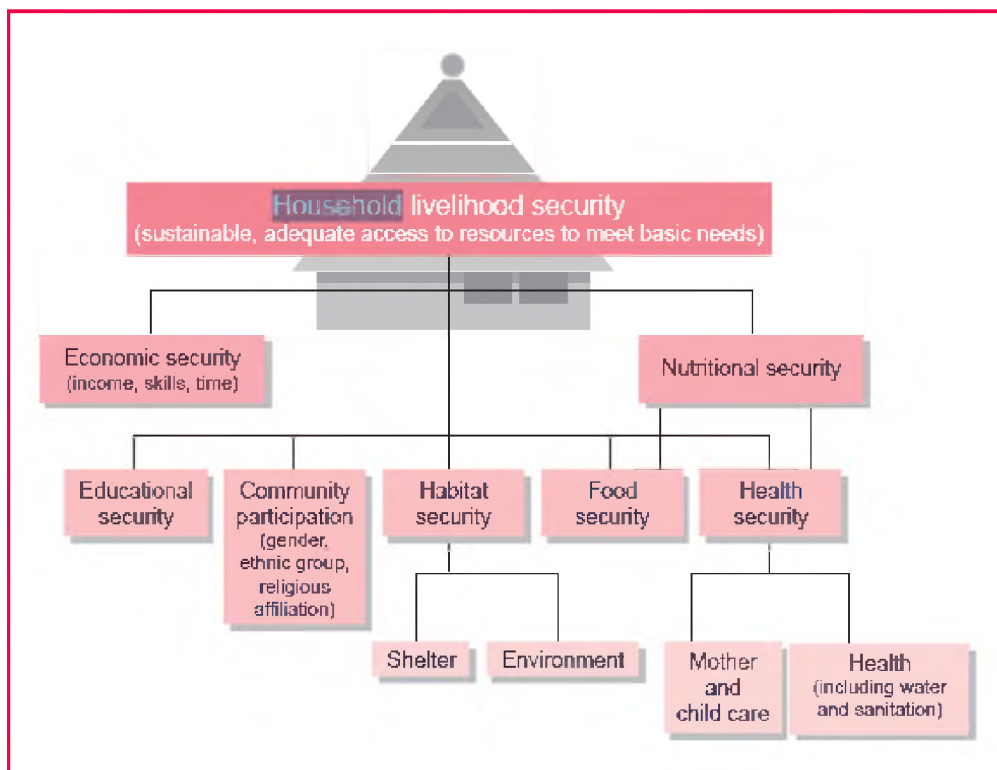


Figure 3.2: Frankenberger and McCaston (1998: 31)

The diagram above summarises the concept and components of livelihood security. Conceptualisation of livelihood security and its components demonstrates that climate related disasters and other disasters are threats to human security. The diagram in Figure 7.1 above shows that livelihood security has multiple dimensions.

3.6.2: Operationalising Food Security

There is no authoritative definition of the term ‘food security’ since it is an elusive concept. The debate on food security definitions can be traced back to the Hot Springs Conference on Food and Agriculture in 1943. Since that time, the concept has undergone several redefinitions. From 1943 to the present the concept evolved, developed, multiplied and diversified several times. “In the 1950s....60s food security was equated with self-sufficiency in major staples”

(FAO 2008: 1). Following FAO World Food Conference of 1974, food security is defined as having access to sufficient food (FAO, 2008: 2). In addition, the definition “agreed upon the World Food Summit in 1996 is that food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food to meet their dietary needs and food preferences for a healthy and active life (Pinstrup-Andersen, 2009: 5). In short, food security as a concept puts more emphasis on the ability of people to have easy access to adequate nutritious and healthy food all the times and that their bodies should be able to ingest and metabolise such food.

In the 1996 World Summit Definition, one can see that food security has four main dimensions, and these are: availability, accessibility, utilisation and stability. Each dimension is supported by determinants. The first food security dimension is availability and this “addresses the supply side of food security and it is determined by the level of food production, stock levels and net trade” (FAO, 2008: 1). Food has to be available and people need to have the right type of food (depending on their age, activity and health status) at the right time. The second dimension is accessibility which is the ability of people to obtain food regularly either by producing, purchasing or distribution. “Access is determined by how well people convert their various financial, political and other assets into food, whether purchased or produced” (Ericksen, 2007: 3). In the same vein, “the public health emphasis on nutritional outcomes has further amplified the food security framework by adding utilisation” (Ericksen 2007: 3). Utilisation denotes the ability of the human body to ingest and metabolise food. Its determinants involve the ability to cook and prepare the food, safety and hygiene in the production, harvesting and storage. Food processing, transportation, retail, households and the food intake should meet quality in terms of energy and nutrient content. Stability is the ability of the household to have consistent access to adequate and nutritious food over time. Thus, community is only food secured when all dimensions are present. Figure 7.2 below summarises food security dimension and its determinants.

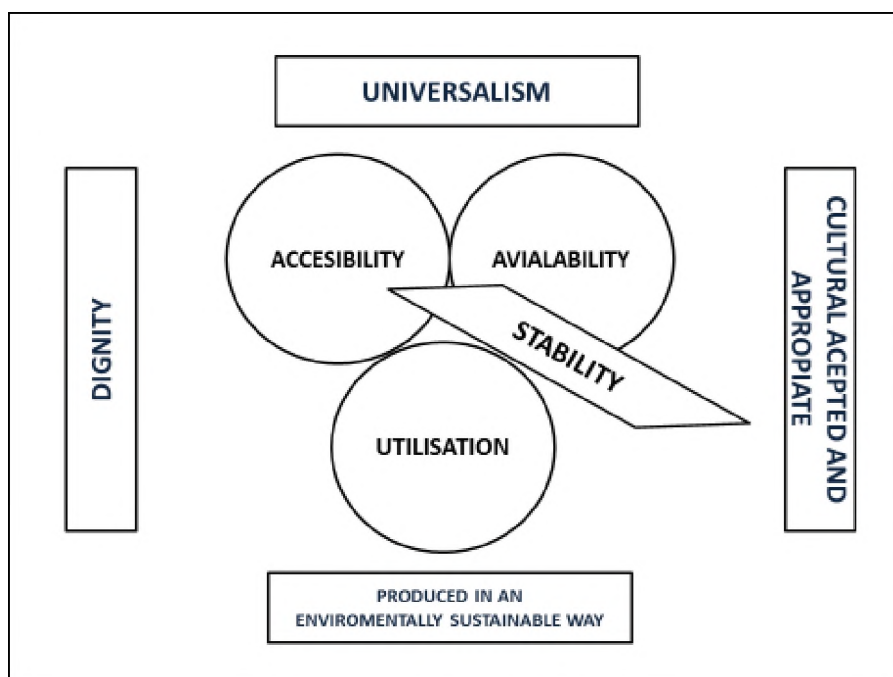


Figure 3.3: Food Security Components.

Source: Rosemary Kasimba

3.6.2: Food Security dimensions and their components

Erratic rains, flooding and extremely high temperatures negatively affect livelihood strategies that are meant to ensure food security. Devereux (2007: 48) states that “in rain-fed agricultural systems, erratic rainfall can have comprehensive and devastatingly impacts on food security”. Crop productivity is negatively affected by erratic rains and yields are affected and people will ultimately become food insecure. “Throughout most of human history, the constraints imposed by local environmental conditions and their natural variability, were powerful determinants of the security of individuals and societies” (Barnett, Mathew and O ‘Brien (2010: 3). Thus, the prospects for human security are deeply affected by environmental changes or disasters.

The consequences of climate-related disasters such as floods and droughts are varied and potentially serious to the extent that they can change the existing patterns of production and consumption as well as the settlement pattern. Floods and droughts are threats to livelihood and food security which, in turn, are subsumed in human security. Floods and droughts threaten human security in diverse ways which put human security at risk. For instance, Rabie (2008: 52) notes that the “2000 and 2007 flooding in Mozambique left hundreds of thousands of rural people homeless and unemployed. The flooding also affected the livelihoods of up to 1.5 million people. During the same period, about 80 000 people were left homeless by floods in

Zimbabwe and an estimated 60 000 were destitute after four weeks of heavy rains”. Rabie (2008: 52) further observes that in Lesotho, the production of maize, the country’s main staple, dropped by more than 50% between 2006/2007, leaving more than 30 000 people with food shortages due to drought. This implies that people’s livelihood activities are, in most cases, negatively affected by floods and droughts. Hence, human security (livelihood and food security) is under threat. Thus, climate related disasters and other disasters “place at risk many of the basic things people need to be healthy and to live dignified lives” (O Brien et al 2008: 10).

3.7: Coping, Adaptation and Mitigation.

Adaptation to hazards or risks is indispensable to human society, especially in the contemporary world where disasters and risks are prevalent. Alongside mitigation, adaptation is one of the major responses for addressing climate change under the UNITED Nations Framework Convention on Climate Change (UNFCCC) (UNFCCC, 2013: 6). According to Walter et al (2010: 2), defining adaptation is complicated although it appears to be a straight forward idea. Scholars are still grappling with a “jumble of definitions, questions, problems and proposals” on adaptation without reaching a consensus (ibid: 2). The term is used in diverse disciplines and, therefore, arriving at one definition that is universally acceptable is difficult. Thus, Adger and Barnett (2009: 2803) point out that:

There will be difficulty in adopting cultures and lifestyles when some impacts of climate change involve irreversible losses of the things that individuals care about. Most of these impacts are invisible because governments and planners inevitably focus on the material well-being and issues that they can handle through planning systems. But adaptation must seek to include and sustain important values, including places and identity which means that adaptation will not necessarily be straightforward.

Bhatasara (2015: 49) traces the unfolding development of adaptation in versatile disciplines. In this study, the interest lies in, among other things, adaptation linked to climate change hazards (floods and droughts). Adaptation is defined as “actions by individuals or systems to avoid, withstand or take advantage of current and project climate changes and impacts” (Centre for Climate and Energy Solutions (C2ES, 2011: 5). According to the Global Leadership for climate Action (2009: 6), “adaptation is about building resilience and reducing vulnerability”.

Pielke (1998: 159) and Brooks (2003: 3) describe adaptation as the actions taken to enhance the ability of systems to successfully cope with external shocks. Thus, in the context of this study, adaptation involves the actions employed by the community to reduce their vulnerability to floods and droughts.

The climate is changing at a rate unprecedented in recent human history and will continue to do so for the foreseeable future. According to the recently released fifth assessment report of Working Group I of the Intergovernmental Panel on Climate Change (IPCC), the atmosphere and ocean have warmed, the amount of snow and ice has diminished, the global mean sea level has risen and the concentrations of greenhouse gases have increased” (UNFCCC, 2013: 9). Thus, adaptation is needed in all communities in order to reduce the negative impacts of weather related shocks. However, the study employed adaptation the way it was defined by Smit and Wandel (2006: 283) as “a process, action or outcome in a system (household, community, group, sector, region, country) in order for the system to better cope with, manage or adjust to some changing condition, stress, hazard, risk or opportunity”. There are two approaches to adaptation that are reactive and proactive. A proactive approach “aims to reduce exposure to future risks, for instance, avoiding the development of flood prone lands. A purely reactive approach aims only to alleviate impacts once they have occurred, for instance, by providing emergency assistance to flood victims” (Burton, Diringier and Smit 2006: 10). Reactive adaptation is also known as tactical adaptation, as it involves the employment of short term strategies (the same as coping strategies) that are meant to solve a problem at a particular time (Makame,2014: 198). Furthermore, adaptation can also be anticipatory or strategic, and that involves the employment of long term strategies that can sustainably solve the problem permanently (Huq et al, 2004: 3).

FAO (2012: 7) defined mitigation as “actions involving direct reduction of anthropogenic emissions or enhancement of carbon sinks that are necessary for limiting long-term climate damage”. Mitigation reduces the causes of climate change (emission of greenhouse gases in the atmosphere), whilst adaptation is aimed at reducing impacts of climate change. Adaptation and Mitigation are important in our society. Indications are that no matter how strong the mitigation is, climate change is expected to increase. Thus, adaptation is necessary. According to Locatelli (2011: 1), “adaptation and mitigation differ in terms of spatial scales: even though climate change is an international issue, adaptation benefits are local and mitigation benefits are global”.

Blaikie (2003: 113) defines coping as “the manner in which people act within the limits of existing resources and range of expectations to achieve various ends. In general, this involves no more than ‘managing resources’, but usually it means how it is done in unusual, abnormal and adverse situations”. In most cases, a coping strategy is adopted when one wants to survive in adverse situations. Within the discipline of sociology, coping is defined by Gerhardt (1979: 197) as “active behaviour that involves selecting between alternative options and using situational knowledge to one's advantage”. The sociological model of coping developed by Mechanic (1970), outlines and stresses the “opportunities – ever present in real-life situations - to select alternatives, to seek out optimal opportunities, and in general, to structure the situation to [the individual's] advantage” (Mechanic, 1970: 106). In this context, individuals are viewed as active recipients that can devise strategies to eke out a living despite living in adverse conditions that negatively affect their livelihood and food security.

A closer look at all the foregoing conceptualisations and discussions on coping, adaptation and mitigation, makes it clear that they all encompass strategies that are to be employed by people, to be able to prepare, respond, recover and reduce the negative effects of external shocks. This means that they all translate to resilience of the community. Knowledge of how vulnerable people respond to a threat is indispensable in the contemporary society where disasters are becoming prevalent and interventions can be built on these strategies.

3.8: Conclusion

This chapter is a documentation of the strategies employed by the people living in Muzarabani to reduce the effects of floods and droughts. The trends of floods and droughts in Muzarabani were also traced to show the magnitude of the problems caused by these disasters. Definitions of community resilience, adaptive capacity, floods, and droughts were detailed. The chapter also offered a brief background on the historical development of community resilience and adaptive capacity. It also explains how floods and droughts have affected people. In addition, the study examined some of the institutional frameworks found in the study area that are designed to help people reduce the impacts of floods and droughts. Several terms such as human security, coping and mitigation were also defined in this chapter. The next chapter is on the research methodology employed for this study.

CHAPTER 4

PHILOSOPHICAL BASIS OF THE RESEARCH AND METHODOLOGY

4.1: Introduction

The previous chapter looked at the empirical studies on adaptive capacity and disaster resilience in Muzarabani. This chapter explains the research methodology. The sampling techniques employed to select respondents and villages are explained and justified in detail. The methods used for data collection and analysis are also explained. What came first was the collection of data from individuals and households, wards officials, and members of Non-Governmental Organisations. Data from government officials was collected later. The measures which were adopted to enhance the validity, credibility and reliability of the research findings, are also explained in detail. The chapter closes by highlighting the set of ethics observed in the research process.

4.2: Methodological Posture

This research employed a mixed methodology approach to achieve the objectives of the study. In addition, the need to produce reliable and valid findings in this research made it necessary to employ a mixed methodology which is the combination of qualitative and quantitative approaches. The use of mixed methodology makes it possible to corroborate the research findings, overcome the limitation of a single methodology and increase the credibility of the research findings. According to Creswell and Plano Clark (2007: 5) “mixed methodology involves philosophical assumptions that guide the direction and collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies”. Its central premise is that it provides a better understanding of the research problem. Tashakkori and Teddie (2010: 5) define mixed methodology as studies that are products of the pragmatist paradigm and that combine qualitative and quantitative approaches within different phases of the research process”. In addition, Creswell and Plano Clark (2007: 5) describe mixed methodology as:

a research design with philosophical assumptions as well as methods of inquiry. As a methodology it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of quantitative and

qualitative approaches in combination provides a better understanding of research problems that either approach alone.

The mixture of qualitative and quantitative elements in research “helps in illuminating people’s lives and the larger contexts in which they are embedded” (McLafferty, 1995: 440). However, this methodology is not without its shortfalls. I, therefore, took such weaknesses into cognisance.

There are several types or classifications of mixed methodology designs given by Creswell, Clark Plano, Gutmann and Hanson (2003), Sandelowski (2000), Creswell (1999), Morgan (1998) and Patton (1990), among others. However, there are five common mixed methods research designs that can also be put into two groups and these are concurrent mixed methods designs (triangulation design, and embedded design) and sequential designs (explanatory, exploratory and sequential embedded design). The purpose of a triangulation design is to obtain different but complimentary data on the same topic (Morse 1991: 122) so that the researcher will be able to understand the problem in detail. The design “is used when the researcher wants to directly compare and contrast quantitative statistical results with qualitative findings or to validate or expand quantitative results with qualitative data” (Creswell et al, 2003: 263). The embedded research design is a mixed method design “in which the data set provided supportive, secondary roles in a study primarily on other data type” (ibid: 58). Creswell (2006:67) notes that “the premises of this design are that a single data set is not sufficient, that different questions need to be answered, and that each question requires different types of data”. A sequential explanatory design starts with the collection and analysis of quantitative data and then moves on to collecting and analysing qualitative data. Finally, interpretation is done using both quantitative and qualitative results. In addition, a sequential exploratory design starts with the collection and analysis of qualitative data followed by the collection and analysis of quantitative data. Finally, both sets of data are interpreted and analysed but with the qualitative data being collected first.

The last but not least design is the sequential embedded design. This starts with qualitative data before intervention, followed by quantitative intervention and then after intervention the qualitative comes in again and finally interpretation.

In this study, a sequential explanatory design was employed where I started with the collection of quantitative data (administered through a questionnaire) followed by the collection and analysis of qualitative data (although qualitative data were the dominant methodology). Data analysis was guided by both quantitative and qualitative findings. A questionnaire was administered the first time my research assistant and I went to Muzarabani. Analysis started as soon as I had finished administering the questionnaire. In the overall interpretation, I sought to find the points where the two sources of data would converge and diverge. Below is Figure 3.1 to show the above discussed mixed method designs.

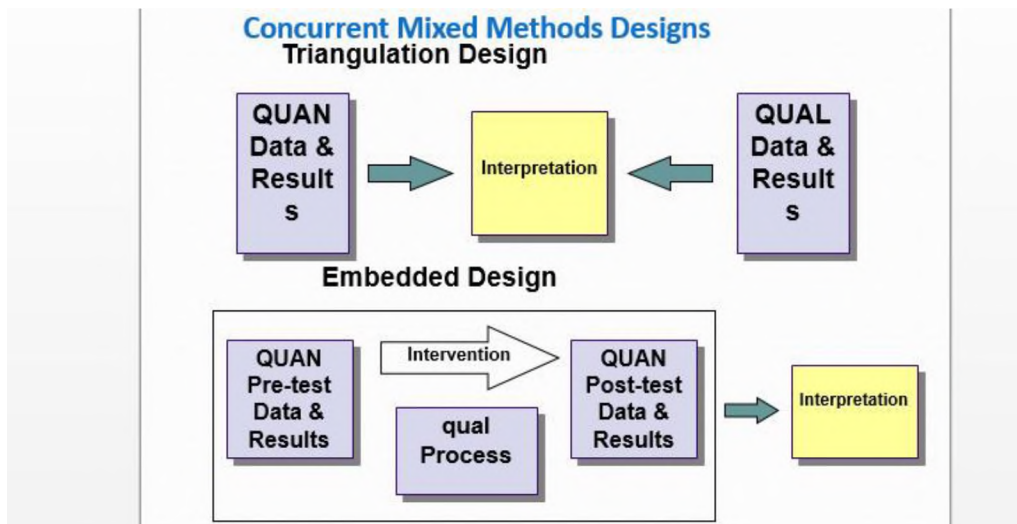


Figure 4.1: Concurrent Mixed Methods Design

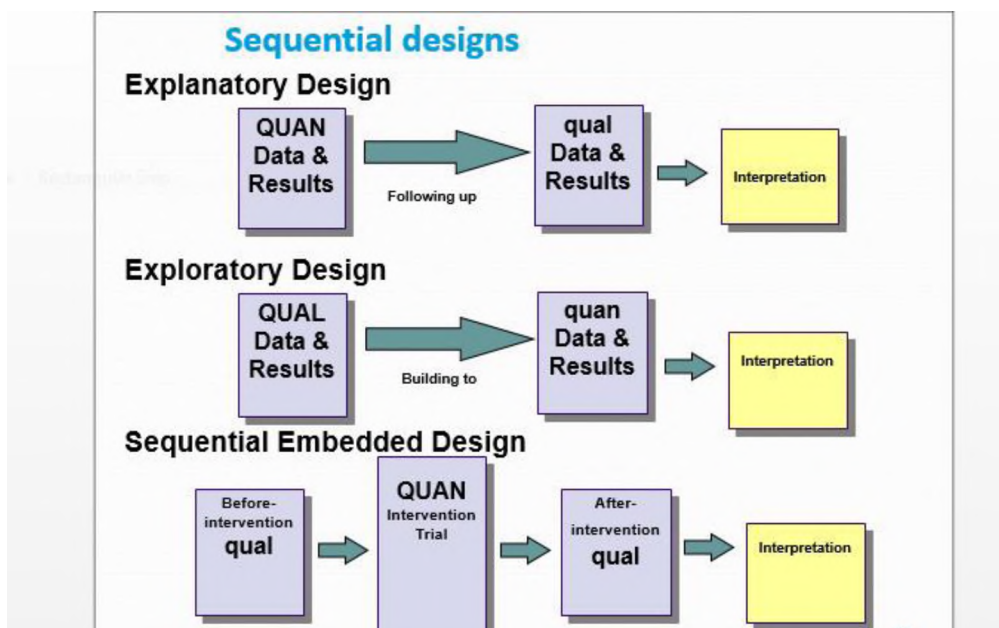


Figure 4.2: Sequential Design

Source: Creswell 2008:26-27

The Explanatory Sequential design is a type of mixed method approach used in this study. Under this design I started with the collection and analysis of quantitative data. I then collected and analysed qualitative data.

Qualitative methodology enables one to have a critical understanding of residents' perceptions on floods and droughts, the coping strategies adopted by vulnerable groups and the relationship between Social Capital and the residents' resilience to these disasters. This is also supported by Creswell (1994) who purported that the qualitative approach considers residents' values, beliefs, thoughts and context in generating inter-subjective meaning and this enabled me to understand lived experiences and realities.

4.2.1: Qualitative Approach

Qualitative approach is defined as “an approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem” (Creswell, 2014: 4). Generally, it is “a means of exploring and understanding the meaning individuals or groups ascribe to a social or human problem. According to Mishra (2016: 1), “qualitative research is a research understanding phenomenon, exploring issues and answering questions. It is a generic term for investigating methodologies described as ethnographic, naturalistic, anthropological field or participant observer researcher. It encompasses the importance of looking at variables in their natural setting in which they are found”. The process of research involves emerging questions and procedures, data typically collected in the participant's setting, data analysis inductively build from particulars to general themes, and the researcher making interpretations of the meaning of data” (Creswell 2009: 4).

The qualitative approach (interpretivist paradigm) is used because “it reflects a much lower degree of control over the research context and subjects involved” (Burns and Burns, 2008: 18). This is because the world is socially constructed and subjective and people are affected and react differently to disasters in the same community. Thus, the method stresses “the validity of simple meanings of events not in a fixed entity but a variable that can only be discerned through the analysis of multiple understanding and meanings held by different persons” (ibid: 8). The method makes it possible to gather and analyse information conveyed through language and behaviour exhibited in natural settings. It captures expressive information not conveyed in quantitative data about “perceptions, values, needs, feelings and motivations that underlie

behaviours at an individual level” (ibid: 9). That is, information was solicited from the individuals themselves on how they deal with floods and droughts. Furthermore, Burns and Burns (2008: 19) note that “qualitative research enables the researcher to immerse her or himself in an environment to discover meanings, conventions of behaviour and ways of thinking important to an individual in a group”. Thus, in this study I immersed myself into the community of the subjects of my study so as to gain a detailed understanding of how they are affected by floods and droughts and challenges faced by the vulnerable groups as well as how they are coping.

Understanding social capital and social networks required an in-depth participation of the research participants. Thus, under the qualitative method, the research made use of the Participatory Rural Appraisal Approach (PRA). This is an approach that involves methods that enable rural people to share, enhance and analyse their knowledge of life and conditions, to plan and act and to monitor and evaluate and reflect (Chambers 1994: 953). PRA methods are in fact art of action research and it utilises a wide range of techniques that include observations, storytelling and diagrams. The methods involve local community as active participants and outsiders mostly as facilitators. Only few methods of PRA were used in the research and these are story telling during transect walks, observation and focus group discussions among others. PRA enabled me to have a better understanding of system dynamics and appreciate the interlinked factors influencing livelihood diversification. Information that was provided by community members such as the elderly, women and child heads was cross-checked with the statements from community leaders and ward government officials. The approach was used to involve people in the processes that affect their livelihoods and empower them in dealing with external factors. During focus group discussions livelihood profiles, timelines, seasonal calendars and community maps were being drawn by women and the elderly. PRA methods are premised on the assumptions that local people possess adequate knowledge of their environments. PRA helped me to overcome the bias created by meeting only more accessible and well –to do individuals or groups in search of quantitative data, whilst missing more qualitative and in-depth information.

However, the qualitative approach has its own loopholes such as being time consuming and tiring. In addition, analysing qualitative data was very difficult because I had gathered more information (more than what I was expecting) which became difficult for me to synthesize. If not recognised and dealt with, this may render the research findings unreliable. With this in

mind, I used both qualitative and quantitative approaches so as to increase the validity, credibility and reliability of the research.

4.2.2: Quantitative Approach

The study employed the quantitative method because it quantifies the problem by generating numerical data or data that can be transformed into useable statistics. In the present research, the quantitative approach was used to obtain a general understanding of the magnitude of the problem (floods and droughts), to understand the role of social networks in enhancing people's resilience to floods and droughts and to have a general understanding of the basis of people's resilience to these disasters. However, the quantitative approach has limitations in that it does not provide detailed information about people's resilience to disasters. Accordingly, the findings from this method were corroborated with those from the qualitative approach to increase the reliability and validity of the results.

4.3: Data collection tools

4.3.1: Questionnaire

A questionnaire consists of a number of questions printed or typed in a definite order on a form or set of forms (Kothari, 2004: 100). Before using this method "it is advisable to conduct a pilot study to bring to light the weaknesses so that improvements can be effected (Kothari, 2004: 101). The pilot study was done before the collection of data had started in earnest to test the efficacy of the research instruments and to determine logistical problems that need to be addressed. Overall, the pilot study reduces the likelihood of problems that may affect negatively the credibility and reliability of the research findings.

A questionnaire was administered to 136 households in Kapembere where it was given to the heads of households who have stayed in the area for at least 10 years. In Chadereka, a questionnaire was administered to 169 households. The questionnaire was designed in such a way that the content would enable the researcher to achieve certain objectives. These provided general information on how people are coping with floods, the relationship between Social Capital and the local people's resilience to these natural disasters and the implications of people's strategies for the institutional arrangement of the community. Information gathered through the questionnaire provided a general overview of what forms the basis of resilience of

the people in Chadereka and Kapembere in response to floods and droughts. The questionnaire also provided information on how people's livelihoods are affected by these natural disasters. Simply put, the questionnaire allowed for the gathering of information such as the general socio-economic and demographic characteristics of households, impacts of floods and droughts, coping and adaptation strategies. The questionnaire was administered in order to obtain the local community's opinions about floods and droughts and household information such as source of income, age and the period in which the respondent had stayed in the Muzarabani area.

The questionnaires made use of pseudo-names so that the respondents would not feel uncomfortable to provide answers to the questions. After designing the questionnaire, pre-tests were made to check for mistakes and to ascertain whether the respondents would face problems in responding to it.

4.3.2: Focus Group Discussions

Denscombe (2007: 115) and Anderson (1990: 241) say that a focus group discussion consists of "a small group of individuals (usually between six and nine in number) with certain characteristics, who are brought together by a trained moderator [researcher] to explore attitudes, perceptions, feelings and ideas about the given topic".

Focus group discussions allowed "for a variety of points of view to emerge and for the group to respond to and discuss views" (Lewis et al, 1997: 233). Different groups "generated and responded to a number of ideas (ibid: 233) and these helped in understanding and exploring more key themes. According to Stewart and Shamdasani (1990: 140), focus group discussions provide a rich detailed set of data about feelings and impressions of people in their own words". Respondents provided vital data for the success of the research as the design of the focus group discussion "sought to provoke discussion and simulate people into making explicit their views, perceptions, motives and reasons" (Punch 2005: 171). Focus Group Discussions of about 8-10 respondents was conducted with the most vulnerable residents in the area. These FGDs were divided into four cohorts by status and these are:

- Single headed households (females and males)
- The elderly (males and females)
- Heads of child- headed families (males and females) and
- Women who have stayed in the area for more than 10 years.

According to Flich (2002: 43), it is “more appropriate to organise FGDs with respondents of different characteristics instead of friends or those who know each other well because the level of things taken for granted will be higher in the latter”. Hence, respondents were mixed from different villages (child heads, elderly or women) as long as their status were the same In each cohort, two FGDs were conducted per ward and there were 8 FGDs per ward. An average of 162 respondents were chosen to participate in FGDs. In total, there were 16 focus group discussions that were conducted in both wards. These provided information on how vulnerable residents are coping, their experiences in the face of floods and droughts and different types of Social Capital employed by them. Respondents were purposively selected with the help of Non-Governmental Organisations such as the Red Cross Society and World vision, Help from Germany who are working with people in dealing with natural disasters such as droughts and floods.

Focus group discussions complemented the household survey. Lung and Livingstone cited in Flich (2002: 21) note that “FGDs generate diversity and differences either within the groups or between so it reveals the dilemmatic nature of the everyday practices”. This enabled the researcher to obtain rich and unanticipated information which is also vital for the research. Furthermore, the strength of this data collection tool lies in its ability to mobilise participants to respond to and comment on one another’s contributions. In that way, statements are “challenged, extended, developed, undermined or qualified in ways that generate rich data for the researcher” (Willig, 2008: 30).

4.3.3: Observations

Marshall and Rossman (1989: 79) defined observation as the “systematic description of events, behaviours and artefacts in the social setting chosen for the study.” It is actually a qualitative method that has its roots in traditional ethnography. Under this research tool, the information is “sought by way of investigators’ own direct observation without asking from respondents” (Kothari, 2004: 96). The reason why the study adopted this method is that “subjective bias is eliminated if it is done accurately” (Kothari 2004: 96). Moreover, information obtained under this method relates to what is happening and it is independent of respondents’ willingness to respond and as such, it is relatively less demanding of the active cooperative on the part of respondents as happens to be in the interview” Kothari 2004: 96). The researcher observed

their farming lands, gardens, how they fed livestock as well as how they interacted in their communities as they were responding to the 2016 drought. In fact, I observed what respondents were saying and what they said they do. For that matter, I had to go to the shops (Chadereka shops) in the evening where the majority of female heads, young girls and men go. Observations helped in having access to the context and meaning surrounding how most residents (especially the most vulnerable) respond to floods and droughts in the area. It was also observed that there is massive cutting down of trees for different purposes as shall be highlighted in the following chapters on strategies that are being employed by the local people as well as the basis of people's resilience to disasters.

Nine months were spent in Muzarabani District, observing how vulnerable residents are utilising Social Capital to cope with droughts and floods. Five vulnerable residents (in each ward) whose livelihood activities were frequently observed in their own environment were chosen. It was imperative to reside in Muzarabani to gain first hand experience of the phenomena in the area of study. Field notes were documented during the period of stay in the area and broad questions were also asked for comprehensive understanding of how the community is responding to floods and droughts as well as how people are resisting the effects of these natural disasters. The questions which were asked, include how people are coping with droughts and floods and what kinds of crops they grow. I also observed how people are making use of Social Capital and social networks to increase their resilience to floods and droughts. Field observation was employed to verify responses obtained from key informant interviews and focus group discussions. Five respondents that are the female household heads and child heads of household were observed.

4.3.4: Transect Walks

My observation was strengthened by transect walks. I defined transect walks as a systematic way of collecting data by walking across the area under study together with some local residents taking notes, observing, listening and asking questions. I conducted my transect walks with Agricultural Extension Officers and NGO officials in each ward and with the local people. With Agricultural Extension Officers, we visited gardens, fields (for both ordinary people and the most vulnerable groups). With Agricultural Extension Officers, I had one full day visit in each ward. With NGOs officials, I also had an intensive full day visit in each ward. In Kapembere, I spent time with a member from SAT and in Chadereka I walked around with a

member from Help from Germany. With the local people, I had four full days visiting the most vulnerable groups in each ward (Chadereka and Kapembere). All in all, I had 12 full days of transect walks. In addition, I also solicited more information in Chadereka when I was attached to Red Cross. I was able to observe and ask questions pertaining to how they were coping to floods and droughts and how they were making use of their social networks to sustain themselves under harsh conditions that were being imposed by floods and droughts in the area. During transect walks in both Chadereka and Kapembere, I was also able to take notes, observe trees, land use, rivers and their interactions. Transect walks helped me to validate some information that was provided by research participants and was able to observe people's activities, strategies, interactions and other physical conditions that influenced issues that were under investigation.

4.3.5: Key Informant Interviews

This method involves interviewing a “selected group of individuals who are likely to provide needed information, ideas, and insights on a particular subject.” (Kumar, 1989: 1 and Seidman 2006:15). Such informants are selected because they possess information or ideas that can be solicited by the researcher (Kumar 1989: 1). Because information comes directly from knowledgeable people, key informant interviews often provide data and insight that cannot be obtained with other methods (ibid: 1). Early pioneers of ethnography such as Malinowski and Mead used unstructured interviews with local key informants. Thus, it was an ethnographic method that was originally employed in the field of cultural anthropology and is now used more widely in other branches of social sciences research.

Key informant interviews were conducted with people in key positions. These were individuals who interacted with the community in their day to day activities. These included two Grain Marketing Board (GMB) officials in the district, two field officers from NGOs working with residents, two Agricultural Extension Officers, two Heads of schools in each ward, two health workers and two officials of the Civil Protection Unit (CPU). These were purposively selected. Two village heads were randomly selected together with the chief, councillor in each ward, the District Administrator and Member of Parliament (MP) for Muzarabani District. These were asked questions that provided information on how residents' livelihood activities were affected by droughts and floods and adaptation strategies that are being employed by vulnerable groups in the area. An interview guide was used as a data collection tool to ask detailed questions. Below is the table that shows research objective and methods of approach used in the research.

Table 4.1: Research Question and Methods Matrix

Research objective	Methods
To understand the role of Social Capital in enhancing community resilience and their adaptive capacity to natural disasters.	Through focus group discussions, key informant interviews and observations (which are phenomenological approaches) it was easy to comprehend the role that Social Capital is playing in enhancing the resilience of the community to floods and droughts.
To understand the effects of floods and droughts on residents' livelihoods and food security.	Focus group discussions, observations, discussions, diagrams and story-telling with the most vulnerable people during transect walks helped in the understanding of the effects of floods and droughts on food and livelihood security.
To examine residents' perceptions on droughts and floods.	Focus group discussions and questionnaires helped in soliciting the information on people's perceptions on floods and droughts in the area
To document community-based strategies utilised by women, child headed families and the elderly to improve their livelihood and food security in the face of floods and droughts.	Focus group discussions, key informant interviews and observation were very critical in gathering this information. Detailed information was gathered as respondents would explain in detail their coping strategies and their facial expressions aided in understanding how they were coping.
To explore different types of Social Capital that exist in the study area, especially with regard to household resilience to disasters.	Questionnaire, focus group discussions, key informant interviews and observations helped in comprehending the nuances and degrees to which people relied on Social Capital for their day to day survival.
To comprehend the basis of residents' resilience to floods and droughts and the extent to which vulnerable groups rely on Social Capital.	Triangulating focus group discussions, questionnaire, observations and key informant interviews enabled me to have a deep appreciation of the basis of people's resilience to floods and droughts in Muzarabani.

To examine the repercussions of residents' strategies on the community's institutional structures.	Focus group discussions and key informant interviews helped me to understand the repercussions of residents' strategies on community institutional structures.
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Source: Generated by Rosemary Kasimba

During Focus Group discussions and transect walks, the following techniques were used to collect data; wealth ranking and analysis, gender analysis, and social mapping. Under wealth ranking, respondents were asked to describe the rich, poor and the very poor basing on asset ownership, type of food and house among others. This helped in comprehending how vulnerable the most vulnerable groups were to floods and droughts. It also helped me to understand factors that influenced their survival strategies. On gender analysis, participants were asked to list activities and explain whether they were men's or women's roles or they were shared. This enabled me to reflect on how women and men allocated their labour to livelihood strategies and how vulnerable they were to floods and droughts. The technique also helped in the understanding of how the resources and assets were being controlled by men and women. Under social mapping whereby participants were asked to draw a sketch map which shows the number of households in the community, natural resources, shopping centre, clinics, schools, water source and where people fetch firewood. The technique showed the spatial distribution of resources and services for different groups of residents in the community.

In addition, my approach to data collection is related to the one that Philip (1998) calls the multi-methods approach. "This is defined as the situation in which a number of complimentary methods are employed to address different facets of the same research question from different perspectives" (ibid: 268). Thus, to understand the role that Social Capital plays in enhancing the resilience of the community, a questionnaire, observations, focus group discussions, transect walks and key informant interviews were employed.

4.4: Sampling procedure

4.4.1: Sample size determination

According to the Zimbabwe National Statistics Agency (Zimstat) (2012) and the Red-Crescent Society (2013), Chadereka has an average population of 7 505 with 3704 males and 3811 females and 4,7 average household size. It has an average of 1594 households. Kapembere has an average of 5008 total population, constituting 2411 males and 2597 females and 4,4 average

household size. It has an average of 1125 households. The average is 31 households in Chadereka (Manyani 2013) and 35 households in Kapembere (Red Crescent Society 2013). I purposefully selected villages in Chadereka and Kapembere that are severely affected by floods and droughts, respectively. In Chadereka, there are about six villages that are severely affected and these have an average of 310 households. Six villages in Kapembere with an average of 210 households were also purposefully selected. The formula adapted from Krejcie and Morgan (1970: 2) was used. The formula is as follows:

$$s = \frac{X^2 NP (1 - P)}{d^2 (N - 1) + X^2 P (1 - P)}$$

Where s =required sample size;

X^2 =the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841);

N =Population size;

P =Population proportion (assumed to be 50 since this would provide the maximum sample size); and

d =the degree of accuracy expressed as a proportion.

No calculations were needed as the sample size had already been calculated as shown on the table (See Appendix page 369). That is, 136 and 169 households in Kapembere and Chadereka were chosen, respectively.

4.4.2: Selection of the respondents.

Different sampling methods were employed to select respondents and this was influenced by the type of information that was to be collected and the data collection tool used. Simple random sampling was used to select the respondents for the questionnaire. Using the list of names from the Ward Councillor or District Administrator, the respondents' names were generated by the computer. If k happened not to be there, he or she was replaced by the next respondent.

With the help of Non-Governmental Organisations and village officials or community leaders, the respondents were purposively selected for focus group discussions. Purposive sampling is relevant especially when the “researcher wants to study a small subset of a larger population in which many members of the subset are easily identified but the enumeration of all is nearly impossible” (Babbie, 1990: 97). Furthermore, key informants were purposively selected

because these people interact with the community members more frequently and play key roles in their respective wards. In cases where there were too many key informants, random sampling was used to choose the respondents. Thus, convenience sampling was utilised to select two Heads of Schools, Health Workers and GMB officials. Where observations were concerned, convenience sampling was used to select the respondents.

4.4.3: Selection of the study area and specific wards

Lower Muzarabani was selected as a case study. Chadereka and Kapembere Wards were purposively selected because they frequently experience floods and droughts. Six villages in each of these wards were randomly selected since they have similar physical and climatic characteristics with villages in other wards. In Chadereka, these villages have an average of 310 households and in Kapembere they have an average of 210 households. Using the Krejcie and Morgan formula (1970) and a 95 percent confidence interval, a questionnaire was administered to 305 households. This number constitutes a representative sample of the total population.

Muzarabani District was purposively selected because it has occasionally suffered from floods and droughts. According to Babbie (1990: 97), purposive sampling is “selecting a sample on the basis of your own knowledge of the population, its elements, and the nature of your research aims”. The study focused on Muzarabani District in order to fulfil the objectives of this research. It was done in line with the contention that the population or study area has to be “non-randomly selected based on a particular characteristic” (Frey, Botan and Kreps, 2000: 132). The individual or study area characteristics are selected to answer necessary questions about a “certain matter or product” (MacNealy, 999: 157). I was then able to select participants and the area based on internal knowledge of the relevant particular characteristic, in this instance, susceptibility to flooding or drought.

The geographical location of the area also makes it more vulnerable to these disasters. Whenever the country is hit by floods and droughts, Muzarabani is usually one of the most affected districts. The area also experiences severe dry-spells during the rainy season. Muzarabani District was also chosen because I understood the local peoples’ language and culture. Therefore, it became easier for me to interpret meanings and symbols. This also increased the validity and reliability of my research findings. I chose Chadereka and Kapembere

for different reasons. Chadereka was chosen because it is frequently affected by floods and droughts. It is more prone to floods and droughts and if Muzarabani is flooded, Chadereka is ranked one of the most affected areas. When there is a flood in Chadereka, many people lose their lives and property. I have distant relatives who live in Chadereka and that made my stay easy and comfortable.

Kapembere has in recent memory been affected by floods, but more severely by droughts. I purposively chose Kapembere because from my point of view, there was no scientific study of this nature that had as yet been conducted in the ward before mine. Thus, I was entirely convinced that these two wards would enable me to obtain relevant information to fulfil the objectives of the study. Furthermore, I randomly selected six villages in each ward in Kapembere since they have the same climatic and geographical characteristics. The villages that were selected are Mwanza, Kayongo, Mutunda, Manhango, Kapembere and Mufudze. Some of these villages were 12 kilometres apart. These villages provided a general picture of how floods and droughts are affecting people, the role of Social Capital in enhancing community resilience and how the most vulnerable groups are responding to floods and droughts among others. I purposively selected six villages in Chadereka and these were Chadereka, Chidavaenzi, Musoro wegomo, Gunduza and Kwariramhere. These villages are more prone to floods.

4.4.4: Commencement and finishing of the field trip.

I entered the field in January during the 2015/ 2016 agricultural season and finished the data collection in October 2016 when people were making preparations for the 2016/ 2017 agricultural season, in order to understand in detail the problem at hand. The area also experiences dry spells in mid –January to February and I was able to observe how the people made use of Social Capital and social networks to deal with such conditions and to ensure food security. In addition, stretching my field work to October allowed me to have an in-depth understanding of the role of Social Capital and networks in enhancing community resilience to floods and droughts. During the given period, I was also able to learn cultural aspects that I am not familiar with but which helped me achieve the objectives of my research. The building up of social networks and Social Capital is a process and therefore, I had to spend considerable time understanding types of Social Capital that exist in the area.

4.4.5: Specific Time-frame

People may not be able to retrieve in detail their past experiences. So, I concentrated on the period 2000-2015/6. Within this period, there were several occasions in which floods and droughts devastated livelihoods and food security in Muzarabani. People who have stayed in this area for more than twenty years were able to reflect on their experiences with floods and droughts. I was also able to understand their perceptions of floods and droughts and the coping strategies they employ to reduce the effects of these disasters. Furthermore, I was able to understand changes in strategy if there were any such changes aimed at reducing the effects of floods and droughts. The 2000-2015/6 period is a contemporary period. This fact makes this study current and relevant given that the information collected, if continually updated, can be of use to people affected by floods and droughts in other areas. They can thus make use of it to bolster their resilience.

4.6: Data analysis

I analysed the data using Social Capital and social network analysis techniques in discussing the role of community relations, associations, and connections in enhancing the resilience of the community to floods and droughts. I used content and thematic analysis as well as the Statistical Packaging for Social Sciences (SPSS) to analyse qualitative and quantitative data, respectively. Content analysis is defined “as a research method for subjective interpretation of the content of data through the systematic classification process of coding and identifying themes or patterns” (Hsieh and Shannon 2005: 278). I had to quantify and analyse the presence, meanings and relationships of certain words and concepts in the analysis phase. Content analysis allows qualitative data to be coded and discussed in detail and SPSS makes findings easier to understand. Namey et al (2008: 138) state that:

thematic moves beyond counting explicit words or phrases and focus on identifying and describing both implicit and explicit ideas. Codes developed for ideas or themes are then applied or linked to raw data as summary markers for later analyses, which may include comparing the relative frequencies of themes or topics within a data set, looking for code concurrence or graphically displaying code relationships.

Under thematic analysis, I developed themes that concurred with my research objectives or research goals. After that, I used content analysis to develop themes under each objective. The

method was time-consuming and challenging but it helped me to explicitly understand how Social Capital was being utilised in the community to enable residents to withstand the harsh conditions imposed by floods and droughts, conditions such as acute food shortages. At the end of each data collection day I produced a report on the key points. These reports were based on the notes I made in 25, A4 books, of 32 pages each. I did this so that I would not forget some of the information since the phone that I used to record with sometimes acted up. Also, writing while I still had information avoided distortion of information. The content and thematic analyses were made possible by the manner in which I designed my data collection tools. I had organised questions in relation to objectives and this enabled me to check for inconsistencies and consistencies.

Thematic analysis was employed to analyse data from participatory methods. I looked closely at the raw data and community maps and came up with themes that were in line with my research objectives. The data from participatory methods was also linked to the other methods that were used to collect data in the study.

SPSS as defined by Blumenthal (2010: 1), is a window-based piece of software that can be used to perform data entry and analysis. It takes data from any kind of file to create tabulated charts and graphs. With the help of an SPSS specialist from the University of Zimbabwe (Mr Paradza), I was able to input all the data from the questionnaire and produce tables and graphs which answered some of the research questions including questions regarding how floods and droughts would have affected them and how they were making use of Social Capital and networks among others. Mr Paradza helped me to code the questionnaire and to feed the data into the computer. Data was analyzed using SPSS version 19. A data dictionary was first designed in the variable view. Data were captured in the data view. After the data-capturing, the data were cleaned by running frequencies for all variables. Descriptive statistics were computed and the frequency tables exported to MS Word. The data was presented in the form of frequency tables and graphs. The graphs were computed in Excel. The SPSS enabled me to produce tables and graphs that explain some of the survival strategies employed by the residents to increase their resilience.

4.7: Citizen (Native/Insider) and Foreign (Outsider) Anthropologist Approach

This research was largely ethnographic and therefore, the notion of foreign and citizen anthropologist becomes very crucial in this research. The outsider doctrine values researchers

who are not from the communities they study for the reason that they are viewed as being neutral, detached observers (Kerstetter 2012: 100) as well as for their perceived objectivity which permits the stranger to experience and treat even his close relationships as though from the bird's view. According to Kerstetter (2012: 100), insider doctrine holds that outsider researchers will never truly understand a culture or situation if they have not experienced it. According to Narayan (1993: 24), citizen anthropologists have problems regarding their roles as native anthropologists in terms of possible illusions. For Narayan (1993: 56), knowledge is situated or negotiated and part of the on-going process and this process spans personal, professional and cultural domains. In other words, an indigenous or citizen anthropologist is also an outsider who must try hard not to take anything for granted. Thus, I adopted both the insider and outsider approach in the study to increase the reliability and objectivity of the research. I was both a foreigner (outsider) and a citizen (insider) anthropologist in the sense that I understood some part of the culture (Chikunda and Kore-kore) of the people I was interacting with. My credentials as an insider were enhanced by the fact that I have living relatives in the area even though I did not know where exactly they lived. Although the area is comprised of people from different ethnic backgrounds, the majority are Kore-kore and Chikunda. Nevertheless, I was an outsider in the sense that I was not a permanent resident of the area and had never stayed there before. According to Serrant-Green (2002: 42), the question of the identity of the researcher in relation to the subject of a group under study constantly changes and is not fixed. Thus, in this study, I positioned myself as an indigenous outsider and external insider in the area under study.

4.8: Measures to Ensure Validity and Reliability and Credibility of the Research Findings.

4.8.1: Recruitment and Training of Research assistants

I recruited and trained three research assistants who helped me administer the questionnaire. I conducted Focus Group Discussions, Key Informant Interviews and made observations on my own. I selected research assistants who had a Social Science Degree and experience in data collection. In addition, I also selected those who were proficient in the dialect of the Shona spoken in the area. This ensured that they could communicate with ease with the respondents. I arranged a two-day training workshop with them (although I was financially challenged, I made sure that they received this training). In addition, I instructed them to administer a maximum of six questionnaires per day to avoid rushing and I also told them, especially the

females, to adhere to a dress code that would be acceptable to the community. None of the female research assistants were allowed to wear trousers. In addition to this, when in the field, I supervised their completed questionnaires to ensure that the relevant questions were addressed. I also identified problems that arose in the process of the data collection. I also had meetings with them in the evening to discuss their challenges and experiences.

4.8.2: Employing Strategies to Increase the Validity and Reliability of the research (reduce bias and error)

Validity and reliability are significant concepts to be considered in research. The findings of a study must be generalizable in different settings and readers and other scholars should have trust in the findings. Casey et al (2013: 12) defined validity as “the degree to which a research study measures what it intends to measure”. There are two types of validity namely internal validity that is defined by Thyer (2010: 566) as the “approximate truth about inferences in relation to cause effect or causal relationships” and external validity which is defined as the ability to generalize the research findings to the target population, for instance, Muzarabani residents. Reliability is defined as the “stability of responses to multiple coders of data sets” (Creswell 2007: 210). Drost (2011: 106) defines reliability as the extent to which “measurement is dependable, repeatable and consistent”. Simply put, reliability refers to the repeatability of a measure. There are two aspects of reliability which are stability and equivalence. “Stability is concerned with securing consistent results with repeated measurements by the same person and with the same instrument” (Kothari 2004: 75). Equivalence considers “how much error may get introduced by different investigators or different samples of items being studied” (Kothari, 2004: 75).

However “reliability is not as valuable as validity” (Kothari, 2004: 74). I made use of unobtrusive methods to reduce bias and error. According to Payne and Payne (2004: 229):

The presence of an interviewer modifies their reported position, because they react under scrutiny. They might do any or all of the following: withhold socially unacceptable views; act the way they think researchers want to study; become self-conscious about audio recorders; respond to questions in a routine fashion; or just modify activities to accommodate the presence of a researcher in a confined space.

Thus, to reduce these problems as well as increase the validity and reliability of the research, I therefore, did the following:

- a) adopted the reflexivity approach- Reflexivity is defined by Charmaz (2006: 188) as “the researcher’s scrutiny of his or her research experience, decisions and interpretations in ways that bring the researcher into the process and allow the reader to assess how and to what extent the researcher’s interest, position and assumptions influenced inquiry.” A reflexive stance informs how the researcher conducts the research, relating it to the research participants and presenting them in written reports. There are three types of reflexivity; the personal, epistemological and critical language awareness. “Personal reflexivity involves reflecting upon ways in which our own values, experiences, interests, beliefs, political commitments, wider aims in life and social identities have shaped the research” (Willig, 2008: 10). I adopted this approach in order to understand how both my contextual history and the contextual history of the data affect any knowledge claims that I made regarding my findings. According to Willig (2008: 10), “reflexivity requires an awareness of the researcher’s contribution to the construction of meanings throughout the research process and an acknowledgment of the impossibility of remaining outside of one’s subject matter while conducting a research”. For that reason, it was therefore, necessary for me as a researcher to reflect on how my personal background might impact the research findings. Accordingly, I would continuously reflect on how my actions, values and perceptions impact upon the research setting and how they might affect the data collection and analysis to reduce bias. In addition, I made sure that the behaviours, beliefs systems and actions of the respondents did not affect my data analysis.

- b) Epistemological reflectivity requires one to engage with questions such as “how has the research question definition limited what can be found, how has the design of the study and method analysis constructed the data and the findings, how could the research question have been investigated differently and to what extent would this have given rise to a different understanding of the phenomena under study? On critical language awareness, I interacted with people more frequently to be familiarised with some words that I did not understand well so that it would be easier for me to interpret the meaning as it is as well as to report truthfully.

- c) In addition, I also made use of triangulation to reduce bias and error. Rahman and Yeasmin (2012: 154) define triangulation as the process of combining multiple theories, methods, observers and empirical materials as a way of overcoming the weaknesses and biases that come from a single method or approach. In this research I applied triangulation at various phases of the research. Accordingly, I made use of two theories (though they are complimentary) namely, Social Capital and social networks. At data collection phase, I made use of questionnaires, observations, focus group discussions, key informant interviews and transect walks. Furthermore, I made use of both probability and non-probability sampling to choose respondents. In fact, the sampling was influenced by the choice of data collection tool. All was done to increase the validity and credibility of the research. Basically, triangulation encompasses the use of multiple data gathering methods to produce complimentary measures of concepts thereby reducing the margin of error. Thus, I used the following data collection tools: questionnaires, key informant interviews, focus group discussions and observations to obtain a balanced response.
- d) I sought and was granted permission to use voice recorders prior to conducting focus group discussions and when asking questions during observations.
- e) Furthermore, I did audit trail. Audit trail is defined as the process that encompasses a “thorough collection of documents regarding all aspects of research” (Carcaray, 2009: 12). Thus, I was expected to “keep all records of study processes” (ibid: 12). I have kept all the documents that I used at each and every stage of my research. I stored all the videos and recordings in my external hard drive and made sure that no one can have easy access to the videos except me. All counter books with field notes, dates, daily reports are also kept in a safe place. I will destroy these after 10 years.

4.8.3: Pilot study and the pre-testing of data collection instruments

I conducted a pilot study to increase the validity and credibility of the research findings. According to Barker (2002: 33), a pilot study is “a mini-version of a full-scale study or a trial run done in preparation of complete study”. It is a “reassessment without tears” (Blaxter, Hughes and Tight, 1996: 121) where I was trying out all research techniques and methods in mind to see “how well they work in practice” (ibid: 121). Conducting a pilot study helped me identify pertinent logistical issues before embarking on the main study since its (pilot study) results can inform feasibility of the study and identify modifications needed in the main study.

Furthermore, the pilot study made me avoid embarrassment and discomfort. This is because of the fact that the “non-verbal behaviour of participants in the pilot study would give important information about embarrassment or discomfort experience concerning content or wording of questions” (Krugger 1999: 146). In overall, pilot study helped me to identify potential practical problems in following the research procedure.

I administered 10 questionnaires to the respondents in each ward in the study area to check whether the questions were of quality, unambiguous, having the meaning intended, the duration that each questionnaire would take and whether the questions were short and precise. After this, I revised the questionnaire with the research assistants to make sure that it would enable me to solicit the information needed and to ensure that the information will be easy to analyse using the Statistical packaging for Social Sciences (SPSS). Moreover, I pre-tested my Focus Group discussion questions to limit potential risks that would affect respondents’ responses.

4.9: Ethical considerations

Ethics are defined as the “dos and don’ts” when one is carrying out a research. They are defined as rules or guidelines “that guarantee the observance of civil and human rights (Jedynak, 2014: 104). Researchers are under obligation to conduct a research in a way that does not raise either reservations or suspicions of impartiality (ibid: 104). According to Brinkman and Kvale (2008: 263) “human interactions in qualitative enquiries affect researcher and participants; and knowledge produced through qualitative research affects our understanding of the human condition”. From this perspective, I therefore, had to observe ethics from the beginning up to the end of the research. I read the Rhodes University Policy on Research Ethics (RUPRE) and complied with its requirements at all times during the research. This is a social science research and that means the respondents in the study area form the centre of the research. Thus, I sought permission for my study in accordance with all expected protocols. I did this in a descending hierarchical order from the Provincial Administrator (PA) down to the community leaders (Councillor, Chief, Village Heads and traditional leaders). To facilitate acceptance, I had a letter from Rhodes University confirming that I was a student and my research was purely for academic purposes.

According to Muzvidziwa (2004: 302), “Central to research process is the need for participation, integrity and responsibility on the part of researchers”. I, therefore, ensured that

no physical harm befell them during the study and after the results were published. Furthermore, confidentiality and anonymity were ensured to the respondents. I informed the respondents that the information that they provided would be treated confidentially and when published, it could not be identified as theirs. This also made them feel comfortable and be able to provide detailed information on their perceptions of floods and droughts and how they are coping. Pseudo names were used to ensure anonymity. I also sought permission from guardians/ or those who are represented as parents of the child heads to talk to heads of child headed families who are below the age of 18. I interacted with them when they signed the consent form. In addition, the child head signed the consent form in the presents of his or her guardian. The study ensured that informed consent was obtained from all the respected protocols before the collection of data started in earnest. In addition, I made it clear that there would be no direct benefits for participating in the research and I explicitly informed them that participation was voluntary. Establishing caring relationships and a concern for the well-being of the respondents was made paramount throughout the process. According to Adjibolosoo (2000: 3) “good and effective researchers should possess termed positive human factor attributes such as loyalty, accountability, responsibility, dedication, vision, honesty, motivation, wisdom, skills, knowledge, understanding and trustworthiness”. Therefore, I tried to make sure that these attributes are adhered to in order not to complicate the research.

Non-intrusiveness is one of the most crucial ethics that I considered in this study. Non-Intrusiveness requires one not to interrupt the respondent’s day to day business with the respondents when they are free in order not to disturb them. In addition, I asked questions to the respondents whilst they were conducting their day to day activities provided that permission was granted. This insured that the respondents would not feel like their time has been wasted. I also debriefed community members about the results after collecting the data. I collected data in a way designed to avoid hindering future researchers from entering the area for another research. In addition, researchers cannot use their authority to support particular people, political parties or groups (Jedynak, 2014: 104). A researcher with “high ethical standards is a reliable society explorer worthy of public confidence” (Sztuminski, 2005: 31). Coming across different people and social groups in Muzarabani, I had to obey the “moral rules” as a guarantee that the observance of civil and human rights (Jedynak 2014: 106).

4.10: Challenges which I encountered in the Field

One may never know how bitter and hot chilli can be until one tastes it. The same applies to the PhD journey. Although I enjoyed my stay in Muzarabani, I encountered some difficulties which, however, enhanced my problem-solving skills. Furthermore, “qualitative research is harder, more stressful and time-consuming. It is only suitable for people who care about it, take it seriously and prepared for commitment” (Delamont 1992, viii). Although my study was both qualitative and quantitative, I was prepared for it. Forthcoming, are some of the challenges which I encountered in the field.

Ethical dilemma is one of the most difficult things which I encountered in the field. Observing research ethics put me in a corner during my field work. At times, I felt guilty when visiting certain households. For instance, I sometimes visited child-headed households where both parents are dead, leaving behind two or three HIV positive children. These households often had nothing to eat and lived in poorly-built huts that leak when it rains. They relied on neighbours and churches for their day to day survival. I ended up feeling like giving them all the little money I had for my everyday expenses. However, it was unethical to give incentives and this made me feel very guilty. To solve this problem, I bought vegetables, brought out my mealie -meal and asked them if they would want us to cook and eat together that day.

Muzarabani District is a politically sensitive area. The majority of residents are fanatical supporters of the ruling party, the Zimbabwe African National Union – Patriotic Front (ZANU-PF). In fact, the area is mainly controlled by the ruling party and political parties such as the Movement for Democratic Change headed by Mr Tsvangirai (MDC-T), The Zimbabwe People First (ZPF) and other small unpopular political parties have little or no presence in the area. I was therefore, required to carry all my papers as proof of permission to enter into the area. Even though I had observed all protocols regarding my study and the community members had been informed, I still had to carry these documents.

Some respondents who were absent when I was introduced appeared uncomfortable talking to me because they feared that they would be in hot soup if they were found talking to me (a stranger who was holding a bunch of white papers). They were politically sensitised so they had to observe the rules of the place. The fact that I sometimes resided at the chiefs’ place made my chat with all members easy as time progressed. Eventually, I received an offer letter from The Zimbabwe Red Cross Society where I started working as a post-graduate trainee (Mashonaland Central Province, Muzarabani District) and people in Chadereka became used

to me. In Kapembere, where this organisation was not operating, I was assisted by a former Disaster Management student at Bindura University who was a native of Muzarabani. He sometimes accompanied me around the area.

The language barrier was also an obstacle during the first few days of my stay in the area. Although I am Korekore, an ethnic group that had initially occupied the area, communication remained a challenge during my first days. The area is now inhabited by diverse ethnic groups. My continuous interaction with community members enabled me to understand their language as well as their culture.

Extremely high temperatures and food shortages made my life in Muzarabani very difficult during the early part of my stay there. As a result of food shortages, people were grinding cotton seed for sadza and bread. Since I was resident in the area among its people, I found it expedient to eat what the people ate with the exception of any food I might have objected to for religious reasons. I was a victim of serious dysentery because of the chemicals which would have been used as insecticides on the cotton. Although I had my own food, it was very difficult for me not to eat sadza, especially where I was provided with accommodation. The temperatures were very high in the area, ranging from 32 -42 Degrees Celsius. I also had severe headaches in the first 2 months due to dehydration.

Controlling Focus Group Discussions was not easy because the community itself was already in conflict, especially in Chadereka. The Food Relief Programme offered by the government had a certain criteria for choosing the beneficiaries and these criteria were condemned by non-beneficiaries. Households with less than two cattle, no goats, headed by children, the elderly and by females were the main beneficiaries. In addition, households with more than seven members, with members who were suffering from chronic diseases such as headaches, nursing mothers who were weighing 50Kgs and below and with children who were weighing below their age were considered to be the main beneficiaries. However, the majority of non-beneficiaries felt that the selection criteria was biased towards people who had strong links with community leaders. Sometimes chaos rocked our discussion to such an extent that I could not control them. People would start criticising the criteria being used to select beneficiaries instead of concentrating on what we were discussing.

Administering a questionnaire and meeting key informants was not easy. Some respondents would keep on postponing the appointment to such an extent that I would feel like I was being unfairly treated. Some respondents would postpone the appointment we would have made several times. I ended up making use of the cell phone to confirm if they were not busy so that I could talk to them. Sometimes the mobile networks had problems and calling became very difficult.

There were several reported cases of elephant attacks. People were attacked and killed by elephants in the area (especially in Kapembere). It was so scary to hear that someone had been attacked and this made my life difficult in the area. I would think that the elephants would come to attack me at night. Some respondents were about 20 Kilometres from their village heads probably because they would have relocated to other places. I was forced to go to their homesteads, crossing rivers with thick vegetation which is the elephant's most favoured resting places.

Another problem was that of the absence of clear demarcations as to which people lived in which villages. Some people would say that they belonged to two villages, depending on the relief programme then available. Although I had a list of names of people whom I had chosen from their respective villages, I encountered problems in identifying them. People belonged to more than one village head depending on the programme since there were certain programmes which required only ten beneficiaries per village. Most of the villages had more than 25 people. So, for them to benefit, they had to form several villages with 20-22 people so that the majority could benefit. This was also because of the fact that drought was at the peak and there were massive food shortages. Too many small villages had emerged. I then had to ask the councillors to give me a signed paper with names of people with their respective villages as was in the District Administrator's data base. These papers helped me a lot because I could then tell them that I was using an official paper from the councillor. In addition, I was being forced by the respondents to write down their names. Some would bring their National Identity Cards (ID) and wanted me to write their names and ID numbers even though I had told them the purpose of my study. They did not believe what I told them when I was given the chance to meet with them by their councillors. In addition, I became a victim of observer's paradox where people would sometimes tell me what they thought I wanted to hear since they thought that they would get help in form of money or food. This was made possible by Food Relief Programmes from the government's Department of Social Welfare where all households of the ward had to come

to receive food hand-outs. In both wards, councillors gave me the chance to tell people about myself and the purpose of my stay in the area. I told them that my study was purely for academic purposes as I was a student. To make the problem even more acute, my research assistants struggled a lot in the field. One of my research assistants was denied access to administer a questionnaire simply because she was not known in the area. To solve this problem, I requested the councillor to reiterate to the village heads that I was being assisted by three research assistants. Respondents were notified for the second time that I had three research assistants who were assisting me to administer the questionnaire. In addition to the above, the field work process itself was tiresome and cumbersome especially during the period in which I administered the questionnaire. I would walk for long distances and was required to cross check questionnaires which would have been administered by the assistants to make sure that they were doing the right thing according to the way they were trained. The data collection process made me feel exhausted.

4.11: Conclusion

The chapter explained the way in which the research was executed. The research employed the mixed method research methodology that was dominated by qualitative paradigm. Mixed methodology was employed to corroborate and increase the credibility of the research findings. The following were used as data collection tools: questionnaires, focus group discussions and observations. It also explained the methods that were used to increase the validity and reliability of the research findings. The chapter also highlighted that the questionnaire was the first instrument to be administered to 305 households in the selected study areas. The following ethics were observed: privacy and confidentiality, anonymity, informed consent among others. Challenges faced in the research process were also highlighted in the chapter. The next chapter provides a detailed description of the study area.

CHAPTER 5

AN OVERVIEW OF THE STUDY SITE AND THE DEMOGRAPHIC PROFILE OF THE RESPONDENTS

5.1: Introduction

The previous chapter looked at the methodology that was employed in the study as well as the challenges that were faced by the researcher. This chapter provides an overview of the study site as well as giving the demographic profile of the respondents. Understanding the description of the area to be studied was of paramount importance in that I was assured of detailed insights on why the location is susceptible to natural disasters such as floods and droughts. The description is also significant because it enabled me to understand the underlying factors guiding people's perceptions of floods and droughts as well as their adaptation strategies. The aim of this chapter is to offer a brief geographical description of the study area. I also explain the economic and socio-cultural organisation of the residents, noting their socio-economic and religious practices. Understanding the economic aspects of villagers' lives also helped me to establish factors that make residents more vulnerable to natural disasters. It discusses the demographic profile of the respondents. It describes the following variables; age, marital status, source of income, composition of people in the household and household type among others.

5.2: Geographical Description

Muzarabani Rural District, is one of the eight districts in the Mashonaland Central Province of Zimbabwe. "It covers approximately 2774 square kilometres. The district is divided into 29 wards, separated by ward boundaries comprising eight communal lands, eight commercial farming and three resettlements and one urban ward" (Muzarabani District Council, 2011: 4). The area is divided into two, that is, Upper Muzarabani and Lower Muzarabani. Lower Muzarabani has 14 wards and is further divided into two, which is drought and flood-prone areas and flood-free areas. According to the Zimbabwe National Statistics Agency (Zimstat, 2012), Chadereka has an average population of 7 505 with 3704 males and 3811 females and a 4, 7 average household size. It has an average of 1594 households. Kapembere has an average 5008 total population consisting of 2411 males and 2597 females and 4, 4 average household size (Zimstat, 2012).

It is necessary to cross the Mavhuradonha Mountains when travelling from Harare northwards. Lower Muzarabani is found below these mountains and this is known as the valley. Upper Muzarabani is out of the scope of this study. Lower Muzarabani experiences frequent floods and droughts and this part was considered as part of the study. In the lower Muzarabani, the following areas, Chadereka, Damabakurima and Kapembere are more prone to floods and droughts. There are 5 main rivers in the lower Muzarabani (namely, Musengezi, Utete, Hoya, Musingwa and Nzoumvunda) which empty their water into the Zambezi River. This facilitates the “deposition of alluvium or Lacustrine sediments” (Chanza and De Wit 2015: 20). “These have formed the bedrock of the livelihoods of most of the households in Muzarabani” (Chanza and De Wit, 2015: 20). The soils are rich and fertile and they make wetlands (*matimba*) more productive.

Approximately 64% of the total population of the district resides in the lower Muzarabani escarpment (Muzarabani Rural District Council, 2015: 4). This is an area plagued by limited rainfall and vegetation, inaccessibility of some areas and basic necessities (schools, clinics and sources of clean water) attributed to poor road network especially during the wet season. The remaining 36% of the population is confined to the upper Muzarabani region which has favourable weather conditions as well as an efficient road network (Muzarabani Rural District Development Committee, 2015: 9). With a mean annual temperature of 20 degrees centigrade, upper Muzarabani is relatively cool in contrast with the hot Zambezi valley (Lower Muzarabani) that experiences a mean temperature of 25 degrees centigrade. Total annual rainfall ranges from 450mm – 600mm and 750mm – 1000mm for Lower and Upper Muzarabani respectively.

Generally, effective planting rains come late in lower Muzarabani around 30 November each year, whereas effective planting rains in Upper Muzarabani start in mid-October. Between the months of August to November, Lower Muzarabani is relatively hot with mean monthly temperatures of 35 Degrees Celsius. Currently, rainfall patterns have become somewhat unpredictable and this is reducing agricultural productivity very significantly. The Mavhuradonha Mountain Range is the major landform feature in the district. At its apex, the altitude is 1200 metres above sea level (Muzarabani Rural District Council document, 2015: 3). The range is composed mainly of igneous rocks such as granite, which are rich in minerals such as platinum, chrome and alluvial gold. The range, also known as the Dande Range, is the main physical barrier that divides the district into two operational areas, which herein are

referred to as the Lower Muzarabani and Upper Muzarabani. Upper Muzarabani in general is composed of hilly, broken and flat-rolling terrain. This area is mainly covered with red, loam soils as well as sandy soils which particularly favour maize and tobacco farming.

Lower Muzarabani is generally flat land with broken terrain attributed to poor land use practices that have led to the formation of gullies in most areas within the valley. “The area is associated with the valley or lowland people linguistically referred to as the Goba or Gova, meaning wetland or riverine valley (Chanza and De Wit, 2015: 20). The risks posed in the valley are expressed by the word ‘Muzarabani’, its Shona name (an extensive flood plain) meaning that when it rains, the valley, which is the lower Muzarabani, is flooded with water. In addition, lower Muzarabani is commonly known as Dande Valley because it is just below the Mavhuradonha Mountains.

The area has a mixture of black clay-loamy soils that have poor drainage. Most of the fields in this area often get water-logged. Lower Muzarabani has a network of rivers and tributaries. As a result of being flat land, the area is prone to flooding during the rainy season. There are five main agro-ecological regions in Zimbabwe that are grouped on the basis of climatic conditions, vegetation and soil type. “Region 1 receiving over 1000 mm per year, Region 11 receiving 750-1000mm per year, Region 111 receiving between 650-800 mm per year, region IV receiving between 400-650 and is subject to seasonal droughts and region V which receives below 450 mm per year (erratic rainfall)” (Mutasa, 2011: 5). Lower Muzarabani falls under region IV which is characterised by “semi-extensive farming that is expected to appropriately respond to the periodic seasonal droughts and severe dry spells common during the rainy season” (De Wit and Chanza, 2015: 21). Upper Muzarabani, is dominated by the organised arable, grazing and settlement activities. Upper Muzarabani arable land requires conservation structures such as contour ridges, while the slope (0-2%) in Lower Muzarabani does not warrant the establishment of contour ridges.

The district has two camps in the Mavhuradonha Range of Mountains. The Mavhuradonha Wilderness area on the Zambezi Escarpment used to attract many tourists in the 1990s. Currently there is a decline in the number of tourists who visit the area. The district is privileged to have diverse wildlife and scenic places such as Bats Caves that are tourist attractions. Currently the district is engaged in sport hunting and eco-tourism managed in line with

CAMPFIRE principles. Elephants, lions, hippopotamus, leopards, buffaloes, kudus and crocodiles are some of the species found in the district.

The Map showing the Location of study site in Zimbabwe

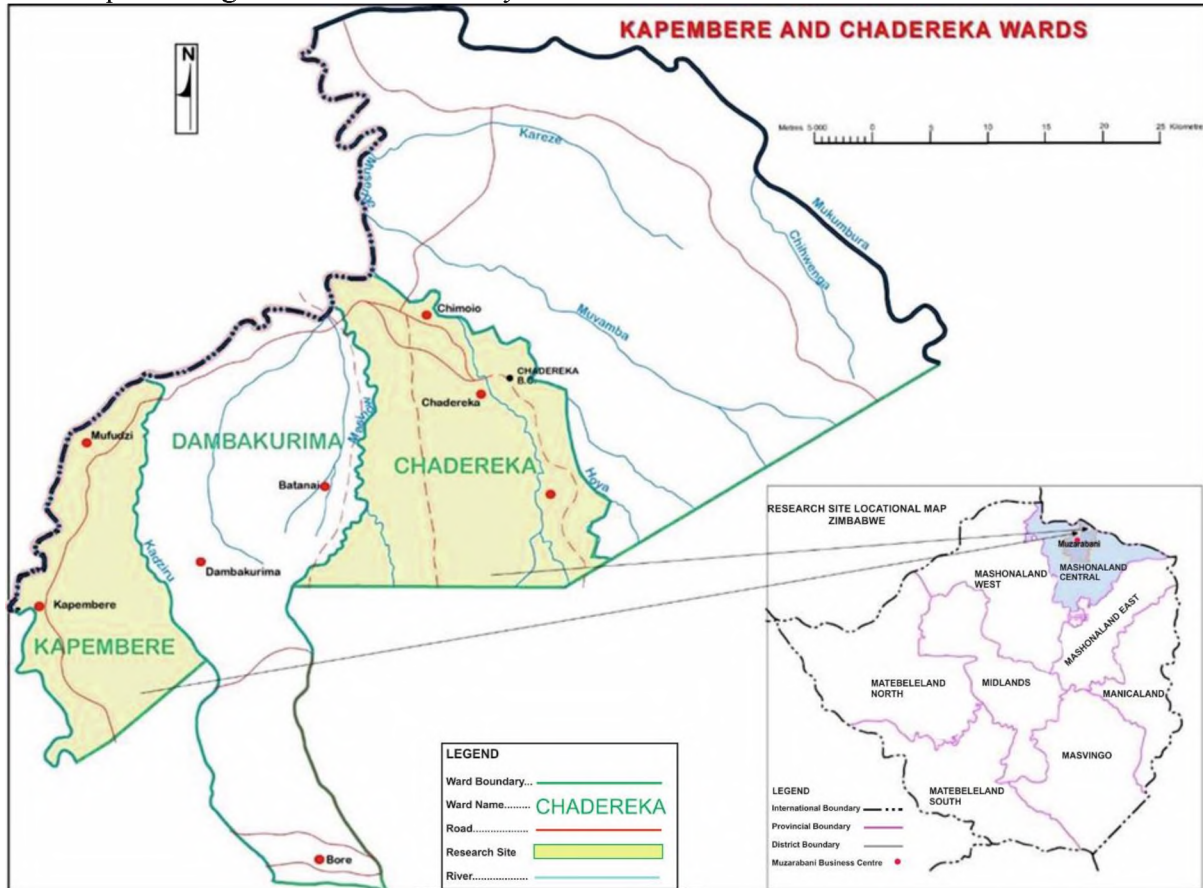


Figure 5:1: The map of Zimbabwe showing the location of Muzarabani

Source: Department of Surveyor General, Zimbabwe (2015)

Figure 5.1 above shows the location of study sites in Zimbabwe. It also demonstrates the reason why the area is prone to floods as it is surrounded by big rivers such as Hoya to the East and Nzoumvunda to the West. In addition, the map also shows that the district is part of the remote areas of Zimbabwe. The area is now densely populated. The majority of people are poor and infrastructural development is lagging behind as residents still need to put up with bad roads and run-down bridges which have not been repaired since Cyclone Eline in 2000. Some residents depend on cross-border trade with Mozambique, gold panning and farming. The majority of people used to rely on cotton farming but they are very few people who are growing that crop because of the incessant droughts and the crop itself is no longer paying adequately

on the market. Growing of sesame seed, ground nuts and drought resistant crops is becoming very common in the area.

There is also conflict between elephants and human population within the area as elephants frequently cause damage to crops and people’s lives. During the wet season (January to March), elephants damage crops such as millet, maize and groundnuts. During the dry season, vegetables grown near the rivers are destroyed. Elephants roam widely during the wet season in the lower Muzarabani because water is easily available and there is thick vegetation cover especially in the areas that are close to the river. These elephants are also attracted to major rivers during the dry season because that is where they find water. From February to May 2016, three cases of people killed by elephants were recorded. Patches of sacred forests are also favoured by elephants as refuge zones especially during the dry season. Locals become victims of elephants especially when they want to pick wild fruits locally known as *Masau* (*Ziziphus Mauritiana*) when they are in season. There is also a wide range of animals besides elephants and these include lions, hyenas, buffaloes, buck and a variety of reptiles and birds.

5.3: NGOs working in Muzarabani District

There are several NGOs that are working with people in the area to promote their well-being. These NGOs are not working in all wards but they work in those wards that qualify after conducting a needs-based assessment. These are carrying out different activities in communities where they operate in. NGOs are an indicator of Social Capital and the next few chapters will examine the role that these NGOs play in enhancing the resilience of the community. The table below shows the names of NGOs, where they operate and what they do in their respective areas. These are all wards that are in the Lower Muzarabani.

Table 5.1: NGOs operating in Muzarabani and the wards they operate in

Name of the NGO	Area being covered	Intervention
World Vision	Chadereka (flood and droughts) Dambakurima (floods and droughts) Utete (floods and droughts) Muringazuva	Emergency Relief Area development Programmes-for 25 years Education Health Water Sanitation

Zimbabwe Red Cross Society	Chadereka Dambakurima Chiwenga (floods and droughts) Kairezi (floods and droughts)	Integrated community health and disaster Management Disaster Risk Reduction Capacity Development and organisational development. Health and Water Sanitation
Methodist Development and Relief Agents (MEDRA)	Kapembere (droughts) Hwata (droughts) Muringazuva (droughts) Gutsa (droughts) Museredza (droughts)	Water and sanitation Livelihoods projects (such as piggery, poultry and horticulture) Education.
Sustainable Agriculture and Trust (SAT)	Kapembere Maungaunga Muringazuva Hoya Machaya	Farmers Training Programmes
Help From Germany	Chadereka Kairezi Chiwenga Mutemakungu	Household food security Farmers Training and emergency response.

Source: District Administrator and Ward Councillors (generated by Rosemary Kasimba)

5.4: Socio-Cultural Organisation

Rapid political, socio-economic changes took place in the area in the past. Settlements were sparse and scattered. The area is inhabited by people from different ethnic backgrounds. The original inhabitants of the area were the Korekore people. The majority of the inhabitants who now occupy the area are migrants who came from Southern Zimbabwe (Great Zimbabwe) in the mid-1600s and onwards. These people wanted to exploit the rich soils and rich rock salts despite the threats of tsetse flies and mosquitoes during that time. Agricultural productivity as a result of irrigation also attracted the massive inflow of immigrants into the area in the 1970s.

The successful implementation of the combination of programmes to reduce tsetse fly and drugs to vaccinate livestock against trypanomiasis, made livestock keeping in the area possible in the 1970's.

The area also has migrants from Mozambique, Malawi and Zambia and some parts of Zimbabwe (that is from Manicaland, Midlands and Matabeleland). Most of these migrants came to the area to exploit the rich soils in the area. Those who are originally from other countries migrated into the area during the fast track Land Reform in 2000. They were once employed on what were nearby commercial farms. With land reform and the farms having been taken, they lost their jobs and they had to migrate to Muzarabani for farming to earn a living. Increase in agricultural productivity in the 1970's due to irrigation also prompted a high influx of immigrants into Muzarabani. According to Byers (2001: 193), the "Karanga people immigrated into Muzarabani in the 1970s and the Zezuru immigrated in large numbers in the 1960s and 1980s. By 1969, the population density in this part of the valley was estimated to be 2.5 persons per square kilometre, by 1982, 5.0 per square kilometre. Currently the area is densely populated.

Despite Christianity and Islam being widespread, the majority of the people are adherents of African Traditional Religion (ATR). There are sites and features that are still considered as sacred. There are giant forests locally known as *tsokoto* and these are believed to be inhabited by spirits. The people are duty-bound to obey all the values and taboos attached to the protection of such areas. The Mavhuradonha Mountains are still believed to have supernatural powers and the inhabitants go there for rain-making ceremonies (*doro remukwerera*). In addition, traditionalists in Muzarabani believe that there are certain trees that should not be cut because the "spirits rest in there" (Chanza and De Wit, 2015: 22). Rivers such as Hoya and Musengezi are given lots of respect. People are encouraged to make use of a specifically designed traditional vessel (*mukombe*) when tapping water from wells that are dug in the river. Mutual labour (*nhimbe/ hoka*) is still very common; but because of droughts, the practice is coming to a halt. The majority of the people believe that tampering with sacred sites invites affliction, misfortunes and harm to violators (Chanza and De Wit, 2015: 23). People conduct various ceremonies where they brew beer, sing traditional songs in praise of God and the ancestors (locally known as *Musikavanhu* and *Vadzimu*, respectively). This is done for several purposes such as appraising the ancestors, seeking help from ancestors when there is a crisis such as drought and floods. People can also dance during these ceremonies. Men lead all these

activities. The traditional beer is brewed by women who have reached their menopause. It is a patriarchal society where men dominate higher positions. Men are considered as breadwinners. Although the community has and is being sensitized on gender issues, very few women actively participate in the activities that are meant to govern the community. A majority of residents are required to contribute the grain used to brew beer. Christians and Moslems are forced to do so by their Village Heads. These ceremonies cement community relationships as people get to know each other. Community Social Capital among people in different villages and wards is boosted and this also enables them to assist each other in times of crisis.

Traditional leaders say that forest patches are protected by the ancestral spirits and those who tamper with the unauthorised part of the vegetation invite bad omen or misfortune in their lives. In addition, people believe that their spirits return to dwell among their descendants when they die. This was also found by Byers, Cunliffe and Huddok (2001: 193) in their study on linking the Conservation of Culture and Nature in Muzarabani. They note that Muzarabani people believe that “when people die, their spirits return to dwell among their descendants. These ancestral spirits are thought to often take the physical forms of animals”. Chiefs in the area are believed to be “guardian spirits of the place” (ibid: 193) and everyone has to comply with their rules, failure of which would invite bad omen. Chiefs have to live a traditional lifestyle despite the fact that western ways of living were introduced during the time of colonisation. They were not allowed to build modern houses of burnt bricks, cement and asbestos.

Currently, however, the chiefs are different and well-to-do. The government is building very good houses for them and they are given cars. A lot of the changes in terms of how chiefs are enthroned and work with community have taken place in the community but they are still believed to have supernatural powers. “When the chief dies, his successor was approved by spirit Mediums” (ibid: 193). However, the state now has a pivotal role to play as it has become the one that appoints the chief. Chiefs in the area are also being given terms to rule. This has raised local people’s eyebrows as they are now questioning their suitability of communicating with ancestors as the ancestors are no longer involved in choosing them (chiefs). *Mhondoro* spirits were thought to communicate with modern people through spirit mediums, the most powerful traditional religious leaders. These mediums are thought to become ritually possessed by their spirits during ceremonies and give people direction and advice on issues that affect the community. However, the majority are losing confidence in believing in these practices because of incessant floods and droughts and also due to the influx of Christian churches and

Islam. The appointment of chiefs or their recognition by government started long ago under colonial governments and inhabitants in the area believe that this is also contributing to their suffering from floods and droughts.

The churches that are common in the area are Apostolic Churches (*Johanne Masowe Chishanu* and *Nguwo tsvuku* (Red garment), United Methodist, Zimbabwe Assemblies of God Africa (ZAOGA), Zion and Apostolic Faith Mission in Zimbabwe (AFM). These are against the traditional religion in some ways. For instance, believers of these churches are not allowed to participate in community rituals such as rain-making ceremonies. There is also the Roman Catholic Church which is not completely against the traditional beliefs and practices. Although the system of enthroning chiefs has slightly changed, Village Heads (*sabhukus*) and Chiefs, have remained the enforcers of the respect for sacred sites and these can fine those who break the rules of the land (*Key Informant*¹). Early marriages are common in the area. Girls of school going age marry at the age of 14 and boys mostly at the age of 16. Very few girls go to school as far as Ordinary Level. Getting married at a young age is common in the area. Yet in Zimbabwe, on the 20th of January 2016, the court ruled that section 22 of the Marriages Act is unconstitutional and therefore “no person, girl or boy should be married before the age of 18”.

5.5: Wards under Study

5.5.1: Chadereka

While the selected study areas of lower Muzarabani are known for floods and droughts respectively, highly vulnerable to flooding is Chadereka Ward 1 lying between two rivers, namely Hoya and Nzoumvunda. Hoya River often discharges its waters into the Chadereka area which is lower in altitude thereby exacerbating the flood problem. Lunga and Musarurwa (2012) explain that Chadereka area is usually the most affected because it is located right at the confluence of the rivers. It is affected by the backflow of water from Lake Cahora Bassa and inflows from the Zambezi River and also when the Kariba Dam flood gates are opened. In addition, heavy rains in the upstream sub-catchment, especially when induced by tropical cyclones combined with almost flat terrain configuration, also lead to the flooding of the area. As I have explained in Chapter 1 and 3, trends have shown that Chadereka suffered from floods in 1982, 1985, 1988, 1993, 1996, 2000, 2003, 2007 and 2010 (Meteorological Office, Harare, 2011).

¹ Mr. Gunduza, Gunduza village head, at his homestead, 29 April 2016.

Chadereka is found in the semi-arid and northern low veld of Zimbabwe. There are the alluvial soils along Nzoumvunda and Hoya Rivers. “These are rich soils with a favourable water retention capacity and they sustain the flood recession cultivation of maize. This type of maize is known as *mudzedze* by the locals during the autumn and winter seasons” (Manyani, 2013: 4). Chadereka is approximately 60km from Muzarabani Business Centre. Key informants highlighted that the area had more wildlife than people but currently it is home to more than 7 500 people due to migration as people were coming from different parts of Zimbabwe for farming when cotton production was still viable.

Vegetation in Chadereka is mainly dominated by “Mopane trees Terminalia woodland (colophospermum, mopane combretum woodland (Colophospermum Mopane and Combretum Epiculatum) with thick dense riverine thicket of mixed species along major rivers” (Chanza and De Wit, 2015: 21). Baobab trees are also found in this area. The abundance of Mopane trees shows that the area is prone to drought. These trees are resistant to droughts. There are three types of floods that have been inundating this area. There are seasonal floods that occur during the peak of the rainy season and flash floods which are as a result of tropical cyclones from the Indian Ocean. These tend to be the recurrent. Sometimes the area suffers from Cyclone Induced Floods. For instance, the Tropical Cyclone which affected the Zambezi Basin, also affected the Muzarabani area in 2000.

5.5.2: Kapembere Ward

Kapembere’s Ward Five of the district is prone to droughts that affect people’s livelihood activities including crop production. Kapembere is 18km away from the Muzarabani Business Centre. According to Murwira (2012) and Chanza and De Wit (2015), Kapembere is prone to seasonal droughts and severe dry spells in between the summer months (December to March). Droughts are now continuous in the area. “The soils in the area are chromic luvium soils which are sandy textured. These soils have low nitrogen content” (Manyani, 2013: 4). Sandy-textured soil has low water holding capacity and this makes crop production more difficult. It receives low unreliable rainfall ranging from 250 to 300 per year (Murwira et al, 2012). The ward is relatively unsuitable for dry-land cropping of specific crops such as maize due to the erratic rainfall and it is suitable for livestock production under extensive production systems.

The area is increasingly becoming bare due to the shortage of rainfall and the residents drive their livestock to distant places for adequate pastures. During the summer season, grass is no longer recuperating due to the erratic rains, high temperature as well as population pressure (people and their livestock). The area is dominated by thorn trees: Mopane, Acacia and Baobab trees. Some residents practice farming at their homesteads while others have to walk long distances as far as 3 to 5 km from their homesteads. There are very few people with modern houses (built of bricks, cement and asbestos). Non-governmental organisations such as MeDRA and Sustainable Agricultural Technology (SAT) have introduced training programmes to boost community resilience to these natural disasters.

5.6: Health, Education and Infrastructural Development

Both the Chadereka and Kapembere areas do not have electricity. Electric poles were installed before the 2008 elections but electricity was never connected. Most of the poles are falling down. The roads are inaccessible as most bridges were swept away. The Zimbabwe Red Cross Society is trying to assist people in Chadereka by constructing culverts and footbridges. Both Chadereka and Kapembere are located far away from the district's main hospital which is St Albert's. The District hospital is approximately 70 km away from Muzarabani Business Centre. There is no clinic in Kapembere ward and people have to travel to Muzarabani clinic when they get sick. Some residents in Kapembere go to Dambakurima Clinic which is approximately 10 km away. Chadereka has a clinic which used to serve the three wards of Chiwenga, Chadereka and Kairezi before Chiwenga clinic was opened. The roads to Chadereka Hospital are inaccessible during summer. Some residents have to cross rivers to access the health centre and on their way in summer, the rivers could be flooded and some people end up drowning. The Zimbabwe Red Cross Society built a footbridge together with community members and the government and this allows people to cross to the clinic and schools during summer when the Nzoumvunda River is flooded. There is one secondary school and five primary schools in Chadereka. The schools are still very poor. This offers limited opportunities for the local people to access education. Lack of education therefore has a bearing on how people respond to natural disasters such as floods and droughts.

There are not enough classrooms at both primary and secondary schools in both wards. As a result, some pupils actually learn in the open. Chadereka had very few people with toilets but as from 2014, the Zimbabwe Red Cross Society introduced Community Based Health Training Programmes and started building toilets at selected households; and the number of people with toilets is increasing. This is different from Kapembere where a large number of people have

toilets and these are not prone to diarrheal diseases in the event that floods occur in the area. There are boreholes in both Chadereka and Kapembere but due to droughts, most of these are running out of water. Some residents are forced to walk long distances to fetch clean water and some have dug wells in rivers where they can fetch water for domestic use (drinking, washing, cooking, bathing and for their domestic animals). The Zimbabwe Red Cross Society is also rehabilitating boreholes in Chadereka. MeDRA is doing the same in Kapembere.

5.7: Demographics of the respondents

5.7.1: Demographic profile of the respondents

Chadereka and Kapembere results show that 72.3% respondents were males, 27.7% were females and 53.4% were males and 46.6% were females respectively. There were more male than female respondents because most males were at home doing carpentry or other tasks after working in the fields. Women, on the other hand, go to work in the food gardens. The demographic data confirmed by the questionnaire is captured in Figure 5.1 below.

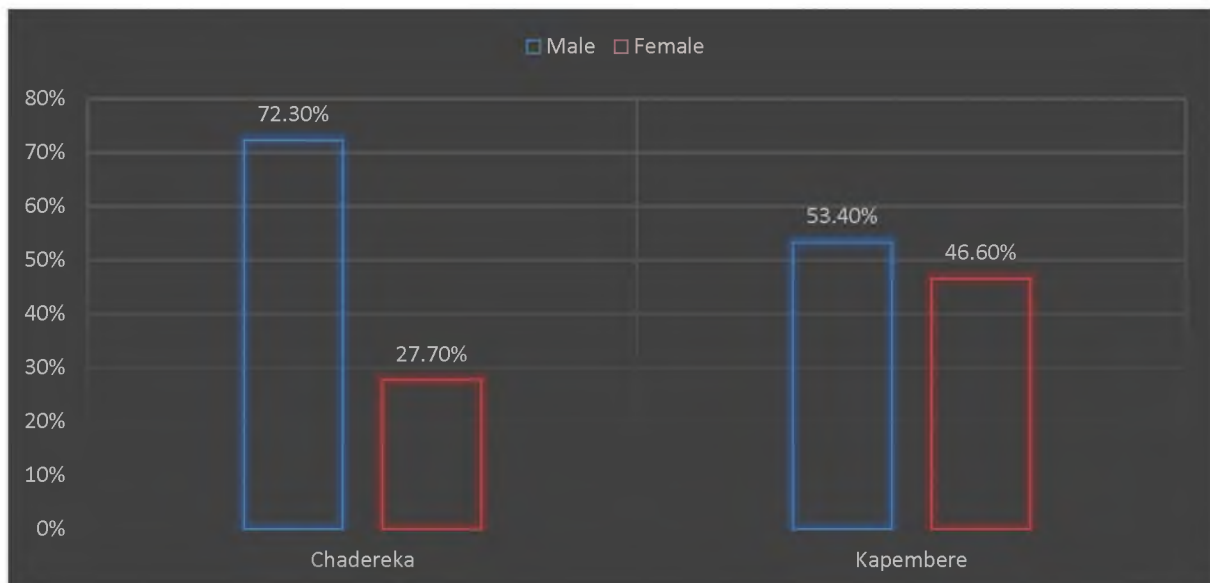


Figure 5.2: Gender Distribution

In addition, 3.6% of the respondents were single in Chadereka while 76.6% were married and 13.9% were widowed. In Kapembere 8.0% were single, 64.4% were married, 9.8% were divorced and 17.8% were widows. Some of them even reported that they were tired of being asked so they were just responding in a way they saw fit. Muzarabani is a male-dominated society and also puts more value in marriage. If a person remains single beyond a certain age

in Muzarabani, he /she is considered abnormal. That is why on marital status the majority in both Chadereka and Kapembere said that they were married.

On household type, Chadereka has 76.6% male headed households, 20.4 female headed households, 2.2 % child headed (male) households and 0.7% child headed (female) households. As mentioned earlier on, males are considered as heads of households and sometimes the female headed households receive food hand-outs later because no one will be there to give them support. This affects decision making in the household that has resulted in making women more vulnerable to floods and droughts. Men would want to grow a crop that is not drought resistant and women would want to grow sorghum that is drought resistant, but because men are heads of households who are sole decision makers, they end up growing crops that are not drought resistant and the family will be at risk in the event that rains do not come adequately.

Figure 5.2 below shows the household type in Chadereka and Kapembere.

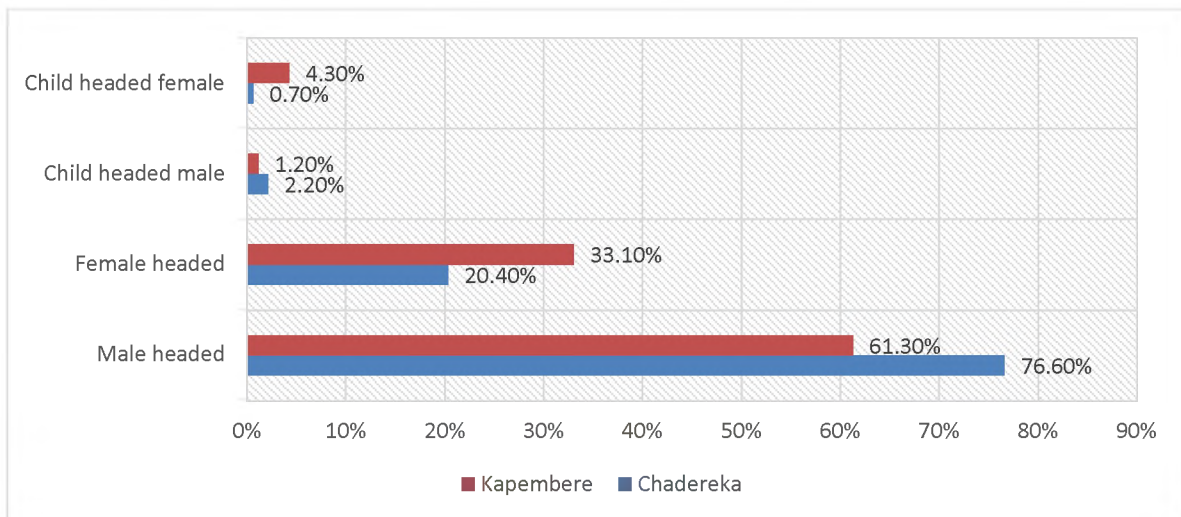


Figure 5.3: Household Type

In addition, 6.6% are in the range 18-30 years. 38.0 are 31-43 years and 36.5% are between 44-56 years and 19.9% are 57 years and above in Chadereka. In Kapembere, 8.6% are between 18 and 30 years, 47.9% are between 31 and 43 years, 35.0% are between 44-56 years and 8.6% are from 57 years and above. To select the elderly for Focus Group Discussions, I chose those who had IDs which showed that they were more than 65 years. Fig 5.3 below shows the age distribution of the respondents.

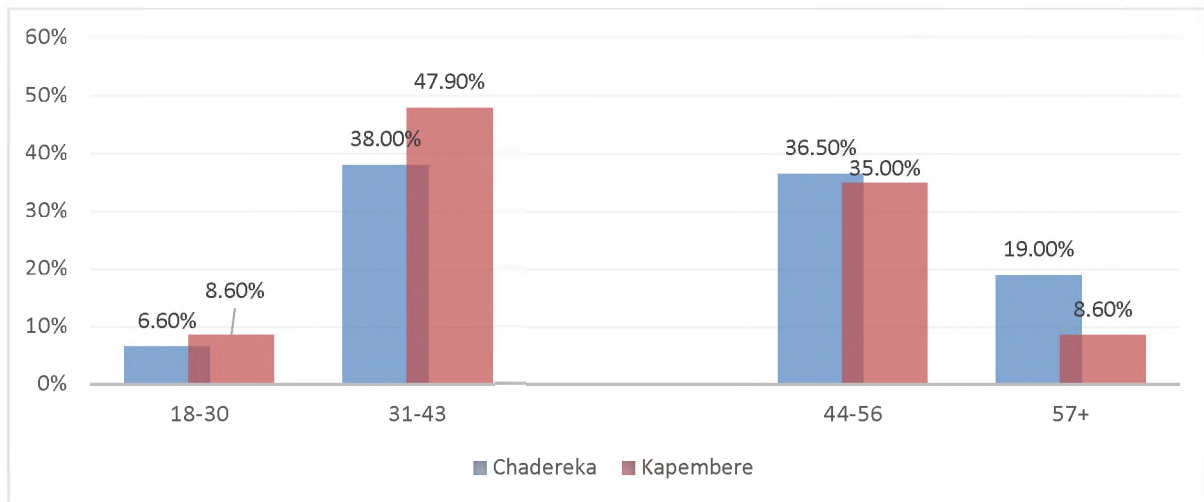


Figure 5.4: Age Distribution

With regard to education, the majority of the people are able to read and write but they did not attain higher education (they did not attain degrees). In Chadereka, 42.5 % received primary education, 50.4% received secondary education and 0.0% received tertiary education and no one received non-formal education. In Kapembere, 37.7% received primary education, 41.7 % received secondary education, 0.6% have tertiary education and 12.9 % received no formal education. The majority of heads of households said that they received education which is only enough to enable them to read and write. An insignificant percentage in Chadereka said that they had no formal education and no one in Chadereka said that they have no formal education. Observations and transect walks showed that some of the people were not able to read and write. Some people in the area feel shy to say that they did not even go to school. This is because of the growing view that education is important. Considering that Zimbabwe is currently rated as the second highest in Africa for having a literate population, very few people received no formal education in Muzarabani. This also limits their chances of getting formal employment in public and private organisations to earn income which they can use to reduce the problem of acute food shortages that are caused by floods and droughts.

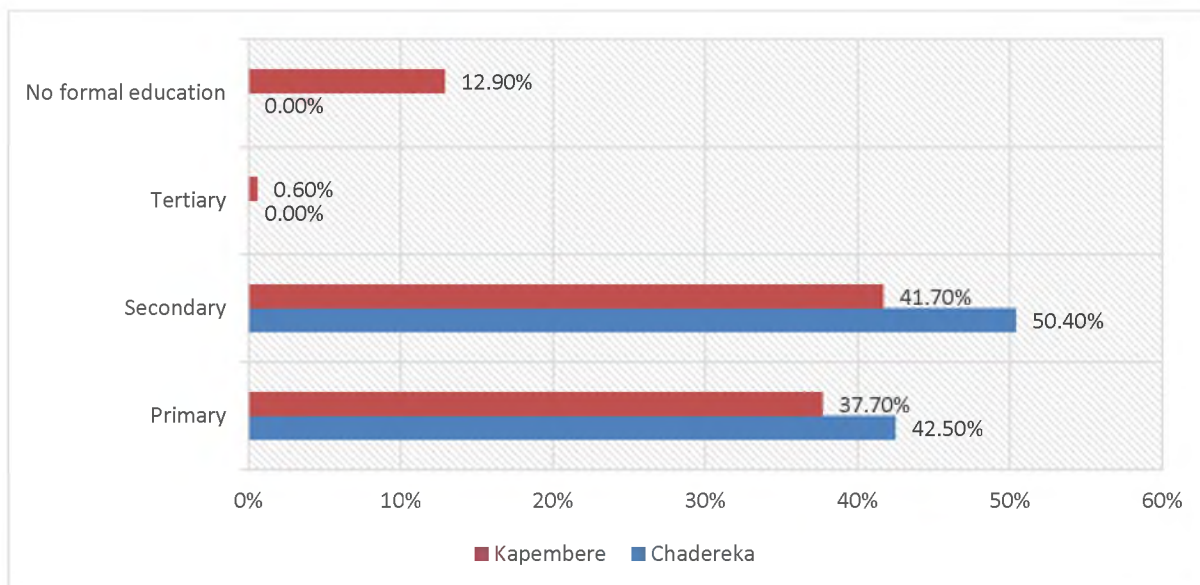


Figure 5.5: Distribution of Educational Attainment

Furthermore, people in the study area belong to different religions and this has a bearing and an impact on how people are coping with floods and droughts. Some who are not Christians are sometimes excluded from benefiting from food aid that is provided by Christian churches such as Roman Catholics and United Family International (UFI). In Chadereka, 30.7% are Christians, 37.9% are Moslems while 37.9% follow the African Traditional Religion which is indigenous. In Kapembere, 32.6% are Christians, 34.3% are Muslims while 33.1% follow the African Traditional Religion. Because of food shortages, people are joining the Muslims in order to receive food. The spread of Christianity is gradually displacing African Traditional Religion. Fig 5.5 below shows the distribution of the respondents according to their religious affiliation in Chadereka and Kapembere.

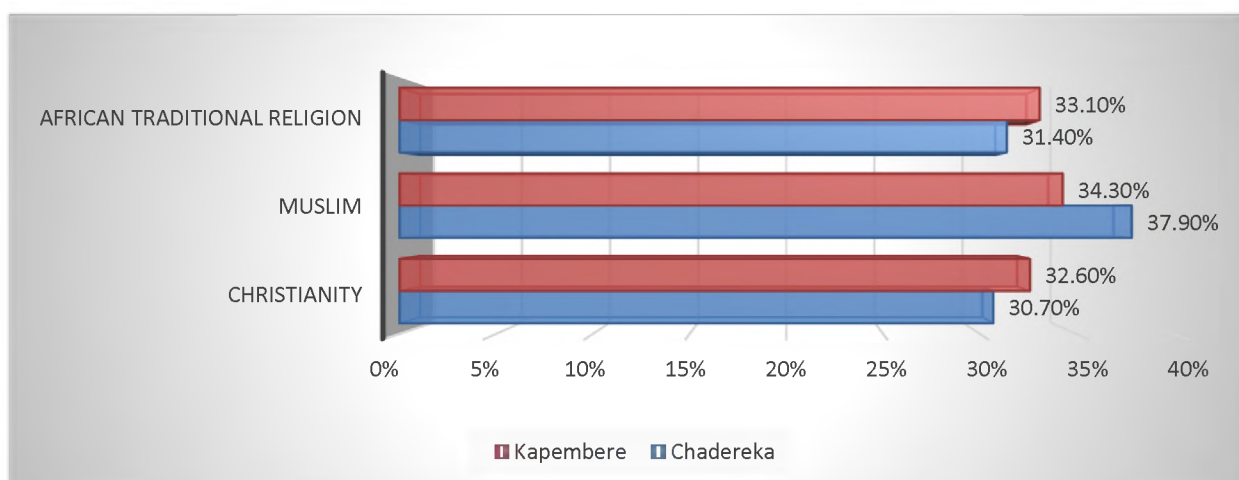


Figure 5.6: Distribution of Religious affiliation

Lower Muzarabani consists of different ethnic groups as explained in the beginning of Chapter 5. In Chadereka, 66.4 % are Korekore, 9.7% are Chikunda, 18.7 % are Zezuru and 5.2% are other (Ndebele, Tonga, Karanga and Buja). In Kapembere, 57.7% are Korekore, 19, 7% are Chikunda and 19.0% are Zezuru and 4.3 % are others (Buja, Ndebele, Tonga, Karanga and Chichewa). Fig 5.6 below shows the distribution of respondents according to their ethnic affiliation.

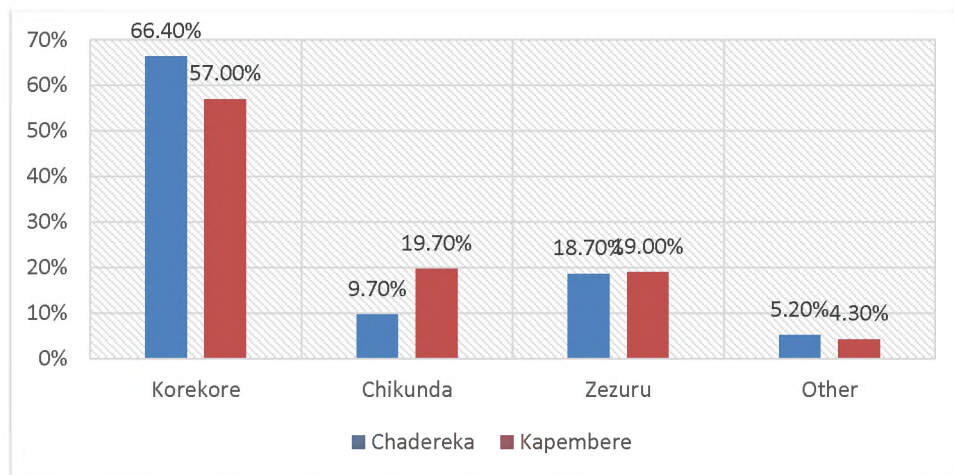


Figure 5.7: Distribution of Ethnic affiliation

Respondents were asked about the period they stayed in the area. In Chadereka, 3.6% stayed there for less than 10 years and 96.4% said that they stayed there for more than 10 years. In Kapembere, 13.5 % have been living there for less than 10 years and 86.5% have been staying there for more than 10 years. Thus, the majority of the people have been experiencing floods and droughts and they are more familiar with their consequences. Fig 5.7 below shows the distribution of respondents according to their period of stay in Muzarabani.

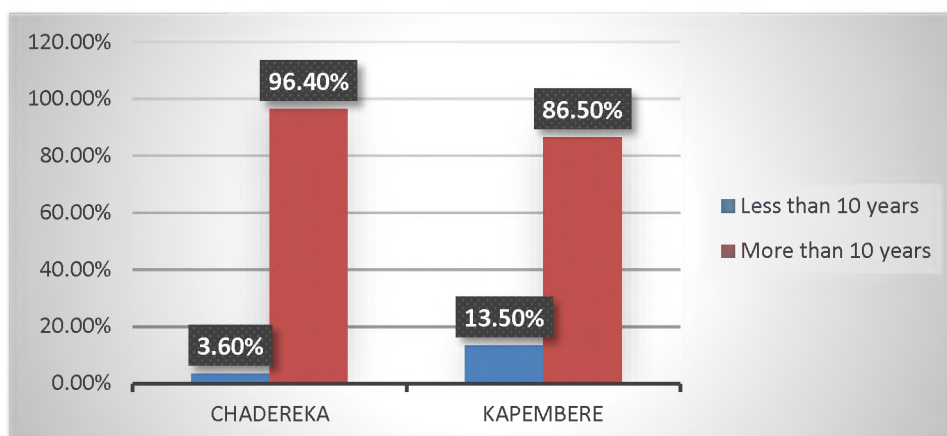


Figure 5.8: Number of years of Stay

5.7.2: Sources of income

The findings from focus group discussions, the questionnaire and key informant interviews reveal that the majority of the residents in Lower Muzarabani depend on agriculture. Farming is the majority's main source of income although there are also other sources of income such as piece jobs, trading, and government pensions. This shows that the occurrence of floods and droughts in the area negatively affects the community because the main source of livelihood which is agriculture is vulnerable to floods and droughts. Figure 6.8 below shows the main sources of income. Figure 6. 1 below shows that both Chadereka and Kapembere residents mostly rely on agriculture and that 97.8% in Area 1² and 98.8% in Area 2³ rely on rain-fed agriculture. Respondents highlighted the fact that agriculture gives them food and money to pay fees, buy clothes, food, and buy building materials, including grass for thatching. They highlighted that agricultural outputs have a transaction and precaution value. When one has outputs, they have money with them. Some people rely on the government as their source of income. That is, in Area 1 (Chadereka), 33.6% rely on the government whilst 43.7% in Area 2 (Kapembere), said that they rely on the government. 10.9% in Area 1 said that they rely on piece jobs whilst 58.3 % in Area 2 rely on piece jobs. A comparative analysis of the two areas has shown that very few people in Chadereka rely on piece jobs than in Kapembere. This was because Kapembere is very dry and there are massive shortages of piece jobs because of persistent droughts. Land there is always dry and very few people farm in the wetlands to be able to get food. The majority travel to Chadereka where they find piece jobs. Chadereka has many wetland areas (*matimba*) where people can grow crops such as maize, beans and groundnuts in winter. Few people in Chadereka look for piece jobs since they work on their wetlands.

The findings from the study further reveal that trading is also a source of income. However, only 2.3% rely on trade in Chadereka while 59.3% in Kapembere are traders. Trading in Chadereka is made possible by the availability of wetlands and their proximity to the Mozambican Border; but because there are fewer customers since almost every household crosses the border, people in Chadereka no longer rely on trading. They cross into Mozambique to buy goods such as soap, fish, clothes and rice at low prices for re-selling. They are approximately 30 Km from Mozambique whilst Kapembere residents are approximately 75 km

² Area 1 is representing Chadereka

³ Area 2 is representing Kapembere

from the border and the residents take advantage of the long distance to go and buy goods to sell in the community. Few people rely on pension and disability funds because they have not been employed in formal employment (that is in private and public organisations). In addition, disability funds are not given to the disabled as frequently as before due to the economic crisis which the country is facing.

Overall the majority of residents in both study areas are very poor. They spend between US\$0-200 per month. The majority stated that they spend less than US\$50. They said that they can use US\$200 for three months. The questionnaire had three categories to determine their levels of income. The majority fell under the low income level in both wards. This shows that people in the area are very poor. The above description on the sources and levels of income reveals that the community is more vulnerable to floods and droughts. This is because they do not have adequate income to buy food as floods and droughts occur. They are low income earners. Given this condition, people are at risk when a disaster strikes and therefore, it is important to examine the role of Social Capital in enhancing the resilience of the community, especially with regard to disaster management in developing countries. The findings from the study area show that economic capital in Muzarabani is inadequate and residents such as orphans, women, the disabled and the elderly are more vulnerable to floods and droughts than others.

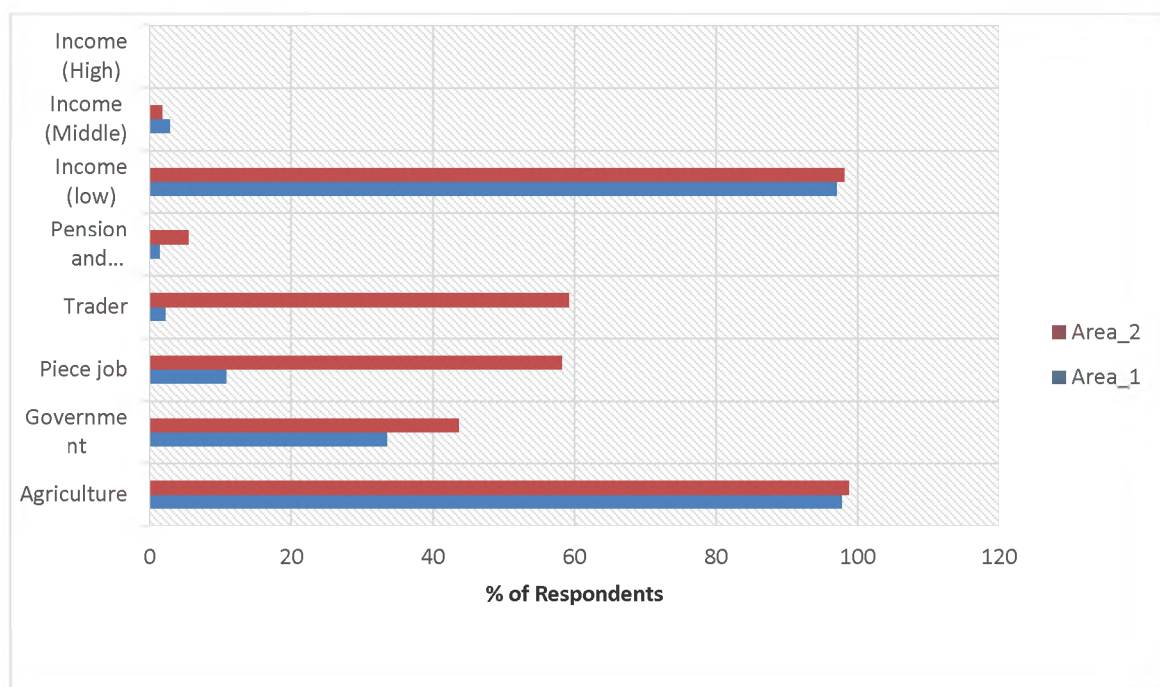


Figure 5.9: Source of income.
Source: Rosemary Kasimba

Livestock Ownership in the study area.

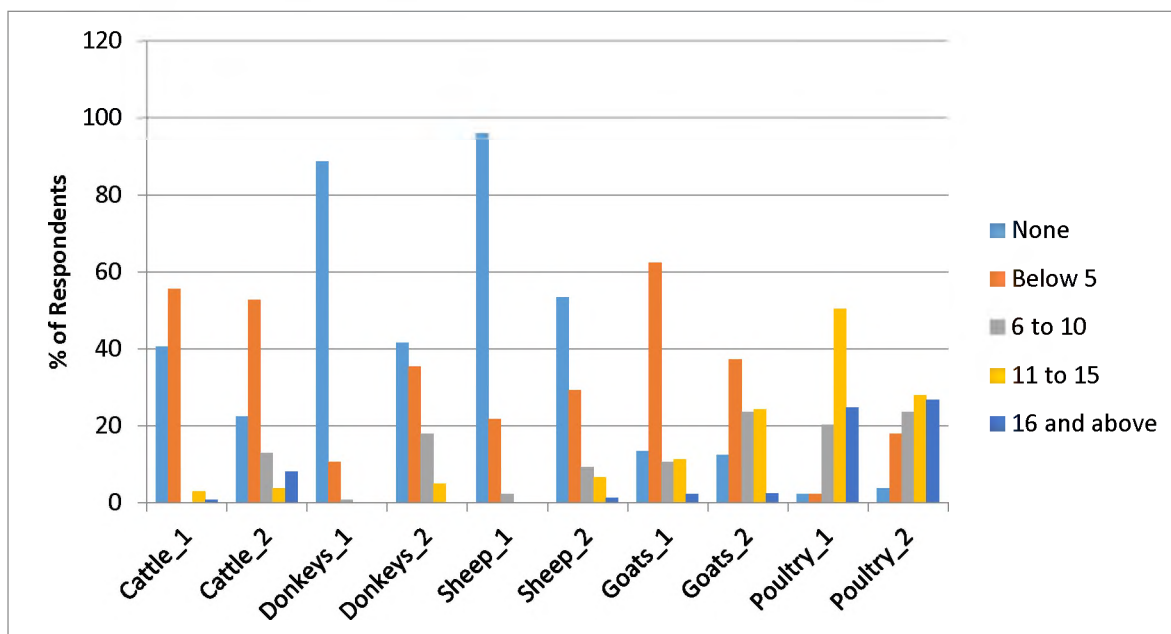


Figure 5.10: Household Livestock Ownership by area

Source: Rosemary Kasimba

The Muzarabani community is dominated by sheep, goats, donkeys and poultry as important assets. 40.6% of the respondents in Chadereka said that they do not have cattle but 55.6 % have cattle that are less than five. In Kapembere 22.4 % have no cattle and 52.8% have less than five cattle. The majority have few cattle (less than 5) because the animals are dying due to lack of adequate pasture which is caused by droughts. Some have been selling their cattle so that they are able to buy food. This shows that the majority of community members are vulnerable to disasters such as floods and droughts. Cattle are more important than donkeys in the study area because they are not only used for labour but they provide meat, milk, money, when sold, and can be exchanged for maize. When the donkeys are sold, they fetch less than US\$ 50.

In Chadereka 88.7% have no donkeys and from observations, there are very few households with donkeys because these animals do not fetch much money and, when slaughtered, donkeys are not eaten by people in the area. They are only needed for labor when fetching water, ploughing and carrying people to and from the bus station. In Chadereka, 10.5% of the respondents said that their donkeys are less than 5 per household. In Kapembere, 41.6% do not have donkeys while 35.4% have them; but each household that has donkeys, has less than 5. Generally, donkeys are needed for draught power and people in the whole study area value

cattle because they provide draught power and at the same time are a source of food, money and security to recover from disasters such as floods and droughts.

With regard to sheep, 95.9% of the people in Chadereka do not have them while 21.8 % have less than 5. In Kapembere, 53.4 % do not have sheep while 29.2% have less than 5 sheep. The majority of the households prefer keeping sheep but because of incessant droughts, the majority ended up selling them. Very few households in both Kapembere and Chadereka have sheep. The majority in both Kapembere and Chadereka have goats as is indicated in Figure 6.9 above. In Chadereka, 13.5% do not have goats while 62.4% among those who have goats, have less than 5. 10.5% have between 6-10 goats. 11.3% have between 11-15 goats and 2.3% have more than 16. In Kapembere 12.4% do not have goats. Among those who have, 37.3% have less than 5 goats while 23.6% have between 6-10 goats, 24.2% have between 11-15 goats and more than 2.5 % have 16 goats and above. The statistics shown, tallied with the observations. There are a lot of goats in both areas although some families have less than 5. Goats do not provide draught power but are the main source of food security.

Furthermore, most of the households have poultry, mainly chickens and a few ducks. Only 2.3 % in Chadereka do not have poultry and those with less than 5 are 2.3%. 20.3% have 6-10, 50.4% have 11-15 and 24.8% have 16 and above. This shows that the majority have poultry. Traditionally, poultry is very special and they slaughter them to show a warm welcome to the visitors. The importance of poultry is more like that of goats. In Kapembere, 3.7% do not have poultry and only 18% have less than 5. 28% have 6 to 10. 26.7 % have 11 to 15 and 27.7% have 16 and above. Having more chickens at the house does not mean that the household is immune to food insecurity. This is because chickens are sold at a cheaper price than any other domestic animal such as goats. They go for US\$2 each, which cannot even buy one bucket of maize.

Interestingly, women in Muzarabani do not own tangible assets such as domestic animals (cattle, goats, sheep and donkeys) and agricultural land, except when the husband is dead. Thus, the head of the household (if male- headed) is the one who makes decisions regarding which asset to sell and when they sell. He makes the decision on how to use the money. All assets in the household such as cattle, farming implements and land belong to the male head of the household. This shows that women are more vulnerable to disasters and this shall be discussed later on in Chapter Seven and Nine.

5.7.3: Composition of people in households

It was very important to know the number of people in Muzarabani households. This is important because it enables one to see how sustainable the food aid is to the local people. From the questionnaire administered in Kapembere which is in area 2, 50.9% said that they are less than 5 people in each household. In Chadereka, 34.3% said that they are less than 5. 65.6% in Chadereka said that they are more than 5 and 49.1% in Kapembere said that they are more than 6. Therefore, most households in Chadereka have more than five family members as compared to the households in Kapembere where the majority of the households are found. 50.9% have less than five people. However, the number of people in the household and age of family members determine the vulnerability of the households. Those households with more than five family members who are economically active are able to provide labour for food and they work so that they can be paid in kind and be able to withstand the harsh conditions triggered by floods and droughts.

Households with more than five families are also more vulnerable in the sense that their food is quickly depleted. From my observation from key informant interviews and focus group discussions, there was no correlation between food security and the number of people in a household. Households with more than five members who are economically active are more vulnerable. This applies especially to those who do not have assets such as cattle, goats and sheep. Families without assets, no matter how big or small, are more vulnerable to floods and droughts. Figure 5.10 below shows the average number of people in the households.

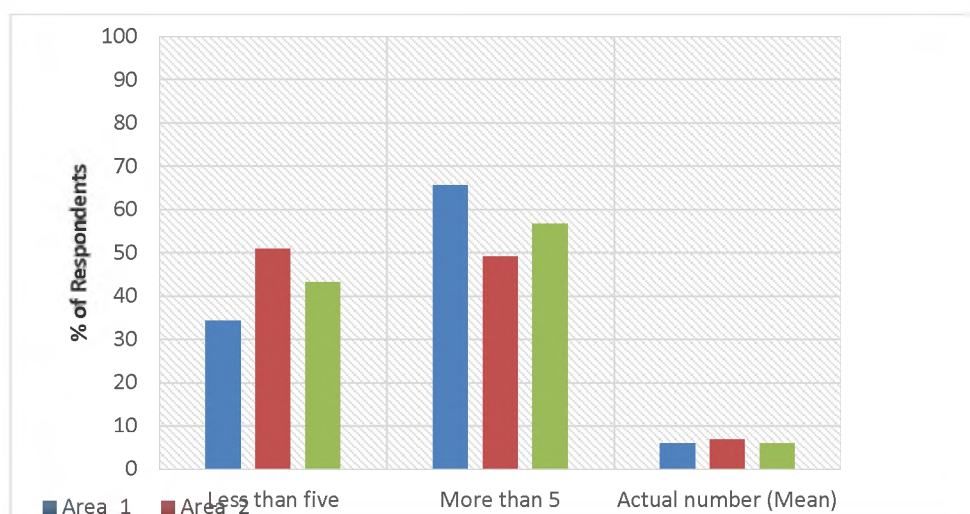


Figure 5.11: Number People per Household.

Source: Rosemary Kasimba

5.7.4: Type of crops grown in Muzarabani

Maize, sorghum, tobacco, cotton, pearl millet, cassava and others such as sesame seed, ground nuts and rapoko are the types of crops that are commonly grown in Muzarabani. The majority of the people (100% in Chadereka and 96.8% in Kapembere) grow maize. However, they grow maize just to be able to eat the green cobs and not to get grain for maize meal because of reduced productivity. They grow short season maize crop only on a small piece of land. 83.5% in Chadereka and 90.9% in Kapembere grow sorghum. The majority of respondents said that they grow this crop because it is resistant to droughts. Traditionally, this crop was very common but very few people were still growing this crop as people were now interested in growing cotton which would give them more money. 5% and 77.3% in Chadereka and Kapembere, respectively, are growing cotton.

The results from questionnaires, however, differed from those from focus group discussions and key informant interviews as the findings from the latter show that people no longer grow cotton as it is no longer paying and is labor-intensive and difficult to grow when rainfall received in the area is decreasing. The reason why they said that they grow cotton is that in November, the Government of Zimbabwe distributed cotton inputs to the majority of community members; but because the price of cotton is low, people in these villages and households use cotton seeds as food. A majority of them feared that if they say they do not grow cotton, the government would require them to return the inputs yet they had already made use of the seed as food. Cotton is no longer grown in the area. People replaced cotton farming with Sesame seed farming. They sell this crop to Mozambique and they say that the crop pays more than cotton seed. They get US\$3 per 3 kilograms. Sesame seed is normally used when making cakes.

More farmers in Chadereka than in Kapembere, are now growing sesame seed to earn an income. The results from group discussions and questionnaires indicated that Sesame seed (*Runinga*) has become a common cash crop which the majority are growing. Where people used to harvest 10 bales of quality cotton, now they can only get 1 bale of poor quality cotton on the same hectare. The price of cotton has also become very low and as people do their cost and benefit analysis, they find it wiser to grow *chitove (runinga)*. However, in 2016 Sesame productivity was compromised by drought again. The situation in which people had to abandon growing cotton, yet they had migrated into that area for cotton farming in the early 1980s and 1990s, shows the serious consequences of drought. Respondents, as well as Agritex

officials, said that incessant droughts have dissuaded people from growing cotton. Although the area is in region 4 of the Zimbabwe's climatic region, it used to receive rainfall that was adequate for cotton growth and productivity. Few people grow cassava and, in both Chadereka and Kapembere, 29.8% and 54.5% in Chadereka and Kapembere grow pearl millet. In fact, people have resorted to growing crops that are suitable with the climatic characteristics which their area is experiencing. This shows that people are adapting to droughts. Fig 5.11 below shows the type of crops that are being grown by the inhabitants.

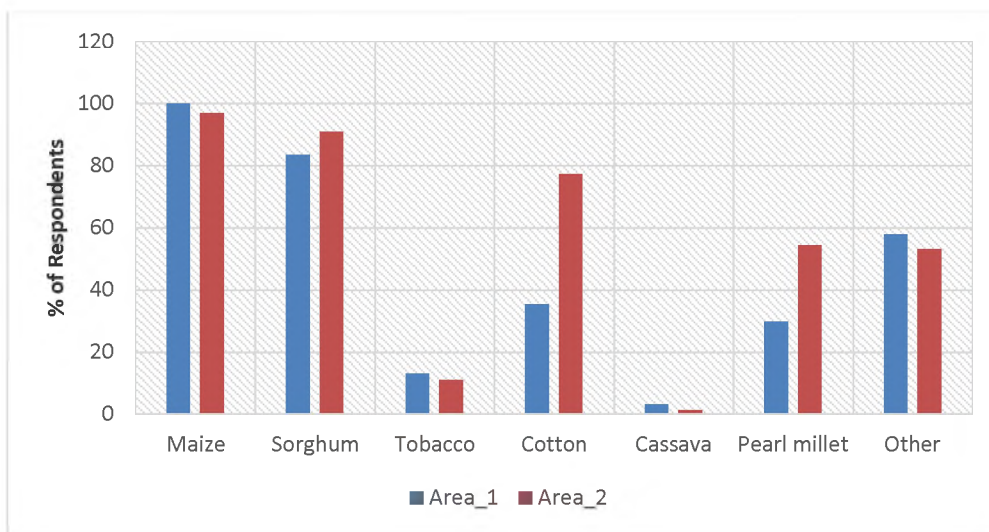


Figure 5.12: Types of crops Grown in Chadereka and Kapembere
Source: Rosemary Kasimba

Below is a photograph of Runinga crop in one of the respondent's fields.



Figure 5.13: The type of crop that has become common in the lower Muzarabani
Source: Rosemary Kasimba

The sesame seed does not require much labour and does not need more water. So, it is now being grown by the majority. In addition, the crop is sold at a higher price than cotton.

5.8: Major Reasons for Settling in Muzarabani

As a researcher, I have always wondered why residents in Muzarabani kept on living in the area when they are constantly being affected by floods and droughts. Some of the respondents are saying that they were born there and they cannot relocate to other areas leaving behind the graves of their grandparents and parents. In Chadereka, 76.6% of the survey respondents in the questionnaire said that they were staying there because of their ancestry. Their fathers were born and bred in the area and they died there. In fact, these people have nowhere to go. 63.8% of the respondents in Kapembere said that they were living there because it was the land that was left to them by their ancestors. In addition, 64.2% in Chadereka and 83.4 % in Kapembere said that they are settled there for easy access to land. Very few farmers in Chadereka, 9.5%, said that they are there for better rainfall while 61.3% in Kapembere said that they are there for better rainfall. 54% and 8% of the respondents in Kapembere and Chadereka, respectively, said that they are there for marriage. Therefore, the majority of the respondents are staying there because of the belief that they should not leave behind the graves of their family members. They also cannot forfeit this easy access to land which is fertile. Thus, resilience is very important for these people not to be very much affected by disasters. The majority of these people have no plans to move to other places because of some of the reasons which they are giving. Figure 5.13 below shows the reasons why people are settling in the Lower Muzarabani, which is prone to flooding and droughts.

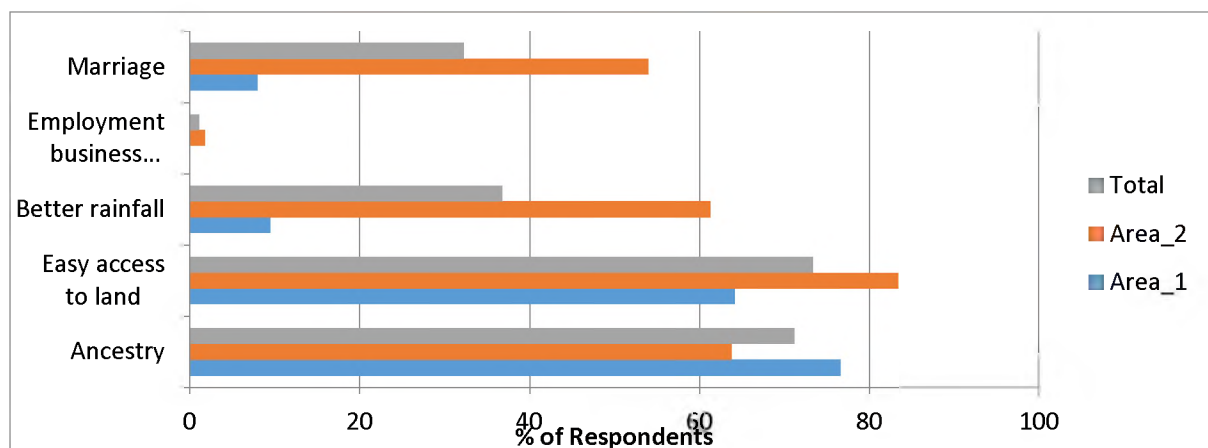


Figure 5.14: Major reason for settling here

Source: Rosemary Kasimba

5.9: Conclusion

The chapter has offered a general overview of the study site. A description of the geographical characteristics of the area has been given. The chapter also mentioned NGOs that are operating in Lower Muzarabani highlighting their area of specialization in wards where they operate. It went on to highlight the residents' socio-economic and religious organisation. This aspect is very important in the study because it facilitated the understanding of the forms of Social Capital that exist in the community. The study areas' infrastructural development was briefly examined since this has a bearing or an impact on how local people respond to natural disasters. The chapter presented and discussed the demographic characteristics of the respondents in Muzarabani. It showed that the majority are not highly educated and agriculture is their main economic activity. In addition, the majority are living in poverty as they are surviving with less than US\$1 per day. The majority are more vulnerable to floods and droughts as they do not have adequate economic resources to successfully cope with these disasters. The next chapter explains the impact of floods and droughts on the local people's human security (livelihood and food security).

CHAPTER 6

COMMUNITY PERCEPTIONS OF FLOODS AND DROUGHTS AND EXPERIENCES WITH THEIR EFFECTS ON HUMAN SECURITY

6.1: Introduction

The previous chapter provided an overview of the study area and the demographic profile of the respondents. This chapter provides residents' perceptions and their experiences with floods and droughts. Understanding residents' perceptions of floods and droughts in the area is very important to the study as it helps me understand some of the factors that influence the community's adaptation and mitigation strategies. This chapter presents the local people's opinions on floods and droughts. Different categories of people had different views on these disasters with some attributing them to climate change, geographical location, changes in cultural belief systems, moral decadence, the contravening of taboos and punishment from ancestors. The chapter gives a substantive understanding of why floods and droughts are considered as twins born out of the area's geographical location, susceptibility and climate change. The elderly and those of the younger generations offered diverse but complimentary views on their understanding of floods and droughts. This chapter is important in the sense that it enabled me to understand the principal factors that influence and shape residents' adaptation and coping mechanisms. It also made me understand the reason why people keep staying in the area despite it being prone to floods and droughts and where cotton farming (which was the main farming crop) is no longer viable. Understanding the impact of floods and droughts is significant if one is to understand the adaptation strategies that are used by residents in the community. The chapter provides a comparative analysis on how residents in different communities are affected by natural disasters such as droughts and floods. The chapter also examines how the most vulnerable members of the community (women, child-headed families, the elderly and the disabled) are affected by floods and droughts. This chapter is significant in the sense that it provides an understanding of how Social Capital helps these communities increase their resilience.

6.2: Chadereka Resident's Perception of floods

The people in Chadereka had varying perceptions of flooding but the majority knew that they were living in a low-lying area which is prone to flooding, especially when rain water overflows from upper Muzarabani and rivers are flooded with water. Figure 8.1 below shows the results from the survey on community perceptions on flooding.

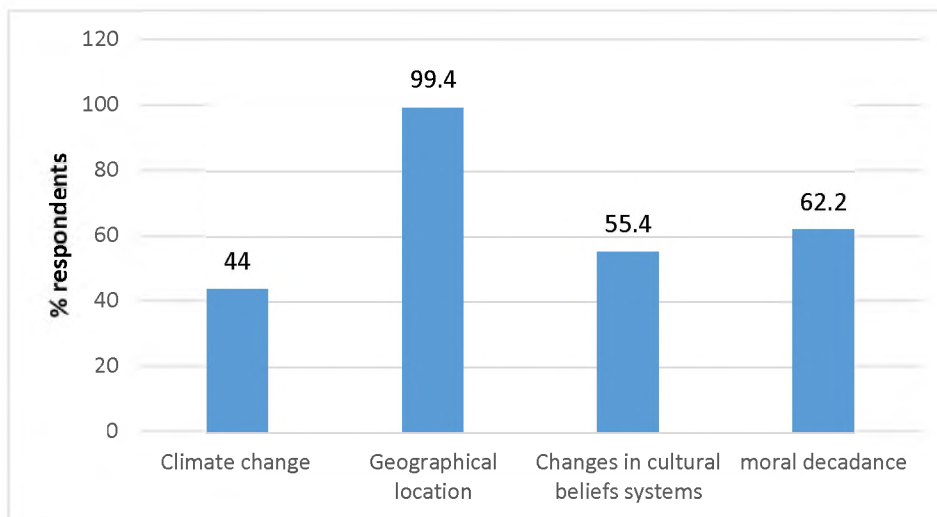


Figure 6.1: Community’ understanding on the causes of flooding

Source: Rosemary Kasimba

The respondents ranked what they thought were the causes of floods and droughts in the area. The responses from the questionnaire showed that 99.4% of the respondents said that they were exposed to flooding due to the geographical location. 44% said that flooding was caused by climate change. 55.4% said that floods were as a result of changes in cultural belief systems and 62.3% of the respondents in Chadereka said that floods were as a result of moral decadance. Almost half (44 %) the people in Chadereka attributed flooding to climate change. Responses from focus group discussions were consistent with questionnaire findings. Even though the Zimbabwe Red Cross Society is educating people on climate change, there are some residents who do not accept it as real, during focus group discussions with the elderly. The majority of them understand that they resided in a valley which is prone to flooding.

The majority (99.4%) said that they know that they were on low land where water can easily overflow. However, people in this community view the prevalence of sin as a cause of the disasters in their community. They blame adultery and women’s contemporary dressing. They say that some young women go around wearing trousers in breach of the norms of the society. The claim was that before the advent of women in trousers, people had bumper harvests. Some respondents blamed the ethnic mixture of people in this community. Some of them do not even want to comply with the rules of the land because they do not understand what they mean. *Chisi* rules (traditional day in which people are not allowed to work, usually a Friday) are no longer being followed. Some are even going to fetch water from the river with metal objects

which were not allowed. Thus, the majority (particularly the elderly) believe that they have disappointed their ancestors.

One of the respondents said:

I think God is punishing us. The spread of Christianity and Westernisation in this community led us astray. This is also causing the death of our custodians of the environment (spirit mediums). We know that we are dwelling in the valley but I think flooding is exacerbated by the way we are behaving. We grew up in this area but floods were not as bad as they are. They are very destructive as they destroy our crops and cause diseases⁴.

The above explanation shows that floods are viewed as a form of punishment imposed by ancestors whose norms and values are no longer being adhered to. As the respondent was explaining, some were nodding their heads in agreement with what was being said. This is consistent with Chanza and De Wit (2015: 30) who noted that respondents in Muzarabani expressed concerns about the threats to the value and continuity of customs. These threats are associated with the influx of migrant population, western based education, modernisation and Christianity, including the death of custodians (*madunzvi⁵homwe⁶ and masvikiro⁷*), spirit mediums, and persons possessed by spirit mediums and of Indigenous Knowledge Systems. The majority of the respondents centred their arguments on the violation of traditional belief systems including moral decadence and changes in cultural belief systems.

Although the majority of respondents did not correlate flooding with climate change, some of the activities (those that damage the environment, such as lack of respect for the sacred forest) contribute to climate change which also results in flooding. The belief that the violation of taboos is causing floods and droughts by the majority of the elderly tallies with Bhatasara's (2014: 209) findings on Climate Change Variability and Adaptation in Charewa of Murehwa, Zimbabwe. Bhatasara (2014: 209) notes that "ancestral spirits were perceived to be angry over increasing cultural defilement and moral decadence". This was regarded as the main cause of

⁴ An elderly during focus group discussions in Chadereka ,17 June 2016

⁵ A person who travels with the spirit medium

⁶ A person possessed by the spirit medium

⁷ Spirit mediums

climate change in Charehwa which is the same with respondents in Chadereka. Despite the availability of literature of on climate change and climate change education, the majority of the rural population in developing countries, especially Zimbabwe, still hold traditional views on climate change. They know that the climate has changed but the driving agents of such changes are still to be known by the majority.

The findings of my study, in terms, of what respondents perceived as the consequences of disrespect of ancestors coincide with the findings of a study by Schlehe (2010) on local people's interpretation and their explanation of the Java 2006 Earthquake in Indonesia. Although everybody knew that the earthquake was a result of tectonic activity "the spirits were said to have sent the disaster earthquake in order to remind people of their traditions" (ibid: 112). Schlehe (2010: 116) went on to note that the majority of the respondents believed that "the earthquake was a sign or a warning or a punishment from Allah to remind his followers to lead a normal life, to respect nature and to abstain from sins and so on". This means that, religion "plays a role in the public perception of reengineering through the voices and choices of adherents and spiritual leaders" (Clingerman and Obrien (2014: 28). However, the narratives from respondents in the study area (as above) showed that there is a conflict between Christianity and the African Traditional Religion, with the former accused of prompting the rapid erosion of practices that were considered as proper rules and customs of the land. In trawling through literature, it was found out that Christianity and African Traditional Religious practices have the same interpretations on climate related disasters. For instance:

many Christian denominations in the United States have issued unequivocal, powerful messages which declare climate change to be an urgent moral matter. Such statements generally argue that God wants people to care for and be good stewards of Creation; in some cases, the statements have also contended that because climate change is likely to hurt the world's poor first and hardest, addressing it is an issue of social justice. In the Roman Catholic Church, for example, both Pope John Paul and Benedict XVI have advocated for 'climate justice' (Veldman, Szász, and Haluza-DeLay, 2012: 261).

Thus, both Christianity and African Traditional Religion want people to care for the resources although in Muzarabani some of the respondents condemned Christianity for prompting the abuse of the environment. Religion provides a frame which represents a model for how to understand and therefore respond to reality. As some community members know that their actions are the cause of disasters, they now know that it is difficult to go back to their basics

(traditional practices). They believe that disasters (floods and droughts) are inevitable. It can therefore be argued that they prepare for these disasters, hence their resilience is enhanced.

6.3: Community Perceptions on Droughts

I have not drawn up a graph on Chadereka locals’ perception of droughts since the majority understand that climate change and violation of traditional belief systems were major contributing factors to floods and droughts. These people are continuously receiving education from Agriculture Extension Officers and Non –Governmental Organisations such as Red Cross and Help from Germany). The results from focus group discussions and key informant interviews revealed that residents in both Chadereka and Kapembere have more information on the causes of droughts and floods due to education and training they are receiving from NGOs such as Help from Germany and SAT. The majority said that floods and droughts are as a result of climate change. I show a graph on factors that the residents in Kapembere believed were causing droughts. The majority in Kapembere said that they were prone to droughts because of their geographical location and climate change. Figure 6.2 below shows what they attributed droughts to.

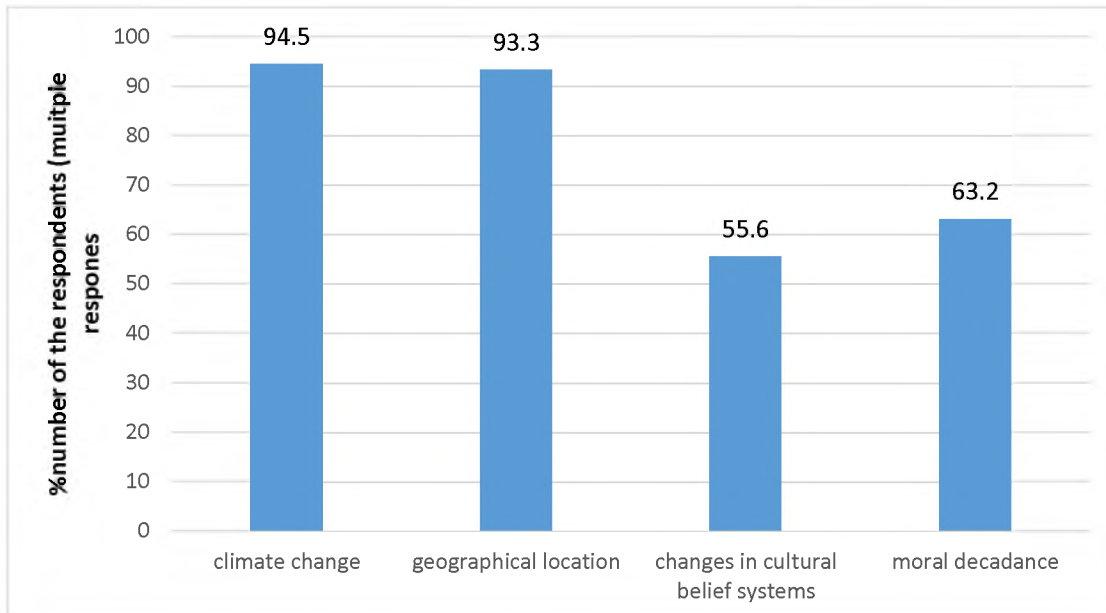


Figure 6.2: Causes of Drought

Source: Rosemary Kasimba

Responses from questionnaire findings show that drought was perceived to be as a result of climate change. In Kapembere, 93.3% said that their area was prone to droughts due to the geographical location of the area. I probed them further in order to understand in greater detail

how geographical location made them more vulnerable to the risk of droughts. They stated that they were dwelling below the mountains which was a rain shadow area. 55.6% and 63.2% said that drought was being caused by changes in cultural belief systems and moral decadence, respectively. This is also consistent with Clarke, Shackleton and Powell's (2012: 18) study on *Climate change perceptions, drought responses and views on carbon farming amongst commercial livestock and game farmers in the semi-arid Great Fish River Valley, Eastern Cape province, South Africa*. They realised that:

the majority of the farmers (89%) had perceived their local climate and weather patterns to have changed and 66% felt concerned with what was happening with regards to the climate and what it meant for their farming. The majority of the respondents believed that climate change was the main cause of their predicament (ibid: 18).

Some of the respondents in Kapembere said that droughts were a result of climate change. These people have been going through training that was provided by Non-Governmental Organisations such as Sustainable Agricultural Technology (SAT) and Methodist Development and Relief Agents (MeDRA). These organisations made people in Kapembere understand that climate change is real. These organisations are therefore encouraging people to grow drought resistant crops. Information on climate change is being widely disseminated to community members. One of the respondents said:

Long back, incessant droughts were not as common as they are today. Drought is with us and it seems like it is here to stay. This is mainly because of climate change. The climate is changing bit by bit as we are witnessing an increase in temperatures during summer and long dry spells. We are experiencing weird temperature changes. In summer, we used to have high temperatures and we could experience low temperatures in winter only but these could not be as low we are experiencing currently. Surprisingly, we are no longer able to distinguish winter and summer in terms of distinct temperature regimes. I think the changes in temperature are also causing seasonal changes which are also resulting in droughts. I was born and bred in this area and the environment we are living in currently is not what I used to know. My fellow community members can support me on that. Long back, we used to receive the first rains in October 20-25 and

this was called *Bumharutsva*⁸. This was then followed by *Gukurahundi*⁹ and this would come in early November or late October. During mid and late November, we would then receive *Nhuruka*¹⁰. In January we would experience a short dry spell but it could give us enough time to weed (hoeing). In February, we used to receive *Gumbura*¹¹. In April we used to receive *Tupfunhambuya*¹². Finally, we used to receive *Vhurachando*¹³. We were all exposed to these formulae but to tell you the truth, it's now by chance to harvest. It does not matter whether we planted early or late as the crops are affected in the same way. We are now receiving rains either mid-December or early January. But, the rains will be very light to such an extent that some people will doubt to grow their crops. In February, there is usually no rainfall. In early March, we receive heavy downpours which compel some of the community members to grow crops such as maize, hoping that they will continue receiving rains. The rains stop again and, only to come in June or July when it's already summer. So, you see, we are being misled and this –has reduced crop productivity. This is also compromising our livelihoods activities. The seasons are also shifting bit by bit to such an extent that we will end up receiving more rain in winter than in summer. Sometimes we experience summer climatic conditions in winter and vice versa¹⁴

The narration above is clear proof that climate change is being understood as real in Kapembere. Residents' perceptions offered me an insight into how their adaptation strategies were influenced by their perceptions. A submission by a respondent who was born in the area revealed that climate change is real in Muzarabani although the area had always been prone to floods and droughts due to its geographical location. Thus, climate change is perceived as the agent for the increased occurrences of floods (in Chadereka, Hoya and Dambakurima wards) and droughts (in all wards under Lower Muzarabani). Similarly, what the respondents said

⁸ First rains in which people believe that it would wash away burnt ashes. Traditionally people used to burn forest when summer was approaching so that new healthy grass and plants would grow or recuperate.

⁹ Heavy rain to wash away all remains of the last harvest as well as dirty materials.

¹⁰ Third rains for people to start planting

¹¹ Disappointing rains received when crops will be in the process of drying and these would disturb the process.

¹² Rains to mark the end of summer season and these would be very light

¹³ Rain which brings the coldness in winter season. These rains mark the beginning of winter season.

¹⁴ The councillor of Kapembere ward, Key informant interview, at Kapembere shopping Centre which is in Kapembere village, 6 May 2016.

made me understand the main types of droughts that affect people and these are meteorological (receiving little rainfall) and agricultural drought (crops end up not receiving adequate water for them to mature and reproduce.)

A detailed analysis of residents' perception on floods and droughts also paved the way for me to understand the forms of Social Capital that exist to enhance the resilience of people in the community. For instance; education provided by NGOs such as MeDRA and SAT on climate change in Kapembere, helped community residents to understand that drought was real and everyone was going to be affected. This tends to encourage them to work closely with NGOs and agriculture experts (such as SAT and AGRITEX officials). Moreover, the majority of Chadereka residents were of the view that they were exposed to floods and droughts because of their geographical location, cultural changes, climate change and moral decadence. This compels them to be cooperative despite the fact that there are some individuals who are unwilling to work with others. One of the respondents said:

We all know that we are resided in the valley (*gova*) where there are main rivers which discharge in the Zambezi valley. Everyone has a role to play and we assist each other because we all know that we are at risk¹⁵.

Based upon the above discussion, one can see that the people's understanding of the causes of these disasters and their impacts have formed the foundation of different forms of Social Capital. The majority of the residents are bound together by the virtue of the fact that they understood that they were all vulnerable to floods and droughts.

6.4: Community Perception of climate change

Through focus group discussions and interviews during transactional walks, I understood more the local people's perception of climate change, floods and droughts. Although the community under study had similar views in some instances, different categories/groups of people offered views which were somewhat complimenting, although different in explanation. The elderly in both Kapembere and Chadereka were of the view that ancestors were angry with the people and that is why they were now prone to disasters. The majority of the elderly people in Lower

¹⁵A woman in a Focus Group Discussion, Gunduza Village, 4 May 2016

Muzarabani area is different from other areas in the sense that the rainfall amount, availability of food, the coldness and hotness of the atmosphere are mainly controlled by the ancestors. They even said that some government officials know about it. They believe that God (*Nya denga*), together with the ancestors, had chosen this area and long back they used to enjoy their harvest. People would come from all corners of Zimbabwe to buy food from them; but now it is impossible. One of the respondents said:

Here and there, droughts used to occur but still we would harvest and we would not suffer from food shortages because our ancestors used to make sure that if we receive little rainfall, wild fruits such as masau, nhunguru, matondo, nhacha, matowhere, husika and many others, would be in abundance and we would not feel the impact of that disaster. Even though this place is generally a hot area, food was always available. This was all because we were faithful followers of the laws of this land. We made sure that everyone was adhering to the do's and don'ts of the land. We used to brew beer and hold rain making ceremonies and every member of the community would contribute something even if one was a Christian. Our ancestors no longer feel pity for us because people are simply doing whatever they want without observing the rules of the land. Some are even cutting trees near rivers and some snakes like shato are no longer there because they are continuously being killed by people. People are sinning a lot.

Premature and incestuous sex have become commonplace. Some people no longer want to even contribute grain or their labour when doing ceremonies. This young generation came to destroy and I think ancestors ran away from us. That is why we are continuously being toasted by floods and droughts. We are the ones who are contributing to climate change because the ancestors are not happy with us.¹⁶

As the respondent spoke, everyone became quiet and there were echoes of approval from the other respondents in support of what the respondent was saying. It was clear that they believed that the environment is spiritually linked to the ancestors. This is also the same with Ghana where certain sites were considered as sacred and this had protected conserved trees and rivers.

¹⁶ A man in a focus group discussion with the Elderly in Chadereka village, 16 June 2016

Barre Miriam and Dianne (2009: 27) rightly note, “*Sacred groves*¹⁷ (in Akan of Ghana) are areas of vegetation preserved through local taboos and sanctions that express ecological and spiritual values”. The Akan believed that such groves are the habitat of the gods, ancestors and other spirit beings. For any sacred grove, there is a reigning deity that oversees and controls all forms of vegetation and waters of the grove” (Boamah, 2015: 37). Similarly, the elders in my study were of the view that the occurrence of floods, droughts and their consequences were exacerbated by modernity as residents were now shunning the traditional religious practices. Thus, “as the disaster itself dissolves order and creates chaos, its explanations are manifold” (Schlehe, 2010: 119). Be it a developed or developing country “people in the world assign the cause for natural events to some supernatural agency” (Johnson, 2005: 415). This brings me back to the issue of religion as having space in the study of disasters for “good and ill it is part of the global discussion of climate change” (Clingerman and O’Brien, 2014: 27).

My study findings are also consistent with Chanza’s (2014: 167) study in the area. Chanza (2014: 167) found that people “believe that if the environment is disturbed by their actions or the actions of others, the spirits will punish them by destabilising the climate system. To them, climate events such as drought and violent storms are signs used by the spirits to register their distress and objection”. However, this is different from Chanza’s findings in the sense that he found out that this was what the community perceived; but in my study, it is not the entire community but elders mainly.

According to Diggs (1991: 143) and West, Roncoli and Quattara (2008: 290), climate change is perceived variably according to age, educational levels, location and livelihood activity. In my study, some members of the community, especially the so called “young generation”, had different views on floods and droughts. The majority of them said that it was God’s plan and these disasters were being exacerbated by climate change. A respondent in his 40s said:

The truth is that droughts and floods are just becoming common these days because of many factors including climate change. Those who suffer from flooding in Chadereka are those that are dwelling near rivers. So, when those rivers are fully discharged,

¹⁷According to Nyamekye (2009:259) sacred groves are the “indigenous reserves that have been strictly protected, and in some cases many centuries ago due to their religious and cultural significance.”

flooding will affect them. Ancestors are angry with us. The climate is just changing the world over, fulfilling what is even written in the bible. The bible talked about what will happen in the last days and I also believe that these are the last days considering what is happening in the world over. Rainfall intensity is decreasing and a number of rain days are also decreasing. We are not even surprised to receive rain in August. Everything is fast changing. So we have to move with this pace and behave according to what the environment wants us to do to survive¹⁸.

The explanation above demonstrates that perceptions on climate change, floods and droughts differ according to individual's conceptualisation, religious affiliation, experience and age. Those from the young generation, who are also Christians, were of the view that climate, like everything else in society, was changing. Through education by Agritex officers and Non-Governmental Organisations, some members of the community said that floods and drought in Muzarabani were exacerbated by climate change. They said that rainfall amounts in summer were decreasing and whenever this occurred, crops would die prematurely and cattle ended up not having adequate water to drink because the main water points would have dried up.

One of the respondents said:

We are now used to this difficult environment where we end up selling most of the domestic animals which were bequeathed to us by our parents and poverty is rather deepening. I do not think we will reach a time when we will start saying that we once suffered from droughts. I think flooding will stop because of the decrease in the amount of rainfall we are receiving. Floods are simply affecting us because we are living in a low land areas and when rivers are full, water overflows. I think floods are not much of a problem because we end up making use of flood prone areas in winter to grow crops. All I can say is that droughts are more troublesome and punitive than floods.¹⁹

Thus, people interpret, understand and perceive floods and droughts differently. The above explanation by the head of the household, demonstrated that droughts are commonly felt as a threat to the community by everyone.

¹⁸ A man In Focus Group Discussion with single heads of households, Chadereka Village, 20 June 2016.

¹⁹ A woman in a focus group discussion with women who have stayed in the area for 10 years and above, at the village head's homestead, Gunduza village, 6 May 2016

However, some members of the young generation think that floods will, at one point in time, stop due to an increase in the frequency and the magnitude of hydrological and meteorological droughts. Although they have been educated about climate change, they are not relating flooding to climate change, but to the geographical location of the area. Local people's perceptions of floods and droughts influenced the way they adapt to floods and droughts. Those who believe that climate change is contributing to drought are growing drought resistant crops. Those who believe that floods and droughts are as a result of changes in cultural belief systems, believe that floods and droughts will come to an end when people start to observe their cultural belief systems, which is impossible. Residents who believe that they are residing in a low-lying area which is prone to floods and droughts know that floods and droughts are there to stay and they are taking several proactive and reactive measures to reduce their impacts. These measures will be discussed in Chapter Six. Some of the residents who believe that floods and droughts are as a result of God's anger are doing nothing as they believe that things will be fine when God is no longer angry with them. Thus, people's perceptions of the causes of floods and droughts influences their coping mechanisms. Moreover, most of the people in the area say that geographical location is one of the factors that make the area more susceptible to flooding. For instance, one of the respondents said:

Main shocks in this area are droughts, floods, malaria and cholera. However, floods and droughts are the most common hazards here in Muzarabani. Floods occur here, my sister, and in 2000/1, 2002/2003, 2007/8, 2008/2009, 2011 and 2014, most of the areas in Chadereka witnessed heavy flooding where crops were washed away. Floods here do not affect everyone and there are certain villages, areas or places here in Chadereka that are prone to flooding²⁰.

Droughts in Muzarabani affect everyone in different ways. Even the District Administrator stated that the majority of the residents in Muzarabani are vulnerable to floods and droughts. Although most of the residents have heard about climate change from Help from Germany, Red Cross and AGRITEX officers, but because they did not really go to school, their

²⁰ A woman in an interview During transact walks, in her garden close to Hoya River ,03 August 2016

understanding on this issue is a bit shallow. Community members also heard that El Nino is contributing to floods and droughts.

Another respondent also said:

We are close to the main rivers that empty into Zambezi River. Firstly, we have Nzoumvunda River, which empties its water into Hoya River, which also discharges its water into Musengezi, which finally empties into Zambezi River. Musengezi River overflows because so many tributaries such as Kadzurure, Mayo, Nyatsengwa, Sapa, Utete and Mukorodzi empty their water in there. These tributaries are also rivers in their own right. It's just that we do not compare them with Hoya and Musingwa; but if all of them empty their water into Musengezi, it will eventually overflow and affect people here²¹.

Another respondent said:

We are affected by the backflow from Cabora Bassa in Mozambique and this type of flooding is very heavy. When we are approaching summer, this place is extremely hot and this hardens the soil to such an extent that if it rains heavily, within a short period of time flooding will occur²².

Thus, some people in the community know that there are two types of floods that affect people in Muzarabani, namely flash floods and riverine flooding. “Because of the low-lying nature of the area, flash floods, related to intense storms of comparatively short duration that produce high volumes of flowing water, are regarded as the most devastating” (Chanza 2014: 194). Furthermore (Chanza 2014: 194), notes that Muzarabani people “associate riverine flooding as a phenomenon occurring where the flow in a river channel exceeds the holding capacity of its banks leading to bank overflows and inundation of adjacent floodplains. Thus, the area is prone to two main types of flooding; the flash flood and the riverine flooding.

In addition, the results of the study show that floods and droughts in the area are perceived in three different ways; the African Traditional Thought (the view which took floods and droughts as punishment from ancestors whose norms and values have been violated by the community concerned), the Christian Modernity Thought (the view which regards the occurrence of floods and droughts as a sign of the last days which were talked about in the bible. This view sees the

²¹ A woman in a focus group discussion with single heads of households, village head's homestead, Gunduza village, 4 May 2016.

²² A man in a Focus group discussion with heads of single headed households, village head's homestead Gunduza village, 4 May 2016.

disasters as a form of punishment because of an increase in transgressions) and the Scientific Thought in terms of which most of community members (especially in Chadereka) were not very conversant with although they are receiving education on it. This means that, “religion is fundamental to how most human beings and societies understand themselves and their place in the world as it can be both a challenge and justify the scientific authority” (Clingerman and O’Brien, 2014: 27). The scientific view and the African Traditional Thought given by the respondents go together. Thus, “meaning construction is problematic for the disaster survivor and the disaster researcher. The multiplicity of meanings generated out of the diverse voices in the rapid sequence of events creates an area in which interpretation becomes a much contested field” (Smith, 1996:3 09).

6.5: Community as an Agent of Climate Change

The respondents’ perception of floods, droughts and climate change compelled me to pose the question: Do community members know that their activities are directly contributing to climate change and natural disasters such as floods and drought? This question arises because an understanding of the activities of the community makes it easier to see how these activities directly exacerbate climate-related disasters and thereby influence the adaptation and mitigation strategies of the community. The findings of this study show that the majority of community members are of the view that they are indirectly contributing to the natural disasters besetting them. By virtue of its being a highly fertile area, Muzarabani became inundated as migrants flocked in from various places. This led to vast lands (including some of those that were considered sacred) being cleared for farming. Sacred forests (*tsokoto*) are no longer being honoured and respected by the entire community. Trees were cut down on a daily basis as one of the survival strategies whereby people make firewood. One full scotch cart is sold at \$6 (six dollars). Some are slashing them down to burn bricks in winter so that they can build houses or they can sell those bricks to earn a living. The majority of the residents are also doing farming at their homesteads and they cut down trees every year to protect their fields from domestic animals. Veld fires are prevalent just before summer even though the Environmental Management Agency (EMA) is discouraging people from burning bushes. Nonetheless, the majority are not seeing themselves as directly contributing to climate related disasters. Rather, they are of the view that violation of taboos (cutting down what was not supposed to be cut for firewood, tampering with thick forest, and stream bank cultivation) are inviting anger from the spirit mediums who end up bringing climate related disasters such as floods and droughts to show discontent, distress and anger. In this case, “violation of taboos is thought to invoke the

anger of the spiritual world, no one is prepared to act in ways that anger the spiritual world even though one had insufficient knowledge to validate such claims” (Chemhuru and Masaka ,2010: 122).

According to the IPCC (2014: 1), “... anthropogenic greenhouse gas emissions have increased since the pre-industrial era, driven largely by economic and population growth, and are now higher than ever”. This has led to atmospheric concentrations of carbon dioxide, methane and nitrous oxide that are unprecedented in at least the last 800,000 years. Their effects, together with those of other anthropogenic drivers, have been detected throughout the climate system and are extremely likely to have been the dominant cause of the observed warming since the mid-20th century. The activities of the residents (as I observed them, and as espoused by some of the respondents) are contributing to climate change. Massive deforestation and veld fires trigger some changes in the climate hence floods and droughts are exacerbated. “Continued emission of anthropogenic emissions of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system” (IPCC, 2014: 1). Some key informants such as Agritex officers, NGO officials and the District Administrator, stated that community activities were also exacerbating floods and droughts in the area. Overall, members of the community do not perceive their activities as directly contributing to climate change. Their beliefs are also influenced by their level of education, given that few of them had attained an Ordinary Level Certificate.

6.6 Effects of floods and droughts in Chadereka and Kapembere

6.6.1: Overall Effects of floods on people in Chadereka

Floods have several effects on communities. The findings from focus group discussions and key informants uncovered several effects such as migration, spread of diseases, homelessness, among others, as is shown on Figure 6.3 below. I will further elaborate on some of the effects in subsequent subsections of this chapter, using data from focus group discussions, observations and interviews from key informants.

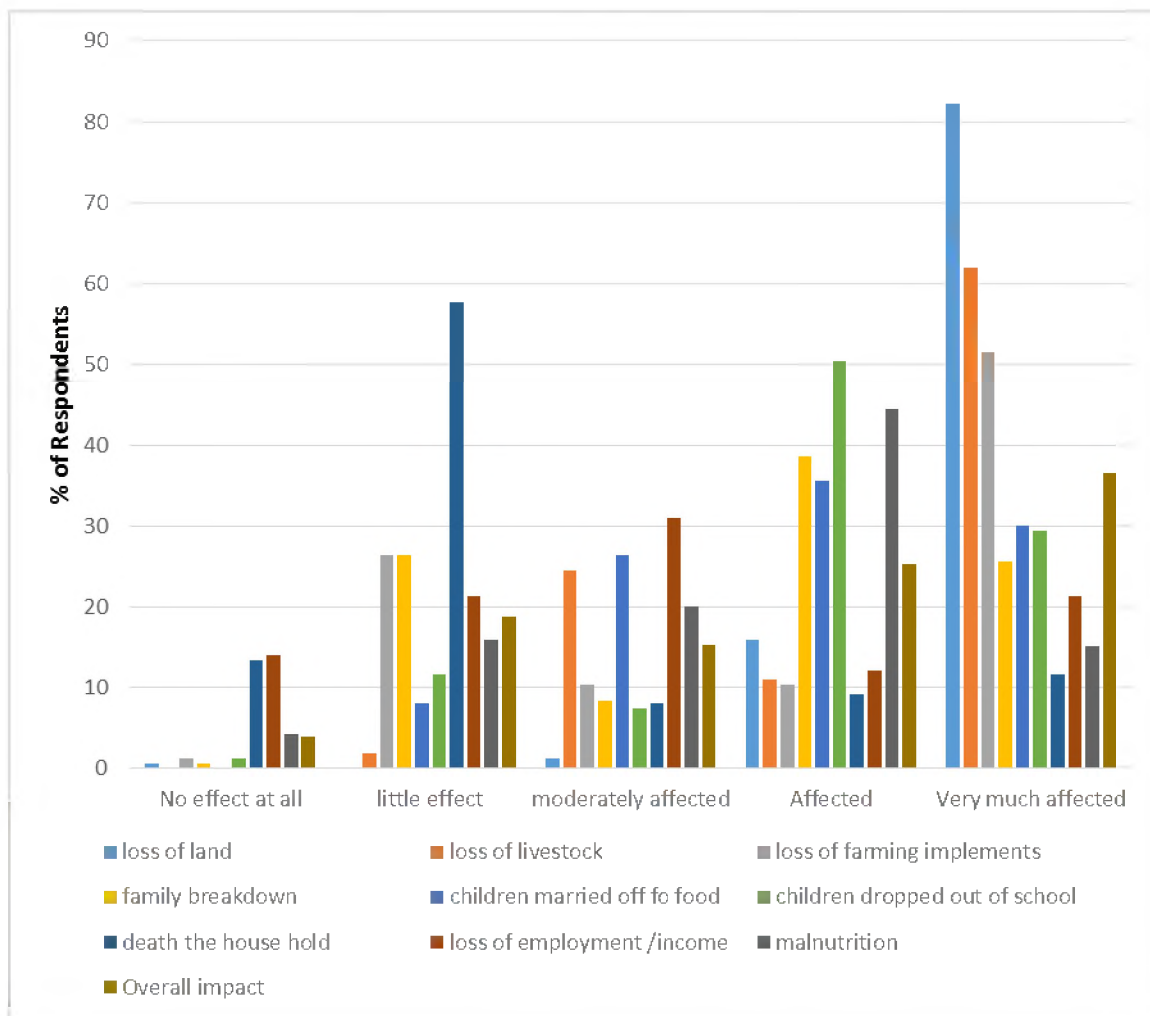


Figure 6.3: Effects of floods on people in the community and the overall impact.
 Source: Rosemary Kasimba

6.6.2: The Impact of Floods and Droughts on Food Security

The findings of this study show that floods and droughts are real in Muzarabani (Chadereka and Kapembere), Chadereka being more prone to both floods and droughts, while Kapembere is affected by droughts only. In Chadereka, floods washed away arable lands as well as crops and this resulted in massive shortages of food. Respondents from the study areas also highlight that droughts are associated with high temperatures which cause a high spread of pest and diseases and wilting of crop plants. All these negative factors lead to acute food shortages since productivity will have been reduced. During the focus group discussions, I asked different categories of the respondents on how floods and droughts could result in reduced crop productivity. Respondents highlighted that when there is drought, the temperature will be very high (approximately 39-41 degrees) and crop plants die instantly. There will also be a high spread of pests and diseases which cause plants to die prematurely. Residents are also affected by diseases such as malaria and headaches. These diseases hinder the residents' ability to work

in their fields and at the end, productivity is compromised. Respondents also reported that floods do not only wash away crops but they also lead to a high spread of diseases which will deter farmers from carrying out their day to day agricultural activities. Respondents further highlighted that drought forces people to sell their livestock and property at low prices. Households will end up remaining with few livestock to sell so that they can buy food.

Women in the focus group discussions also highlighted the fact that droughts have made them produce poor quality groundnuts yet they used to rely on this crop to earn income and be able to buy food. Grains that will be produced are of poor quality if the plants do not die prematurely. Thus, floods and droughts “have significant impacts on agricultural production” (Cobon, Ewai, Inape and Bourke, 2016: 151). Furthermore, floods and droughts exacerbate their suffering. Crops are washed away during floods and you will not have enough seed to replant. Respondents said that their crops also die early due to insufficient rainfall.

During focus group discussions with the elderly, one of the respondents said:

This year, in February and March, it only rained twice, if I am not mistaken and, there was a high spread of a certain plant pest that is commonly called ‘American’. The pest is yellow and has destroyed crops in many fields. Now I have nothing with which to feed my grandchildren. One of these grandchildren is HIV positive as he contracted it from the mother who was also positive. I am not able to do piece jobs these days because I am sick. In addition, they stopped going to school since I sold cattle as we had to pay the debt to COTTCO which had given us cotton inputs. Now we have nothing in our hands, because we had to repay the amount we owed COTTCO after selling our cattle²³.

The foregoing explanation illustrates the deplorable consequences of natural disasters such as floods and droughts to the elderly. There are primary effects such as the shortage of food which also give birth to secondary effects such as grandchildren dropping out of school, early marriages for school going age girls, poverty and even diseases like high blood pressure. Droughts and floods cause enormous food shortages. I visited some fields and the groundnut plants was turning yellow prematurely. The maize plants were wilting before they had even

²³ A man in a Focus Group Discussion, Kapembere Primary School, 25 May 2016
COTTCO stands for The Cotton Company of Zimbabwe.

reproduced. Elderly people cannot labour for food and when droughts occur, they become food insecure and consequently become more vulnerable.

The study by Devereux (2007: 2) in rural Malawi also established that the “most immediate impact of erratic rainfall on rural livelihoods is on crop production. Droughts and floods undermine farm yields and the national harvest, reducing household and national food availability, and agricultural income derived from crop sales”. Mavhura et al (2013: 43) did a study on indigenous knowledge, coping strategies and resilience to floods in Muzarabani, Zimbabwe, which was conducted in Chadereka and Dambukurima. They also established that floods led to the loss of crops which resulted in food insecurity. Furthermore, Bola, Mabiza, Goldin, Kujinga, Nhapi, Makurira and Mashauri (2013: 5), in their study on *Coping with droughts and floods in Kanyemba*, found out that “droughts and floods reduced household food availability, and agricultural income derived from crop sales”. A study on floods by Beckman (2006: 55) in the Central Vietnam also revealed that “larger proportion of animals, like pigs, poultry and cattle were drowned and food crops were lost”. Thus, floods cause food shortages in both developed and developing countries. Food insecurity as an effect of floods and drought in both Chadereka and Kapembere created numerous problems which include, children dropping out of school, high crime rate being committed by woman, conflicts and sometimes fighting among villages. Diseases such as diarrhea become rampant and there is also family disintegration, poverty, and a high rate of prostitution. These consequences were highlighted by respondents during focus group discussions and key informant interviews in the Chadereka and Kapembere. One of the women who had stayed in the area for more than 10 years lamented:

Floods and droughts have caused the shortage of food. This has also intensified poverty in this community. Problems that are caused by the shortage of food include children dropping out of school because we would want to eat together since the food will not be adequate to share. In addition, there is small amounts of money from which we are supposed to buy uniforms, shoes and pay fees to buy food. Furthermore, I made my two little daughters get married to families which I know are food-secure so that they can also eat. I also wanted to reduce the burden as I have a large number of children whom I am not able to support.²⁴

²⁴ A woman in a Focus Group Discussion with women who have stayed in the area for 10 years and above, Gunduza village, 6 May 2016

The above lamentation demonstrated the magnitude of tribulations that have been caused by floods and droughts. The majority of the Muzarabani residents, especially female heads of households and the elderly, are left with no option but to force young girls to marry as well as pulling them out from school. Thus, when one looks deeper into the consequences of pulling children, especially girls, from school, the future development of such communities is bleak. Even though they consider pulling the children out of school as a strategy to solve the problem of food crisis, the solution is not sustainable. Rather, it postpones the pain and it creates more problems that could have been solved by letting them go to school while struggling to get food. This is because some of the children being taken out of school are doing well and they could be of assistance to their guardians and parents in the near future. This was also indicated by one of the Heads at a secondary school:

We have some pupils whose fees are being paid by World Vision but their parents are taking them out of school because they cannot afford to buy stationery and they do not have food to eat. It pains me a lot because some of them are intelligent as they perform better. For instance, there was a certain girl who was pulled out of school because her mother did not have the money to buy her school uniform and ball points. Her fees were already paid by World Vision. The girl was very sharp and I tried to convince the mother to try her level best so that she could put her back to school. Unfortunately, it was all in vain. She pulled her out of school only because there is no food at their house²⁵.

Thus, some parents in the community do not understand that pulling children out of school creates many future problems as the child continues to be a burden. Henceforth, floods and drought have negatively affected the development of communities. Food shortages also lead to the creation of other problems in the community as has been explained in the above. In addition to the above, women are more affected by both floods and droughts. Women have less access to resources that are essential in disaster preparedness and recovery. The majority of them do not own land and they do not have a say over family assets. One of the respondents said:

²⁵ The Headmaster, Key Informant interview, Gunduza Primary School , 06 May,2016

I suffer more than my husband because I am a woman. Now he is in Harare working as a driver and he does not send us money every month because he has another wife. I have to look for school fees and food for my children. I really feel like I should leave this type of marriage because I am overburdened. He said I should not sell the cows because they are not mine but his²⁶.

The above quotation is evidence that women are more overburdened than men, especially in societies where men are in charge of everything in the household (patriarchal society).

Moreover, the problem of food insecurity has become common in an era where climate is changing rapidly. Thus, “Higher temperature has negative effects on soil organic matter also. As a result, food insecurity will occur” (Anik, Kabir and Ray 2012: 5). They also note that “the scarcity of water limits crop production and as a result, it has a great negative impact on the food system of the country”. A study by Bourke et al (2016) in New Papua Guinea also showed that droughts and floods cause food shortages. “In Papua New Guinea, extreme climate events have occasionally led to the collapse of normal subsistence food production systems, thereby causing large scale food shortages that threaten human health and survival [For example during the 1997 El Niño drought]. The production of staple foods [such as sweet potato] and cash crops [for instance coffee] are adversely affected by drought” (ibid: 1).

6.6.3: Floods and Droughts Implications on Residents’ Food and Livelihood Security and Resulting Effects on Religion.

The impact of floods and droughts on religion was not important in this study but I found it very important to highlight how religion, as part of Social Capital, has been affected by floods and droughts. The shortage of food due to floods and droughts has negatively affected order in the communities that were under study. In these circumstances people find it expedient to join more than one church in order to get free food hand-outs from these churches. Most of the respondents highlighted that they belong to more than two churches and that they did this with the aim of getting food. The Roman Catholic Church was at one point in time involved in food rationing where people from every household with a Catholic member were to receive a 50 kg bag of maize. This compelled the majority of Chadereka residents to attend Roman Catholic Church services. The Muslims also distributed among their members. Thus, the Muslim faith

²⁶ A woman during a focus group discussion in Kapembere, 19 June 2016.

attracted large numbers of residents in Chadereka. People ended up belonging to more than two churches/ religions. Some people evidently began losing patience with African Traditional Religion and no longer wanted to attend rain-making ceremonies (*doro remukwerera*). Some of these people now feel that the ancestors are betraying them. One of the key informants said:

People are joining different churches. These churches promise to give them food and clothes continuously. We have a Moslem church which converted almost 2/3 of this ward to Islam through proclamation and people were given food and now they are promised food and clothes. The Roman Catholic also did the same here in Chadereka. This is affecting the people's economic activities in different ways. Some people are no longer going to their wetlands to farm during winter because they will be at church throughout the whole week. Each church has a women's group association, a men's group association and so forth, and one has to attend all church activities for you to be recognized as a full time church member who qualify to get food. This is all because of hunger and poverty²⁷.

Although the majority of residents resorted to belonging to several churches as a result of food shortages, the role of Social Capital in enhancing the resilience of the community is evident. The more they join different churches, the more they increase their social network ties. This happens regardless of the fact that community leaders view it as the chaos that is rocking their communities. Residents affiliate to more than one religion or church organisation. Some believe in the African Traditional Religion whilst at the same time believing in Christianity as well as Islam. In these religious organisations, people are put into groups where they perform different functions for the smooth-running of the organisations. For instance, youth groups, young couples, women's groups and men's groups are some of the groups formed. These groups of people have time tables where they meet to discuss matters affecting them as well as how they can promote the smooth-running of their church or religious organisation. Thus, people get to know each other in these groups and assist one another in times of crisis. This also is in tandem with the findings of the study by Penick (1981) on people's reactions to the massive earthquakes in 1811 and 1812, Missouri, United States of America. He found out that "membership in the Methodist Church increased by 50% from 35,741 in 1811 to 45 983 in the

²⁷ Mr Chitengu, the Councillor in Chadereka Ward, Key Informant Interview, 1 June 2016

Midwestern and Southern states where quakes were felt most forcefully” (Bentzen, 2013: 4). These people turned to God as they believed that the disaster was a result of reprisal from God. In Muzarabani, evidence on the ground suggests that a majority of the residents are turning from ATR to Christianity and Islam, mainly to be able to benefit from clothes and food hand-outs that these religious entities distribute. In addition, some felt that the ancestors of the area were betraying them while others thought the floods and droughts were a result of God’s punishment and that worshipping God would also prevent floods and droughts. All these things have a bearing on people’s livelihood security. Due to religious differences, some community members no longer promote the businesses of some community members who are into buying and selling. The majority now believe in supporting one another especially if they go to the same church. This is making the lives of many difficult since they end up failing to balance the church and economic activities that sometimes enable them earn a living.

6.6.4: Increasing Reports of Snake Bites as a Result of Droughts

The effects of floods and droughts are diverse in both Chadereka and Kapembere. The high incidence of cases of snake bite recorded in these communities is evidence of these effects. The majority of respondents pointed out that snake bites are a result of shortages of rainfall, something which makes it difficult for snakes to live in their habitats. Snakes are found in open places. Even health workers at Chadereka clinic observe that when drought is intense, quite a large number of people suffer from snake bites. I tried to find the link between snake bites and droughts. As a researcher, I did not see these two as being positively correlated, but their explanation convinced me that snake bites increase as a result of droughts. The respondents stated that the growth of vegetation (grass and the recuperation of tree leaves) the resting places of snakes, has been negatively affected. Thus, the area has become more or less arid and in some way made more snakes slither around in search of shade to rest in. The cattle also wonder around the grazing lands as grass becomes scarce and eventually snakes become angry because of continual disturbance. One of the respondents said:

We are recording a high number of cases of snake bites because of droughts. When it is hot like this, snakes become very harsh and that’s why people have become victims of snake bites²⁸.

²⁸ Chadereka Nurse in charge key informant Interview, 18 August 2016

Snake bites result in people selling their assets such as livestock to seek medical attention. In addition, people end up using the money with which they are supposed to buy food and farming inputs for medication. Henceforth, food security becomes a very big problem. In addition, it takes time to recover from snake bites and people stay in the hospital whilst the labour which they were supposed to provide comes to a halt.

6.6.5: The Effects of Floods and Droughts on Health

Floods and droughts have serious implications for people's health, bringing in diseases such as headaches, malaria, diarrhea and malaria. There is also an increase in the number of people under treatment for high blood pressure due to stress emanating from the floods and droughts. Increased temperature causes dehydration and headaches. Responses from health workers confirmed the responses from Focus Group discussions. One of the health workers at Chadereka clinic had this to say:

There are quite a number of diseases that are caused by floods and droughts in this community. Currently, there is a rise in the number of the people who are coming to the clinic complaining about severe headaches in addition to the high rise of snake bites. Last year, there was also a high spread of diarrheal diseases because of floods where toilets were being filled up with water and some of the water started flowing into people's houses. People are also complaining of stomach pains because of what they are eating. They are grinding cotton seed and mixing it with maize or sorghum meal, to make bread or sadza. This has got serious implications on their health.

The above explanation shows the effects of floods and drought on residents' health. Snake bites, as highlighted in the previous sub-topic, are a health hazard. In addition, diarrhoea diseases were also caused by the floods owing to effluent from open defecation flowing over surfaces and getting into peoples' houses and causing heightened incidences of scourge of diarrheal attacks. Currently, the diarrhoea diseases that people endure from are caused by eating cotton seed which is treated with chemicals. Thus, shortages of food due to floods and droughts create acute food shortages that reduce people to having to grind cotton seed to make food to feed the family.

If we are to compare the present Chadereka with the past Chadereka, which is 15 years back, we can see that the current Chadereka is angry with us. If it rains, we suffer from floods. We are now receiving little rains and this is posing so many problems in our lives. Last year, I did not even harvest one scotch cart of maize but I used to harvest more than ten tons of maize per year and I would rely on crop production (maize) for my children's day to day survival.²⁹

The above explanation shows how droughts and floods are affecting residents' health in the Lower Muzarabani. When people are sick, they fail to do their day to day economic activities, which result in them suffering from food insecurity.

6.6.6: Destruction of infrastructure and Food Security

Roads and bridges have been washed away by floods. This make people more vulnerable to floods. When it floods, the roads are difficult to pass and most of the bridges are washed away. This is even making the situation worse. The Member of Parliament (MP) for the area said:

Bridges and roads were washed away by floods in Chadereka and now it is even difficult for government and non-governmental vehicles to go there. Food problems are becoming worse. At one point in time, the Social Welfare Officers failed to cross to Chadereka to give people food and they had to be called to Muzarabani Growth Point to get their food. The elderly who stay on their own and those without livestock, struggled a lot. Some had no money to come on private cars. The majority survive on less than a dollar per day. The washing away of bridges made their lives miserable³⁰.

When Chadereka is flooded, roads are damaged and bridges are washed away. This limits the movement of people to their fields as well as the movement of vehicles and people become more vulnerable. If the community receives food aid during summer, they then have to walk long distances of than 20km to where the lorries are parked since the roads become inaccessible. The elderly have challenges in walking these long distances. Some of them end up choosing not to go. This shows one of the ways in which floods have caused food insecurity.

²⁹ A woman Focus Group Discussion with the elderly at the village heads' homestead, 29 May 2016

³⁰ MP, Key informant interview, 29 May 2016

6.6.7: The Impact of Floods and Droughts on Local Employment and on the Well-Being of Community Members

In the not too distant past, most of the people in the Lower Muzarabani area did piece jobs to supplement incomes from agriculture. They would also go trading in Mozambique, but all these activities are becoming impossible due to the shortage of food and the dryness of the area. Long back, women would go weed in their neighbour's field and get money or food in return. Some were employed as cattle herders, builders, workers at the Cotton Company of Zimbabwe (COTTCO) or at the Grain Marketing Board at Muzarabani Growth Point, especially just after the harvest. All these jobs are now scarce due to floods and droughts. One of the respondents said that:

Droughts and floods are intensifying poverty. We are in extreme poverty. Droughts made us sell our livestock at cheaper price for food. We are no longer employing one another in our fields and at home. I am left with only two cattle from 45 in 2011. Drought is my greatest enemy. My children are starving because of this enemy. I used to supplement my income with piece jobs. In 2008 and earlier, before my wife died, I used to be employed by the Muzarabani Grain Marketing Board from between April and August. From September, I would start building people's houses since it would no longer be raining. I was occupied throughout the whole dry season and my family never had a problem in getting food, fees and all sorts of basic necessities. In December, I used to work in my fields and at the same time, hiring out my cattle and mould-board plough for my neighbours to use and they would pay me for that. Currently, there is no one who can afford to sell maize at the GMB and I am no longer being employed there because there is no extra job that needs temporary workers to help in the offloading of grains. As I am left with 2 herds of cattle, I cannot afford to hire them out for money because I fear that they will die. On the other hand, floods washed away arable land and when it rains, crops are carried away. No one can afford to employ people for part time jobs under difficult situations like these³¹.

³¹A man Focus Group Discussion with single heads of households, Chadereka, 19 June 2016.

I also visualised the magnitude of the predicaments that were a result of floods and droughts. Respondents (during focus group discussions) were nodding their heads, to agree with what one of the respondents was saying. Indications were that some residents were employed locally to supplement their source of income, but all this has stopped. Thus, the secondary effects of floods and droughts are the loss of local jobs as has been indicated. In addition, at the peak of the harvest, GMB used to employ local people to help them with proper packaging as well as offloading of grains. Some residents earned a living through that. All this came to a halt when crop productivity started decreasing. The Cotton Company of Zimbabwe is also no longer employing people to provide manual labour since very few people now grow cotton. Reduced crop productivity has ultimately led to the loss of local jobs. Community residents used to provide each other with part time jobs, but now poverty in the community is on the rise and this has affected the well-being of the people. Thus, the number of people who can be said to be food-secure is negligible. The majority cannot even afford to provide the basics to their families and they are surviving on 75 cents per day. Some live on only one meal per day because they do not have money to buy food. Most of the children have stopped going to school because of poverty intensified by floods and droughts in the area.

6.6.8: Impacts of Floods and Droughts on Grazing Pastures and Atmospheric Temperature

The findings of this study show that droughts have led to the degradation of grazing lands with the result that food shortages also began to afflict the livestock. Respondents stated that large herds of cattle lose weight and also die due to the shortage of food. The problem of insufficient rain falling in the area under study has tended to limit the growth of grass and the shrubs that are alternative sources of food for livestock. Respondents in both study areas lamented the negative impacts of floods and droughts. However, indications are that Kapembere is worse than Chadereka. While resident in the area during the course of my field work, I observed that cattle are driven to distant places where they can get adequate food. The area is bare, with only a few small Mopani trees (that are drought resistant) and thorn bushes that do not provide enough food to the livestock. There is no grass both in winter and summer. In Chadereka, there is grass in summer, but only short grass that is hardly adequate to feed the cattle. In both areas, the rivers dry up quickly soon after the rain season, leading to high shortages of water for animals. It becomes laborious for the livestock owners to dig wells on the river beds for their livestock. My own analysis is that drought in the area results in intensified poverty because people who habitually depend on livestock and crop production suddenly have nothing.

One of the respondents in Kapembere said:

We depend on livestock production as well as crop production, but droughts are making our life difficult. Last year, I lost almost 5 cattle due to diseases that are caused by drought. My cattle died because of the shortage of food. As I would go to the kraal to give them water in the afternoon, I would discover that one of them would not be able to rise and drink water, it would neither eat when I gave it the food. It would only kneel down (chigwadama). I would end up slaughtering it and this could not even give me enough money. I would sell the meat at low prices since it would have lost its palatability due to sickness and sometimes dosing. This happened to me five times. If you come to my house early in the morning you will simply see an empty kraal. Yet I used to rely on livestock. Twenty years ago, there were very few cases of such diseases but they are increasingly becoming common. It is very disappointing as we are struggling to feed them expecting positive returns³².

The above explanation vividly shows the devastating effects of droughts in the lower Muzarabani area. Cattle are decimated by diseases caused by the shortage of adequate grazing land. It then becomes unprofitable for these farmers to sell their beasts. If they slaughter them, the meat would be unpalatable, hence it fetches little money. The majority were previously dependent on livestock production (cattle keeping), but cattle are now very difficult to keep. The majority of the farmers in Chadereka now keep donkeys for draught power since donkeys can withstand harsh environments where food and water are insufficient.

My findings show that droughts pose environmental impacts such as degradation of pastures for domestic animals such as goats and cattle. In consequence, domestic animals then suffer food shortages and die from a disease locally known as *chigwadama*. The respondents also indicated that the environment is negatively affected by droughts. These include the destruction of livestock pastures, high temperatures as well as the depletion of underground water. When people lose their animals they become food-insecure because the majority rely on these animals in order to be able to buy food. One of the respondents said:

³²A man Focus Group discussion with single heads of household, Chadereka, 29 June 2016

For all these years, I have been supplementing my food after selling cattle. Nevertheless, these three consecutive years, I lost almost ten cows and I am only left with one. I cannot sell this one cow and I have become the worst victim of the droughts because I have nothing to sell so that I can get money to buy food for my grandchildren and my children³³.

Respondents also said that incessant droughts are reducing the rate at which animals such as sheep, goats and cattle reproduce. Therefore, people generally become food-insecure if their animals, which they sometimes rely on, are not multiplying. The effects of droughts on domestic animals have also been found to be of concern in the Kgalagadi area of Botswana. Kgosikoma (2006: 20) found out that the “death rates for cattle were significantly higher (23.6 %) during drought years than during years of good rains (12.32 %) (P = 0.022). Birth rates and off-take rates were not significantly correlated with cattle population”. Cattle need abundant forage in order to reproduce and remain healthy. Clearly, reduced rainfall is causing food insecurity in Chadereka and Kapembere.

6.6.9: Drought Impacts on Grass for Thatching Livelihood Activity

The study findings show that the elderly and women’s economic activities are being affected negatively by droughts. Some of the elderly people used to go to the bush where they would cut grass for thatching and sell it to people who would want to build houses (mostly huts). They sold the thatch grass and earned income which then enabled them to buy food and other basic commodities. Currently it is difficult for them because the grass is not growing tall due to poor and erratic rains. For those who relied on these activities, drought has become a menace to their livelihood activities and survival. One of the respondents said:

Poor rains are even affecting my business. Long back, I used to go and cut thatching grass and I could keep it in my fields, waiting for the demand to rise as many people would start building in winter. I would then get money and buy at least four times 50Kgs of grains. Now the

³³ Woman from a Focus Group Discussion with the elderly, Kapembere shops, 21 June 2016

grass is no longer growing and you only get it in the places that are very far and I cannot reach there because old age is catching up with me³⁴.

Another respondent said:

I was used to selling grass during winter and summer. In winter that is when the demand increases as many people build houses. I used to make more money during the onset of summer when people had their houses leaking. I would sell it at a higher price. Nowadays I cannot because there is no grass. It is now all short because of the shortage of rainfall.

Thus, some people earned something from grass-cutting in Muzarabani, especially the elderly. They would cut grass gradually and keep it for future sales. Now it is very difficult. They also cannot walk to distant places because they have become too old to walk. Some women also relied on this activity. A study by Akudugu, Dittoh and Mahama (2012) also revealed that floods and droughts affect people's livelihoods in the Northern Ghana in different ways. Akudugu, Dittoh and Mahama (2012: 5) found out that climate change affects the different types of 'capital' assets (natural, physical, financial, human and Social Capitals) upon which farm households draw to build their livelihoods.

6.6.10: Level of effects of Flooding along Gender Lines in Chadereka

Table 6.1: Effect of Flooding along Gender

Resource	Gender	Level of effect flooding				
		No effect at all	Little effects	Moderately affected	Affected	Very much affected
Land	Male	0.0%	0.0%	0.0%	16.1%	83.9%
	Female	1.3%	0.0%	2.6%	15.8%	80.3%
Livestock	Male	0.0%	0.0%	28.7%	6.9%	64.4%
	Female	3.9%	0.0%	19.7%	15.8%	60.5%
Farming implements	Male	40.0 %	33.0%	21.5%	4.6%	1.4%
	Female	40 %	36.1%	24.2%	17.1%	20.0%
Family breakdown	Male	1.1%	17.6%	9.2%	34.5%	37.6%

³⁴ A man in a Focus Group Discussion with the Elderly in Kapembere, at the village head's household in Kayongo Village of Chadereka Ward 21 June 2016.

	Female	0.0%	15.0%	7.9%	43.4%	33.7%
Children married off for food	Male	0.0%	11.5%	24.1%	33.3%	31.0%
	female	0.0%	3.9%	28.9%	38.2%	28.9%
Children dropped out of school	Male	1.1%	6.5%	6.9%	48.3%	37.2%
	female	1.3%	2.8%	7.9%	52.6%	35.3%
Death within the house hold	Male	13.8%	56.3%	9.2%	8.0%	12.6%
	Female	13.2%	59.2%	6.6%	10.5%	10.5%
Employment / income	Male	4.1 %	23.0%	28.7%	23.5%	20.7%
	Female	11.8%	19.7%	34.2%	13.2%	21.1%
Malnutrition	Male	3.4%	17.2%	20.7%	44.8%	13.8%
	Female	5.3%	14.5%	19.7%	44.7%	15.8%

Source: Rosemary Kasimba

Using the Chadereka respondents' responses, I compared the results of the questionnaire and with those from the interviews held with key informants as well as focus group discussions. The results from the qualitative data complemented the results from quantitative data. The responses from focus group discussions showed that flooding negatively affected people in different ways and that the main effects noted were loss of land and livestock, family breakdown, children dropping out of school, malnutrition and increasing levels of unemployment. Many men and women felt that flooding led to the washing away of land as well as adding fertility into the soil. Some of the respondents said floods are a blessing in disguise as they also improve the fertility of the soil. Alluvial soil on the flood plains enables residents to do farming in the water-logging areas (*Mudzedze mumatimba*). The majority of respondents lamented the washing away of their arable lands. 0.0% males reported that flooding had no effect on land, 0.0 % females also indicated that flooding has little effects on land, 0.0% males said that flooding has moderately affected the land, 2.6% females have also indicated that flooding has moderately affected the land, 16, 1% males indicated that flooding have affected land and 15.8% women indicated the same and the majority of both men (83.9) and women (80.3) indicated that the land was very much affected with flooding.

The focus group discussions, as well as the interviews with key informants, allowed me to understand in greater detail how land was affected by the floods since the majority indicated that it was very much affected. Very few respondents talked about the positive effects of flooding even though some indicated that flooding supplements nutrients to the soil on the flood plains. Most of them made the observation that floods wash away crops as well as arable land within a short period of time. In addition, 64.4% males indicated that livestock was very

much affected by flooding and 60.5% females reported the same. Although there is a difference in the detail, the findings from the results of my study show that quite a large number of men own livestock and they feel that flooding affects livestock. When I asked the respondents how these were affected, they asserted that goats and sheep were swept away by the floods, especially when coming from the pastures. Rivers would suddenly be overflowing as these animals were crossing and there would be too much water for the animals to withstand. It was however, conceded that not all livestock was affected very much by flooding. Some of the respondents said that cattle were not affected that much since they can swim. However, some cattle were washed away in 2001 and 2007 when flooding was severe.

The effect of the flooding has serious implications for people's livelihood activities. The majority of the respondents depended on livestock for a living and when these are swept away and people are left with nothing, their lives become very difficult and they then live in extreme poverty, with most people surviving on less than a dollar a day.

Flooding does not always pose negative effects on human security. Rather, it also enhances food security among members of the community in Chadereka, especially those with pieces of land situated near rivers. Floods bring sediment with high nutrients for good crop production from the upper lands down to the lower lands. Residual fertilisers from the upper Muzarabani and decayed matter are deposited in the flood plains (*matimba*) and these improve the fertility of the soil. Muzarabani residents grow crops such as maize in these flood plains during winter since they tend to be wet enough to support maize growth. This winter maize is locally called *mudzedze*. The majority of the residents in Chadereka and Kapembere rely on these areas for their survival. They also grow vegetables and tomatoes to sell in these areas during winter and autumn. In summer, they cannot grow anything because the area is flooded by the river flow.

A study by Chanthy and Samchan (2014) to explore the possibility of gender sensitive Disasters Risk Reduction Planning in rural Cambodia, came up with similar findings regarding the use of floodplains. Chanthy and Samchan (2014: 23) note that the field data collection in Banteay Meanchey showed that the 2013 flood had made rice paddies grow better in certain villages like Banteay Timuy and Sok San, because flood depth was not so high and the flood receded faster and thus allowed the rice to recover and grow well. However, not everyone has a *dimba* in these areas. Ownership of a piece of land in the flood plains is the privilege of only some of

the residents. The deduction to be made here is that while it is true that floods bring more negatives than positives, some residents do, nevertheless, earn a living from the flood plains.

Flooding in Chadereka is sometimes unpredictable and respondents made the observation that the floods sometimes happen unexpectedly, given that there might not have been any rain in their area. The respondents reported that they just see the water coming even if there had not been any rain in their place. When it rains heavily in the upper lands, Lower Muzarabani is affected by floods.

6.6.11: The impacts of floods and droughts on the marriage institution.

Floods and droughts have negatively affected the stability of marriages and families. Findings from the study revealed that divorce rate has increased whereby men would leave their families in search of greener pastures in Harare and neighbouring countries such as Mozambique and Malawi. Not only men are leaving their families behind, but also some women are doing the same. Some of these do not come back and they end up having a new family. This overburdens the remaining partner as he/she has to look for food to put on the table while at the same time wanting to take care of the children. The government built two-roomed houses at Magarakata, the upland side of Chadereka where floods are rare, so as to save the lives of people who are residing in flood prone areas. This has also resulted in splitting up of families as some members of the family would not want to stay at Magarakata. Some had relocated but they went back to reside in Chadereka which is prone to flooding. This concurs with the study by Bruce, Moser and Zievogel (2012) in Mozambique where a programme to relocate and resettle households in Maputo failed as people returned to the areas which were prone to flooding for different reasons. There are now many cases where people who had either migrated or remained at a flood prone area ended up having new families (marrying a new wife or cohabiting). Furthermore, divorce is on the rise, especially among the people who migrated to Muzarabani from Masvingo during the time when agriculture was viable. During focus group discussion with single heads of households, one the female respondents said:

Droughts brought so many problems in this community especially to us women. We have to take care of our children at the same time thinking of our broken marriages. We came from Masvingo in 1992 when we just had our second born who is now married. I gave birth to seven

more children. During that time we used to grow cotton and it was more profitable. We were able to support our children and everything was well between my husband and I.. In the year 2000, floods hit the area and our crops were washed away. We also lost some property. My husband left home saying that he would be back after some months as he wanted to look for a job in Harare so that he would be able to provide for the family. He left and spent two years without communicating with us. It is difficult for me to find food for my family since some of the children are still young and cannot go to work for food in Mozambique just like what others are doing. They are no longer going to school as well. Life is difficult for me, especially now that I am surviving as the single head of the household³⁵.

One of the male respondents, during focus group discussions with male heads of households said:

My marriage was broken by incessant droughts. I am physically disabled as one of my legs cannot walk properly but I can work. I have been staying with my wife for 20 years and there was no problem. When continuous droughts hit the area (Kapembere), my wife asked to go to Mozambique to work for food (rice and fish). She went for the first time and she came back and when she went for the second time, she did not come back. When she left, we had nothing to eat and we had sold all our livestock (goats and cattle) and all the property we had bought during the time when we used to grow cotton³⁶.

One female head of a child-headed family said:

Floods and droughts made my life miserable. I am 17 years old and my father stays in Magarakata where the government built houses for people to stay when this area was hit by floods. I do not know why he left my

³⁵ A woman in a focus group discussions with single heads of households, Chadereka 19 June 2016

³⁶ A man in a focus group discussions with single heads of households, Chadereka 29 June 2016

*mother and us his children. My mother ran away from us last year in January. She said she was just going to look for food and she never came back. We thought she would one day think of us, but up to now, she never writes us*³⁷.

The above explanation shows how droughts and floods have led to the splitting of families as well as fuelling divorces. Some residents left their families behind, promising to come back as they went to look for food to feed their families. The person who was left behind as the breadwinner would end up being overburdened and not being able to look for food to support the family since the load would become too heavy. Thus, floods and droughts have caused families to split up and food shortages have continued.

In Bangladesh, Golden Bengal residents migrated to other rural areas, urban areas and other countries. According to Khatun (2013), residents left their homes due to repeated floods. Men who had migrated ended up having new families. In Muzarabani, women became more vulnerable than men. One of the respondents said:

*My husband migrated to Nyamapureti in Mozambique six years ago and he has a new family now. He came to sell all our cattle and went away with the money. Before he established a new family, he used to come back home and give us food as well as pay school fees for the children. He told me that he is no longer interested in staying in this area (Chadereka) and he does not want us to come with him over there. I have accepted the situation but I am now overburdened. I have to look for food for my children and do other household chores that I am supposed to do as a mother. I am both a father and a mother. This is all because of flooding and droughts in our area*³⁸.

Women are more vulnerable to floods and droughts than other members of the community. They become overburdened when their husbands migrate. Most of the families became more vulnerable as a result of migration and this has intensified food shortages among these families.

³⁷ A female child head in a focus group discussion in Chadereka in Gunduza village at the homestead of the village head, 28 June 2016

³⁸ A woman in a general discussion during a transect walk, Chadereka village 25 June 2016

6.7: Conclusion

In conclusion, my research showed that people in Chadereka and Kapembere had various interpretations to floods, droughts and climate change. The elderly were of the view that the violation of taboos and moral decadence are the main architects of flooding, drought and climate change. Some community members believed that climate change and violation of taboos are contributing to the occurrence of floods and droughts. Most of the respondents were of the view that the geographical location of the area makes it more prone to these disasters. Findings from the study revealed that religion plays a significant role in the people's perceptions of their understanding of climate related disasters. Their perception of floods and droughts were largely influenced by their level of education as few of them had attained a higher education. Climate change is also seen as real by some members of the community although some still do not believe that. Narrations given by respondents demonstrated that climate change is real in the area as residents are witnessing changes in rainfall patterns and temperature. The types of flooding that the community is experiencing are the flash and riverine floods. There are two main types of droughts that community members have stated and these are meteorological and agricultural drought. The discussion in this chapter demonstrates how floods and droughts have affected some local people's livelihood and food security in Muzarabani. Reduced livestock and crop productivity, damage to infrastructure, spread of water-related diseases, environmental degradation and other problems, have far-reaching implications on people's livelihoods and food security.

CHAPTER 7

MULTI-INSTITUTIONAL GOVERNANCE MECHANISMS AND DISASTER RESILIENCE IN MUZARABANI

7.1: Introduction

The previous chapter discussed residents' perceptions of floods and droughts as well as the impacts of these disasters on food and livelihood security. This chapter examines the role of Social Capital in enhancing the resilience of the community and the different types of Social Capital that exist in the community. In Muzarabani, there are formal and informal ties that make people more resilient to floods and droughts. Residents are working closely with international and local non-governmental organisations and churches and the government. Community members are also working among themselves to reduce the negative impacts of floods and droughts. As a result of my discovering how these groups are working together, I therefore identified different types of Social Capital that exist in the area. Some of these types are bridging, bonding, linking (as I discussed them in Chapter 2), village based and ward based Social Capital. Residents are guided by so many values and principles and some of these are social exchange and reciprocity, trust, totems, sense of community belonging, volunteerism. These facilitate the willingness of individuals in the community to assist each other. They also facilitated a rapport between stakeholders (such as NGOs, churches and the government) and community members to work as a group. Participation, information circulation, aggregate social support and collective efficacy, have also been promoted in the community and the community is able to adapt to disasters and "bounce back" following disasters.

7.2: NGOs' Activities in Enhancing Community Resilience to Floods and Droughts

The practical relationship linking Social Capital and community resilience to natural disasters in Muzarabani is evident in the findings of this study. This is borne out by community members and NGOs explaining how helpful their interaction is. The majority of the respondents in both Chadereka and Kapembere, were very grateful for the help they have been receiving from NGOs that are operating in their area although they are still in dire need of more help from these Non-Governmental Organisations. The Zimbabwe Red Cross Muzarabani covers the following wards in Muzarabani: Chiwenga, Kaerezi Dambakurima and Chadereka. At District level, it works with District Civil Protection Committee. The Zimbabwe Red Cross (ZRCS) is committed to building resilient communities. To them (ZRCS) "resilience refers to the ability of

communities and households to endure stresses and shocks, thus communities and households are resilient when they are able to meet their basic needs in a sustainable way and without reliance on external assistance.” Thus, vulnerable communities and households are being capacitated to maintain basic functions and structures during stresses and shocks and having access to a range of skills and resources that allow them to adapt to changing circumstances, thus enabling them to anticipate, prevent, prepare for and respond to stresses and shocks without compromising their long-term prospects. Communities are also empowered to prepare and cope with the effects of climate change. The organisation is also supporting disaster prone communities to prepare for and respond to disasters through Disaster Risk Reduction activities including community hazard mapping, Vulnerability Capacity Assessments (VCA) and early warning systems (traditional and contemporary), contingency planning and training disaster response personnel.

We are working with four wards and they are all prone to disasters. We have recruited volunteers whom we have also trained to work with the community on daily basis and especially when the need arises. We have introduced Disaster Risk Reduction activities including community hazard mapping, Vulnerability Capacity Assessments (VCA) and early warning systems (traditional and contemporary), contingency planning and training disaster response personnel³⁹.

With support from the Finnish Red Cross in Muzarabani, the ZCRCs have managed to implement programming towards strengthening these communities’ ability to anticipate risk, limit impact, and bounce back rapidly through survival, adaptability, evolution, and growth in the face of ever evolving disasters that are not limited to floods and droughts. Chadereka is one of the wards that have been working with Zimbabwe Red Cross Society since 2010 to deal with floods. In this community, Red Cross community-based volunteers and the community disaster management committees have been capacitated to mobilise and to cooperatively address factors fuelling their susceptibility to flooding. Support has also been availed through structural mitigation helping in the provision of material to build, upgrade and rehabilitate water and sanitation infrastructure. In Chadereka, water points have been rehabilitated through the

³⁹ Interview during transaction walks with the Key informant District Officer Zimbabwe Red Cross Society 10 June 2015.

integrated Community-Based Health and Disaster Management project supported by the Finnish Red Cross. The rehabilitation of water points in Chadereka and the other wards that were not part of this study has saved lives of both humans and livestock. Respondents in Chadereka explained that Non-Governmental Organisations such as Help from Germany (HFP) and Red Cross are doing a great job as they are capacitating community members with skills that will enable them to adapt to climate change and natural disasters. In addition, respondents explained that the Red Cross has saved them from death in multiple ways. The majority of respondents in Chadereka are thankful to the ZRCS for its support. They have been suffering from the effects of floods and droughts.

Floods contaminated their main sources of water (wells in rivers) and people ended up suffering from diarrheal diseases and cholera during the rainy season. The organisation rehabilitated 5 boreholes that were no longer working and now people have safe water. Because of droughts, most of their main rivers dry up quickly, hence, their livestock die due to the shortage of water. Currently, the majority of the people fetch water from boreholes for their livestock during winter and just before summer. Livestock affords them food and money and if these are affected, the people become penniless and food insecure. Most of the villages have safe water for drinking now and the villagers are no longer suffering from cholera.

One of the respondents said:

Apart from boreholes that were rehabilitated with Red Cross, we as community members are also receiving education from another Non-Governmental Organisation called Help from Germany. This NGO is encouraging people to grow drought resistant crops (small grains) such as sorghum since droughts are now common in the area. Although some do not believe in climate change, the education that we are getting from these people (Help from Germany) is very helpful⁴⁰.

Even though the people suffer from food shortages, for the first four months after the rainy season (from April to July), they are secure in terms of food because of the sorghum crop which does not need a lot of rain. I also moved around their fields and I could tell that those who have

⁴⁰ Interview during a transect walk (a female head of the household), in her garden near Hoya River, 03 August 11 June 2016.

grown maize have harvested nothing and those who have grown sorghum have something to put on the table from April to July. Community members sometimes get small grain seeds from Help from Germany. There is also the World Vision which provides education on health and sometimes offers food hand-outs. However, it has been a year now since they stopped giving food to people in the area. World Vision also works in the area of water and as a result, sanitation and typhoid diseases are no longer common in Kapembere area. Red Cross trained volunteers to educate people on several issues including health and these volunteers also assist staff members from Help from Germany and World Vision in the implementation of their programmes. Support from Non-Governmental Organisations is helping the Chadereka people to adapt to climate change. In addition, one of the community members, who is also the councillor in Kapembere, said that NGOs are doing a great job in this community although people suffer from acute food shortages:

We have an NGO called Sustainable Agricultural Technology (SAT) which is tirelessly educating people to grow small grains. All farmers are receiving adequate training. They made people realise that climate change is real even though some community members still believe that incessant droughts are as a result of changes in cultural belief practices and punishment from angry ancestors. There is also the Methodist Development and Relief Agent which is offering livelihoods projects such as piggery, poultry and horticulture. Community members own these projects. The profits realised from these projects are meant to benefit community members⁴¹.

People are learning a lot in terms of how they could deal with the increasingly recurrent droughts. The majority work harmoniously with these organisations. Some have also started implementing their own livelihood projects (piggery and poultry) in their households, but these are not yet viable because there is no ready market yet as residents do not have money to buy. The community projects that were implemented by MeDRA are bringing people together and this is also giving them a chance to learn more about climate change. Community members in each project have their days and roles in these projects. Thus, NGOs are supporting community members in different ways so that they will be able to respond to floods and droughts. Thus, linking Social Capital is enhancing the resilience of the community to disasters such as floods

⁴¹ Key informant interview with Chadereka Ward Councillor, 25 April 2016

and droughts in both communities. Bridging Social Capital concentrates on associations and on interconnectedness to the wider community, that is, organisations. In this case, the communities are working with NGOs such as World Vision, SAT, Zimbabwe Red Cross Society, Help from Germany and MeDRA, to increase their resilience to disasters. Similarly, in a study by Hawkins and Maurer (2009: 1785) on how Social Capital operated in New Orleans following Hurricane Katrina, “participants described a system of bridging and linking Social Capital exchanges in which people provided and shared information, resources, supplies and food” and this had increased people’s resilience to flooding.

In Muzarabani, residents are being assisted in different ways by NGOs to enhance their livelihood and food security as explained herein.

7.3: Volunteers Activities in Disaster Resilience

Findings from this study revealed that volunteers play a significant role in enhancing the resilience of the community. The spirit of volunteerism was enhanced by the Zimbabwe Red Cross Society Muzarabani Branch. Muzarabani Red Cross Society is driven by the belief that the society can withstand harsh conditions that are caused by disasters and therefore needs to be encouraged to develop the spirit of volunteerism amongst members so that they can assist one another. The organisation has recruited volunteers who were selected by community members. These are receiving different forms of training such as Community Based Health First Aid, Disaster Management, Early Warning System, Climate Change Processes and Impacts and Health and Hygiene Education to reduce the spread of diarrheal diseases especially during the rainy season when floods are common. There is an increase in the number of snakebites in this community due to droughts and the Red Cross Society has trained people on how to handle such emergencies if they occur in the community. It is offering First Aid trainings continuously in Muzarabani. First Aid training is an integral component of building the community’s capacity in responding to disasters. The Zimbabwe Red Cross Muzarabani District Officer said:

20 project volunteers were recruited in 2014; 10 selected members of the Community Disaster/Health management committees and 10 Village Health Workers from Chadereka underwent First Aid training⁴².

⁴² 24 May 2016 at Muzarabani centre

First Aid training is being conducted to capacitate the Chadereka community volunteers with First Aid skills, thus strengthening the community's health and safety capacity as the trained members of the community would be able to offer First Aid services in cases of emergencies such as floods and droughts. These volunteers end up offering First Aid coaching to their fellow community members. The content of training includes, but is not limited to fractures, emergency resuscitation techniques, wounds and bleeding, snake bites and first aid for poisoning and burns.

In line with the tenets of First Aid training, a volunteer who was also a single mother said:

I have learnt that the community, through volunteerism, can withstand harsh conditions imposed by floods and droughts. Volunteerism which was introduced by The Red Cross is helping this community a lot. As volunteers, we were trained to help our fellow members of the community without expecting to be rewarded. We are now visiting households teaching them on health and hygiene to prevent the spread of water related diseases, especially during the rainy season. We are also assisting nurses at the hospital. We also help one another, especially when one has nothing to eat at his/her house; your friends can contribute and at the end of the day you, will have food that can take you for the whole week⁴³.

These volunteers said that they also help each other with food. They are working with various stakeholders in their community to improve the lives of people. During food hand-outs distribution, they offer First Aid training and health education. They also facilitate the dissemination of information on climate change. This depicts the form of Social Capital which is the cooperation between the community and the Zimbabwe Red Cross Society. The Volunteers recruited also work with other Non-Governmental Organisations that are operating in the ward such as Help from Germany and World Vision. Their contributions make the implementation of projects by these Non-Governmental Organisations manageable. Disaster simulations workshops that are being conducted continuously in Chadereka strengthen the ability of community members to assist each other in times of emergencies such as flooding, snake bites and droughts. They also give community members the opportunity to display their

⁴³ Female in a focus group discussion for single heads of households in Chadereka. She is also a Red Cross volunteer, 29 June 2016 Chadereka Village.

First Aid skills and how best they can improvise using the available resources. In Chadereka, volunteers sometimes assist nurses at Chadereka Clinic and they move around educating, providing health and hygiene education to prevent the spread of water related disease such as cholera during the rainy season where flooding occur. A study by Barker (2011) in Brisbane of Australia also showed that volunteerism contributed to community resilience in different ways that were “essential during the aftermath of a natural disaster” (ibid: 60) although the process of volunteering has its own disadvantages. Relative to this, Beckman (2006: 67) also found out that Red Cross Volunteers helped people in Hai Lang town with house construction in each community. Nonetheless, in my study, volunteers were found only in Chadereka and, in Kapembere, there were no volunteers who would move around helping community members who will be in dire need of their help. This was because Red Cross was not operating in Kapembere. So, there were no people who were recruited and trained on volunteerism. Red Cross was not operating in Kapembere since the area does not experience intensive flooding.

Community members in Kapembere were not exposed to the principles of volunteerism and relied mostly on donors, World Vision, SAT AND MeDRA and their social networks. The cooperation between the Non-Governmental Organisations, community members and other stakeholders increase community disaster resilience as has been shown. This also goes in tandem with Meyer’s (2013: 186) findings in her research on *Social Capital and Collective Efficacy for Disaster Resilience: Connecting Individuals with Communities and Vulnerability with Resilience in Hurricane-Prone Communities in Florida*. She found out that “two agencies (the government and Non-Governmental Organisations) work together to do all the disaster-related planning and activities in the county, including public outreach for individual preparedness for disasters, coordination of response during routine emergencies such as small water contamination issues, and organisation of other local government agencies during disasters”. In both study areas, Non-Governmental Organisations are working together with the government to ensure that people have received adequate information on climate change, although in Kapembere, the majority still believe that droughts are mainly as a result of changes in cultural belief systems. According to Coleman (1988), Social Capital helps in the dissemination of helpful information. Information on climate change is continuously being imparted. In Kapembere, SAT and AGRITEX officials are working flat out, encouraging people to grow drought resistant crops and in Chadereka, Help from Germany is also encouraging people to grow small grains.

7.4: Norms of Trust, Reciprocity & Social Exchange in Ensuring Food and Livelihood Security

Social networks are facilitated and maintained by the norms of reciprocity and social exchange where everyone has to contribute if he or she is to get help from colleagues and community mates in the event that disaster strikes. Individuals are exempted only when they are physically disabled or old. Several studies on the role of trust and reciprocity in disaster recovery and community development have been conducted by Andrabi and Das (2010) and Cassar et al. (2011).

These found a positive relationship between people affected by natural disasters and their trust toward strangers. In Muzarabani, none of the researchers had looked at the role of trust and reciprocity in enhancing the resilience of the community to disasters. I defined trust and reciprocity in Chapter 2, but generally, the meaning of these two terms is multidimensional and may mean different things to different readers. According to Fukuyama (1995: 26), trust can be understood as “the expectation that arises within a community of regular, honest, and cooperative, behaviour, based on commonly shared norms, on the part of other members of the community” which promotes less “conflict and restriction between agents and therefore facilitates economic activity within them” Flemming et al (2014: 1484).

Reciprocity denotes the ability of a person or individuals to fulfil expectations that somebody else or other people have of individuals or a person. It goes hand in hand with the philosophy give and take and take and give. When a person receives help from their neighbour in times of crises, the giver will in future expect help as well from that person. Failure to fulfil this obligation results in the person being labelled selfish, greedy, heartless and untrustworthy. Fukuyama (1995) argues that societies in which people show trust beyond family ties have reached higher levels of economic development than societies in which trust is restricted to just family bonds (Fleming, Chong and Bejarano, 2014: 1484). Thus, the ability of trust in promoting economic development shows that it can be used as well in increasing the capacity of the community to prepare, respond and recover from disasters.

To avoid repetition, I examined the role of trust, reciprocity and community social exchanges in ensuring livelihood and food security during and after floods and droughts. Informal insurance networks were revealed as significant in enhancing the resilience of the community to natural disasters such as floods and droughts. Respondents said that they assist each other

guided by the principle that a small plate or dish (of food) goes where another comes from (*kandiro kanoenda kunobva kamwe*)⁴⁴. Those that are considered as selfish in the community find their life difficult as they do not get help when they are in need of it. Thus, to them, trust and reciprocity enhances frequent social exchanges of goods and services such as food and labour, food and food, food and clothes, food and animals and so forth. One of the respondents said:

My husband died when I was 48 and I am now 63. My daughter, I am one of the people who would have died in 2001 or 2007 due to hunger. In 2000, my field was washed away and it is now part of Hoya River and I had nothing to eat. I relocated to Magarakata⁴⁵ and I was given a piece of land and my harvests were very poor due to floods and droughts. When it rains, it floods all over and within two weeks, the rains will be gone for good. It will only come back when all crops are already dried up. However, I am very grateful to my friends and neighbours whom I exchange food and other goods with. When I have no food, I borrow from my friend or neighbour a bucket of maize which I will give back when I either buy maize or when I receive it from Social Welfare⁴⁶.

The above explanation shows that neighbours assist one another. They assist one another with labour, food and help when one is in crisis. Thus, one component of Social Capital which I have observed in detail is the informal insurance. I really wanted to understand how informal insurance ensures local people's food and livelihood security. The local people (including the most vulnerable) invest in an informal insurance by helping others (in any way) when they are in need of help or when one can. For instance, you give your community neighbour a plate of mealie-meal without expecting him/her to return it. One can also visit a neighbour/a community member who is sick. Attending funerals and contributing food at the funeral matters most in Muzarabani. All these are forms of investment in the area.

During the rainy season, when water enters in your house and your house is destroyed together with preserved food, the community contributes food, build another house and can help you in

⁴⁴ This is a proverb whose literal meaning is a person give something to a person who helped you before or whom you know will help you.

⁴⁵ Houses that were built by the Government with International Migration Organisation (IMO) to assist those who were affected by floods.

⁴⁶ Female head of the household during Focus group discussion with single heads of households Gunduza village 19 June, 2016.

different forms. In fact, the majority are still guided by the traditional folks where there is a saying that states that “a plate goes to where another plate has come from” (*kandiro kanoenda kunobva kamwe*) in local language. Thus, informal insurance means that network members provide necessary resources at a time when standard suppliers of these resources –such as the government, private sector and companies are unable to do so.

In addition to the above, a system of food-borrowing (social exchange) is very common in both Chadereka and Kapembere. Some of the most vulnerable respondents said that they borrow food from their neighbours or relatives and in future, they return the food in the same container in which the food was. For instance, if one borrows a plate of mealie meal from the neighbour, he or she will return the mealie meal in that plate. Sometimes when one is given a bucket (20kgs) of sorghum, he or she will return that by giving back a bucket of rice (now it will be 5kgs), since people believe that rice has more value than sorghum. Community members exchange different types of food that include sugar beans, *nyimo*, soya beans, groundnuts and even wild fruits. All these social exchanges are fostered by trust.

There are different forms of food exchanges that are supported by trust in both Kapembere and Chadereka. “Social Capital relations exist only in practice on the basis of material and/or symbolic relations of exchange, which in the same way maintain these Social Capital relations” (Thieme, 2006: 1). Social Capital is sometimes institutionalised in the community. For example, belonging to the same totem, clan, getting water from the same source, church mate, club mate and farm neighbour. “Through such an institutionalisation, all affected persons are in a way ‘informed’ about their Social Capital relationship and it has a forming influence on all effected persons” (Bourdieu, 1983: 191). However, the most vulnerable group in both Chadereka and Kapembere are lamenting the discrimination and nepotism that exist in the community. People choose who to interact with without making a loss (just giving). In the end, the most vulnerable end up forming a group of their own where they do their food exchanges. Those with assets are better able to respond to droughts and floods. Bourdieu (1983: 191) says:

the extent of Social Capital of one’s person depends on the extent of social relationships which an individual can mobilise that allows him or her access to resources possessed by their associates and the amount and quality of capitals of these people with whom the individual is in contact.

This is true in both Chadereka and Kapembere. Although, there is discrimination, social exchanges are helping the most vulnerable people in Chadereka and Kapembere to deal with the vagaries of food shortages that are caused by droughts. Food security has four main dimensions that are; utilisation, availability, accessibility and stability and in the study, Social Capital enabled households to access food through different methods as has been discussed. However, accessing the food is not stable as some households are skipping some meals. Moreover, Community members said that if you do not link up well with others, you will be in trouble. One of the respondents said:

During summer, I get draught power from my neighbours because they have cattle and donkeys and I give them money or I wait to pay them when I harvest. This is all because we trust each other and no one breaches this rule. If you breach the rule, no one will like to interact with you. If you have everything, yes, you can do it on your own, but in as much as I know our living conditions here, you will definitely need something from your community mates. Even if when the donor comes and I am absent, my neighbours or friends can receive the food for me⁴⁷.

The narrative above points to the role of trust, reciprocity and social exchanges in strengthening the capacity of the community to successfully respond to disasters. Reciprocity helps community members to assist themselves before they get external help. Residents in Muzarabani created networks which enable them to get help before and after disasters. Thus, “relationships of reciprocity are also seen as efficient use of community’s resources to ensure more sustainable outcomes and avoid dependency on external agencies” (National Disaster Resilience Roundtable Report, 2013: 18). This also resonates Aldrich’s (2014) findings where in March 2011, survivors of the earthquake in Japan explained that reciprocity is very critical since “many of the elderly and victims were saved from the incoming tsunami, not by their own action, but by the assistance of neighbours, friends and family” (Aldrich and Meyer, 2014: 3). Thus, individuals on their own have limited capacity to withstand harsh conditions that are imposed by disasters.

Aldrich and Meyer (2014: 3) further highlighted that “neighbours check on the well-being of others nearby and provide immediate lifesaving assistance”. This is also what has been

⁴⁷ An Elderly woman in Kapembere ,Mwanza Village, interview during a transact walk 04 June 2016

happening in Chadereka and Kapembere. Neighbours were assisting each other and this was also a good example of reciprocity where one does offer help to the neighbour who is in need of that help and, next time the giver will be assisted by those whom he has assisted before. Over and above, that reciprocity enabled Muzarabani community members to work as a family despite the fact that they originally hail from diverse ethnic backgrounds. They became aware of the importance of togetherness. Togetherness was translated into a strong weapon which was also used in the implementation of activities that were meant to benefit the whole community.

Recognizing that together they had a greater chance of success against floods and droughts, the residents of Chadereka and Kapembere work together to construct and rehabilitate inaccessible roads. In Chadereka, community members constructed culverts with the help from The Zimbabwe Red Cross Society which provided cement and other material which were needed. Women used to fetch water and cook for men who were building culverts and men gathered and collected stones. That means everyone had a role to play in the construction of culverts. Culverts ease their movement as well as making it easy for huge trucks carrying food hand-outs from the government to cross. The community had also constructed a foot bridge across Nzoumvunda River so that residents from the other side of the community could easily pass through to the shops, school and clinic, during the rainy season. The footbridge also facilitates trade between people in the community who were being restricted by flooding in summer. Thus, Mathbor (2007: 360) notes that the “processes involved in Social Capital facilitate further cooperative action” that benefit the entire community. Fig 7.1 below shows a footbridge that was built by community members in Chadereka.

The picture shows the footbridge across Nzoumvunda River that was constructed by Chadereka community members with the support from the Red Cross and the government. Before the footbridge was established, livelihoods of many people in Chadereka were being affected negatively in summer. They could not cross to the other side of their community to sell or buy goods. In addition, there was a high death toll which was as a result of water related diseases such as cholera since they could not go across the river to get medical attention from the clinic. Pregnant women also ended up giving birth at their homes as it was very difficult to cross to the clinic since Nzoumvunda would be flooded. Thus, togetherness induced a sense of ownership in the community which also prompted them to work as one. In Chadereka, this was also facilitated by the teachings that community members received from ZRS on volunteerism.



Figure 7.1: A footbridge built by the community in Chadereka
Source: Rosemary Kasimba

In Kapembere, where Red Cross was not operating, residents who did not want to cooperate with others were sanctioned. They would not receive food handout from Social Welfare. Whether people were sanctioned for not cooperating with others or they had received teachings, the principle of trust, reciprocity and togetherness worked hand in hand in improving the resilience of the community. Figure 7.2 shows one of the culverts constructed in Chadereka by community members.



Figure 7.2: One of the culverts constructed in Chadereka by community members.
Source: Rosemary Kasimba

7.5: Community Organisation in Food Hand-outs Distribution in the Lower Muzarabani.

Social Capital plays an important role in reducing the impacts of floods and droughts in both Chadereka and Kapembere. I used to attend to the programmes when names are listed for food provision and distribution and discovered that the people in the community know each other well in terms of their vulnerability. Although the people complained of nepotism and

favouritism amongst themselves and those who are more influential in the village, the majority of the community members view orphans and the elderly as more vulnerable. Therefore, active community members allow at least seven households, the elderly and child heads to be given first preference as these are seen by the majority as people who are more vulnerable. One of the respondents said:

We are very fortunate to have neighbours and community members who understand our situation. I am the head of the household and our parents did not leave us even a single goat. Our neighbours sometimes give us food and piece jobs. When it comes to food hand-outs, our Village Head and some of our neighbours make sure that our name appears⁴⁸.

The above explanation shows the role which Social Capital is playing. Although there are some problems of discrimination, community members made it mandatory to give first preference to the elderly and child heads. People know each other well. The Village Head also knows his people (name of each household, number of children, where their land for farming is and so on). Thus, Social Capital enables people to survive under difficult situations. The ability to withstand harsh conditions shows that the community is becoming resilient by just showing support for each other.

7.6: Village To Village Support to Ensure Livelihood and Food Security in Muzarabani

In the contemporary society, “building disaster resilience is essential for ensuring sustainable development and the protection of development gains made so far for any community, region or nation at risk from disasters” (Green and Harrison, 2014: 5). That means, the ability of the community to adjust, bounce back, adapt and prepare for a disaster sustainably is very crucial. The results from both Chadereka and Kapembere revealed that residents in these communities support each other. The majority lack adequate material resources but they do support each other. In Kapembere, there are some villages that are close to Musingwa River and they are into gardening. They then sell their produce to the other villages that are far away from the river or they exchange their products with labour or clothes. In fact, they negotiate terms of trading, putting into consideration the fact that they are all victims of droughts.

⁴⁸ Female child head during a focus group discussion, Kapembere village, 29 June 2016.

Selling of smaller items such as matches, soap, sugar and salt, mainly from Mozambique, is also one of the strategies that people in Kapembere and Chadereka employ to survive. The majority of the elderly are not in this activity, but able bodied men and women and child heads are into it. Some of them go to Harare and Mozambique to buy small items such as sugar, soap, salt and matches to sell within or outside their villages. They buy basic commodities and sometimes plastic shoes because Muzarabani area is very hot and it is difficult to walk bare footed. The majority of residents in Muzarabani cannot afford to buy expensive shoes that go for more than US\$3 per pair, but can afford to buy *pata-patas* and other plastic shoes. They support each other by buying products from each other. In this case, I have also discovered the role of Social Capital, in the form of community relationships, interaction and networks, in helping the people, especially the more vulnerable, to earn a living. Sometimes they exchange their products with other products. One of the respondents said:

I also do barter trade to get money and food. If I go to Mozambique, I bring pata-patas and salt. We can exchange salt or pata-patas with grains with my community neighbours and sometimes I sell them. This is how we are working together as a community. We promote small businesses for each other so that we can survive⁴⁹.

Another respondent said:

If the government gives us some capital with which to start business, I think we can survive. I sell body tops, sugar and salt and we are at least able to supplement our diet. Of course, I cannot pay fees for my siblings, but food and soap, I can manage. However, these days, very few people are buying because of acute food shortages. During the Christmas holiday, I sell the mango fruits which I buy from St Alberts. I use the small profit to supplement food in our home⁵⁰.

The above quotations demonstrate several economic activities that the most vulnerable groups participate in. During my stay in both Kapembere and Chadereka, I observed the youth, including the most vulnerable children, cooking and selling *sadza* (maize meal porridge) at

⁴⁹ Woman in a Focus Group Discussion in Chadereka, 06 May 2016

⁵⁰ Child head during a focus group discussion in Chadereka, 29 June 2016.

business centres. Some female child heads sell clothes and other basic commodities to earn a living. Some said that they sell fruits as well as other things such as clothes. These strategies are not efficient as the price of *sadza*, fruits and other commodities that they sell do not give them enough money to buy food and earn a better living. The strategy simply helps them meet their daily basic needs and they cannot save up for their future.

In Chadereka as well, the majority have *matimba*⁵¹ and they practise farming throughout the whole year. Villages that are located in dry land where there are no *matimba* provide labour to get food in return from people with *matimba*. Mr Chitengu the Councillor in Chadereka said:

*My people are not just passive, but they are doing something to earn a living and I think they are surviving because of the activities that they do. Food hand-outs by the Social Welfare is not enough and the majority are relying on piece jobs and trade which is made easy by their friendship and networking. Here in Chadereka, some, especially those in Musoro Wegomo, Chadereka, Chidavaenzi and Gunduza, have matimba and they are farming always*⁵².

The majority of single heads of households who are still fit and have a little bit of capital are into trade. They go to Mozambique or Centenary and buy basic commodities and some other goods such as buckets and lotion which they can trade with those people who are always working in their fields or in the area. These people know each other and they know who can provide what even though they are in different villages. The majority of the people know one another even though there is a bit of discrimination. However, the elderly, disabled and child heads have been facing some challenges as some child heads were left on completely dry land where continuous farming is a challenge and they have no livestock or capital. Some of them look for jobs, but community leaders said that they always encourage people to assist them (the disabled, the elderly and the child headed families) in any proper way that can help them get food and earn a living. The explanation given by the councillor demonstrated that villagers do support one another and this has enabled most of the community members to survive. Although they highlighted that there was no market for their produce, their informal networks created a market for them.

⁵¹They are more like wetlands where farming is continuous throughout the whole year.

⁵² Gunduza village head Key informant interview in Chadereka ward, at his homestead, 23 June 2016.

The activities highlighted by the councillor are engaged in by the able-bodied people, but the elderly and child headed families would have difficulties in performing these. However, they sometimes get assistance from neighbours or community members.

Villages in both Kapembere and Chadereka showed that they are supportive to one other and have strong bonding Social Capital which helps them to withstand harsh conditions imposed by floods and droughts despite some challenges they face. This was also found out by Green and Harrison (2014) who note “that villages in the Ayerwaddy Delta are mutually supportive, have strong bonding capital and reasonably strong bridging capital and are self-sufficient for issues arising in the everyday functioning of their community” during and after a disaster.

These enhanced the resilience of the community to flooding. However, findings from the questionnaire also reveal that the majority of the residents assist one another in different forms and not necessarily with food. The graph below 7.3 shows that people in Chadereka (99.4%) strongly disagree that people help each other with food and 1.2% in Kapembere, which is a little percentage, strongly disagree that people help each other with food. 5.1% and 7.4% respectively, said that they disagree with the view that people assist each other with food. 0% in Chadereka are neutral to the view that people assist each other with food and 5.6% in Kapembere are neutral.

Results from the questionnaire about community members helping each other with food contrast with findings from focus group discussions, interviews and my observations. This was because in Chadereka they thought that I had been sent by a donor to list their names so that they would get food. During my first days of questionnaire administration, there were acute food shortages and the majority of the respondents were expecting more donors to bring food to their community. Fig 7.3 below shows the distribution of community members and their willingness to help each other with food.

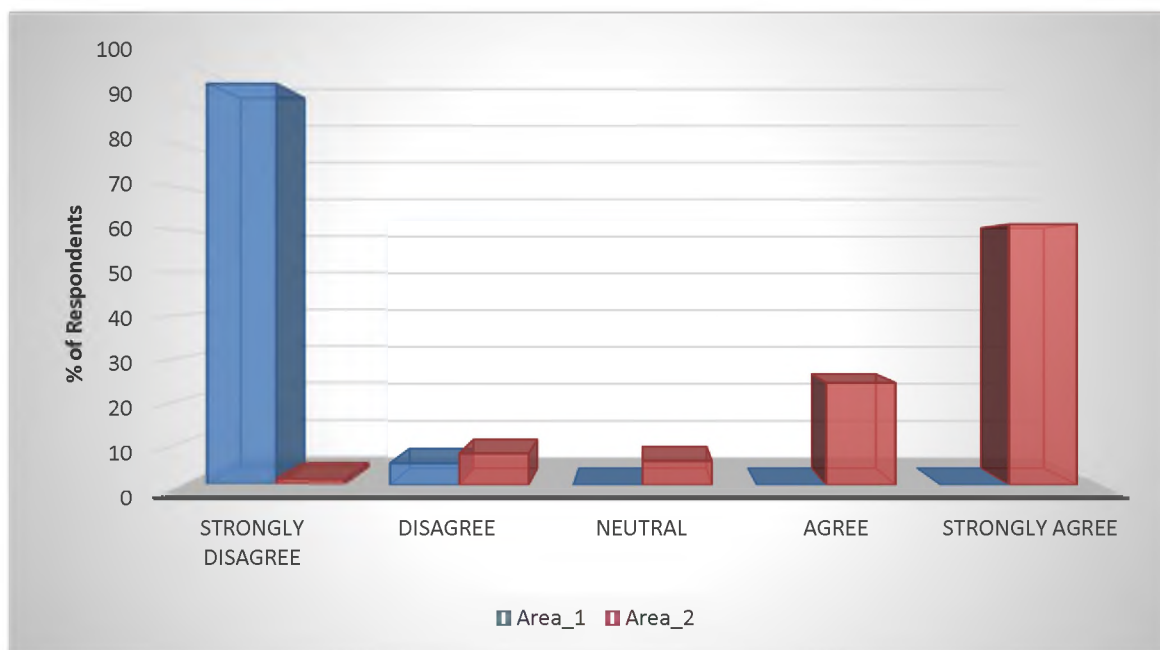


Figure 7.3: Community members are willing to help each other with food
Source: Rosemary Kasimba

The discussion on the role of Social Capital in enhancing community resilience to floods and droughts conveyed that social relationships or social networks are functional in disaster resilience. However, these relationships bring successful results when there is the involvement of civic engagements that nurture good governance or good governance that supports civic engagement as was espoused by Putnam’s (1993) discussion. That means, government’s support and efforts support communities’ involvement in activities that help themselves and those who are more vulnerable to vagaries of climate change. Respondents’ narration revealed that the government intervention influences the ability of community members to be able to deal with disasters.

Furthermore, Social Capital is helping the majority to such an extent that they will continue staying in the area. As indicated by Figure 7.4 below, the majority of the community members in both areas agree that they will continue staying in the area. 0% in Chadereka and 4.9 % in Kapembere of the respondents strongly disagree that they will continue staying in the area. 41.4 % and 24.7% respectively were neutral and 53.3% in Chadereka and 59.3% in Kapembere agree that they will continue staying in the area. 9.9% in Chadereka and 9.9 % in Kapembere strongly agree to continue staying in the area. Thus, quite a large number of people will continue staying in the area despite the fact that the community is more susceptible to floods and droughts. This, to a certain extent, shows that people are becoming resilient to floods and

droughts. Fig 7.4 shows the distribution of the respondents who will continue staying in the community.

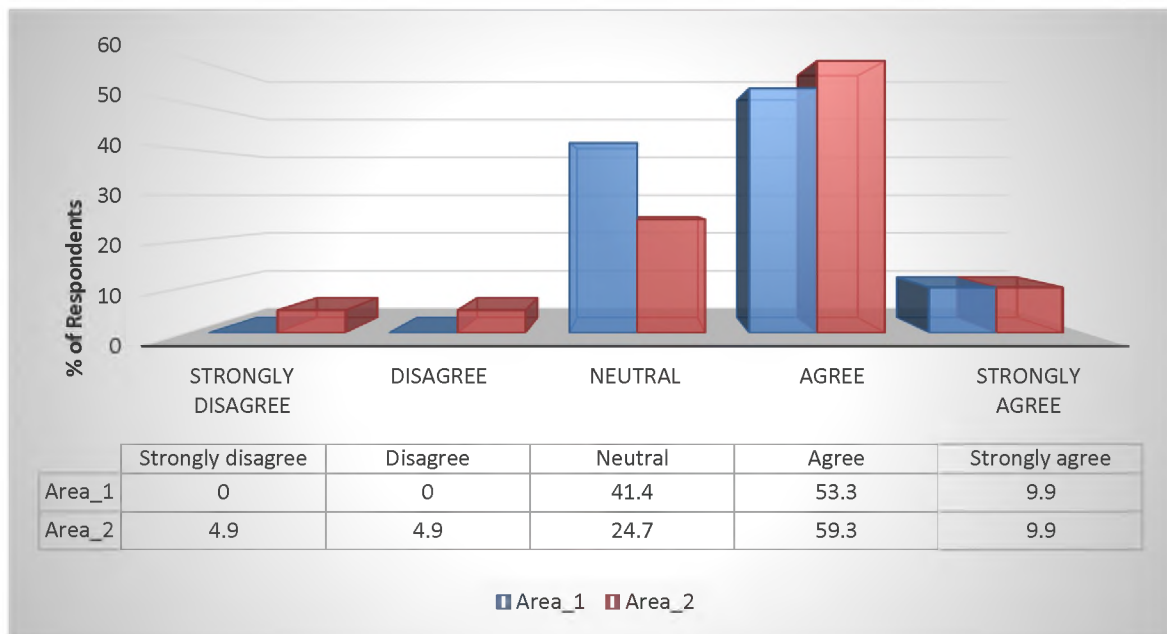


Figure 7.4: I will continue in this community
Source: Rosemary Kasimba

During the interviews, I asked some of the respondents if they would continue staying in the area and the majority of them said that they would continue staying in the area.

My husband died a long time ago and my parents in Masvingo keep sending bus fare as they want me to go back to Masvingo, but, no! Here, I have established relationships and here I will remain. We are supporting one another although sometimes it is difficult⁵³.

The above explanation shows that people are becoming resilient to floods and droughts. However, some are saying that they will remain in the area because they do not have the resources with which to move on to a new place and they also do not know where they can go because they were born and bred in the area.

⁵³ Female interview during a transact walk, Gunduza village at her house of Chadereka Ward, 06 August 2016.

7.7: Local Women's Initiatives to Deal with Floods and Droughts in Muzarabani

My study shows that women in Chadereka have formed groups that visit primary schools providing food to pupils three times a week. During the study period, they were only doing it once a week or they skipped one week because of acute food shortages. The majority of the women voluntarily contribute mealie-meal to the group so that they can have food to provide to the schools in Chadereka. This is an example of bonding Social Capital where people in the same situation and geographical area are able to help each other. According to Aldrich *et al* (2016: 8), “bonding Social Capital involves connections between individuals who share similar backgrounds, educational level, nationality and religion”.

There is a charity group called Mother Support Group (MSG) which emerged from the community. It has structures in which there is a chairperson, a vice chairperson, a secretary, a treasurer and members. It constitutes quite a number of people and membership is open to everyone. This project has been assisting several pupils in the community. Pupils used to faint due to hunger and the cases of people who faint at school are decreasing and the number of primary school going age children who are enrolling is slightly increasing because of the food scheme programme that has been introduced by the Mother Support Group. Its role is visible and community members and headmasters are very grateful for the programme. One of the key informant interviewees said:

We are very grateful as women for the programme that has been introduced by women in this community. Our children are no longer fainting in class and those who had dropped out of school are re-enrolling now⁵⁴

Women in Chadereka are very grateful for the project. Women respondents said that the local charity organisation is playing a very pivotal role in primary schools. Their children's academic performance was also below standard. Some of the parents had opted to take their children out of school due to the shortage of food. Community members view it as a good program as pupils have food to eat whilst they are at school. They were now having breakfast and lunch three times a week. One of the respondents explained:

⁵⁴ A woman in a focus group discussion in Chadereka

These women are also into income generating projects such as making shoe polish, sewing uniforms as well as trading. These women bring their own food and as a school, we provide cooking pots. These women share tasks to do every time and they are not getting paid by anyone.⁵⁵

The above quotation reveals that Social Capital plays a greater role in promoting the resilience of the community to natural disasters such as floods and droughts. The Mother Support Group in Chadereka has helped quite a number of children. Social networking is also being promoted as women who are in the group have the opportunity to link up with others who will assist them when then they are in need of help, especially food. The majority of the respondents said that droughts have caused hunger in their community to such an extent that they ended up selling most of their cattle. Some single mothers said that they could not fend for their children on their own. They were expressing positive gratitude towards their colleagues from the Mother Support Group. As a group, they also sometimes help each other to solve personal problems. One of the respondents said:

I can ask my friend in the Mother Support Group for one bucket of mealie-meal which I can then reimburse after a month or a week. This is actually making my life a bit easier. In 2014, rainwater flooded into my house and I lost 10 by 50kg of maize which I had bought after selling two beasts. Members from the group contributed grain for me and they also encouraged some community members who were not affected to assist. I thought that what I received could not compensate for what I had lost but their contributions relived me. I was not forced to join the group but I was just motivated with the way they used to operate in this community.⁵⁶

Another respondent explained:

I joined the Mother Support Group so that I can as well be recognised as a significant agent in the community. You know I feel very happy to assist my

⁵⁵ The Headmaster, Key Informant Interviewee, Chadereka Primary school, 10 June 2016

⁵⁶ Female head of Household Focus Group Discussion in Gunduza village, Chadereka ward, 19 June 2016

*fellow community members in the way I can. I feel like I should be remembered when I die and my children will also be assisted*⁵⁷.

Thus, some women felt that they should join the Mother Support Group for them to be recognised as important women since the group is making a difference in their life. They said that they suffer from the floods and droughts almost every year and their affiliation to this group sometimes helps them and their children. Their children survive under these difficult circumstances where food is scarce. In the group, they also encourage one another to grow drought resistant crops. The majority of these women said that they have a strong attachment to this group because of the role which it is playing in this community. This indicates the form of Social Capital in existence in the community and how it is enhancing the resilience of the most vulnerable groups in surviving under difficult conditions where climate change and weather related problems are prominent. The local initiation of forming the group Mother Support Group is a form of Social Capital which they ended up naming the Victim Social Capital. Victim Social Capital denotes deliberations by victims to save their lives and those of their community. They are not compelled to join but their understanding of the situation made them to voluntarily form a group that can help them meet their needs in times of disasters. The group is driven by the mandate to help themselves.

Members do not expect external intervention but can work harmoniously with external help providers such as NGOs. The Mother Support Group in Chadereka is helping out people in the community, especially primary school pupils who would have dropped out of school due to hunger. Even though the organisation is encountering difficulties in getting food to assist the majority of the community members, people have learnt that they have the ability and resources to withstand harsh climatic conditions.

Participants in the group have a higher sense of responsibility towards the well-being of the community as a whole. This resonates with the findings of Brennan, Cantrell, Spranger and Kumaran (2014: 1) who note that “when disasters occur, citizen groups and coordinated efforts of local volunteers can respond to lessen the impacts and build back better.” In addition, “in recent years, considerably more emphasis has been placed on the role of community in disaster recovery and on the importance of local knowledge, action, participation and control in

⁵⁷ A woman in a focus group discussion, Chadereka 19 June 2016.

determining the nature of disaster response” (ibid: 2). Thus, the local people’s participation is indispensable in enhancing the resilience of the community to disasters.

Community ties and networks allow individuals to draw on the social resources in their communities and increase the likelihood that such communities will be able to adequately address their collective concerns. Community members in Chadereka (women) identified floods and drought related problems and came up with projects that could lessen the impact of these problems. However, the situation differs with that of Kapembere where women did not form a group, but they are working tirelessly with MeDRA (a church organisation which is helping community members in Kapembere by implementing projects such as piggery, gardening and livestock keeping

Women in Africa have a long history of organising themselves, formally or informally, to overcome the problems that they face (Raimundo, 2009: 7). A study by Raimundo (2009) in Mozambique also found out that:

there were several forms of activities that are done by women to increase their resilience to floods and droughts. These ranged from exchanging of their labour for the labour of others, exchanging labour for food stuffs or money and devising informal savings systems. Apart from these systems, there are those that involve women in a working system where there are psychological group supports, such as burial and church societies or prayer groups (The Legion of Mary).

Thus, credit associations, women’s clubs and others that have been discussed show that women play a pivotal role in disaster management. They provide care to the community. This shows that Social Capital is significant in disaster management.

In line with the above, community participation is regarded by most scholars as an important tool to increase the resilience of the community to floods and droughts. Giddens’ agency concept is therefore relevant in disaster resilience. According to Giddens (1984: 26), human agents know how to “go on” in a wide variety of contexts. The study shows how community members in disaster prone areas operate and survive in a world that may be at variance with their expectations. Local people’s initiatives demonstrated that people are not passive

recipients; rather, they improvise and come up with strategies that enable them to survive under harsh conditions.

7.8: The Role of Church Organisations

The findings of this study show that churches are also playing a critical role in enhancing the resilience of the community to natural disasters. In both study areas, there are residents who are receiving food and clothing hand-outs from churches:

If it has not been for our church leaders who understand our plight, we could have been suffering to death. We are here today as a community because we have something to eat in our homes. We are getting maize from Islam, although it does not last for a long time. We have something to start on for the day. We received blankets and clothes as well. Some of us do not need to buy clothes, but we can use the money to buy food⁵⁸.

The above explanation depicts that religious organisations are playing a potential role to enhance the resilience of the community to natural disasters such as floods and droughts. Some of the respondents' focus group discussions in Kapembere also said that Roman Catholic Church is trying its level best to assist people. Some community members received maize and women were given clothes.

There is also the Methodist Church which is assisting community members to deal with floods and droughts. MeDRA has put in place projects that are meant to benefit everyone who is more vulnerable in the community. They started livelihoods projects such as poultry, piggery and horticulture. It is not everyone who is benefiting from these projects, but the majority are enjoying the benefits.

MeDRA has also made us realise that we are capable of adapting to climate change as well as reducing the negative effects of floods and droughts. As a community we provide labour in those projects and MeDRA gives us capital to buy inputs or they buy inputs for us to use in these projects. Community members have learnt a lot from these projects. Residents are not forced to be

⁵⁸ Male head of household, Gunduza village, Chadereka ward, 19 June 2016.

*active in the projects; but because of the fact that we all know our situation, we are motivated. Sometimes we meet some challenges as we work as groups but what we know is that we benefit at the end of the day*⁵⁹.

Social Capital in the form of the church versus community is visible in the study area as corroborated by the narration above. In Kapembere, MeDRA is not only providing food hand-outs. It is also encouraging community members to work on their own in projects to reduce the negative impacts of droughts in the area. However, this is different from other churches like the Roman Catholic and Islam which are simply giving out food hand-outs and clothing without teaching people how to do it sustainably. Projects introduced by MeDRA are highly sustainable because knowledge is continuously being imparted to them on how to run projects like these. This also resonates with the findings of Chamlee-Wright and Storr (2009) on how the low income earners (the Vietnamese immigrant community in New Orleans) recovered from severe flooding Hurricane Katrina. They found out that the tight-knit Village de L'Est was "able to return and rebuild more efficiently than less damaged and richer neighbourhoods based on both bonding Social Capital and the role of the Catholic Church in the community" Aldrich and Meyer, 2014: 7). Evidently, the local church was able to share goods that supported coordination in the community for recovery.

Worldwide, "churches are hubs for the distribution of goods, services, and even emotional support to those who are at risk. This plays a role both locally and internationally via missionary and charity outreach activities" (Clarke, 2006: 836). This proved correct in the study although churches were also labelled by some as a source of confusion and chaos in the community by other respondents. Veldman, Szász, and Haluza-DeLay (2012: 259) further note that "churches as religious associations are apparently well positioned to help local communities respond to climate change".

The contexts in which Social Capital is employed vividly symbolise that it is predominantly premised on the notion of "togetherness", "we" and "group belongingness." This means people must have a positive feeling and know who they are, their geographical circumstances and how they deal with problems and crisis in the event that their area is devastated. People feel that

⁵⁹ Female head of household in a Focus Group Discussion, Kapembere Village, Kapembere Ward, 29 May 2016

they are part of the whole and therefore work together accordingly. An illustration of this is that of termites which work together in building their habitat and in this case, each and every termite will be willing to contribute and there will be no supervision needed. Contributors are strongly motivated by the instinctive belief that it will all work for their benefit. I can also liken this to bees making a hive and honey. Each of them applies maximum effort without looking at how their neighbours are contributing. They behave like they are constructing individual habitats. After building their sanctuary, each of them has the responsibility to look after it and making sure that there will be no foreigner, alien or stranger invading their sanctuary (haven) or territory. That is why they sting people if they see them moving around their (bee) territory. Each contributor provides security and they will try to avoid diffusion of responsibility. That is, participation in local groups and associations can help rural households to access technical information on farming skills and relief resources for adapting to floods (Kien, 2011: 10). This is the same with the residents in the study area.

7.9: Interaction of Community Stakeholders in Enhancing the Resilience of the Community to Floods and Droughts.

Social Capital has a broad definition. It also encompasses the relationship between the community and stakeholders such as Non-Governmental Organisations, churches, educational institutions, councillors, District Administrator, health officers, Environmental Management Agency officials, the Meteorological Department, Village Heads and Chief per ward. I analysed the relationship per ward and the results from the findings revealed that Social Capital of this form play a significant role in enhancing the ability of the community to respond and adapt to climate change as well as floods and droughts in their area. In Chadereka, I asked the councillor how he was working with the community to reduce the negative impacts of floods and droughts and what the councillor was also doing to make sure that his community could successfully adapt to environmental stresses. He highlighted that he was playing a facilitating role of promoting, synchronising and strengthening relationships between the community and other stakeholders. He also stated that he sometimes assists some of the community members who are in dire need by, for instance, helping during or after a disaster. The councillor was, however, aware that what he does is not sustainable because he also does not have adequate resources. He said that he just has to assist his people and that he does not have to object to that role. Some community members go to the councillor crying for help in the form of food and the councillor said that he gives them what he can. Sometimes he provides mealie meal for

them to cook *sadza* for a day or two. Nevertheless, this kind of support which he gives them is not very sustainable. It is short lived and he cannot afford to offer such kind of help to everyone in the community who is also a victim of floods and droughts.

I feel very much overburdened as a councillor of the ward because I have to help my people with food. I am assisting community members by facilitating a good relationship between the community and stakeholders such as Red Cross, Help from Germany, World Vision, some church leaders, Agritex officials, the District Administrator, health officers' and educational institutions. I work with different stakeholders to make sure that people in this community can successfully cope with floods and droughts⁶⁰.

The councillor in Kapembere also said:

As a councillor, I have the responsibility to make sure that everyone in this community survives following a drought. However, due to limited resources, I find myself not achieving the goal. I work with SAT, MeDRA, government officials and Church leaders to make sure that my people get assistance. This area is politically sensitive and it is very difficult for Non-Governmental Organisations to come and operate even if they have permission from the Provincial Administrator. As a councillor, I am more like a gate opener to these organisations. I am also working on a daily basis with the Chief to make sure that our people observe the norms of our land so that we do not invite anger from our ancestors. Of course, drought in this area is due to climate change. We, as community leaders, feel that the violation of our cultural belief systems by community members is also contributing to this problem⁶¹.

Another respondent said:

I am working with the community tirelessly to reduce the impacts of floods and droughts. I encourage them to implement what we are being taught by

⁶⁰ Key informant interviewee, Chadereka ward Councillor, Gunduza shops, 25 April 2016

⁶¹ Key Informant

*AGRITEX officers as well as Non-Governmental Organisations. I also encourage them to help one other with food. I also advise them not to eat like they are dying the next day (to save)*⁶².

Another respondent said:

When coping with floods, the most important group of people is those people from the government and NGOs. Sometimes church members assist, but their assistance is not enough. Some of us also get help from neighbours; but since we are in the same situation, you also find that neighbours sometimes fail. These organisations are doing a great job. Since last year, we are receiving maize grains every month from the government and I heard in Chadereka people like us (Child head families) are being given money to buy food⁶³.

In addition, another respondent said:

*I am not a philanthropist, but disasters are under the auspices of the Civil Protection Unit. We have designated offices that react to disasters accordingly. I tell people not to dwell in places that experience flooding. The information from the Meteorological Department also helps me to advise people in Chadereka to temporarily relocate to Magarakata and do their farming there. As a government official, I also work with NGOs to reduce the impacts of floods and droughts*⁶⁴.

The above explanations show that residents in Muzarabani rely on support from the government and NGOs. Study findings also revealed that these organs sometimes work together. The District Administrator is in constant touch with councillors as well as District Officers from NGOs that are operating in the area. MEDRA has come up with the livelihood projects such as poultry, livestock keeping as well as gardening in Kapembere. Although, not all people are involved in these projects, the lives of many are improving. Help from Germany

⁶² Key informant interview, 25 April 2016

⁶³ A child head in a focus group discussion in Chadereka, 28 June 2016

⁶⁴ Key informant interviewee, the district administrator.

also teaches residents in Chadereka to grow drought resistant crops and it does distribute small grains for planting to the most vulnerable groups as has been explained in the preceding chapters. This is also the same case in Senegal where “bridging and linking social ties provided the local residents, farmers, NGOs, and international organisations with the chance to share information and best practices of farming” (Aldrich et al, 2016: 21). Had it not been for these “connections to other groups, farmers would not have had access to the information, norms, and resources that helped them move away from standard crop types into new ones” (ibid: 21). “The formal institutions governing the relations between the state, local organisations and villagers, play a large role in disaster response as well as in ‘every day’ development processes” (Beckman, 2006: 39).

Literature also shows that NGOs play an indispensable role in promoting social development. Van De Ruit (2001: 17) notes that NGOs “helped in the establishment of micro-finance sector for the rural poor in Mozambique and South Africa.” In addition, Sibanda (1994: 10) notes that NGOs also help in raising living standards of people and some NGOs conserve, animate, manage or otherwise enhance natural resource.” Thus, the role of NGOs cannot be underestimated when it comes to responding to disasters such as floods and droughts. In addition to the above, the government of Zimbabwe, through the Civil Protection Unit, carries out public awareness programmes, through the radio and television. This helps residents to take measures that help them to be more resilient to risks. On the 27th of September 2016, the CPU started carrying out awareness campaigns to educate people in flood-prone areas in Zimbabwe on disaster preparedness and management (The Herald, 27 September 2016). However, since most people here do not have radio and television, community leaders as well as some other government officials, started moving around educating communities to take measures against flooding. In Muzarabani, residents were discouraged to grow crops in the areas near the river and were also asked to relocate to the uplands (Magarakata). One of the respondents said:

Our role is to reduce the impact of disasters and to prevent the occurrence of disasters. In Muzarabani, we give people early warning systems pertaining to the occurrence of floods and droughts. It is very unfortunate that our department lacks adequate resources to be able to assist people⁶⁵.

⁶⁵ Key informant interview with a member from Civil Protection Unit in Muzarabani shopping centre, 01 October 2016

Another respondent said:

We are trying our level best to help the community especially, the most vulnerable groups, by giving them education and sometimes seeds [for drought resistant crops]. We have partnered with the government and other NGOs to impart knowledge on cropping practices such as Dhigaugute, meaning dig so that you can get full, that conserve the soil⁶⁶.

The above narrations show that institutional support, which is also a form of Social Capital, is very important in enhancing the resilience of the Muzarabani community to drought effects. The *dhigaugute*⁶⁷ is a transformational cropping system that has promoted the residents in Muzarabani to grow drought tolerant crops while practicing zero tillage. These are counter measures to food insecurity challenges that are caused by droughts. Similarly, Gukurume (2013: 97) found out that the residents of Bikita in Zimbabwe, are also working with NGOs and they are implementing the *dhigaugute* concept (though they call it *Dhigaudye*). “Under this *Dhigaudye* programme, CARE International provides smallholder farmers with inputs, mostly seeds and fertilizers. A number of farmers in Bikita argued that advice from both Agricultural Extension Officers and NGOs that are involved in various food security activities in Bikita have been of paramount significance to them in adapting to climate change and variability” (ibid: 97). However, not everyone is practising *Dhigaugute* in Muzarabani due to ignorance. Key informants argued that those who are growing drought resistant crops as well as practising *dhigaugute*, can harvest food that can take them for at least four to five months (from April-August).

Above all, the cooperation between NGOs, government and local people, is of paramount importance when dealing with disasters. This also shows that “it is not sufficient to focus only on the capacity of disaster affected groups and communities themselves. The role of the public and private sectors is crucial in attempts to prevent, mitigate and respond to disasters” (Frerks

⁶⁶ Key informant interview with an official from Help from Germany in Chadereka at their offices.

⁶⁷ It is a conservation farming technique whereby farmers do not till the land but they simply dig holes, put manure and grow the plant.

et al, 2011: 110). That means the interaction between the local people and other external and internal stakeholders is integral in disaster resilience.

As shown above, councillors, as permanent residents in the ward, also provide information to the well-wishers on the most vulnerable people and on areas that are more prone to droughts. They authorise people from higher educational institutions such as Bindura University, University of Zimbabwe and organisations which come to the community to educate people on climate change. They work hand in hand with all Non- Governmental Organisations. This demonstrates that bonding Social Capital (interaction between community leaders and members) plays a significant role in enhancing the resilience of the community to disasters. Councillors allow Non-Governmental Organisations such as MeDRA, SAT, Zimbabwe Red Cross, World Vision and Help from Germany to operate in their respective wards. Because of the political sensitivity of the area, these organisations are not at liberty to operate without official approval from the councillor. According to Jordan, (2015: 111):

While there are many examples where Social Capital influences resilience to climate stress, there is limited in-depth research on the specific role of Social Capital in enhancing resilience, in particular research that highlights a complex rather than a uniformly positive relationship between Social Capital and enhancing resilience.

However, in this research, I tried to show the relationship between Social Capital and community resilience. My research showed that different stakeholders were working together in both communities to increase the resilience of the community to floods and drought impacts. There is the Ministry of Local Government, Public Works, Rural and Urban Development which is the entry point into the Districts of operation, the D.A who is also the Chairperson of the District Civil Protection Committee responsible for coordination during emergencies, Muzarabani Rural District Council (MRDC) which is the local authority with jurisdiction over the area of operation, the Ministry of Agriculture which offers technical advice through conducting trainings, monitoring and evaluating sustainable agriculture component of the project through AGRITEX officers, the Ministry of Women's Affairs, Gender and Community Development which is the task force member of the District Water Supply and Sanitation Committee (DWSSC) spearheading water and sanitation issues in the districts of operation, the Ministry of Primary and Secondary Education which is the entry point of schools in the undertaking of the PHHE component as well as the ZRCS clubs, the Ministry of Health and

Child Care through the Environmental Health Department which provides data on the prevalence of diseases disaggregated per district, ward and village levels through the Environmental Health Technicians.

This data is used as comparisons against the initial contact document to check on progress achieved, District Development Fund (DDF) which assists in the training of Water Point Committees⁶⁸, rehabilitation of defunct boreholes and also the training of pump minders in areas of operation. It is also part of the steering committee on water and sanitation which conducted meetings with communities during latrine construction and it provides the technical expertise in the construction of bridges and culverts. In addition to these, there is also the Department of Social Services which provides information on social services and also distributes food hand-outs to community members in both Chadereka and Kapembere. There are also other Non-Governmental Organisations (NGOs). For instance, World Vision, SAT, Help from Germany, MeDRA complement Caritas' effort in eradicating poverty in areas of operation. Caritas and the NGOs also share reports in full council meetings and NGO forums and there are also traditional leaders and local leaders (councilors, Village Heads, and Chiefs) who monitor environmental, child and women issues in their structures of their society as well as resolving conflicts within their jurisdiction among others. All these organisations are working hand in hand to increase the resilience of the community.

The government and NGOs such as Help from Germany, Red Cross, MeDRA AND SAT, came up with different interventions in order to help community members to successfully deal with droughts and floods. In addition, the government together with the International Migration Organisation, built houses for the victims so that they could relocate to new places and more nurses were deployed in the community by the government to assist people who were suffering from water related diseases. Up to this day, the Red Cross is offering health and hygiene education so that community members will be able to assist each other since floods and droughts are now prevalent in the area. All these intervention strategies demonstrate that Social Capital enhances the resilience of the community to floods and droughts.

Although Social Capital has some pitfalls “most studies on disasters highlight benefits of Social Capital for disaster preparedness, response, recovery and mitigation phases” (Ganapati 2013:

⁶⁸ Water Point Committees are the people who are responsible for the maintenance of the boreholes.

77). Linking Social Capital which involves the interaction of different stakeholders in assisting people in different ways proved to be very useful in Central Vietnam as was espoused by Beckman (2006). The state, NGOs such as Red Cross, donors and community cooperatives, were very active in the provision of basic needs immediately after the disaster in Hai Lang town. That is, “the interaction between local government and civil society in Vietnam was important in handling the 1999 flood disaster and in the process of coping and recovery” Beckman (2006: 122).

The Zimbabwe Red Cross society in Muzarabani is also a member of the Civil Protection Committee (CPC) at all levels. The National Society engages other organisations in the Civil Protection and the Local Council coordination for more integrated programming. Joint post emergency/disaster assessments are carried out with other relevant cluster members of the CPC. The National Society, through stakeholder analysis, does mapping of stakeholders and organisations and develops Memorandum of Understanding (MOUs) with the Civil Protection Unit, other Non-Governmental Organisations such as SAT, World Vision and MeDRA for synergies and possible collaboration on specific programmatic areas.

However, in many ways, the National Society retains its autonomy and independence as it dispenses of its constitutional mandate. In the resiliency framework, schools are engaged through DRR in schools component as the schools are the locus of DRR communication.

The District Officer of the Zimbabwe Red Cross Society also said:

Children are receiving information on key DRR themes as the natural handover of the culture of safety and resilience to the next generations. They are also trained in practical life skills such as FA while in the School Red Cross Junior Clubs.

They are taught on RC humanitarian values and principles. Schools are also community capacities during disaster as evacuation points and also houses the early warning communication equipment while some response material or equipment is prepositioned. Hospitals are referral centres for First Aid cases attended to by the volunteers. They are information centres for volunteer updates on evolving risks including early warning information on

*health risks. The health centre personnel support the volunteers in key messaging on specific health issues*⁶⁹.

Thus, the Zimbabwe Red Cross Society is also working with schools (both primary and secondary) to equip children and teachers with skills that can help them deal with disasters including floods and droughts. For example, children are taught how to assist someone who has been bitten by a snake before he/she is offered medical assistance. This is very crucial as it is saving the lives of many since snake bites are being reported to be increasing due to droughts. These children can also assist their guardians including the elderly.

However, the effectiveness of relief from the government and other Non-Governmental Organisations was mainly controlled by the Zimbabwe's ruling party (ZANU-PF). In Muzarabani, respondents highlighted that if one was believed to be anti-ZANU-PF or pro MDC or Zimbabwe People First (prominent opposition political parties), one would be barred from accessing relief items. Local leaders such as the Chiefs, counsellors and Village Heads, made sure that people complied with the demands of the ruling party and had to attend all ZANU-PF meetings.

Respondents highlighted that in 2007, all residents were enlisted by World Vision and Christian Care to receive food aid, but some did not receive anything because they were believed to have been supporters of the opposition party, MDC. Kamal (2012: 29) also found the same result in Dumuria Village of Bangladesh where political parties influenced the distribution of relief. "Politicians would decide whether anyone will receive the relief or not" (ibid: 21). This renders Social Capital of this form ineffective because of its failure to "address underlying causes of people's vulnerability" (Christoplos et al, 2004: 26). Therefore, this study, just like the study by Buckland and Rahman (1999) and Aldrich and Crook (2008), delved deeper into both the limitations and strength of different types of Social Capital. Linking Social Capital which involved the intervention of NGOs and the government in Muzarabani tended to be politically controlled.

⁶⁹ Zimbabwe Red cross Muzarabani District officer, Key informant interviewee, Muzarabani centre, 24 May 2016.

7.10: The Value of Social Networks in Food and Livelihood Security in Disaster Prone Areas

On my way to the field by bus, I sat next to three women and one man who were all going to Lower Muzarabani. Two of the women were going to Chadereka and the other to Kapembere. The man was going to Dambakurima Ward. These people knew each other and one of the women was schooled at the same institution as the man from Dambakurima from Grade One to Seven and they were asking each other some questions pertaining to what there were now doing, the well-being of their families and how often they went down to see their families. I listened to them as they continued talking since they ended up touching on issues that were relevant to my study and their voices were loud enough that anyone who was close by would hear them. One of them said that she was going to see her mother who had not harvested anything in her field.

Compounding the problem was the fact that the woman's mother was staying with her grandchildren, the woman's children. She said that all her children were attending school in the rural areas and she normally went to give them food after every six months. In addition, she said that she was taking care of her married two sisters and a brother in Chadereka since they were financially unstable. She said that these people were living in abject poverty and all the family's eyes were on her. The woman who was travelling to Kapembere said that although her parents were too old to work, they grew groundnuts which they were not able to harvest. So, she had shoes, clothes, sugar and salt to give to hired labourers as payment.

As their conversation unfolded, one of the ladies said, "*Tisu anhu acho ka. Tikavasiya vanofa nenzara isu matumbu achipfachukira tiri joni*". (We are the people. If we leave them they will die of hunger whilst our bellies will be full in South Africa). This brought my mind back to this study and I felt that it was relevant, particularly when they hinted about looking after one's family members. This was a form of Social Capital made manifest in the form of kinship and social networks. Below is Fig 7.5 showing the respondents' source of help during flooding in Chadereka.

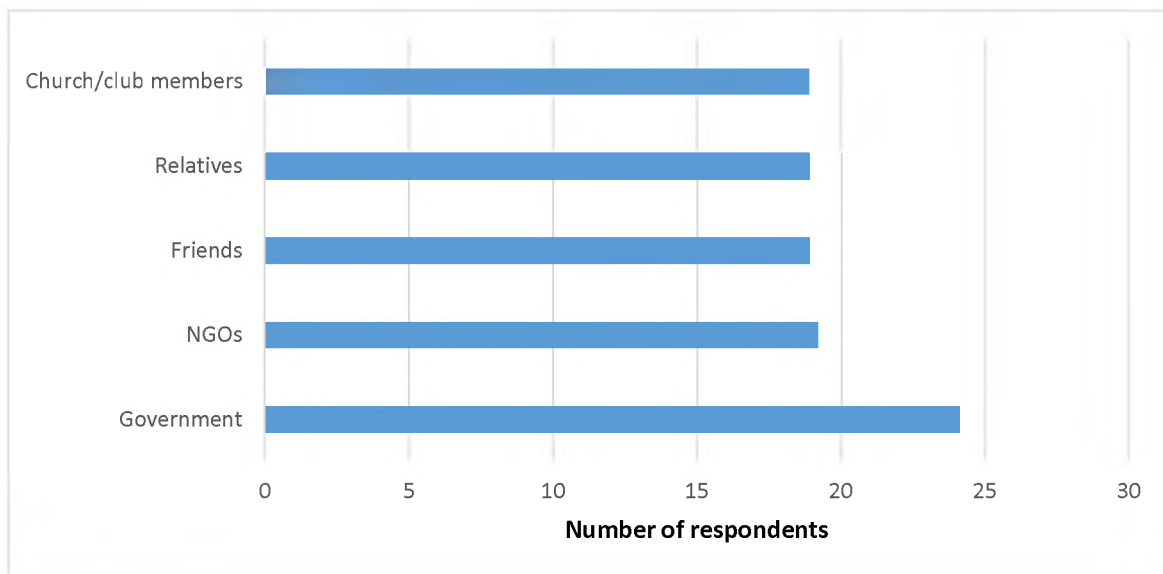


Figure 7.5: Source of help during floods
Source: Rosemary Kasimba

Social Capital in the form of social networks helps communities to respond to disasters. Data from focus group discussions, observations and questionnaires revealed that social networks have a significant value in increasing the ability of the community to respond to disasters. Respondents in both Chadereka and Kapembere revealed that those whose children went to school were food secured because they had children who used to send them money and food from the urban area. One of the respondents said:

I think households without a family member who is employed or who is in Harare or just employed anywhere in the world, are more vulnerable because they do not have anyone to turn to for help. For example, my neighbour Mai Shylet (Shylet's mother,) is still very active and has seven children and two of them are married but they are married to families that are also struggling and they do not have any livestock. They rely on maricho (peace jobs)⁷⁰.

The above explanation shows that Social Capital in the form of neighbourhood and kinship helps some members of the community to respond to disasters. Community members help one another with food and jobs. The community social networks which I found in the study are not those that involve the use of a web design or an application which enables users to communicate with each other by posting information, comments, and internet (online communication

⁷⁰ Female during a Focus Group discussion with single heads of households, Kapembere shop in Kapembere village in Kapembere Ward, 23 June 2016.

platforms) but interpersonal relationships. However, Non-Governmental Organisations were making use of social media to communicate with their colleagues on disasters. The findings from both qualitative and quantitative research revealed that social networks (family, kinship, relatives and friends) are very significant in disaster resilience. Table 7.1 below shows the magnitude of how Social Capital in the form of social networks and kinship help people during disasters. It also shows the distribution of respondents who assist as soon as you request help if disaster occurs.

People Area Response		All	Most	Some	Few	None
Your family members	Area 1	9.3%	74.7%	7.8%	4.7%	3.9%
	Area 2	2.5%	53.2 %	28.9%	9.3%	6.8%
Relatives	Area 1	5.3%	52.6%	24.8%	6.0%	11.3%
	Area 2	3.7%	60.1	28.3%	6.3	1.6%
Neighbours	Area 1	6.8%	18.0%	54.9%	19.5%	0.8%
	Area 2	23.5%	31.5%	41.5%	3.7%	0.0%
Church members	Area 1	32.6%	45.6%	16.5%	5.3%	0.0%
	Area 2	4.4%	16.3%	38.1%	37.5%	3.8%
Friends	Area 1	6.9%	41.5%	40.0%	6.2%	5.4%
	Area 2	14.1%	21.8%	60.3%	2.6%	1.3%

Table 7.1: Number of respondents who can assist as soon as you request help if disaster occurs

Key

Area 1= Chadereka; Area 2=Kapembere

Source: Rosemary Kasimba

Table 7.1 shows that the majority of the respondents in both areas turn to their family members when a disaster occurs (Chadereka 74.7% and Kapembere 53.2%). Community members also turn to their relatives for help. 52.6% in Kapembere and 60.1% in Chadereka said that they turn to their relatives. Very few respondents indicated that they do not turn to their relatives as soon as disaster occurs. 0.8% in Kapembere and 0.0% in Chadereka said that none of the neighbours give them help. In Chadereka, a large number of respondents (31.5 % compared to 18.0% in Kapembere) indicated that they turn to their neighbours. I think this was because the Red Cross in Chadereka has been teaching people to help one another as has been indicated in previous discussions. The majority of the respondents in both study areas indicated that they turn to their friends in the event of a disaster.

Although the government's role has been seen as critical as that of the Non-Governmental Organisations, community associations such as friends, church members, neighbourhood and

kinship, play a pivotal role in enhancing the ability of the community to respond to floods and droughts. Thus, communities with neighbourhood associations, formal and informal, are more resilient to floods and droughts. Clearly, those without social connections are more vulnerable. Fig 7.6 below shows the respondents' frequency of working together in the community to reduce the impact of drought.

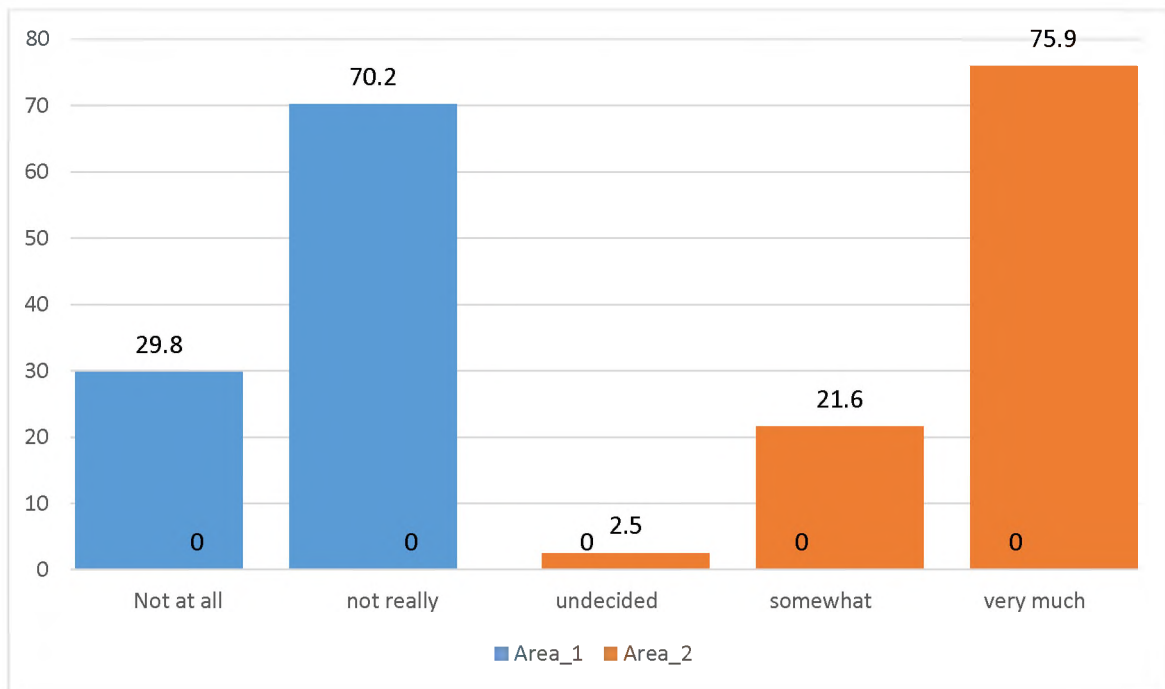


Figure 7.6: Frequency of working together in the community to reduce the impact of drought.

Source: Rosemary Kasimba

The graph above shows that social networks enabled the elderly to get assistance from other community members in Chadereka. Through social networks, the elderly became easily identified. One of the respondents, who is now old, said that she participates more in rainmaking ceremonies and most of the community residents know her and, when people go for two or more days without seeing her, they pay her a visit. She said:

I am very active in community ceremonies such as rain making ceremonies and this made me well known and visible to most of the community residents. That is why people bring food and fetch water for me when I am sick. Some

*even provide draught power during summer and I am very grateful for that.
It is all because I managed to link up well with others⁷¹.*

What this respondent said demonstrates the importance of networking and Social Capital in the society. Some community members support the elderly by buying their farm produce. The explanation above demonstrates the power of Social Capital in enhancing the resilience of the community to disasters.

The role of social networks in disaster recovery, mitigation and response cannot be underestimated in both study areas. The majority of the community members in both Chadereka and Kapembere rely more on social networks. This is in tandem with Beckman's (2006) findings. He found those residents in Central Vietnam dependent on family, relatives and other interpersonal relationships. Thus, Beckman's (2006) study and this study found out that residents in disaster prone areas also depend on reciprocal help. Although Vietnam is in a developed country and Muzarabani is in a developing country, the role that Social Capital plays in the two communities, in the form of social networks and relationships, cannot be miscalculated. Moreover, Beckman (2006: 116) notes that "households without networks maybe in a more desperate situation even though they may be less poor".

Feuchtway (1995) viewed social networks as a source of support in everyday solving of problems, for instance, in the event of illness, paying school fees and finding work" (Beckman, 2006:116). According to Beckman, this type of social support is also crucial for coping after a disaster. I also found out that social networks provided information to community members which is very vital for their day to day living. For instance, in Kapembere, one of the respondents said:

Even though we are all poor, we try our level best to assist each other in whatever capacity. When my neighbour or my friend misses a workshop or a meeting on crops to grow and how to grow them, especially just before summer, I tell him/her the things which I can still remember so that they won't be victims of poor rains. Agritex officials or Help from Germany

⁷¹ Widower in focus group discussion with the elderly, Chidavaenzi village of Chadereka, 25 May 2016

*officials sometimes come to provide education on agriculture before summer. We sometimes remind each to grow crops that are being encouraged.*⁷²

The narrative exhibits that social relationships/social networks enable the circulation of information which enables residents in Muzarabani to cope well with disasters. I discovered that social networks/relationships are mainly developed and maintained by the people themselves and cannot be imposed. In both Chadereka (where people were educated by Red Cross on the importance volunteerism and of helping each other) and in Kapembere (where residents did not receive such education from the Organisation since it was not operating there), residents demonstrated that they care for each other although problems associated with such kind of relationships were identified. Some of the problems which were highlighted by the respondents included discrimination on the basis of wealth status, sex, sometimes totem (but this was not common in Chadereka) and religious affiliation. This was highlighted by several respondents and the Chief said:

As the Chief, I think encouraging the community to work together is useful. Yes, they are already in groups based on their interests, sex, age, religious affiliation and totem; but to me, those groups are not very strong and cannot help my people when a heavy drought like the one we are experiencing this year strikes. I just want them to be equal even though they cannot be hundred percent equal as some see themselves as rich and unreachable. Some are discriminating against others because they speak Ndebele and they want to interact mostly with those who speak and understand Ndebele. I do not like that kind of behaviour. Women form cooperatives where they help each other and they forget that there are also male heads of households who are widowed and need some kind of help from these women who will be considering themselves as more vulnerable. Yes, I do appreciate their activities of helping each other but they should also remember that they need to include some activities that include vulnerable men in the community. I know that as women, they would want time on their own, but I do not think

⁷² Male head of household (56), an interview during transact walks, Kayongo village in Kapembere, 02 July 2016

*including men in some of their activities would really harm them. You see, my daughter, these are stumbling blocks for the community to be more resilient to disasters. We have a mixture of people including the Chewa people who came from Zambia and they have got certain ways of doing things and you hear the Shona people saying this and that about them. I told them you are the same but I have failed to unite them.*⁷³

This shows that Social Capital in this form has shortfalls. One of the respondents also said:

*If donors and the government pull out, I do not think we can survive. We, the poor will die immediately because we have no friends who can assist us. People are very discriminatory here in Kapembere*⁷⁴.

Thus, in this area, some people tend to use cost and benefit analysis to choose who to interact with. They prefer to associate with those with assets such as cattle and goats, and those who at least harvest food that takes them to the next farming season and the rich. Figure 7.7 below shows people’s perceptions on community connections and community resilience to droughts and floods.

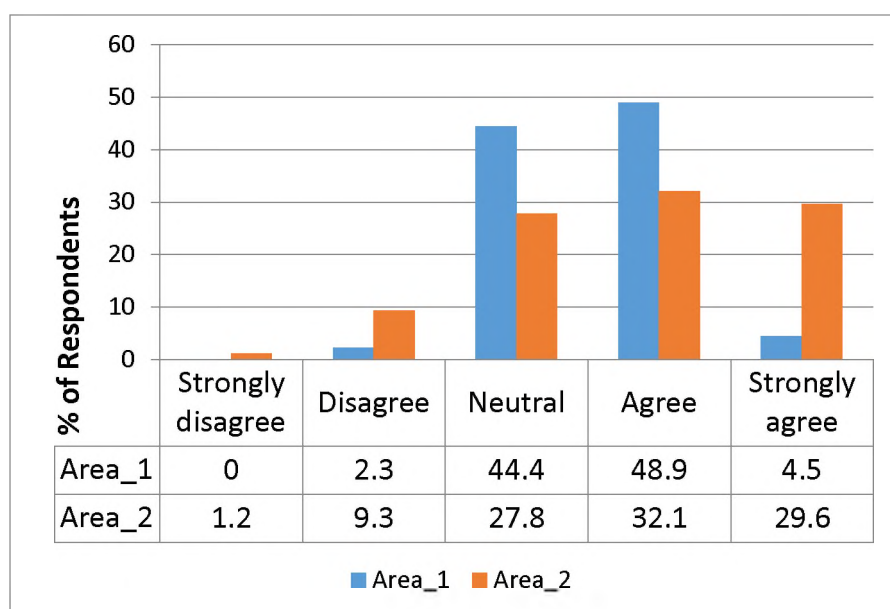


Figure 7.7: People with connections with other people are resilient to droughts and floods.
Source: Rosemary Kasimba

⁷³ Chief Kasekete, Chadereka ward, key informant interview at his homestead, 3 July 2016.

⁷⁴A widow (46), interview during transect walks, 5 July 2016.

Discrimination based on religious differences was also found by Green and Harrison's (2014) study in Ayerwaddy Delta of Myanmar. They aver that:

While the findings suggest that bonding and bridging capital are strong, there were cases mentioned through the research where there were divisions and disputes within the village. These were predominately around wealth status, differences in education, and newcomers to the village. Some people also mentioned problems due to religious differences (ibid: 17).

Thus, Social Capital has some shortcomings where discrimination based on their differences will end up disadvantaging some members of the society. However, in my study, residents do not consider education as one of the basis of discrimination as was found by Green and Harrison (2014). Thus, to some extent, Social Capital (bonding), makes people vulnerable to disasters as they will be treated as misfits by certain groups which will be carrying out activities that are meant to increase the resilience of community members to disasters.

Griffin's (2009) study of Hurricane Ike (2008) in the Texas countries of Galveston and Chambers also established that Social Capital in the form of social networks were gender blind although they (social networks) were very useful in disaster recovery. Thus, Social Capital has some weaknesses in that it excludes some people as Bourdieu (1986: 249) explains that "the volume of Social Capital possessed by a given agent thus depends on the size of the network of connections he can effectively mobilise and on the volume of capital possessed in his own right by each of those to whom he is connected". This means that those who are not in the network do not benefit much as they will be segregated. Simultaneously, the more vulnerable said that they interact frequently with those who were also vulnerable. These have limited material support for one another. Furthermore, social networks are not "useful for covariate shocks when everybody among the group has suffered losses" (Beckman, 2006: 116). In this regard and in a situation where everyone is affected, it is very difficult to help the next person. When all actors in the social circle are severely affected, it becomes very problematic to help one another. This was highlighted by several respondents during focus group discussions and transect walks. One of the respondents said:

I do not think that as a community we can successfully adjust to floods and droughts because the majority of us are poor. Of course, the rich can survive as we are seeing them having all meals per day when it did not rain. Many of us are poor and I might be willing to assist my neighbour who has no food but it does not help when I am also struggling. I remember last week on Tuesday when my friend came to my house staggering and failing to breathe properly, asking for mealie meal so that she would cook sadza for her children who had spent two days without food. I had also spent two or three days eating boiled cotton seed with my children. She fainted before she even had finished talking to me. My children had not gone to school that day because they had a running stomach which was being caused by cotton seed which we were eating. I rushed to the baobab tree and took some leaves which I cooked as okra and made her drink it forcibly. I offered her First Aid before I gave her okra to drink. In an hour's time she was able to speak and I took her to the counsellor. We were both given 5 kg of mealie-meal to share, but I just took 2 kg and I gave her the rest since we were going to receive 50kg maize grains from Social Welfare the following day. This way makes me feel that we can assist each other, but sometimes we might not be able to assist since we will be in the same dilemma⁷⁵.

When the respondent was narrating, fear gripped me and it made me understand more how women, as food providers in the household, are affected by disasters. The majority of the people had nothing to eat but they had to rely on food hand-outs from the Department of Social Welfare. The narrative above also made me understand that when all actors in the social circle are severely affected by a disaster, it is intricate and convoluted for them to help one another. However, Social Capital in the form of friendship needs to be appreciated.

The findings from questionnaires collaborate with those from qualitative methods as shown on the Figure 7.8 below. 73.7% in Chadereka, which is area 2, and 19.5% in Kapembere said that they sometimes assist the elderly. This was augmented with the results found from focus group discussions where the majority of the elderly in Chadereka said that community members were

⁷⁵A woman during a focus group in Chadereka, at the village head's homestead, Gunduza Village.

assisting them more frequently as compared to those in Kapembere. In both areas, quite a smaller number of respondents (6.8% in Chadereka and 0.2% in Kapembere) said that they never assisted the elderly in the community. Thus, a smaller percentage of the respondents said that they never assisted the elderly and this means that community members in both study areas were willing to assist the elderly. However, the results showed that none of the questionnaire respondents said that they assist the elderly almost always. This shows that the elderly are more vulnerable to disasters as they do not always get assistance. 28.1% in Kapembere and 0% in Chadereka said that they rarely assist the elderly. This means that, through Red Cross teachings, the majority of the community members have become willing to assist the more vulnerable groups of people. Fig 7.8 shows the respondents' frequency of assisting elders in the community when disaster occurs.

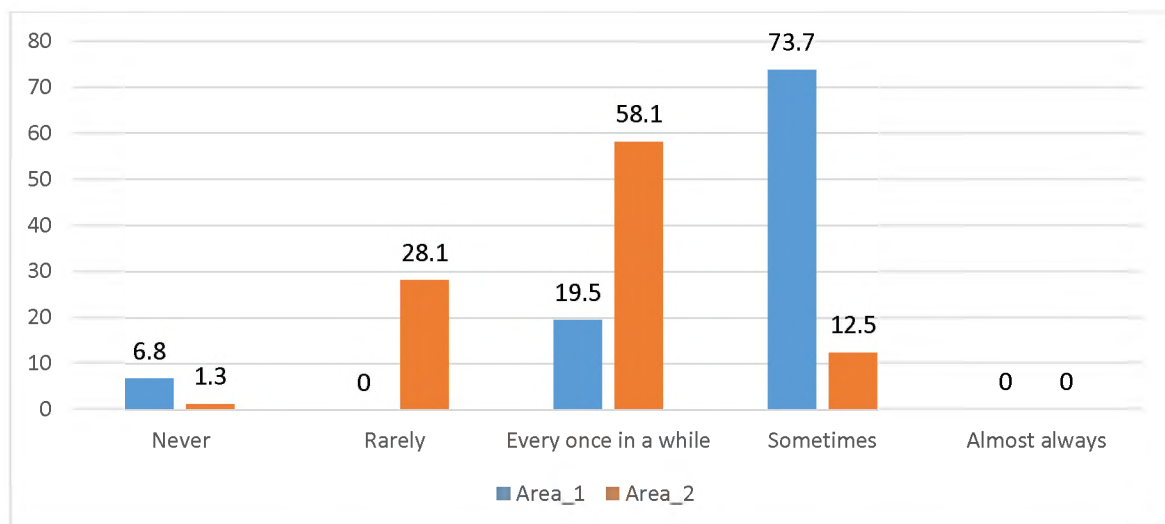


Figure 7.8: Frequency of assisting elders in community when disaster occurs
Source: Rosemary Kasimba

7.11: Social Capital and Food Security:

The study findings showed that the residents in Muzarabani, particularly the most vulnerable, rely on Social Capital. The majority of the most vulnerable do not have cattle, they have smaller pieces of land and have fewer assets to sell in times of droughts, to be able to survive. Even if they are to sell an asset like cattle, they do not bargain successfully and they may end up selling them at an unreasonably low price. During my stay in Muzarabani, people would come from Harare to buy cattle. Prices were ranging from \$US250 to \$US450. The most vulnerable people would sell at US\$75 because they would not bargain successfully and the majority were now being assisted by their neighbours. They sold at a low price because what they wanted was

money to buy food. When the majority of residents in Muzarabani realised that there were some community members who had been selling their cattle at low prices, village meetings were held to educate each other on how best they would sell their assets like cattle, to earn a living. They all agreed that no one was going to sell a cow at less than US\$150. In addition, community leaders made it mandatory for every member of the community to invite at least three community members when selling a cow so that they would help in bargaining. From there, I began to see residents selling their cattle or exchanging their cattle for food, without making losses as happened previously. This depicted how people, especially the most vulnerable, rely on Social Capital for their resilience to floods and droughts. In addition to the above, the Muzarabani community members of Chadereka and Kapembere, support each other in different ways when it comes to food provision from the government. I would go to their food rationing programmes where they would be receiving maize grains from the government. When the grains are inadequate to cater for all people, members sit according to their villages and select the most vulnerable people who would then be given at first preference. From these activities, I found that social network is a fundamental tool when it comes to disaster resilience.

There are many activities which make people meet, interact and learn more about each other's social and economic status. These are Food for Work programmes, women's clubs (in Chadereka) Churches, workshops, political meetings and NGO meetings. There are also ward based social workers who visit the most vulnerable people. All these facilitate community members' understanding of each other. "While some researchers have begun to embrace Social Capital in their research, much work is needed to fully understand how Social Capital interacts with other forms of capital, how different forms of Social Capital contribute to disaster resilience" (Aldrich and Meyer, 2014: 5). There are so many forms of Social Capital existing in Chadereka and Kapembere that help the most vulnerable to ensure food availability. "Understanding the role of Social Capital in resilience requires in-depth knowledge about individuals' and organisations' experiences in their networks and their perspective on those network resources" (Meyer, 2013: 78). Thus, my interaction with community members, government official as well as NGOs, helped me to understand the role that Social Capital is playing to enhance the resilience of the community to floods and droughts.

Neighbours in Muzarabani assist each other with food. When someone slaughters either a goat or a cow, he or she cuts into pieces one leg and distributes to neighbours and relatives. This indicates how communal the people are. Giving each other part time jobs/casual jobs also

indicates that people are relying on Social Capital. Chapter 7 has shown how Social Capital is helping people to be food secure as well as resilient to floods and droughts. Study findings revealed that people are relying on bridging capital. They are just helping each other regardless of not being blood related. “Individuals and groups can strengthen, increase and diversify their positive relationships with others [that is, increasing Social Capital], increases their access to opportunities” (Marin et al, 2015: 455). These opportunities will result in improving people’s resilience to disasters such as floods and droughts.

In Chadereka and Kapembere, women go to the Mozambican Border that is close to Muzarabani to look for jobs and this is only successful through links. When one does not have a link, it is difficult to get a piece job to get food. Even if one is to go to Harare to look for a job, a connection is very important. In the same tenor, Schramski’s (2013: 76) study on adaptive capacity in rural South Africa, also established that “at the community-wide scale non-parametric correlations indicate that there is a statistically significant relationship between adaptive capacity scores and exchanges of food, wood and water, money, and disease information. This means that these networks are significant predictors of adaptive capacity”. His study findings revealed that Social Capital facilitated people’s ability to adapt to climate change. Similarly, work by Chamlee-Wright, (2010), Dynes, (2006), Prasad, Su, Altay, Marin et al (2015) and Tata, (2014) among others, revealed that Social Capital plays a critical role in disaster resilience. A study by Aldrich et al (2016: 3) also notes that “great deal of research has shown how Social Capital (the bonding, bridging, and linking connections to others) provides information on trustworthiness, facilitates collective action, and connects us to external resources during disasters and crises”. The women in Chadereka are pooling their resources together to provide food for school children. Local residents are pooling their resources or storing foodstuffs as mechanisms for handling risks to their livelihoods caused by climate related disasters.

The traditional social fabric in Muzarabani rural area is strong as neighbours and community members are guided by the belief that *‘one finger cannot squash a louse or one man cannot surround the mountain*. This is a common aphorism in the Zimbabwean society. Thus, it is very common and normal for people to assist each other in times of floods and droughts. This means that people need each other in times of crises. In this case, norms of generalised reciprocity are being used. Generalised reciprocity is described as a simple rule to “help somebody if you receive help from someone” (Voelkl, 2015: 17). Although respondents stated

some of the challenges they are facing, the study found out that this type of Social Capital (generalised reciprocity) is enabling people to survive.

The results from both the qualitative and quantitative components of my investigation, show that Social Capital (NGOs, government and community networks) is playing a critical role. Below are the results from the questionnaire that was administered to heads of households in Chadereka and Kapembere, to identify the most important asset of recovery. The study findings reveal that Social Capital is playing a pivotal role. Fig 7.9 below shows that 96.4% in Chadereka and 76.2% in Kapembere said that the most important asset of recovery are prayers, endurance and hope. They said that they hope that one day they will receive good rains and they should not lose hope in farming. 71.9 % in Chadereka and 28.1% in Kapembere are relying on subsidy. In Kapembere, they make sure that the most vulnerable people are the first to receive inputs and any form of aid. 13.3% in Chadereka and 86.7 in Kapembere rely on piece jobs. The majority of the households in Chadereka practice farming during winter because they are in flood prone areas that allow them to practice farming throughout the whole year. Furthermore, 95.5% of the heads of households in Kapembere said that they are relying on *Zunde Ramambo* and 95.7% on NGOs and government assistance. This shows that the majority of people in Kapembere are dependent on Social Capital for their day to day survival. In Chadereka, most households rely on gardening and they make a living out of their gardens.

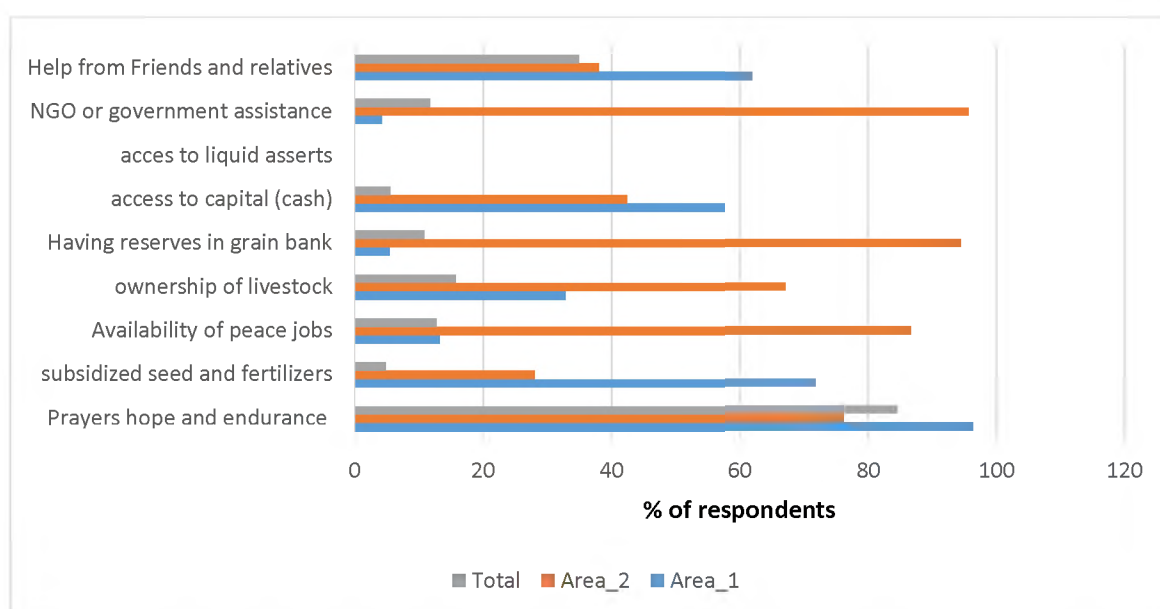


Figure 7.9: Important asset to enable recovery following a drought by area

Source: Rosemary Kasimba

Moreover, the above discussions on the role of Social Capital in enhancing the resilience of the community to disasters, compelled me to deduce a rural based Community Resilience Model to floods and droughts. The model has its origin in the work of Norris Stevens, Pfefferbaum et al (2008). Below is fig 7.10 which shows the Community Reliance Model to floods and droughts in Muzarabani.

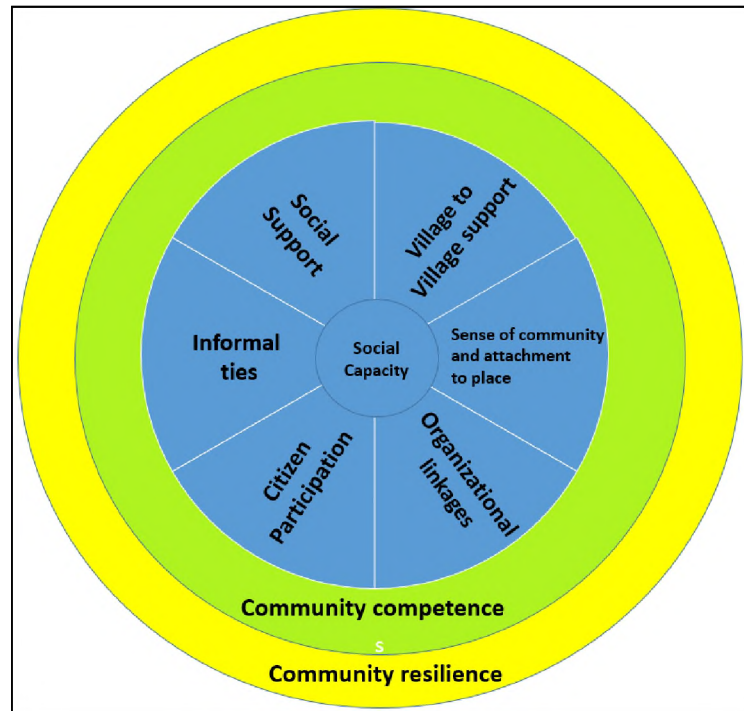


Figure 7.9: Muzarabani Community Resilience Model
Source: Rosemary Kasimba

Fig 7.10 summarises the nature of Social Capital in Muzarabani. Overall, the results from the study revealed that the community is able to increase their resilience to floods and droughts if they get support from Non-Governmental Organisations and the government. Currently, the community is not more resilient, but the activities that are being carried out by the community members show that the community is getting there gradually.

Social Capital proved to be very critical to the residents’ resilience to floods and droughts. Data from questionnaires, observations, and key informant interviews and from focus group discussions, revealed that residents, including the most vulnerable groups, are able to adjust to the conditions of climate change, through Social Capital. Social Capital is acting as a buffer provider in different ways as has been discussed. Social Capital gives access to contacts for day labour opportunities, production inputs, land and loans. In addition:

Literature on disaster management reveals that vulnerable populations tend to be the ones that suffer most. Social work as a profession values highly the services offered to these vulnerable populations, for example, the economically disadvantaged, mentally challenged, older people, children and those who are medically frail” (Mathbor, 2007: 358).

The same applies to the case of Muzarabani. Here, each ward has a social worker who visits the most vulnerable people several times and the person has adequate information concerning the vulnerability of a person. These social workers work with NGOs, the government and other stakeholders to ensure that the most vulnerable group are given the first preference when it comes to the distribution of goods and services to ensure residents’ food and livelihood security. In Muzarabani households, Social Capital facilitates access to other important assets (natural, physical and financial) needed for sustainability. That means, Social Capital is indeed a significant local resource that increases the resilience of the community to disasters such as floods and droughts.

In Muzarabani (Chadereka and Kapembere), people make use of Social Capital to ensure that they are able to withstand harsh conditions that are imposed by floods and droughts. Those with assets also rely on Social Capital aspects. Abheuer et al (2013: 33) note that “one of the most important resources [to get by] in times of crisis, is Social Capital, which enables flood-affected people to receive social support when they are in need”. In their study on coping with the impacts of severe flood events in Dhaka's slums, they found out that people depended on their social networks. “Social Capital and informal modes of transactions make poor urban households resilient as both allow them to react to and to cope with natural extreme events, (ibid: 33). Family, friends and associates constitute an important asset, one that can be called upon in a crisis, enjoyed for its own sake, and/or leveraged for material gain” (Woolcock and Narayan, 2000: 3). The asset helps in conducting local buy-outs and relocations of repetitively damaged homes and businesses. The money was raised through a self-imposed sales tax or paid for by individual households”. (Aldrich, 2016: 20).

The contexts in which Social Capital is employed in Muzarabani vividly symbolised that it is predominantly premised on the notion of “togetherness”, “we” and “group belongingness.” An illustration to this is that of termites which work together in building their habitat and each and

every one of them will be willing to contribute and there will be no supervision needed. Contributors such as women in clubs and volunteers, among others, are strongly motivated by the instinctive belief that it will all work for the benefit of their community. Another example is that of bees making a hive. Each of them applies maximum effort, without looking at how their neighbour is contributing and without checking even at their pace. They behave like they are constructing individual habitats. After building their sanctuary, each of them has the responsibility to look after it and making sure that there will be no foreigner, alien or stranger invading it. That is why bees sting people if they see them moving close to their (beehive) territory.

Each contributor provides security and tries to avoid diffusion of responsibility. Chadereka has volunteers who were trained by The Zimbabwe Red Cross Society and these volunteers are working tirelessly with different stakeholders to reduce the effects of floods and droughts in the area. Aldrich (2012: 16) also notes that “after the Tohoku tsunami struck the town of Shichigaham in Miyagi Prefecture and destroyed roughly 1000 homes there, a knitting club named Keito Iki (Yani-Alive) had emerged to provide social support for its 20 or 200 or so mostly elderly neighbours”. Mother Support Group, a club initiated by women in Chadereka is also a good example of some Social Capital activities that enhance the ability of people to survive under stiff conditions that are imposed by disasters such as floods and droughts. This club also interacts with government officials, community leaders, NGO officials as well as volunteers in certain circumstances.

The findings of my study are in consonance with Gukurume’s (2013: 98) study findings in Bikita, Zimbabwe. He examined adaptation and mitigation strategies employed by farmers to deal with climate change and variability. Gukurume (2013: 98) concluded that “Social Capital is a crucial resource for the rural poor in their adaptation and mitigation strategies to climate change and variability”. Networks were created between the rural poor and various stakeholders such as civil associations and NGOs that were assisting the people with adaptation and mitigation strategies such as “new cropping systems introduced by Actin Faim and Care International Bikita and other surrounding districts like Zaka and Chivi(ibid: 98). This means that Social Capital is one of the critical success factors in disaster risk reduction. Social networks create social cohesion as well as instilling a sense of community which then compels people to share scarce resources. Consequently, local people become adaptive to threats that are triggered by floods and droughts. Therefore, Social Capital “stands for the ability of actors

to secure benefits by virtue of membership in social networks or other social structures”. (Portes, 1998: 6). The most vulnerable people are accruing benefits from other members of the community.

Another form of Social Capital which I discovered in Chadereka is Victim Social Capital. Victim Social Capital is the sense of togetherness that develops among people who are in the same difficult situation. People come together to find a solution to their predicament. This is described by Thieme (2006: 2) as bounded solidarity. It “develops when members of a particular group experience situational circumstances that can lead to the emergence of principled group-oriented behaviour and support, quite apart from any early value introjections” (ibid: 2). The ontological source of this concept in sociology dates back to Marx's theorisation and analysis of emergent class-consciousness in the industrial proletariat. For Karl Marx, as in the conflict spiral, victims (the proletariat) become aware of their oppression and they come together so that they can transform into a new situation, one of class consciousness where they are able to come up with strategies which prompt their liberation. In this study, people in both Chadereka and Muzarabani came up with several strategies that enable them to deal with floods and droughts.

7.12: Conclusion

By and large, the chapter shows the relationship between Social Capital and community resilience. The overall findings from the study show that different types of Social Capital and collective efficacy enhance the ability of the Muzarabani community to respond and adjust to the impacts of changing climatic conditions and climate related disasters (floods and droughts). The study showed that the interaction of different stakeholders such as government officials, NGOs, different church organisations and community leaders increased the resilience of the community despite the obstacles which were stated. The study also established that social networks (interpersonal relationships, neighbours and friendship) and kinship play a vital role in the enhancement of the community's resilience to disasters. These types of relationship are embedded in the community and they provide immediate help which in turn enable some individuals to survive. Social Capital and collective efficacy facilitated the exchange of ideas, provided social support and relief aid, prompted some Muzarabani residents to be cooperative and work together as one and positively influence reciprocal help among the community members. All of these features augment the resilience of the community to disasters. However,

discrimination based on gender, wealth status and other considerations, discussed above, is perceived as an impediment towards the ability of the community to reduce its vulnerability to floods and droughts. The findings from this study also found out that the involvement of politics and politicians in programmes meant to strengthen the capacity of the community to deal with floods and droughts was also an obstacle to resilience. The next chapter deals with community adaptation strategies and the effectiveness of these strategies in enhancing their resilience of the community to these disasters.

CHAPTER 8

AUTONOMOUS ADAPTATION STRATEGIES EMPLOYED BY THE MOST VULNERABLE GROUPS TO IMPROVE THEIR LIVELIHOOD AND FOOD SECURITY IN THE FACE OF FLOODS AND DROUGHTS.

8.1: Introduction

This chapter examines in detail, community-based strategies that are employed by the most vulnerable groups (women, child-headed families and the elderly) to improve their food and livelihood security. Vulnerable groups, as members of the community, also employ the same measures as other groups in the community. However, depending on their age, capacity, wealth status, education, ownership of land and other factors, they employ additional strategies that are specific to their predicament, in order to improve their food and livelihood security. In Chadereka and Kapembere, vulnerable people were seen to have adopted the following autonomous adaptation strategies: piece jobs, trading, agriculture, indigenous knowledge systems, conservation farming, selling assets, joining cooperatives and participating in community projects, among others. Some of these strategies have already been discussed in Chapter Seven.

8.2: Non- agricultural adaptation and coping strategies

Agriculture is the main pillar of rural people's survival. In both Chadereka and Kapembere, the most vulnerable people rely on agriculture. However, findings from the study revealed that non- agricultural strategies are becoming prominent coping strategies in the face of floods and droughts. Opiyo et al's (2015: 302) study on Drought Adaptation and Coping Strategies among the Turkana Pastoralists of Northern Kenya, also found out that non-agricultural activities are taking a lead in the rural people's day to day coping with drought. These climate sensitive activities include mainly crop farming (sorghum, maize, green grams/mung beans, cowpeas, and vegetables), poultry and egg production, and aloe harvesting. The majority of respondents prefer to engage in non-climate-sensitive activities such as microbusiness, casual labour and artisan activities. However, all these activities require one to make use of social relationships or networks. Therefore, Social Capital or social networks play visible roles in the enhancement of the resilience of the Muzarabani community to floods and droughts.

8.2.1: Casual Labour (locally known as *maricho*)

In its results, my study shows that the majority of the vulnerable respondents said that they rely on piece jobs such as hoeing and fetching water, when someone is building a house, as well as performing other types of household chores for their neighbours so that they can supplement their food. One of the respondents said:

Although we get help from the government, it is not enough and we are providing our labour for our neighbours to get food. Depending on the season, we do a lot of things for survival. When it is summer, we help people to remove weeds, land preparation and to plant. When summer ends, we go into harvesting. Sometimes we help people to mould bricks. Sometimes we work in people's gardens⁷⁶.

Another respondent said:

My kids and I work for our neighbours to get food. Sometimes we go to the Mozambican border for two weeks, working in other people's gardens to get food. We normally come back laden with grains⁷⁷.

A male respondent said:

Piece jobs are serving me and my family a lot. I do a lot of activities besides working for myself. I thatch people's houses as well as herding my neighbour's cattle⁷⁸.

The above explanations show that vulnerable groups, just like other ordinary people, rely on part time jobs. In this regard, therefore, they provide labour either to their neighbours or people from other communities to supplement their diet. Child-headed families are overburdened as

⁷⁶Child head during a focus group discussion in Chadereka at the village head's homestead, 08 August 2016.

⁷⁷ A female head of the household in Kapembere village, an interview during a transect walk, at her homestead, 16 September 2016.

⁷⁸ A single head of household (male) in an interview during an a transact walk in Chadereka at his homestead, 23 September 2016

they have to work in their fields as well as do part time jobs to supplement their diet and earn a living. At the border farming along the Mukumbura River is continuous. Most women respondents travel there to find food to supplement their diet. This also shows the importance of Social Capital in enhancing the resilience of community to disasters. Neighbours give the vulnerable tasks to do and pay them in kind or cash. This shows that people are willing to help each other. Thus, the Muzarabani community is becoming resilient to disasters. Communities that are close to the Mukumbura River understand that people from Lower Muzarabani, especially in Kapembere, are more vulnerable to droughts and food shortages. One respondent also said:

We thank our God sent neighbour who is always with us at heart. Whenever she goes to an urban area, she makes sure she buys us something to eat. She calls us to work for her and gives us whatever she will have bought for us. She doesn't give us for free. I am happy that she trained us to be hardworking people⁷⁹.

Thus, community members are willing to help each other and of interest is the fact that Kapembere is also becoming resilient to droughts. Residents in Kapembere are helping each other by adopting different ways including creating casual jobs so that neighbours can work for money or food.

Studies in other countries such as Malawi, Mozambique, Zimbabwe, the Philippines and Madagascar, confirm that seeking casual labour is an important strategy for vulnerable groups in rural areas (Mude et al (2007), Israel and Braines (2014:21), Bhatasara, (2015: 18), Brida and Owiyo (2013: 525), Beedy et al (2015: 1623), Chiroro (2013: 180) and Rakotobe et al (2016:9). Casual jobs within the physical area covered by this study are declining because the majority of these jobs, especially in 2016, were hard hit by droughts. However, the local people help each other to find casual jobs in Harare or other communities.

Casual labour provides either the food or the money to buy food. The most vulnerable people are dependent on casual labour that is also facilitated with social networks and relationships.

⁷⁹Child head during a focus group discussion in Kapembere, at Kapembere shops, 08 august 2016

Casual labour is one of the basis of the most vulnerable people's resilience to food insecurity in Muzarabani. This is mainly because the majority of the most vulnerable people do not have enough capital and assets to rely on. Most of them sold their assets in order to cope with the effects of floods and droughts. Most vulnerable people have used up all their livestock through exchanging them with maize. Currently, some do not even have a single cow. So, for these people to supplement their food, they go for piece jobs.

However, it is important to note that casual labour is a coping strategy that does not make people food-secure, but only postpones the pain as well as worsens the labourers' vulnerability. Casual labour is not sustainable, efficient and effective. The most vulnerable groups in Muzarabani are caught in a vicious cycle of food insecurity because they also do not have much time to prepare their land, plant and remove weeds in their own fields. This also results in reduced crop productivity and they will have to work for the other people continuously. In addition, some people tend to exploit others when giving them casual work. For instance, for one to get a bucket of maize, you have to remove weeds from twenty-five lines that are between sixty to eighty m long. One of the respondents said:

If the government is to pull out, I do not think we can survive because we are always victims of droughts and food shortages. We have no time to work in our own fields because people sometimes give us a lot of work to do for us to get just 20kg of grains⁸⁰.

In addition, another respondent lamented:

Sometimes, our fellow community members punish us when it comes to the issue of casual work. They do not want us to work in our own gardens and they end up giving us too much work. To get a dollar, you have to fetch at least twenty-five buckets of water when people are moulding bricks and, sometimes, they will be too far from the source of water.

⁸⁰ Child head during a focus group discussion in Kapembere, at the village head's homestead, 09 August 2016

Thus, the above explanation points out that people in Muzarabani sometimes exploit others because of their situation. This limits their (the most vulnerable) ability to work for their own gain. This also resonates with the findings of Chiroro (2013) in Malawi. Qualitative interviews support this position and show that those with higher access and command of financial assets, had higher social influence on local institutions and they benefited differently from the poor, mainly at their expense (Chiroro, 2013: 235).

8.2.2: Income Diversification

The study found out that vulnerable groups in Muzarabani are not passive recipients but active agents of change. The majority have resorted to many avenues of earning income so that they are able to buy food. They are involved in so many income-generating activities such as collecting wild fruit for sell, beer brewing using wild fruit, barter and petty-trade, merry –go-round (a system whereby women give each other money on either monthly or weekly basis depending on their arrangement), firewood cutting and collection, cutting and collecting grass for thatching, pottery, knitting, weaving, making and selling wooden sticks. In the interest of saving time, I put them in one cluster which I called income avenue diversification. Income avenue diversification refers to a situation whereby people have so many avenues to supplement their income before and after a disaster/crisis. Thus, off-farmincome can also play an important role in economic livelihoods.

8.2.3: Collection of Wild Fruits

The majority of the vulnerable, including the elderly, have more than two sources of income. Collection of wild fruits locally known as *masawu*⁸¹ (*Ziziphus Mauritiana*), *Adansonia digitata*, known locally as *mauyu*, and *nyii*,⁸² is a common activity involving men and women, young and old. *Ziziphus Mauritiana* are sold in the urban areas and there are some people who come from Harare with money and food to get these wild fruits. These are not the only fruits found there, but their demand is higher. *Masawu* are mainly picked in winter and some in summer, around December and January. *Mauyu* are picked throughout the whole year and *nyii* are normally picked in mid-summer. *Mauyu* and *husika* can be eaten as fruit but can also be used to improve the taste of maize meal porridge. *Masawu*, *mauyu* and *musika* can be eaten as fruit and at the same time, they can be used to make different types of food. In both Chadereka and

⁸¹ Wild sweet fruit

⁸² Indigenous wild fruit of Red Ivory wood Tree The sweet flesh fruit is eaten fresh/dried

Kapembere, people make *gununzvu*⁸³. This type of food is brown in colour and to prepare it, people grind dried *masawu* and mix the powder with water. However, respondents in both Chadereka and Kapembere, are relying on *masawu* selling because it is just picking and one does not need to have finances in order to start the business. The trees are near the rivers and in their fields. *Musika* is also found near rivers but the fruits cannot be sold in large quantities. In addition, *mauyu* are found anywhere and they do not belong to anyone. The powder from *mauyu* also produces a very good juice which can make one full. So, in both urban and rural areas of Zimbabwe, *mauyu* are popular and many people like them. The Muzarabani residents rely on picking this fruit and selling it or having it as their own food. In addition, people are making alcohol using *masawu* and *nyii* and it is on demand. 700mls of alcohol cost US\$1 and 1 times 40 kgs can produce at least seven bottles which fetches US\$7. One of the respondents said:

*The community is supporting us by buying our home made beer which we make from masawu and nyii. They buy and we are able to make a living although the process is tiresome and risk. Sometimes we are raided by the police because this home-made beer has a higher alcohol content*⁸⁴.

Another respondent said:

*If the government is to pull out, I think we may die because some of the fruits we rely on produce food only when it rains. Masawu and nyii need water. I rely on masawu and nyii. I pick and dry them. I take them to Harare's Mbare Musika and sell them on my own. Sometimes I spend three to four weeks doing this and I can make at least US\$300. I use US\$100 to buy things that I know will give me money when I come back home. Life goes on like that. I have also trained my children to brew the home-made beer. When I am away, they can do it*⁸⁵.

One key informant interviewee also said:

⁸³ Porridge like food from Masawu

⁸⁴ Beer made from wild sweet fruit.

⁸⁵ A woman in Kapembere during a focus group discussion

The most vulnerable people are those who are relying on selling fruits and we also help them sell because some people from Harare would want to cheat them by buying these fruits at an unreasonably low price⁸⁶.

The above quotes show the importance of wild fruits and how people are making use of them to earn a living. The majority of the more vulnerable households are relying on wild fruit collection because the business does not need one to have financial capital. A study by Rakotobe et al. (2016) on strategies of smallholder farmers to cope with cyclones in Madagascar, revealed that residents harvested wild foods to eat and for selling. During the period of my stay, I observed that this activity also requires one to be well-connected with the others. Community members advise each other on prices and they also support one another by buying the fruits (those who can) and sell them at Mbare Musika. However, respondents are lamenting about the other community members who have started monopolising and personalising wild fruit trees. One of the respondents said:

If the government and NGOs pull out, we may die because we used to pick and sell fruits, but now it's impossible because people are personalising them⁸⁷.

Another respondent said:

Besides providing casual labour, I am depending of wild fruits. I sell them and get money. Look over there, I have covered all my Misawu trees with thorns so that the fruit can fall and dry on their own and no one will pick them. When I pick them, I get more than 15 packs of 50kgs⁸⁸.

Thus, the more vulnerable people rely on wild fruits. They sell the fruit and also make home-made beer which they also sell to earn a living. The findings of this study resonate with the findings of Manyani (2013) in Chadereka Ward. He found out that people supplemented their income by collecting wild fruits. In parts of Southern Ethiopia, the consumption of wild-food

⁸⁶ Key informant interviewee at his homestead, village head in Kapembere, 20 August 2017

⁸⁷ An elderly woman during an interview, At her garden in Chadereka, 18 September 2016

⁸⁸ An elderly man in Kapembere during an interview during transect walks, 20 September 2016

plants seems to be one of the major local survival strategies and it appears to have intensified due to the repeated climatic shocks hampering agricultural production and leading to food shortages. The increased consumption of wild-foods enables people to cope better with erratic, untimely rains and drought for several consecutive years, without facing severe food shortages, famine and general asset depletion as in other areas of Ethiopia (Guinand and Lemessa, 2001: 1). The majority of households in Chadereka and Kapembere (including those who are not more vulnerable) pick wild fruits for sale and for food. Plates below are the pictures of *nyii*, *masawu* and *mawuyu*.



Figure 8.1: Picture of Nyii

Source:<https://newsvyb.com/zimbabwean-fruits-zimbo-must-try-once>. 20 September 2016.



Figure 8.2: is a picture of Masawu and Mawuyu respectively
Masawu (Ziziphus Mauritiana) in brown colour and *Mawuyu* (baobab fruits) in white colour

Source: Rosemary Kasimba

8.2.4: Selling of Assets as a Coping Strategy.

I looked at how the most vulnerable groups are surviving and I found out that those who have assets such as cattle, goats, sheep and furniture, are selling them. This is a coping strategy which is not sustainable and it postpones the pain because when their assets are finished, they will have nothing to sell so that they can survive when the area is hit by drought. One of the respondents said:

We are selling goats and cattle to be able to buy food. Now, we are only left with two cattle and 10 goats which were left by our parents. We finished all the chickens, exchanging with people to get grains in 2009, when we had nothing to eat⁸⁹.

Another respondent said:

⁸⁹A female head of household during an interview in a transact walk in Mwanza village in Kapembere , 04 August 2016

I am relying on selling goats. It's very fortunate that we have goats which we bought when cotton was paying us heavily⁹⁰.

A Village Head also said:

Uuum, the drought is very dangerous, especially to child heads and widows. Many of these people no longer have draught power during summer because they have finished selling their cattle at a lower price so that they have something to eat⁹¹.

The above quotations demonstrate that the most vulnerable people rely on selling their assets. This is a coping mechanism for them to be able to survive, but is, however, not sustainable. They sell cattle at a price as cheap as US\$100 to US\$250, just to be able to buy food. According to the IPCC (2007), droughts and floods are more likely to increase by 2050. This means that these people will become more vulnerable to disasters. This resonates with Bhatasara's (2015: 267) findings in Charewa community in Mutoko. Bhatasara (2015: 67) found out that the respondents in Mutoko survived the 1992 drought by selling their livestock.

8.2.5: Handcraft Making as Women's coping strategy

The findings of my study show that the majority of the most vulnerable people in Muzarabani use their hands (handcraft) to eke a living. The majority of the elderly women engage in pottery, elderly men in basket weaving (including winnowing baskets) and some young girls, including female child heads, are into braiding. Some women are knitting woollen hats, sweaters and jerseys. People are not only relying on these, but they add to their income by picking and selling fruits. However, these types of economic activities do not really make them food secure and do not improve their standard of living. Pottery products fetch little money. Currently, people consider the use of pottery products as primitive due to modernisation.

In addition, the Muzarabani area is a very hot place and very few people buy woollen clothes. Braiding does not really pay. The majority of women want their hair to be done for free and when they pay, they pay very little money. One pays less than US\$3. Thus, life for most of the

⁹¹A key informant interviewee in Chadereka, 04 August 2016

vulnerable people in disaster prone areas is at risk and their survival strategies do not really make them more resilient. Interestingly, the study found out that the Chadereka and Kapembere residents are involved in many economic activities to earn a living. Central to these diversified livelihood activities, Muzarabani residents support each other through buying products that are produced by their fellow community members although the majority are very poor and cannot afford to buy products which exceed US\$10. Thus, Social Capital is very fundamental in enhancing the resilience of the community to natural disasters such as floods and droughts.

8.2.6: Firewood Making (Natural Resource Collection)

Single heads of households, rely on cutting and selling firewood. The Zimbabwe Red Cross Society has introduced the *tsotso* stove (a construction that burns on kindling) in Chadereka where it is operating⁹². Contrary to what is intended where the *tsotso* stove is concerned, instead of preservation, more trees are now being cut down to fill scotch carts with kindling for sale to those who have *tsotso* stoves. Each load costs US\$6. One of the respondents said:

Some women are selling firewood just like what men normally do. One load normally costs US\$6. They can supplement their income and buy food. However, we do not allow them to cut trees massively, but they do not listen.

This shows that some residents, including the most vulnerable in Muzarabani, are into firewood selling to supplement their income. Although the *tsotso* stove saves firewood, deforestation is increasing in both Chadereka and Kapembere as some people rely on selling firewood. This may result in floods and droughts. Thus, from the above discussion the research found out that natural resources exploitation forms the base of people's resilience to natural disasters. Deforestation is on the increase in Muzarabani hence the ability of the community to prevent and reduce the occurrence of disasters is very questionable. Some of their adaptation and coping strategies render them more vulnerable to floods and drought effects.

The majority of residents (including the most vulnerable groups) in Muzarabani, rely on utilising the available natural resources (land and water), as has been stated above. Residents harvest wild fruit for sell and to supplement their food so that they can survive. Land is used for crop cultivation. In addition, the people exploit and utilize the natural resources to earn a

⁹² It's a tradition which saves firewood and does not produce a lot of smoke.

living. Land and forest resources are the local people's (including the more vulnerable) natural resource base in both Chadereka and Kapembere. I observed that Mopane trees are on the verge of complete extinction as people are continuously cutting them down to sell as firewood for domestic purposes as well as for burning bricks. Trees are also cut down by people so that they protect their crop from damage by domestic animals. Home farming is also causing massive deforestation. Trees are cut down to make poles that surround the field to prevent domestic animals from destroying their fields. In addition, bricks are moulded and baked just after every summer as it is a time when many people build houses. Some of the most vulnerable depend on selling bricks (US\$20 per 1000 bricks). The baking of bricks requires abundant firewood. Large loads of scotch carts with wood are ferried to sell in the local community. Some of the local people are no longer hesitant to cut down trees that were traditionally believed to be important habitats for their ancestors.

Jodha (1995: 24) also found out that poor households in India are dependent on forest resources to generate income through firewood collection. Firewood is the most important source of energy for most of the world's rural poor (Roper and Roberts, 1999: 3). This is also the case in Muzarabani. Firewood selling business is made possible by Social Capital in both Chadereka and Kapembere. One needs to have customers within the area and; if you do not have customers, it is very difficult to earn a living by selling firewood. One is also required to establish a very good reputation by selling firewood that does not produce a lot of smoke when burning. One of the respondents opines:

To supplement the food that we get from the government and farming, we are selling firewood. My little sister is also in Harare, working as a childminder and she sometimes sends us rice and cooking oil. Chopping and selling firewood is a thriving business especially when people are baking bricks⁹³.

Another respondent said.

Especially this season (winter), firewood selling enables people to survive, although EMA does not allow that⁹⁴.

⁹³Male child head during a focus group discussion in Chadereka

⁹⁴ Key informant interviewee in Chadereka, 25 April 2016

The narration above shows that people are relying on natural resources for their survival.

Farming is the backbone of the rural economy in developing countries and in Muzarabani, it is one of the local people's main coping and adaptation strategy to ensure livelihood and food security. In Chadereka, some of the most vulnerable (even those who are not vulnerable) have two farms, one at home and another away from home. At home, they have to put trees around the whole field to prevent domestic animals. Some people have pieces of land where they do their farming near rivers. Additionally, some people rely on wild fruits and cutting grass (that is used for thatching) for sell. All these are natural resources that are exploited from the environment. The strategies to adapt that are being employed by people, are not sustainable. Stream bank cultivation is anti-environmentally friendly. "This is because riverines are marginal ecosystems highly prone to environmental degradation" (Chanza, 2014: 245).

8.2.7: Family Remittances and Migration as a Survival Strategy.

The findings from this study reveal that Social Capital in the form of kinship relations and community interactions, are significant tools for promoting the capability of the community to adjust and successfully deal with disasters. Several families in Muzarabani have sent their daughters and sons to Harare, to look for jobs. This is also a source of income. Many women respondents said that they took their children out of school so that they can go to look for jobs. The majority said that their sons and daughters were working as childminders, housemaids or gardeners. Some of them are even working on farms where they are paid US\$20 per month. These are remitting money to their families so that they buy food.

Sadly, there were many cases of girls who were forced to go to the urban areas to look for jobs and they ended up resorting to prostitution as they found working conditions difficult for them. One of the girls died when I was actually in the middle of my field work and two of them have children but are not married and are HIV- positive. These girls are still under the age of 18. They went to Harare when they were 14 and 13 years old. Some who were fortunate enough are finding working conditions conducive for them and they are able to send at least US\$10 to their families. In addition, some parents are migrating to other countries to look for jobs so that they can remit back to their families. Some elderly people are also receiving remittances from their relatives who are working in urban areas. Some of the elderly relatives are in the rural area and they bring food to their grandparents. Furthermore, I have met with women who

frequently migrate into neighbouring Mozambique after the farming season and they come back on the onset of summer for farming. One of them said:

Coping with floods and droughts is difficult, my dear sister. My children are always on their own, with no one to take care of them because I am always absent. However, it helps me a lot because I can at least send them money to buy food and, when I come, we are able to buy food that can take us for at least four months⁹⁵.

Another respondent said:

Our twin sister sends us money every month, but it's not enough for our day to day living. She decided to go to look for a job so that we can have food to eat⁹⁶.

One respondent said:

My two daughters are in Harare and they send me money every month so that I can buy food. Had it not been for them, I could have died because these two years, we never harvested anything from the field and aid from the government and Non -Governmental Organisations is not enough⁹⁷.

The above explanations show that remittances play an important role in the Muzarabani residents' day to day coping mechanisms. Remittances from relatives are helping the majority of residents' in Muzarabani, including the most vulnerable.

Wodon et al's (2014) study on countries from the Middle East and North Africa (that is the rural areas of Algeria Egypt, Morocco, Syria and Yemen) revealed that migration is becoming a prominent coping strategy to weather related disasters. Relating this to the concept of resilience which is described as the "ability of communities to absorb external changes and stresses while maintaining the sustainability of their livelihoods" (Adger, Kelly, Winkels, Huy,

⁹⁵ A woman in a focus group discussion in Chadereka,

⁹⁶ A child head in a discussion during transect walk, 21 September 2016.

⁹⁷ Female head of household during a focus group discussion in Kapembere

and Locke, 2002: 358), the most vulnerable groups rely (to some extent) on remittances. Thus, the most vulnerable groups, just like others, are active agents “that influence their environment, anticipate and resist to future stresses and recreate themselves according to their motivations and capabilities” (Scheffran, Marmer and Sow, 2011: 2).

Heads of households sometimes migrate to other places to ensure that their children are food-secured. Scheffran, Marmer and Sow (2011: 2) further notes that:

new opportunities, resources and networks of migrants in the host regions can diversify household livelihoods, support climate adaptation and build social resilience in the regions of origin, partly compensating for initial resource losses. Capabilities and transfers of resources in migrant networks, including knowledge, remittances and return migration, can contribute to technical and institutional innovations in the home communities for climate adaptation, sustainable development and peace-building.”

A study by Scheffran, Marmer, Sow (2011: 4) in North West Africa, also revealed that most of the families among the Sahelians (who are also prone to droughts) relied on migration. “Most of the transnational Shelia emigrants remain in the African countries (called “South”); a smaller number migrate to the OECD countries (“North”). Remittances transferred home from countries with stronger economies are usually higher due to higher incomes and stronger currency” (Scheffran, Marmer, Sow, 2011: 4). Studies by Smit and McLeman (2006), Adger et al (2003), Tacoli (2011), Barnett and O’Neill (2012), McLeman and Hunter (2010), Agrawal and Perrin (2009), Rain (1999), Findley (1994: 544) and Gray and Mueller (2012), among others, revealed that migration is becoming an important coping strategy to disasters such as floods and droughts. Tacoli (2011: v) also found out that “migration has become an increasingly important aspect of rural livelihood strategies in the face of slow-onset climate change impacts such as desertification, soil degradation, variable rainfall patterns, and temperature changes in case studies in Bolivia, Senegal, and Tanzania.” Munaku and Chigora’s (2010) study in some parts of rural Zimbabwe revealed that residents relied on migration. Even though the elderly cannot migrate, they tend to depend on remittances.

Nevertheless, migration is a short term coping strategy that also requires people to come back when they are no longer able to work. When people migrate, nothing much will be done by the community to mitigate the impacts of disasters. In addition, the receiving area will also become

more prone to weather related disasters due to population pressure. Even though migration has its own loopholes, the most vulnerable groups in Muzarabani depend on it. For the majority to migrate and settle down in the receiving area, they sometimes need to have links with people who are quite familiar with the place. Without these links, it takes time for them to find work or a piece job. This shows that social networks play an important role in enhancing the resilience of the community to disasters like floods and droughts. One of the respondent said:

It is my friend who invited me to Harare to look for a job. I stayed with her for a month before I got a job. I was very happy to find a job. I worked for a full year and managed to raise US\$700 which I am using to start this small business. You can decide to migrate, but without anyone who shows you how to do things out there, you suffer⁹⁸.

Another respondent said:

Our neighbour sometimes gives us sugar, especially when her husband is from Harare. The husband also helped my daughter to look for a job. Since last year, I am receiving rice every month from her. Without this daughter, I would have died⁹⁹.

The narrations above indicate the role that Social Capital plays in enhancing the resilience of the community to disasters. Not every household has a relative who has migrated, but remittances are benefiting many people through friendship, connection and exchanges.

The study also found out that residents in Muzarabani help each other in finding a job. To a great extent, migration is playing a pivotal role in enhancing the resilience of the community to floods and drought impacts. Direct beneficiaries of migration are women who migrate, women whose husbands have gone to other places to look for employment, households with daughters who are working and those households with a breadwinner who is working in another country, place or area. Similarly, a study by Dumenu and Obeng (2015) on climate change and rural communities in Ghana, revealed that migration plays a pivotal role in disaster resilience.

⁹⁸ A woman in an interview during transact walks in Chadereka 27 September 2017

⁹⁹ A woman in a focus group discussion

“Remittances that were sent to families periodically helped to augment the household’s income in dealing with some of the climate change stresses that they experience” (Dumenu and Obeng 2015: 215).

The 20015/2016 drought in Muzarabani made people set aside their differences, enabled people to develop a strong sense of community and work together even though disasters are known to disrupt community fabric. Migration is very critical in Chadereka and Kapembere for the residents’ survival. Both the most vulnerable and the other members of the community are supplementing their food and income through migration. The majority are indirectly benefiting from migration. Those who have children or relatives who are outside are also assisting their neighbours with food. However, taking children away from school is not a sustainable coping mechanism. Some have become victims of HIV and AIDS as a result of resorting to prostitution when life in urban areas became difficult. Moreover, migrating to another place is not easy. Respondents said that one needs to have someone who is in the receiving area so that he or she can help with finding a job, providing accommodation and food for the first few days.

8.2.8: Short-term Strategies to Ensure Food Availability

Several strategies are being employed by the most vulnerable groups in both Chadereka and Kapembere. These strategies are ranging from eating *murara*¹⁰⁰, making food from baobab leaves, reducing the number of meals per day, sending children to other places for a short period of time as well as begging for food from neighbours. Some of these strategies have negative effects on the people’s health in the future. Some of them have already suffered from these effects. The majority of these people mix maize or sorghum grain with cotton seed from the government and get them grounded to make mealie meal. Cotton seed is treated with a strong chemical which is very difficult to remove and people just wash the seed to remove that green colour and then use the seed with their grain. They use the mealie meal to make bread and *sadza*. The elderly people said that they even buy cotton seed at a cheaper price from those who will have received it from the government. The government provides cotton farming inputs to the farmers. However, because of an increase in different types of pests (which is being caused by droughts) which affect the quality of cotton and the massive reduction of the cotton’s selling price, the majority are no longer interested in growing this crop. I also became

¹⁰⁰ Plants found in the river and people take it as cabbage. This *murara* is used to weave household goods (such as baskets) and hats.

a victim of eating *sadza* made from a mixture of cotton seed and maize grains. One of the respondent said:

To have food on the table, we are grinding cotton seed to make sadza. Sometimes, I send my children to see their father's relatives so that they eat for some days and when they return, sometimes they bring food. I have to tell you the truth, when my children go to their relatives I go to Chadereka Growth Point to prostitute and get money to buy sugar and flour and keep them for the children¹⁰¹.

Another respondent said:

Sometimes I send my grandchildren to some of our relatives in Centenary¹⁰². They bring food when they return. We are also eating cotton seed just like what the majority of the people here are doing. When things are bad, we resort to eating murara from the river as cabbage¹⁰³.

In addition to the above, one key informant interviewee said:

The vulnerable are coping the harder way. They are eating cotton seed, baobab tree leaves and sometimes they beg from their Village Heads. Some women and female heads of households are going to Chadereka Growth Point at night for prostitution to get money to buy food. There are different people from different places who pass through the growth point. Some of them come to my house to ask for food¹⁰⁴.

The above narration depicted some of the short term strategies employed by the most vulnerable groups to have food on the table. Some of the women and female heads of households are known for *kujamba maspeaker*¹⁰⁵. This is a type of dance they do to attract men

¹⁰¹ A woman in a focus group discussion in Chadereka, 06 May 2016

¹⁰² It is a small town that serves Muzarabani community

¹⁰³ An elderly man in a general discussion during my transact walks

¹⁰⁴ Key informant interview with Chadereka Ward Councillor, 25 April 2016

¹⁰⁵ Local name for radio dance (jumping speakers)

who will be at the growth point for business. Some women and female child-heads from Kapembere also go to Chadereka for these dances and prostitution to be able to get money.

Baobab leaves are prepared as Okra and some of the residents' legs are swollen as a result of eating Okra. Some of them are having one meal per day to serve the little food that they have. Begging for food from neighbours, as well as Village Heads and councillors, is very common in Chadereka and Kapembere. These coping strategies are mostly influenced by their low economic status. These strategies do not really require them to have more money at hand or to sell some of their assets. All the short term strategies are not efficient and sustainable.

Nonetheless, this coping strategy (income diversification) is not sustainable as some of the activities such as collection of wild fruits and collecting grass for thatching, are largely influenced by climate. When there is drought, quality thatching grass does not grow well. When there are floods, some fruits are washed away especially *nyii*. In addition, some of the activities such as firewood collection and those that involve the harvesting of natural resources, are not sustainable. They are intensifying the dilapidation and degradation of the environment.

8.3: Agricultural Adaptation and Coping Strategies by the Vulnerable Members of the Community

As shown above, I focused on non-agricultural adaptation and coping strategies. In this subsection, I am going to highlight agricultural strategies that enable the most vulnerable groups to ensure food security and livelihood security.

8.3.1: Conservation Farming and the Growing of Drought Tolerant Crops

With the help of Non-governmental Organisations such Red Cross, Help from Germany (in Chadereka) and World Vision and SAT (in Kapembere), as well as Agricultural extension Officers, vulnerable groups just like other members of the community, are practising conservation farming/agriculture (CA). In addition, they are also growing drought resistant crops. Conservation farming:

is part of a system of sustainable agriculture which is an agriculture that “over the long term, enhances environmental quality and the resource base on which agriculture depends; provides for basic human food and fibre needs; is economically, viable; and enhances the quality of life for farmers and society as a whole” (Weil, 1990: 127).

In simple terms, conservation agriculture is a type of farming that requires zero or minimal soil disturbance, permanent soil cover, and crop rotation. “CA tries to remove unsustainable parts [tillage, residue removal and mono-cropping] from the conventional agriculture system, thereby addressing most of the issues restricting yield increases” (Marongwe et al, 2011: 1). Most of the vulnerable groups such as the elderly women and child headed families, are practising conservation farming. When growing crops, they use a system called *Dhigaugute*¹⁰⁶. Under *dhigaugute*, they dig a hole where they want to plant a crop, they put organic manure and then when rains come, they grow their crops in each hole. Respondents said that the process works to their advantage especially to those without cattle to till the soil. One of the respondents said:

*To increase crop productivity, we are making use of the dhigaugute method. Crops that are grown under this method mature quickly. Nevertheless, the practice is too demanding and once you adopt that method, you should be ready to keep on removing weeds until harvesting time*¹⁰⁷.

In addition, one of the respondents added:

*The majority of residents here are practising conservation farming. We taught them to practice zero tillage, crop rotation, use of organic manure and intercropping. Even though we are experiencing droughts, some residents can at least harvest yields that can take them for at least four months*¹⁰⁸.

Although, vulnerable groups are not food-secured, they are at least trying their level best to practise conservation farming. This enables them to at least get food which they can supplement with grains from the government as well as from buying. This is also related to the findings that were established by Atuyambe et al (2016: 9). They established that “coping strategies employed by farmers to reduce the impact of landslides and floods in the Elgon region included

¹⁰⁶ Zero tillage

¹⁰⁷ A woman in a focus Group discussion with women who have stayed in area for more than ten years in Kapembere 25 May 2016

¹⁰⁸ Agricultural extension officer (key informant interviewee) at Muzarabani centre 21 September 2016

soil conservation practices and diversification with tree planting, contour farming, and terracing. These practices have been reported to be fairly effective in lessening the effects of shallow landslides and run off from floods". This means that people also adopt mitigation strategies that can also protect the soil. What facilitates this is the education they continuously receive from agricultural extension officers and NGOs. They are also encouraging each other to practice conservation farming. This confirms that Social Capital in the form of organisational cooperation and social relationships, can increase the resilience of the community to disasters. Support from the government and NGOs is also a form of Social Capital.

Zero tillage is very common in Muzarabani. The poorest people do not need oxen to pull the mould board plough to dig holes. The mouldboard plough has been shown to lead to high erosion and long term land degradation has been recently shown to be unsuitable in fragile soils of the tropics. In addition, farmers are also practising intercropping. This is the growing of two or more crops in proximity. They grow leguminous plants among other crops. The method improves soil fertility. The majority are growing groundnuts and pumpkin plants among sorghum and maize plants (though maize is grown in a smaller portion). Pumpkins mature early, around February when most of the families in Muzarabani will be eating pumpkins. Moreover, mulching is also being practised but not in their fields. The majority do mulching in their gardens where they grow vegetables. They are saying that mulching is difficult to practise in a large piece of land as it requires too much energy. The elderly, the women and child heads said that they do mulching in their gardens only. One responded said:

We are also doing mulching in our gardens so that our vegetables grow well, especially in August and September when the temperature is very high. In the fields, we do crop rotation, but not every year. To increase crop yields, we are also using organic manure that is cheap¹⁰⁹.

The above narrative shows that residents (including the most vulnerable) have knowledge on conservation agriculture. Crop rotation, as well as mulching, is being practised although the majority are not practising mulching in fields but in their gardens.

¹⁰⁹ Woman in a focus Group discussion in Chadereka 15 July 2016

In the same vein, I observed that most of the respondents are practising mixed farming where they keep goats, sheep and cattle and at the same time, growing crops. Some of the respondents sold all their cattle so that they buy food, but some people still have them. The Government of Zimbabwe is distributing maize and sorghum seeds that mature early. Help from Germany is also distributing grains to the people in Chadereka. Thus, most of them now grow crops that are drought tolerant. Some of these are locally called *tsoko*¹¹⁰, sorghum (*mapfunde*), pearl millet (*mhunga*), finger millet (*rapoko*) and *mukadzi usaende*¹¹¹. Thus, my study findings correlate with that from Bhatasara (2015) and Makame (2014). According to Makame (2014: 201):

About 18% of the farmers in Kikuyu Mbuyuni and 22% in Matemwe used fast-maturing varieties of maize; cowpeas and millet to cope with dry spells and variability in the onset of the rainfall season. It was reported during PLA workshops, for example, that farmers used maize seeds that can be harvested after 90 days and cowpeas that mature after 60 days. With regard to mixed farming, 38% of interviewed farmers in Kikuyu Mbuyuni and 28% in Matemwe used mixed farming to cope with poor soil quality.

Although a low percentage of the farmers were practising the above methods, residents in disaster prone areas are at least taking measures to reduce the impacts of disasters. NGOs and Agricultural Extension Officers' good rapport with the farmers is really influencing the adoption of CA, as well as the growing of drought resistant crops. AEO sometimes move around in farmers' fields, monitoring and evaluating, especially those who will have received grains from the government. Conservation agriculture leads to environmental conservation as well as enhanced and sustained agricultural production. According to African Conservation Tillage (ACT, 2011: 1), Conservation Agriculture (CA) plays a critical role in tackling food insecurity which mainly affects the African small-scale farmer. However, vulnerable groups are lamenting the late distribution of seeds as this affects their productivity.

8.3.2: Early Planting and Two Fields Farming

Most of the vulnerable members of the community said that they practice early planting in order for them to harvest. Early planting is when they grow their crops before the rains come so that when the rains come, their crops will already be underground. Early planting is also

¹¹⁰ Maize seed that is drought tolerant

¹¹¹ Type of a sorghum that do not need too much water.

known as dry planting. However, because of climate change which has resulted in the changing of seasons, early planting enables their crops such as maize to mature early before they are attacked by pests. In addition, the method is effective especially when the rains end early as the crops will already be matured by the time the rains stop. On a different note, this method is not always effective as some of the respondents observed:

To increase crop productivity, we are doing kuparira (early planting). Normally, we put our seeds down in the third week of October and by the time the rain comes, we will have already planted. However, it is not always a win-win situation. Sometimes we will have to replant because the rains come and our crops germinate and then we go for a month without rainfall. Even if they are drought resistant, they hardly survive¹¹².

Another respondent said:

Even though the method has disadvantages, I think it is helping us a lot. Crops like these small grains do not just die. Once they germinate, they will not die easily¹¹³.

Thus, early planting is also one of the local people's survival strategies in dealing with droughts. Although the method has its own loopholes, it is not causing any harm to the environment. It however, requires people to have money to buy seeds if their seedlings fail at the onset of summer. A study by Mtambanengwe et al (2012) in two districts in Eastern Zimbabwe (Wedza and Makoni Districts), found out that in both areas, people are trying to minimise risk and maintain crop productivity by practising early planting, inter cropping and growing of drought resistant crops. In addition, the most vulnerable groups have two fields where they can do the farming. The first field is the piece of land at home or near home and the other one is far away from home. So, if one field fails to produce, they can at least gain from the other field.

The method is tiresome and has led to an increase in land conflicts as well as environmental degradation. Trees are continuously felled down as the majority want to have two pieces of

¹¹² A Single head of household (male) during a focus group discussion in Kapembere ,23 June 2016

¹¹³ An elderly man in a focus Group discussion in Kapembere ,25 May 2016

land as a strategy to ensure food security in times of floods and droughts. During my stay, I also discovered that people would help their relatives to work in these fields. Thus, social networks and Social Capital are important tools for disaster resilience.

8.3.3: Zunde raMambo and Nhimbe

The majority of the vulnerable groups said that they used to rely on the *Zunde Ramambo* but from last year (2015), the system is no longer very effective in Kapembere due to acute food shortages. To remove weeds in their fields, people are using *nhimbe* so that weeds are quickly removed from their fields so that their crops mature and produce quickly. *Zunde Ramambo* is defined as “a traditional community safety net mechanism that protects vulnerable groups: widows, orphans, the sick, the elderly and those affected by unforeseen disasters” (Mapfumo, Mtambanengwe and Chikowo, 2010: 1). In the Muzarabani community, members had a piece of land in which they worked together as a community to produce food for the community (particularly the most vulnerable members of the community). One of the respondents said:

Some two years back, we used to rely on Zunde raMambo, but these days I do not know what is really going on. People are always fighting and sometimes we get seed much late in the summer season¹¹⁴.

Another respondent said:

In order to assist the most vulnerable groups in Muzarabani, we have been assisting the local people with seed and farming inputs so that they work together on a piece of land for the benefit of the vulnerable and other members of the community. This method was very effective in helping the most vulnerable. In fact, most of the community members used to benefit from this programme called Zunde Ramambo. The government is distributing grains and farming inputs to individual households to ensure food security, but they are still suffering from acute food shortages¹¹⁵.

One key informant interview also explained:

¹¹⁴ An elderly during a focus group discussion in Kapembere, 21 June 2016

¹¹⁵ Key Informant interview (The District Administrator), 27 September 2016.

Residents in this community benefitted a lot from the Zunde Ramambo but these days it's no longer performing well¹¹⁶.

In addition, one of the key informant interview said:

As the Chief, I make sure that I help the community members to run the Zunde Ramambo so that the most vulnerable people such as orphans, the disabled, the elderly and those who are sick, will be able to get food. The food is not enough but it helps them a lot. I work with Village Heads and their vices¹¹⁷.

The quotations above show that *Zunde Ramambo* is a survival strategy that is being used by the most vulnerable groups in Chadereka and in Kapembere. It is also helping the majority even though it is no longer effective. *Zunde Ramambo* is also a form of Social Capital form that can increase the resilience of the community to disasters. Similarly, Hooli (2015: 703) found out that the poorest people in Namibia had also adopted the *Zunde Ramambo* strategy as an adaption strategy to ensure food security in the face of floods. He found out that the poorest people relied on social security which he defined as the “storing of food in common storage and during the disaster distributing it to those in need” (Hooli, 2015: 703). Bhatasara (2015: 285) also found out that the *Zunde Ramambo* that was revived in 2007 in Charehwa in Mutoko, helped the vulnerable to deal with food insecurity.

Furthermore, droughts allow weeds to thrive and they give rise to a number of different types of pest. Some of these pests are controlled by removing the weeds early. For people to be able to remove weeds early, they said that they do hold a *nhimbe*¹¹⁸. Under *nhimbe*, people come together to complete a certain task; weeding or harvesting. As they will be working, they are given food to eat. The majority of the most vulnerable groups in both Kapembere and Chadereka, highlight that they go for *nhimbe* to eat. They do not get paid, but they are fed when they go for the *nhimbe*. Currently, the *nhimbe* practice does not work in favour of female child heads as they do not drink beer (locally known as *hwahwa*). Residents in Muzarabani are now brewing beer for those who come to drink. Those who do not take beer cannot go for *nhimbe*. The majority of the elderly in both wards enjoy this practice. One of the respondents said:

¹¹⁶ The chief Kapembere ward 25 September 2016

¹¹⁷ Chief Kasekete of Chadereka Ward at his Homestead, 25 September 2016

¹¹⁸ A local name of a certain practice whereby people come together to complete a certain task.

In summer, I rely on nhimbe. Sometimes I spend one week moving around the homesteads. I get drunk and I sleep there and if I hear that there is another nhimbe, I go until I get tired. Why should I rush home when there is no food¹¹⁹?

Another respondent said:

I sometimes take my siblings and go for the nhimbe. We normally do this when we have nothing to eat that day. But sometimes we do not go even if we do not have anything to eat. We just skip breakfast and lunch and then we prepare our supper early. Because sometimes people brew beer to be taken as food during the nhimbe, and as a girl, I cannot take beer with my siblings, no¹²⁰.

Thus, people are seen to rely on *nhimbe* sometimes. The *nhimbe* practice is a Social Capital aspect that is enhancing the resilience of the community, especially the most vulnerable group groups in Chadereka and Kapembere. However, *nhimbe* is not a survival strategy that people can rely on since it is not a continuous practice. Households only call for it when they have too much work to do, especially during harvesting, planting or weeding. The elderly cannot go and work, hence they are segregated from this *Nhimbe* practice. Economically, active single heads of households and child heads are the ones who participate in *nhimbe*. In addition to that, the strategy is not sustainable and effective for the most vulnerable people such as the elderly who are not able to do some other tasks such as weeding and thatching. Moreover, for the *nhimbe*, you cannot take the food home to share with the other family members and the practice is not done every day. *Nhimbe* does not continuously provide food for the family as it is a once off activity. It is not an effective method of ensuring food security.

8.3.4: Riverine Farming

Some of the more vulnerable groups in Chadereka are involved in riverine farming, which is the growing of crops near rivers. Some vulnerable groups (especially the elderly) are not involved in dual season cropping. However, the majority of respondents in Kapembere and Chadereka, have micro gardens. A micro garden is a small garden, normally known as a kitchen

¹¹⁹ An elderly in Kapembere during a focus group discussion, 25 May 2016

¹²⁰ Female child head during a focus group discussion, 9 August in Kapembere

garden, situated at home close to the kitchen where family members make one or two vegetable beds. They can use water from dishes to irrigate and only two buckets are needed to water them. This is helping most of the families to have food on the table. This type of farming is common only in Chadereka where flooding is very common.

Some of the vulnerable groups such as female heads of households, do not own a piece of land close to the river. Some of the child headed families are saying that their pieces of land were confiscated by some of the members of the community when their parents died. The issue of land has remained a problem. One of the elderly said that his piece of land that is close to the river, was taken by someone because he is too old to do farming. This also depicts that the elderly are more vulnerable to floods and droughts.

Dual season cropping is more popular in Chadereka and people grow maize known locally as *mudzedze*, okra, pumpkins and vegetables in winter. These crops are used to supplement their food as well as income to buy food. Some of the vulnerable groups in Chadereka depend on dual season farming for them to be food secure. The majority of the more vulnerable are also into gardening and they produce vegetables, okra and cucumbers for sale. These gardens are not very big but can help them survive. One of the respondents said:

We normally get seedlings from our neighbours or our grandmother to plant in the garden (dimba). Our garden is not very big, but just after summer, we make sure that we grow vegetables to eat and for sell to supplement our income¹²¹.

In addition, another respondent said:

If NGOs and the government pull off from helping us, I think we can survive in the first few years because of matimba¹²². From matimba, we get food and money at the same time. Uuum but no we will die because not everyone has such pieces of land. I can try to survive because my dimba is very fertile and I am busy planting and producing throughout the whole year¹²³.

¹²¹ A Male child Head during a general discussion in a transect walk in the garden in Chadereka, 15 August 2016

¹²² Areas where they do riverine farming

¹²³ Female head of the household during a focus group discussion in Chadereka, 29 June 2016.

The above narrations demonstrate that the most vulnerable groups in Chadereka also resort to riverine farming. From this type of cropping, they get food and money. Some vulnerable residents in Chadereka are getting good yields that are acting as a buffer against food shortages that are caused by droughts and floods. Some residents from Kapembere also travel to look for casual labour in Chadereka to work for food. The significance of Social Capital in disaster resilience, is also seen as community members support one another, as has been stated above. Some child headed families are supported by their neighbours or relatives by being given seedlings. Thus, riverine farming is very common in Muzarabani. During my stay in the area, I would see people rushing to *matimba* (areas near the river) to buy vegetables and green maize during winter. However, streambank cultivation is not a sustainable adaptation mechanism. Thus, people in the area will remain vulnerable to flooding which will be exacerbated by farming near rivers.

In line with the discussions on the strategies employed by the most vulnerable groups in Muzarabani, the majority of residents in Muzarabani rely on the government and NGOs. Data from questionnaire that was administered to the heads of households in Chadereka and Kapembere showed that people are mostly relying on support from the government, Non-Governmental Organisations and piece jobs as shown on Figure 8.3 below.

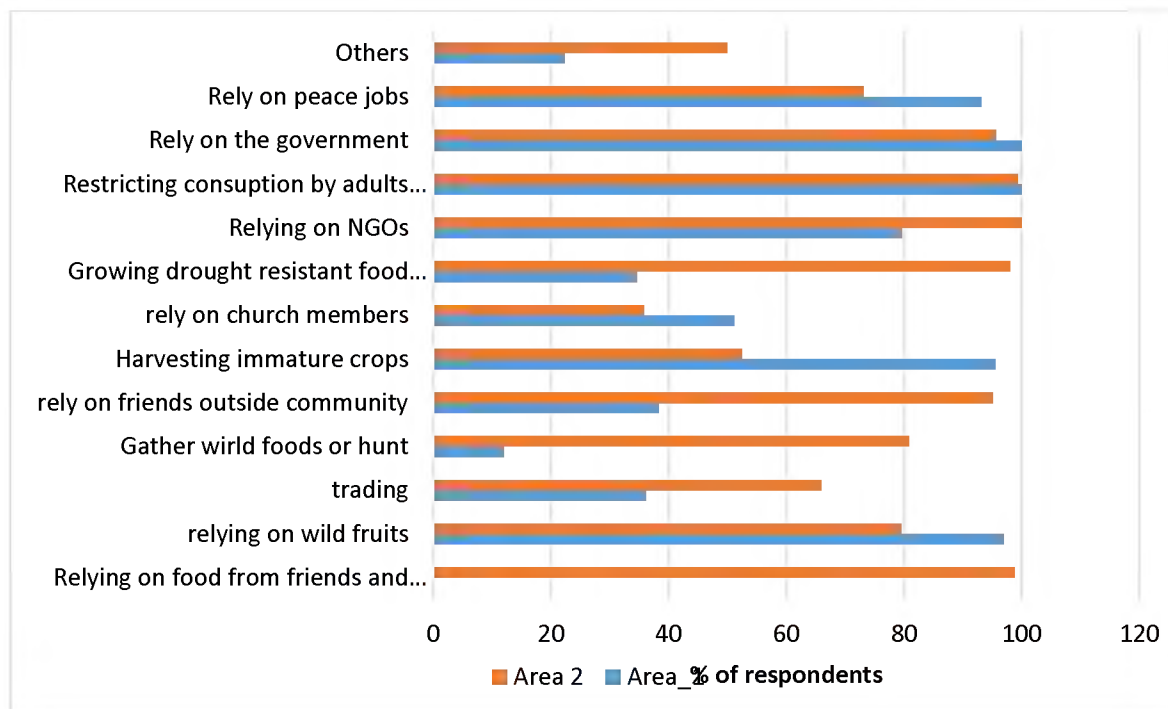


Figure 8.3 Source of Support
Source: Rosemary Kasimba

The graph above shows that the majority of households, including the most vulnerable groups utilize piece jobs. 93.2% in Chadereka and 73.1% in Kapembere said that they are relying on piece jobs. The discussion above also showed that Muzarabani residents rely on several strategies, but the support from the government and NGOs is very dominant. In the graph, 0% in Chadereka and 98.8% in Kapembere said that they rely on food from friends. This is not consistent with what I saw on the ground. The majority of people in both Chadereka and Kapembere, rely on their connections when they do not have food. Some do not rely on friends because they have gardens. 97% in Chadereka and 79.9% in Kapembere rely on wild fruits. Thus, the majority, as was also shown in qualitative data, showed that Muzarabani residents rely on wild fruits. 99.4% in Kapembere and 100% in Chadereka are also restricting consumption of food by adults to serve food in the household. This was also stated by the most vulnerable group as a coping mechanism. The majority of the Muzarabani residents (especially this year) are making adults skip having meals in their households.

8.3.5: Women and the Elderly, Indigenous Knowledge Systems and Food Security

My findings show that women and most of the elderly, employ traditional knowledge to ensure food security in their households. Women and the elderly said that they get seeds from their harvested crops. After harvesting, they take healthy cobs of the following crops; bulrush millet (*rukweza*), millet, sorghum and maize (pannar variety 473 or SC401 /SC407) and take the grains to be sown seeds. Most of these seeds are drought-resistant and inhabitants will harvest something to eat even if the rainfall received is very low. In addition, these indigenous crops are drought tolerant and resistant to pest and diseases. One of the respondents explained:

I am no longer buying seeds from shops but I do what we used to do long back. We normally select seeds from our harvest and keep them in a safe place where they will not be attacked by pests and diseases, especially our traditional crops like millet, rapoko and sorghum. We just select seeds from our harvest¹²⁴.

Another respondent said:

¹²⁴ An elderly woman in a focus group discussion in Kapembere ,25 May 2016

I am relying on preserving food in summer and my children will be eating that food later. We can also sell the food to my fellow community members. For instance, we are eating sadza with pumpkin leaves which I dried in summer. As a poor woman, you cannot sit on your hands (haugarire maoko-meaning you do not need to be lazy). You have to see what you can do to make sure you have food to give to the children¹²⁵.

In addition to the above, one respondent said:

Because floods enter into our food storage houses and droughts causes pest and diseases that affect our stored grains for food, we use four large stones and build a granary on top of them so that when flood water comes, it will not enter into the grains. To preserve the grains, we put gum tree leaves and sometimes ashes in the granary. These prevent the grains from being attacked by pest and diseases. Women have to make sure that they smear the granary with cow dung to prevent pests from entering¹²⁶.

The explanations above show that women and the elderly are making use of indigenous knowledge to make sure that they are lessen the impacts of floods and droughts .This is also in tandem with IPCC (2007: 1) AR4 Report which says that “in Southern Sudan, women are directly responsible for the selection of all sorghum seeds saved for planting each year”. Thus, “African women are particularly known to possess indigenous knowledge which helps to maintain household food security in times of drought and famine” (IPCC, 2007: 1). They do not buy groundnuts seeds, sorghum, cowpeas, millet and other small grains. Thus the women and the elderly are keeping on circulating traditional crops within the area and they have knowledge of how to preserve the seeds for future planting. These traditional crops and varieties withstand harsh climate conditions such as droughts.

Sorghum and bulrush millet are important crops as they can be used as an income generating strategy through beer brewing. Cowpeas are used to prepare ‘mutakura’, a nutritious meal comprising of a mixture of maize seed and cow peas or groundnuts, which is usually used to

¹²⁵ A woman in a focus group discussion in Chadereka, 29 June 2016.

¹²⁶ An elderly man in a focus group discussion in Kapembere,30 July 2016

supplement lunch and breakfast for the members of the household. In addition, millet is shelled and cooked as rice for breakfast and lunch. Shelled millet is also ground using traditional tools locally known as *guyo nehuyo*, with water and produce a thick liquid like cold porridge locally called *muperera*). The food is highly nutritious. This is done by able-bodied women because it requires a lot of energy. I observed women making *muperera* for their children.

Some women said they keep cattle that give them milk and they sometimes sell them to earn income. In addition, the elderly and women preserve food every season for the next season's use. In summer, they dry vegetables, including those that are found in the forest that are known as *tsongora*, groundnuts, and okra (*derere*). The process explained above is locally known as *kugadzira mutsutso*. In the process, they boil it and then spread them on a widely spread sack to allow them to dry in the sun for at least five days. After drying them, they put them in the sack, seal it and put the dried food in the granary (*dura*), where they store their maize. They sometimes keep these dried vegetables in their kitchens, if they do not have a *hozi*¹²⁷. To have a different taste, some of the vegetables and okra are just dried without being boiled.

In addition, women and the elderly preserve water melons, cucumber and pumpkins to be eaten later in the year. They put them in a hut that is not used for any other thing. They smear the floor of such a hut with clay mud and furnish it with cow dung. They then put them (water melons, pumpkins, cucumbers) in there and lock the hut. Some of these foods decay whilst in the storage. When eating water melons in summer, women preserve seeds which they will use to make food. The food is locally known as *musokonyo*. They add oil when they pound them.

Muzarabani is very hot and in spring (a period just before the summer season), most of the gardens will be drying up and residents will be relying on eating preserved food. The majority of the women know how to preserve food. The process also allows cucumbers to reach a point where they will be giving a very palatable taste. The stage is locally called *mbonena*. Thus, women and the elderly keep and circulate traditional crops within the area. They have knowledge of how to preserve the seeds for future planting. These traditional crops and varieties withstand the harsh climate conditions such as droughts.

¹²⁷ Traditional individual granary where crops are put (locally known as *Matura*). The house is built on top of four large rocks and it is partitioned so that different types of food can be stored.

The women and the elderly also collect and store fodder to feed their cattle in winter. The fodder is mixed with salty cream like soil found near the river banks. Sometimes the fodder is mixed with salt, locally known as *sauti yemaburungwa*. They do this so that their cattle, goats and sheep will have enjoyable palatable food that will promote strength and growth. During winter and spring, they fetch water for their animals to drink at home whilst at the same time giving them stored fodder. The elderly have to hire people who can fetch water for their cattle and these people are given milk or any type of food that these elderly people will have preserved.

The methods explained above are environmentally friendly. Thus, the study concurs with the findings of Agea, Luganwa and Kambugu (2008: 70) in Masaka District of Central Uganda. These found out that IKS play an important role in enhancing food security. Kamwendo and Kamwendo (2014: 100) also found out that IKS embedded in women, ensured food security in households in Kenya. Matsa and Manuku (2013) and Akpabio and Akankpo (2003: 50) found out that IKS embedded in local communities ensure food security. These study findings have also shown the role of Social Capital and social networks in enhancing the resilience of the community to floods and droughts. The young generation also learns from their elders on how best they can ensure food security in an era where floods and droughts have become prevalent. “In the traditional Zimbabwean set up, people adopted a number of strategies to address both chronic and transitory food insecurity and to lessen the impact of droughts” (Chirimuuta and Mapolisa 2011: 54). Furthermore, “with the assistance of the Indigenous Knowledge Systems, the traditional African societies managed to cater for the dietary needs of their households for longer than the natural seasons would have allowed them” (Chirimuuta and Mapolisa 2011: 55). According to Kamwendo and Kamwendo (2014: 100), “This body of indigenous knowledge and initiatives ensured that food is kept well so as to avoid wastage. The food is stored for future use. This was used as a buffer for disaster-preparedness, allowing food access by the household anytime it is needed.” IKS embedded in the local people (especially the elderly), as has been shown in the above discussion, is also passed on to the younger generation so that they can successfully cope with floods and droughts. Thus, the study shows how Social Capital enhances the ability of the community to respond to floods and droughts in Muzarabani.

In addition to the above, residents in Muzarabani, including the elderly, make use of the indigenous knowledge systems to predict the occurrence of floods and droughts so that they take corrective measures to increase crop productivity. Droughts have become incessant and

are now common. When the elderly see birds locally called *Sinamurove*, they know that the rains that are coming are good enough to grow crops since the seasons are changing. Nevertheless, the majority of the people in the community criticize the use of indigenous based weather focus in determining the occurrence of floods and droughts due to the faulty nature of these methods. The elderly indicated that they observe the behaviour of certain birds, known as *Mashuramurove*, that stroll around during the onset of summer and certain tree species such as *hakwa* and *matondo*, to predict events like floods and droughts. One elderly respondent explained:

If we see Mashuramurove moving every day from one place to another in the atmosphere around November/December, or if there are many of the hakwa fruits that season, we can tell that there will be much rain with the potential of causing floods. If there is lots of matondo fruits in the rivers at the onset of the summer season, we know that there will be little rainfall. If there are a lot of hakwa, we normally advise people to move to the upland and not to grow crops in the areas that are close to the river¹²⁸.

Another respondent said:

We are making use of our traditional knowledge because meteorologist have always been misleading us. If we see the munanga¹²⁹ tree recuperating or sprouting its leaves earlier around September, we know that we will receive rains early and we do dry planting. With dry planting, you will not go wrong.

Another respondent explained:

When there are too many cutworms, people know that there will be little rainfall¹³⁰. When we see butterflies shifting from the west to east, it shows that rainfall is near.

Moreover, another respondent stated:

We give them early warning systems, but they normally trust their traditional knowledge to foretell the occurrence of floods and droughts. Some of the

¹²⁸ An elderly during a focus Group Discussion in Chadereka 30 July 2016

¹²⁹ *Acacia nigrescens*

¹³⁰ A key informant interview , 25 September 2016

elderly people study the behaviour of insects (ants, frogs and birds that appear and fly on stones indicating coming of rains) and animals to predict. I am not sure as to how some of these do it because they also interpret the stars and the moon to predict rains. The direction and the prevailing wind is also used by the elderly in this community to determine the occurrence of floods and droughts. As government officials, we try our level best to give early warning system basing on information from our MSD¹³¹.

The above explanations show that people still make use of their traditional knowledge to predict the weather. The majority of the elderly people are saying that when there are too many cutworms (locally known as *nhowa*), it means there will be little rainfall. However, child heads did not mention anything to do with the use of indigenous knowledge in predicting the occurrence of floods and droughts. Thus, age has also a bearing on local people's drought and adaptation strategies. The study's findings show that the elderly are adopting Afrocentric approaches in coping with floods and droughts. Dei (1994: 3-5) said the "Afrocentric approach is a perspective that calls for the validation of African experiences and histories." My study findings concur with those found by Chirimuuta and Mapolisa (2011), Matovanyika (1995), Alvera (2013), Ajibade and Shokemi (2003) and Roncoli et al (2001). Their findings revealed that adoption of indigenous knowledge systems ensured food security in different ways.

A study by Hooli (2015: 703) on *Resilience of the poorest: coping strategies and indigenous knowledge of living with the floods in Northern Namibia*, also showed that the people relied on IKS in their adaptation strategies. Hooli (2015: 703) notes that:

Locals had limited access to any formal weather forecasting, and thus, the IK was used to predict the weather, which was the key element in the coping method of the communities. Local communities accumulated IK over generations, and their livelihood was reliant on their capacity to observe and interpret nature by following different events in their local living environment"

¹³¹ A key informant interview with a member of staff from the Meteorological Service Department

Kangalawe et al (2011: 215) also found out that the people in the Great Ruaha River Catchment Area make use of IKS to predict the coming and the nature of rainfall to be received. The use of IKS indicates that the community is becoming resilient to floods and droughts as the method is effective and efficient.

8.4: Hiring Out Household Assets as a Livelihood Strategy

The most vulnerable groups such as child-headed families and single headed households said that they sometimes rely on hiring out their cattle and scotch carts. This is very common in Chadereka which is far away from Muzarabani centre. For people to travel from Chadereka to Muzarabani, they need transport, but there are rarely cars that travel that route, especially in summer. The scotch cart is needed by people to carry food, take the sick to the hospital, in cases of emergency and sometimes to ferry food aid from Muzarabani centre when trucks cannot proceed to these wards during the rainy season. Only households with scotch carts, cattle or donkeys can do so. Some of the households go to Kaerezi which is approximately 50 Km from Muzarabani centre, to collect people who will be waiting for the bus at the centre. They charge US\$3 per head. One of the respondents said:

Sometimes we go as far as Kaerezi to collect people who want to get buses to Harare or St Albert's. If I do three trips per week, I know we will be able to buy food for my siblings. Sometimes we are hired here in Chadereka¹³².

Another respondent said:

During the rainy season, specifically the onset of summer, we hire out our cattle to provide draught power to other community members and neighbours. We then use the money to buy farming inputs, food, and soap. Sometimes we use it for emergency purposes¹³³.

One elderly man also said:

Now, I am left with only four cattle and I sometimes give them out to some of the community members to use for a certain period of time so that I get money

¹³² Male child head during a focus group discussion in Chadereka ,29 June 2016

¹³³ Female Child head during a focus group discussion in Kapembere ,8 August 2016

to buy food. The other one is about to give birth and I know I will be selling milk as usual.

The above explanation shows that hiring out cattle and some other assets is a survival strategy that is being adopted by the most vulnerable groups in Chadereka and Kapembere. Paul (2011: 52), in his study in Malawi (in Kaunda village), found out that “oxcart hiring to other rural community members as a means of livelihood had been a supportive livelihood in times of drought and crop failure”. This shows that “assets are important for the poor because they can help them cope better with shocks, including climate shocks and the longer term impacts of climate extremes” (Goh, 2012: 1). In addition, a study by Biskup and Boellstorff (1995) in Mexico, showed that prolonged drought exacerbated the suffering of unmarried and widowed women with children and they resorted to the selling and hiring out of livestock. Hiring out assets is facilitated by Social Capital and it is done successfully when you trust the people whom you are dealing with. Some people in Muzarabani ended up abusing their neighbours’ assets such as livestock and they would end up settling the dispute in village courts. The most vulnerable people hire out their livestock and other assets such as the mould board plough to the people whom they trust and to those whom they have been dealing with for more than five years, without encountering some challenges.

Moreover, the elderly cannot move around herding cattle. Therefore, they give neighbours or relatives their cattle to look after them. They will be given milk and whenever they need draught power, they ask the person who will be in charge of them. Some of the elderly people set their cattle free just after harvesting so that they move around looking for food. When summer is approaching, they look for someone to take them back home. However, this is posing some challenges as some community members are ending up herding some of these cattle to the neighbouring country and sell them. In addition, giving cattle to relatives is also causing problems as people who are given the cattle take advantage of them and they abuse them. One of the respondents said:

My children went to Masvingo and my wife and I cannot look after the cattle. So, we lend them out to our neighbours. We do not pay them but they also use them for free¹³⁴.

¹³⁴ A female elderly in a focus group discussion in Chadereka, 07 July 2016

Another responded said:

I am old enough to herd cattle although they are a source of our food. After the harvest, I set them free (kusaidzira) for about seven months or eight (From April/May-October /November). I then hire someone who can bring them home. When I take them home, I find someone to look after them. The person can also use them, but I do not pay him¹³⁵.

In addition to the above another respondent said:

Our cattle are dying due to shortage of food. Long back, pastures were all over, but we have to travel with our livestock so that they get food. I have hired an orphan who is herding them and after three years, I will give him a heifer¹³⁶.

The explanations above show that the droughts are making the elderly more vulnerable. However, the elderly are taking strategies that enabled them not to lose their livestock. The elderly are saying that when droughts were not common they would herd their cattle in the village and now it is difficult because there is nothing in the village. The system of lending and hiring people to look after the cattle is part of the Social Capital processes that also involves mutual trust and understanding.

8.5: Stealing and Doing Nothing as Survival Strategies

The findings from this study show that few residents in Muzarabani are doing nothing as a measure to counteract the negative implications of floods and droughts. I have seen people who rely on government food hand-outs that are not constant. To some extent, aid creates what is called a “dependency syndrome”. Some residents keep relying on help from outside. I also observed that the dependency syndrome is also culminating as a result of poor markets and shortage of water, especially in Kapembere. If people want to grow vegetables, it is difficult for them because there is no adequate water. Even though MeDRA had built some boreholes, they are not enough and some people are too far from them. In addition, those who are willing

¹³⁵ A male elderly in an interview during transaction walk in Kapembere, 03 October 2016

¹³⁶ A male elderly during a focus group discussion in Kapembere, 25 May 2016

to practice trade do not get many customers as the majority are very poor to buy goods. Some of the people do not even have cattle to hire out and they do not have land near the river to practice dual farming. There are some who are considered as foreigners (*vauyi*) and these do not have easy access to some of the community resources. However, during focus group discussions with women and child heads, some respondents stated that they sometimes survive on stealing. When asked to mention what they steal, none of them were to the point, but some would say *zvinobika mukati imomu* (meaning there are little things that are easier to steal). During my stay in the field work, there was an increase in the number of cases of theft of chickens, goats, sheep, stored food and cattle.

8.6: Polygamy as a Survival Strategy

Some single heads of households are entering into polygamous marriages as a survival strategy. Very few of the female heads of household said that they enter into polygamous marriages. They said that they get married to a man whom they know is a hard worker and is always out of the community to earn a living. They said that the marriage is based on negotiation and the bride price (*lobola*) is not paid. The wife does not have to relocate, but the husband pays a visit at night (*Kuparika*). Children are born out of this marriage. The husband brings money and sometimes food to the wife. In addition, when a wife bears a child in this marriage, she is entitled to make use of the husband's assets such as cattle. Some of the respondents said:

Uuum, coping nowadays on your own as a female head is difficult. I tried everything but nothing came out of it as my children kept on suffering from hunger. I have resorted to getting married to a man who is already married and things are going on well now because he looks for food and he gives me money to buy food¹³⁷.

Another respondent said:

I have resorted to be a third wife of a prophet. He gives me food and money. Sometimes he brings rice and cooking oil from Mozambique. I can sell some

¹³⁷A woman is a focus group discussion with single heads of households in Chadereka, 29 June 2016

of the groceries to my friends, sometimes, so that I get money. He is the one who buys agricultural inputs during the farming season¹³⁸.

In addition, another respondent said:

I do not want to lie, my little sister, I am using my body assets (vagina) to survive. If it were not for that, I would have buried my children. My home is a home of poverty and hunger which are being caused by droughts. Using my assets is the only option that I have. I do not care whether the man is married or not. What I want is money or food¹³⁹.

The above narrations show that women are entering into new forms of marriage as a survival strategy. Under this type of marriage, it is optional for the husband to pay lobola. What women want is food and money to survive. “Because women are the main providers of food and meals for their families, women may bear a greater burden to fulfil this task when climate events occur” (Goh, 2012: 9). This burden is the one that is also contributing to an increase in the number of the women who are entering into prostitution and polygamous marriages. The women remain in full control of the house and the husband is there to assist and he enjoys his conjugal rights as usual. During my stay, I also saw women fighting at the borehole over a husband. Culturally, this type of marriage is considered as prostitution, but because it has become common, residents in the community are now taking it as normal. This is all because of the acute food shortages that are being caused by the weather related disasters such as floods and droughts. Women make a cost and benefit analysis to enter into such type of marriages.

I also observed that some of the marriages are in shambles because of such type of marriages that are emerging. However, it is only a few numbers of the women who are entering into such types of marriages. Some of the women make use of their genital assets so that they have money and food to feed their children. It is not by their choice, but by situation. They do it due to the situation created by floods and droughts. A study by Morsberg and Erickson (2015: 545) also found out that prostitution was “another fairly common coping strategy, but it was prohibited according to Kenyan statutory law”. Thus, “illicit strategies are, however, also in part an arena where people assume authority and control over their own circumstances and resist rules of

¹³⁸A woman in an interview during a transact walk, in Kapembere, 03 October 2016

¹³⁹A woman in an interview during a transact walk in Kapembere, September 2016

what is socially acceptable or not” (Morsberg and Erickson, 2015: 545) . Similarly, a study by Omolo (2011) among the Turkana in Northern Western Kenya also revealed that women engaged in prostitution as a result of climate change survival strategy. Key informants said food shortages created mainly by droughts in Muzarabani were fuelling prostitution and high divorce rate. This calls for the feminist informed sociological research in Muzarabani that sheds light on the gender dimensions of floods and droughts in the area. This scenario also led me to conclude that any flood and drought intervention programme that excludes gender analysis is half baked, unsustainable and bigoted.

8.7: Healing and Foretelling as a Survival Strategy

Some people survive on gifts from people they heal and also foretell their future. I am not sure whether the foretelling and healing is true or false. Some of the elderly women and men respondents say that they are traditional healers and some say that they are prophets. Whatever it is, people are relying on gifts from the people whom they say they have helped solve their spiritual problems. These strategies did not come from a large number of people, but only a few said so. Some of the respondents said:

I am a fortune teller and a healer. I know how to sort out women so that their marriages will not get into shambles. So, these women bring food and some bring money. I do not charge them. They just bring whatever they want as a token of appreciation¹⁴⁰.

Another respondent said:

I am a healer of so many diseases. I also heal people who are traumatised by evil spirits (*ngozi*). I also help girls who have passed the age of marriage but are not married. I give them herbals and they get married. I also help couples solving bedroom issues that affect their marriage¹⁴¹.

Another respondent said:

¹⁴⁰ An elderly woman in a one on one discussion during transaction walk in Chadereka.

¹⁴¹ An elderly man during a focus group discussion in Kapembere ,21 June 2016

I am a prophet and I am well known. I help people for free and when they discover that I have helped them, they come with tokens of appreciation. Most of them bring rice, cooking oil, money or even a goat¹⁴².

Thus, foretelling people about their future and healing them has also become part of survival livelihood strategies by some vulnerable members of the community. The majority of the people in the area believe in the existence of evil spirits from enemies, relatives and their neighbours and whenever they have a problem (sickness) which they really do not understand, they seek spiritual help from fortune tellers. It was not the aim of the study to examine whether people were being told the truth or not, but the study found out that some of the people are relying on fortune telling and healing. People in the community refer each other to fortune tellers and healers. Some people who consult fortune tellers and healers even come from as far afield as Mozambique, a neighbouring country, after being referred. Thus, social interaction of this nature enhances the capacity of certain households to deal or cope with the negative impacts of floods and droughts.

Theft, fortune-telling and snatching other people's husbands are fuelled by the shortages of food and the poverty in the area. Thus, focusing in the behavioural approach to disasters and as explained by Smith (1996: 305) "hazards and disasters are challenges to the social structure and organisation of the society". The approach "focuses on the behaviour of individuals and groups in various stages of disaster impact and aftermath" (Smith, 1996: 305). Although there are so many factors that contribute to people's behaviour, droughts and flood effects in Muzarabani are magnifying behaviours that destabilise the community. The above mentioned local people's initiatives and strategies to deal with floods and droughts fit well in the central tenants of the Actor Oriented Approach that was propounded by Long (1992). The thinking on the role of local capacities and people's coping mechanisms has sociologically been influenced by debates on actor orientation and the role of agency" (Frerks et al, 2011: 110). Long (2001: 16) notes that the notion of agency attributes to the individual actor the capacity to process social experience and to devise ways of coping with life, even under the most extreme forms of coercion. Within the limits of information, uncertainty and other constraints that exist, social actors possess knowledge, ability and capability. They attempt to solve problems, learn how to

¹⁴² A single head of household during a focus group discussion in Chadereka 19 June 2016

intervene in the flow of events around them, taking note of the various contingent circumstances. Thus, Actor Oriented Approach is concerned with how different individuals and social groups interact and develop strategies that help them deal with encountered predicaments.

The local people in Chadereka, particularly women who formed a support group, pool their resources together to help the most vulnerable people in their society. Additionally, working together as a community shows that social actors are not seen as simply passive recipients but strategist who negotiate with other actors to improve their condition. The local residents in Muzarabani are making use of their agency by employing several strategies that enable them to survive during and after a disaster. Accordingly, “literature on disasters is recognising agency in the growing emphasis on people’s capacity and local coping mechanisms that people employ to survive” (McGilvray and Gamburd, 2010: 149). By the same token, findings from the study showed that Actor Oriented Approach can be combined with Social Capital for successful implementation of disaster risk reduction strategies which translate to disaster resilience. Bartlett and Satterthwaite (2016: 35) contend that an “actor orientated approach performs a number of important functions. First, it constitutes a human centred approach to environmental change. Second, it ensures that vulnerable groups are not portrayed simply as passive but as active agents”. This is shown by the women in Chadereka who have formed a club that assists them as well as other vulnerable members, such as the elderly and children in the community, with food. Besides, the existence of *Zunde Ramambo* in both Kapembere and Chadereka, depicts that residents are not passive recipients in disasters.

Measuring resilience of the community is not an easy task, but several toolkits have been developed by scholars and researchers. The study findings featured well in the Communities Advancing Resilience Toolkit (CART), which is a holistic programme for measuring community resilience. This toolkit was developed by Pfefferbaum et al (2013). Parsons et al (2016: 3) note the “CART has four domains that form the basis of resilience and these are connection and caring, resources, transformative potential and disaster management”. All these domains are being exhibited by the local people in Muzarabani although they encounter some challenges in implementing strategies to deal with floods and droughts. Social networks and Social Capital are helping the most vulnerable groups in Muzarabani as has been presented and discussed. The local people were also seen to be making use of the resources available, such as IKS, to reduce the impact of floods and droughts in the area. Conservation farming is also a

transformative potential that people are adopting to reduce the effects of droughts. Several disaster risk reduction strategies have been adopted by residents, the government and NGOs in Muzarabani.

8.8: Conclusion

This chapter discussed coping and adaptation strategies that are being employed by the most vulnerable groups of Muzarabani residents. My findings show that the role played by Social Capital in enhancing the ability of residents to cope with floods and droughts is crucial. The most vulnerable groups in Muzarabani are active recipients who use their agency to deal with constrains. The chapter also looks at the basis of people's resilience to floods and droughts. Muzarabani residents predominantly depend on their social networks, different forms of help from the government and NGOs, IKS, exploitation of natural resources, and the selling of assets (those with more cattle, goats and sheep), casual labour and migration. Most of these strategies are promoted by Social Capital. Thus, Social Capital is vital when it comes to flood and drought resilience in Muzarabani.

CHAPTER 9

DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS

9.1: Introduction

The key findings of this study are presented in this chapter. The chapter also provides conclusions on the role that Social Capital plays in enhancing the resilience of the local people to floods and droughts in Chadereka and Kapembere of Muzarabani. The types of Social Capital that exist in Muzarabani are also discussed. Conclusions are made pertaining to the main adaptation and coping strategies used by the most vulnerable people and their implications on community institutions. It also makes an assessment of the strength and weaknesses of the adaptive measures in terms of effectiveness, efficiency, relevance and sustainability. The chapter also provides a sociological analysis of disasters in relation to gender and age and possible theoretical contributions of the study to existing sociological theorising on Social Capital. Ultimately, key recommendations, limitations of the study and areas for further investigations are presented.

9.2: Key Findings

The study examined the role of Social Capital in enhancing community resilience and adaptive capacity to floods and droughts. To achieve the results, I was guided by the research objectives. The overall research objective of this research was to understand the role of Social Capital in enhancing community resilience and the adaptive capacity of residents to natural disasters.

Sub-objectives were as follows:

- a) To understand the effects of floods and droughts on residents' livelihoods and food security and examine residents' perceptions of droughts and floods.
- b) To document the community-based strategies utilised by women, child-headed families and the elderly to improve their livelihood and food security in the face of floods and droughts.
- c) To explore the different types of Social Capital that exist in the study area especially with regard to household resilience to disasters.
- d) To comprehend the basis of residents' resilience to floods and droughts and the extent to which vulnerable groups rely on Social Capital when coping with these disasters.

- e) To examine the repercussions of residents' strategies on the community's institutional structures.

A detailed examination of the effects of floods and droughts on the community and the strategies that community members employ on a daily basis prompted my quest to understand the role that is played by Social Capital and social networks to enhance the resilience of the community.

The study found that floods and droughts are threats to human security in Muzarabani. Floods and droughts have primary and secondary consequences. Floods are causing food insecurity and the spread of water related diseases. In addition, droughts are also causing food insecurity, reduced livestock production and human ailments, such as the headaches, among others. In the case of rain-fed agriculture, drought always results in crop failure, "a decrease in the yield of food grains, horticultural crops and livestock production which weakens the income of agrarian households." Umdaleet al, 2014: 255). These lead to extreme poverty and related problems such as children dropping out of school, reduced academic performance by children in schools, early marriages, high divorce rate, and, a shortage of local casual labour among the inhabitants of the area.

The study also found that floods and droughts disrupt Social Capital in the community and this renders people vulnerable. Family and kinship disintegration and conflicts (tension among the people) that emerged during Food Relief Programmes damaged some people's social resources and this reduced their capacity to adapt successfully to disasters. This is similar to the results of a study by Tobin-Gurley et al (2010) of Hurricane Katrina. They found out that single mothers had faced slower recovery after the displacement and loss of social resources.

The study found that linking, bridging and bonding social capital play different roles in enhancing the resilience of the community to natural disasters. Generalised reciprocity, social networks and norms of trust promote the mutual understanding that has resulted in people developing a sense of community ownership and belonging. Community members are able to support each other in different ways. Continuous droughts in both Kapembere and Chadereka, have made people understand the need for them to pool their resources, to be innovative and creative so that they can survive. Furthermore, generalised reciprocity facilitates the exchange and borrowing of food among neighbours in the village. This is also borne by the Shona

proverbs *Kandiro kanoenda kunobva kamwe* (A plate goes to where another plate comes from), *Chara chimwe hachitswanyiri inda* (One finger by itself cannot squash a louse) and *Rume rimwe harikombi churu* (One man by himself, no matter how big he is, cannot surround an anthill). The Muzarabani residents of Chadereka and Kapembere practically enact these proverbs in their day to day lives and transactions and interactions with others.

Volunteerism, which is also a component of Social Capital, plays a critical role in Chadereka. There are trained Red Cross volunteers in Chadereka from where the concept is spreading to neighbouring communities in the district. Volunteers are becoming more like ward social workers employed by the government. In Chadereka, volunteers visit the households of the most vulnerable people, discussing with them the most pressing issues concerning disasters. They write monthly reports which they submit to the Red Cross who, in turn, submit a copy to the District Administrator. The volunteers also work with nurses in clinics. They also actively participate in the implementation of programmes meant to increase the resilience of the community to disasters. Word of the good work done by the volunteers in Chadereka is spreading and the majority of the people in Muzarabani are now informed and persuaded on the importance of helping without expecting a reward. Social Capital of this nature shows that active participation of community members themselves. That is, community members like volunteers, enhance the smooth flow of disaster management activities that are implemented by NGOs and the government.

NGO intervention in the community enhances the ability of the community to deal with floods and droughts. NGOs such as the Red Cross and Help from Germany (in Chadereka) and MeDRA (in Kapembere), implement programmes to strengthen the livelihoods securities of the villagers in the face of floods and droughts. The Red Cross has rehabilitated hitherto broken-down boreholes in the community. The rehabilitation of the boreholes has proven to be beneficial for most women in Chadereka, who no longer have to walk long distances to fetch water. In addition, the rehabilitation of the boreholes has a trickle-down effect in that households now have access to clean water, a development that has also reduced the spread of water-related diseases during the rainy season.

NGOs, such as SAT and Help from Germany in Kapembere and Chadereka, are continuously disseminating information about climate change and its impacts. These organisations also distribute small grain seeds to the residents as a way of encouraging them to grow drought

resistant crops. The NGOs are also partnering with the government and community stakeholders in their day to day operations to address the people's needs pertaining to the occurrence of floods and droughts in the area. MeDRA is implementing several projects such as gardening, piggery, small livestock rearing (such as goats, sheep and road-runner chickens) and gardening, and large livestock such as cattle for the benefit of large numbers of community members. MeDRA built a borehole to facilitate irrigation in Kapembere. These projects run by certain members of the community, are now being emulated by other residents who have adopted the same in their households. Livestock rearing provides cash incomes since the livestock can be slaughtered and exchanged for food which family members can eat as well. This shows that linking Social Capital is playing a crucial role in enhancing the resilience of the community to floods and droughts

The community is not strongly resilient to floods and droughts, but through Social Capital, residents are able to deal with the impact of floods and droughts at a certain level that enables them to have at least one meal per day. The study established that Social Capital is critical in disaster resilience. Livelihood and food security are supported by different components of Social Capital such as generalised reciprocity and trust, mutual understanding, social networks, interpersonal relationships, kinship, community cooperatives, volunteerism, collective efficacy, neighbourhood relationships, stakeholder interaction, and support from NGOs and government among others.

In addition to all this, the most vulnerable people said that they rely on livestock breeding for their sustenance. They get milk from goats and cattle and which they sell to raise school fees for their children and to buy food including such items as rice from Mozambique. The most vulnerable people also hire out their livestock to people they trust thereby getting occasional incomes from the transactions. They also get meat and manure from these domestic animals. In Muzarabani, a household without livestock, even if both parents are alive and active, is considered vulnerable. While households do earn something from their livestock, the acute food shortages are made more threatening because many of the people lose most of their livestock through selling them at unreasonably low prices. The livestock sales enable households to then buy food. Over and above the floods and other problems, frequent droughts cause numerous livestock mortalities due to shortages of water and food and the high spread of diseases. All these activities are facilitated by social networks and the trustworthiness among

members of the community and this shows that Social Capital is a critical resource in disaster resilience.

Social Capital exists in different forms and individuals in the community require individuals to be affiliated to certain groups (community relationships and kinship) where they directly get help as the need arises. Community relationships and kinship are components of Social Capital that are also helping people to increase their resilience to floods and droughts. Migrating to another place to work for food or money is made possible by the existing relationships in a community. Residents disseminate information on contract employment opportunities that arise in different areas. Residents also help each other in the receiving areas with food and accommodation during the first days on arrival in the area. Furthermore, emigrants remit food and money to help relatives and family members remaining behind. Other community members and neighbours benefit indirectly from these remittances. They borrow food or they are invited to do a certain task (hoeing, moulding bricks, and fetching water and so on) and get paid in money or food.

Women and the elderly have adequate knowledge of Indigenous Knowledge Systems that also ensures food security. Indigenous Knowledge Systems enable the local people to predict the weather and the occurrence of floods and droughts so that they then preserve and store food as well as the growing of drought tolerant crops. IKS is spread among community members through social interaction, socialisation and community relationships. This confirms the idea that Social Capital is a crucial resource in the enhancement of disaster resilience and adaptive capacity.

One of the goals of the research was to explore different types of Social Capital existing in Muzarabani. The study found that there is linking, bridging, bonding and victim Social Capital existing in the area. All of these types of Social Capital are very common and they are playing different and complementary roles that enhance the resilience of the community to climate change and floods and droughts. The study established that bonding Social Capital in Muzarabani enabled individuals to receive immediate aid, receive warnings and to undertake disaster preparation. This finding is similar to the one by Tse, Wei and Young (2013) in China where households with larger Spring Festival networks (a social network that meets for yearly celebrations) “increased the likelihood that the household would rebuild their home after the

2008 earthquake” (Sadaka et al, 2015: 44). In addition, my research confirmed that the most vulnerable groups of people in Muzarabani rely on Social Capital for their day to day survival.

This study found out that new forms of marriage are emerging in the area and arrangements are made to mitigate the effects of floods and droughts. Women and girls are married off in exchange for food supplies. Thus, social institutions such as marriage and family, are being negatively affected by some of the local people’s adaptation strategies. In addition, migration is leading to the formation of new type of families when husbands relocating to urban centres marry new women once they secure employment. Sometimes, it is the wife who goes to a neighbouring country to work for money or food leaving the children behind. In both cases, there are many instances of either the man or the woman settling elsewhere and starting a new family and neglecting the original one. Consequently, the abandoned children become more vulnerable to floods and droughts. Thus, some of the community adaptation strategies have negative repercussions to community institutional structures.

In an effort to secure food, many households in Muzarabani join the different churches among them and they often get some relief. This is because of the acute food shortages that are being fuelled by floods and droughts in the area. This was reported by key informants as a situation that is triggering chaos in the community. Though churches play a critical Social Capital role in enhancing the resilience of the community to disasters, religion as an institution, is further becoming more dynamic and confusing than it was before. Droughts and floods also tend to increase tension between ATR and Christianity as people feel betrayed by ATR that is failing to bring the rains. Many lose confidence in ATR to such an extent that they refuse to contribute grain for brewing the traditional beer that is a component of the rain-making ceremonies. This is also because some of the Christian churches such as UFIC, AFM and Methodist Church, condemn the ATR practices. The congregants of these churches are guided in this by the pronouncements of their churches.

The study established that Muzarabani residents are not passive recipients. The most vulnerable (child heads, women and the elderly) have diversified their livelihoods to ensure livelihood and food security. The new activities range from the harvesting of wild fruits to beer-brewing, prostitution, conservation agriculture, migration, contract/causal labour, riverine farming, hiring out assets and petty trade. Most of the local based adaption and coping strategies are facilitated and made possible by the community’s social relationships, interaction, mutual understanding

and collective efficacy. Community links prove to be crucial resources in disaster resilience and adaptive capacity. In some cases, elderly people lend their livestock to relatives or neighbours. This shows that Social Capital is key in enhancing the resilience of the community.

With regard to coping and adaptation strategies, the study found out that there are serious implications for institutional community structures such as the family, marriage and the relationship between government organisations such as EMA and the local community. Migration has resulted in family disintegration and high divorce rate. The situation is further worsened by riverine farming and deforestation practices which create conflicts between EMA and the local community. Riverine farming causes siltation in rivers which result in flooding. Deforestation further contributes to the occurrence of floods and droughts. EMA is trying to protect the environment from further deterioration by prohibiting people from over-exploiting natural resources through unsustainable utilisation. Nevertheless, the local residents consider that as a hindrance.

A detailed analysis of autonomous adaptation strategies and the role of multi-institutional governance established that a change in agricultural practice such as conservation agriculture and the growing of drought resistant crops, building of infrastructure (roads, water and sanitation), natural resource management practices and the training offered by the Red Cross to improve the communities' disaster management capacity are the prominent basis of building long term resilience in Muzarabani. These strategies are sustainable, efficient, relevant and effective in reducing the community's vulnerability to climate related disasters. Local strategies such as selling and hiring out of assets, petty trade, riverine farming and casual labour among others are not sustainable and efficient as has been discussed in Chapter 8.

9.3: Is Muzarabani community (Chadereka and Kapembere) Resilient to Floods and Droughts?

Resilience being too broad a term, it becomes necessary to use one of the definitions espoused by Mayunga (2009: 10). Accordingly, Mayunga (2009: 189) defines resilience as the capacity of communities and their built environment to mitigate, prepare for, respond to, and recover quickly from disasters, and adapt to new circumstances while learning from past disasters. Similarly, Richardson et al (1990: 34) also described resilience as “the process of coping with disruptive, stressful, or challenging life events in a way that provides the individual with additional protective and coping skills than prior to the disruption that results from the event”.

By employing the concepts offered by these definitions and others, as defined in Chapter 2, Chadereka and Kapembere are becoming resilient to floods and droughts as they are able to withstand the harsh conditions imposed by these disasters. In addition, the fact that the majority of respondents still want to reside in the area shows that they have adjusted to the disasters.

Discussions on the role of Social Capital also revealed that in one way or the other, the Muzarabani community members are resilient to natural disasters. The majority of the residents (including the most vulnerable) are not passive recipients. They take diverse measures to counteract the negative impacts of climate change as was presented and discussed in the previous chapters. However, from my own observation, the resilience of the community to disasters is affected by some social factors such as ethnic tensions, child marriages, political ideological differences and social exclusion. Firstly, there are silent ethnic tensions over the meagre resources, child marriages, political ideological differences, social exclusion (disability). All of these hinder collective action and meaningful coexistence. Furthermore, economic opportunities are restricted in the area. Restricted livelihoods and coping strategies, poor access to markets due to bad road networks, the ban on gold panning, and the collapse of the cotton industry exacerbates community vulnerability and drought impact.

Worth noting is how the Chadereka community, unlike Kapembere, does not have a well-maintained and accessible infrastructure and services. There are badly maintained roads, poor communication structures (telephone lines and mobile network), lack of critical infrastructure such as clinics for health services and schools for human capital development. Risky infrastructure, especially ramshackle makeshift school learning structures, makes them more vulnerable. Additionally, there is poor management of resources even though EMA seems to work with people tirelessly. Wood-based energy for lighting and cooking, construction needs and land clearance for agriculture is aggravating rampant deforestation. These, together with stream bank cultivation, inflame the dilapidation and the degradation of the environment. Knowledge and attitudes towards the short and long-term effects of activities such as these, is still in its infancy. Its remoteness effectively isolates the rural communities from markets, towns, and administrative centres.

9.4: Theoretical Contributions of the Study to Existing Sociological Theorising on Social Capital.

The study identified Social Capital as one of the most crucial resources that contribute significantly to residents' adaptive capacity. The cooperation between NGOs and community members reflects another dimension of Social Capital that facilitates the implementation of disaster risk reduction projects and programmes. The cognitive facet of Social Capital also allows the sharing of knowledge on the occurrence of disasters such as floods and droughts in the area. This enables local people to adopt innovative agricultural strategies that conserve the soil, while at the same time, harvesting crops that they eat as food for at least three months.

Individuals with more family members, larger kinship groups and higher income are more resilient to floods and droughts. Vulnerable groups have more difficulty in accessing financial assistance from the community social ties. Social ties such as friendship expand in Muzarabani during and after disasters. Individuals tend to give support to those whom they know they will do so in return. A lonely individual who does not help others is segregated. Thus, Social Capital does not just increase the resilience of the community to disasters. Rather, members enhance their resilience to disasters by participating actively.

Social Capital also requires institutions to work collectively in reducing the impact of floods and droughts in Muzarabani. NGOs, the government, community leaders and church leaders meet strategies and progress towards disaster risk reduction. Thus, they share information and disaster knowledge that helps each organisation or institution in developing disaster management activities with community members. This shows how Social Capital enhances the resilience of the community to natural disasters such as floods and droughts.

Social Capital enhances the resilience of the community to disasters in diverse ways. For instance, NGOs such as MeDRA, Red Cross, SAT and the government, offer support to the broader society and this increases the resilience of most of the community residents in Chadereka and Muzarabani. These organisations incorporate isolated and more disadvantaged individuals and offer support to most of the community members, if not all. Nevertheless, some churches organisations such as the Roman Catholic and AFM, assist the majority of their own members and this increases the resilience of those individuals. This, therefore, does not enhance the resilience of the wider or entire community. This type of Social Capital does not include the most vulnerable groups in the community who are not directly linked to these organisations. This makes them more disadvantaged when it comes to accessing resources that

enable them to cope with floods and drought impacts. This shows that Social Capital enhances the community's adaptive capacity to floods and droughts in different ways.

Study findings have also showed that Social Capital requires active participation of the community members if the community is to be more resilient to floods and droughts using Social Capital. Individuals participate in their social ties, groups, networks or community. This is measured by each individual's contribution to other members of the community before or after a disaster. If an individual is not directly working with others, getting support when a disaster strikes is very difficult. Communities that are also getting help from NGOs are required to participate actively.

While Social Capital is considered as important in enhancing community resilience, there is still little knowledge on how it can be employed in Disaster Risk Reduction. The study findings have shown that Social Capital is an indispensable catalyst for collective efficacy and community resilience to disasters such as floods and droughts in Chadereka and Kapembere. The study also found out that Social Capital plays a vital role in enhancing the resilience of the community to floods and droughts. This means that Social Capital is a very important tool to be employed when addressing a community problem that will affect the majority. It empowers the community members with the skills and the capacity to deal with drought and flood impacts. The most vulnerable people, the elderly, single heads of households and women, depend entirely on Social Capital.

Social Capital encourages initiatives by the victims to come up with strategies that help them survive in the face of floods and droughts. "Local initiatives by rural people in developing rural livelihoods stand the best chance of empowering experiences if they generate lasting Social Capital"(Fukuyama 1995: 79). Women in Chadereka formed a cooperative which they named Mother Support Group, to help each other as well as the most vulnerable people. The club helped children in schools and the elderly with food. The formation of that type of a club shows that Social Capital enhances community resilience in different forms. Besides, the *Zunde raMambo*, which is also an act of Social Capital, proved to be a significant tool in ensuring food security for the most vulnerable people in the community although its operations are diminishing. Social Capital and disaster resilience in developing countries such as Zimbabwe provided a new way of preventing, mitigating, responding and recovering from disasters. In

addition, Social Capital also facilitates the diffusion and circulation of information that enables the community to deal with disasters.

Putnam and Social capital is the glue that binds communities together and essentially makes them into communities. Individual and community social capital networks provide access to various resources in disaster situations, including information, aid, financial resources, and child care along with emotional and psychological support (Norris, 1993). Those without networks in Muzarabani were more vulnerable to floods and droughts.

9.5: Sociological Analysis of Disasters in Relation to Gender and Age

The study shows that women and men are affected differently by disasters. Women in Muzarabani are considered as providers of food by the children in the area. Poor crop yields make them more vulnerable. Some of the women were found to have been *de facto* heads of households for more than five years, after their husbands had migrated to neighbouring countries and never to return. Some of the men returned to their households after some years just to inform their wives that they now have a new family and, to sell some assets such as livestock and go away with the money. This is mainly because of the culture that gives men more control over the resources. The remaining wives had to take the roles that their husbands were supposed to be playing, while at the same time, executing their day to day womanly household chores.

Children, especially girls, are at risk given that their guardians often remove them from school in order, sometimes, to divert the corresponding resources to other uses. This is despite the fact that their future in contemporary society lies in education. Some families arrange marriages for their children who are below the age of 16, as a survival strategy. In addition, some of the families send their children to urban areas where they work as maids on lowly paying jobs due to their lack of education. They end up resorting to prostitution to earn a living in these urban areas. Some of the children return home HIV positive and/or with child. Thus, strategies that the most vulnerable people are taking, do not really make people more resilient and they often succeed only in postponing the pain. These strategies are also exacerbating poverty in the area, making the people more vulnerable to disasters. Some of the parents leave behind their children on their own, as they migrate to other places to look for food. Children who remain behind, especially the eldest in the family, end up assuming the roles of their absent guardians. In

discharging those duties, they are forced to engage in illegal activities such as stealing, especially boys, and prostitution (girls). All these have permanent, negative consequences in their lives. As a result, the majority of them drop out of school.

Lonely elderly people are more vulnerable to floods and droughts. In Chadereka, the floods destroy stored food in the poorly built houses and the people become more prone to shortages of food. They cannot do much to prevent the flood waters from entering their houses. Nevertheless, they get help from the community, especially when they are already affected. Disasters such as floods and droughts in Muzarabani, affect residents differently. Gender and age, thus, become very critical variables in the sociology of disasters such as floods and droughts. Besides that, the elderly often lose their livestock to thieves who drive the animals away to neighbouring Mozambique because these old people are too old to look after them. The study showed that the elderly are more vulnerable to floods and droughts.

9.6: Recommendations

As a result of the findings presented and discussed above, the following recommendations are formulated: the relationship between the government and NGOs, needs to be strengthened and the government should not always be suspicious of disaster risk reduction strategies that are implemented by NGOs as this scares away some NGOs that are willing to offer untied or unconditional assistance.

The government also needs to implement programmes that can improve and enhance Social Capital and networks among community members.

Community members are in a vicious cycle of problems that are imposed by disasters such as floods and droughts and the government has a lot to do to improve the lives of people in the area.

In the distribution of food hand-outs from the government, community residents should not be discriminated against and denied food along political affiliation as some of them are being accused of being affiliated to opposition parties such as the People First, the Movement for Democratic Change and the PDP. Discrimination on such grounds renders people more vulnerable to floods and droughts.

The government should make sure that people in the areas cited in this study, receive formal education so that they all become literate. Low literacy levels are hampering the people's ability to meaningfully and independently negotiate and initiate partnerships that are mutually beneficial. In addition, education also helps community members to be employed in better paying jobs so that they are able to assist their families with food and money for their day to day survival.

The government is advised to construct water harvesting mechanisms that will help the community to successfully adapt to drought and dry spells. Water harvesting mechanisms such as dams, help people to practise agriculture, even during winter. Their livestock will also have easy access to adequate water. In addition, availability of water also encourages collective efficacy of the local residents as they end up forming garden networks where people will be working together in groups as a family.

The government is also advised to provide resources that support local organisations, which are formed by the local people, to assist the most vulnerable people in the communities. This enables the continuation of programmes that are implemented by the local people to help the most vulnerable residents.

The government is recommended to encourage and support community leaders to revamp the *Zunde raMambo* in the community so that the most vulnerable residents can be assisted with food.

The study recommends that community leaders should help the most vulnerable groups and other residents when these groups sell their assets such as cattle and goats, so that they do not incur losses. An average price needs to be gazetted and communicated to every individual. This will also help people not to be duped when selling their assets.

The government is encouraged to create markets for the local people to sell fruits harvested.

Community leaders are also encouraged to create hospitable environments that encourages the formation of local organisations that offer help to the most vulnerable groups in society. In addition, community leaders are encouraged to work hand in hand with the government to

make sure that laws that protect the girl child from abuse are observed. This will also reduce several cases of arranged marriages of the girls at a tender when they are supposed to be in school. This requires harmony between the government and the community leaders. Community members also need to be educated on empowering the girl child by educating them.

Community leaders, together with the government and NGOs, are encouraged to hold awareness campaign programmes that spell away tribal and ethnic stereotypes and to promote local Social Capital among members of the community.

9.7: Limitations of the study

It is very crucial to highlight factors that were beyond my control that could have influenced my research findings. The first limitation of the study was that data collection was done at the climax of famine when there was a massive shortage of food as it had not rained in the previous season (2015/2016). In fact, the drought was at the peak in 2015/2016 season in Sub-Saharan Africa. The majority of the households had not harvested. Therefore, residents were expecting food assistance. Even though I had told them that my research was for academic purposes, they kept on saying that I should go back and help them later on. Besides that, there are a lot of researches that have been conducted in the area pertaining to floods and droughts and the residents. Therefore, Muzarabani area had been exposed to many surveys and the respondents appeared to have developed, among them, experts in responding to questions. They were now familiar to the type of questions asked by different researchers and this could have also influenced my research findings. In addition, limited understanding of some of the words that were being used by residents meant that some responses in focus group discussions had to be interpreted before the discussions proceeded. These interruptions disrupted the flow of ideas. For example, *Mwantota* means shortage of food. This however, did not compromise my findings as I became used to the diction as the days progressed.

9.8: Areas for Further Research

The study looked at the role of Social Capital in its broad sense, as espoused by Putnam, in enhancing the resilience and adaptive capacity of the Muzarabani community members. The Social Capital employed encompassed the involvement of NGOs, the government as well as

the community members. A more comprehensive assessment of the determinants of resilience to floods and droughts in Zimbabwe is necessary.

The qualitative approach was predominant in the study and a purely quantitative study of this nature needs to be done comprehensively to determine the extent to which people in the area are relying on Social Capital.

The extent to which people rely on community, rather than government, support in disaster risk reduction (Floods and droughts) in Muzarabani needs to be examined.

The extent to which religion is a determining factor in creating social linkages and networks that enhance the resilience of Muzarabani community needs to be conducted.

A critical analysis of potential tools of social capital that can enhance individual capacities for resilience is also necessary

A study on the challenges faced by the disabled people and women in polygamous marriages and how they are coping and adapting to floods and droughts, needs to be conducted as these are also the most vulnerable groups in the society.

The harvesting of wild fruits was found to be a common livelihood strategy that is being employed by people in Muzarabani. Therefore, a thorough examination of how people are preserving trees that provide wild fruits and the processing of wild fruits, needs to be examined. In addition, the research on the level of contributions of wild fruits to food security needs to be conducted.

A critical investigation on the Zimbabwean government's strengths and weaknesses in enhancing the resilience of the community to floods and droughts is needed. A comprehensive study on how ethnic tensions and discrimination hinder the community's ability to successfully respond to floods and droughts, needs to be carried out.

9.9: Conclusion

In conclusion, the study found out that Social Capital is critical in the enhancement of community resilience and adaptive capacity in Muzarabani. Although the community is not fully resilient to floods and droughts, Social Capital is enabling people to withstand the harsh conditions that are being imposed by floods and droughts. The most vulnerable people and other residents are relying on the government, NGOs, Church organisations and community relationships and networks. The study documents the community based strategies that are being employed by the most vulnerable groups to deal with floods and droughts. Study findings provided, showed that Social Capital is very significant in enhancing the resilience of the community to floods and droughts. The methodology employed in the study was practically relevant. Findings of the study showed that people have different perceptions on floods and droughts. The majority knows that the climate is changing and the weather-related disasters such as floods and droughts, have become prevalent. The study identifies different types of Social Capital that exist in the area and these are; bridging, bonding, linking and Victim (this was introduced by the researcher) Social Capital. The following were identified as the basis of the resilience of the community; Social Capital, natural resource exploitation, agriculture, migration, casual labour and institutional support. To a large extent, people in Muzarabani are relying on Social Capital. The majority are very poor and they cannot run around as individuals, to ensure food and livelihood security. Some vulnerable members of the community are also coping through fortune telling, healing, and entering into polygamous marriages (female single heads). The study offered some recommendations and some of them are; to make sure that people in the area receive formal education so that they all become literate, to offer strong support to local organisations that are formed and to help the most vulnerable in the community. Areas for possible further investigation are identified herein and include a comprehensive study on the role of the residents' Social Capital (networks and relationships) in enhancing the resilience of the community, a critical analysis of the Zimbabwean government's strength and weaknesses in enhancing the resilience of the community to floods and droughts and a detailed study of the role of trust and generalised reciprocity in community resilience.

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APPENDIX A: HEAD OF HOUSEHOLD QUESTIONNAIRE.



RHODES UNIVERSITY
Where leaders learn

HEAD OF HOUSEHOLD QUESTIONNAIRE

COMMUNITY RESILIENCE TO NATURAL DISASTERS: A CASE STUDY OF MUZARABANI.

*This survey is being conducted as a requirement of an academic research project by **Rosemary Kasimba** of the Rhodes University. The results will help me to understand in detail your experiences of floods and droughts in this area. Information collected will be confidential and private. Participation in this survey is voluntary. Our interview will take 32 minutes.*

Instructions

Please circle **one** correct option.

Answer questions to the best of your knowledge.

Tick more than one where you can.

HOUSEHOLD IDENTIFICATION/ADMINISTRATIVE INFORMATION

District	Muzarabani district
Ward	
Village	
Name (pseudo)	
Enumerator	
Date and time	
Questionnaire number	

A: DEMOGRAPHIC CHARACTERISTICS

A1: Gender Male=1 Female=2	A2: Marital status Single=1 Married=2
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	Divorced=4 Widowed=5 Other (specify).....=6
A3: Type of household Male headed =1 Female headed=2 Child headed male=3 Child headed female=4 Other(specify).....5	A4: Age 18 -30years =1 31 to 43 years =2 44 to 56=years=3 57 and above =4
A5: Household religion? Christianity=1 Islam (Muslim)=2 African traditional religion=3 Other (specify).....=4	A6: how many people live in this household? (Do not count visitors) Less than five=1 State the actual number..... More than 5 =2 State the actual number.....
A7: Ethnicity? Korekore=1 Chikunda=2 Zezuru=3 Other(specify).....4	A8: Source of income for the head of the household. Tick more than one if applicable) Agriculture=1 Government=2 Piece jobs=3 Trader=4 Pension and disability grants=5 Other(specify)..... =6
A9: How long have you been living in this area? Less than 10 years=1 State the exact number of years..... More than 10 years= 2 State the exact number of years	A10: If you have lived in this area for more than 10 years, what was your main reason for settling here? (tick Multiple) Ancestry=1 Easy access to land=2 Better rainfall=3 Employment/ business prospects=4 Marriage=4 Other (specify)..... =5

<p>A11: income earned per month by the head of the household</p> <p>US\$0-200=1 (low)</p> <p>US\$201-500=2 (Middle)</p> <p>US\$501 and above=3(high)</p>	<p>A12: Type of housing</p> <p>Traditional (Grass and mud)=1</p> <p>Modern(Asbestos and brick wall)=2</p> <p>Other (specify).....=3</p>																																				
<p>A13: What is your highest level of education?</p> <p>Primary Education=1</p> <p>Secondary education=2</p> <p>Tertiary education (certificates, diploma and degrees)=3</p> <p>No formal education=4</p> <p>Other (specify).....=5</p>	<p>A14: Livestock household ownership.</p> <table border="1"> <thead> <tr> <th>Types of livestock</th> <th>none</th> <th>Below 5</th> <th>6-10</th> <th>11-15</th> <th>16 and above</th> </tr> </thead> <tbody> <tr> <td>Cattle</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Sheep</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Donkeys and Horses</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Goats</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Poultry</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>* Poultry includes chickens, turkeys, ducks, pigeons and guinea fowls, geese.</p>	Types of livestock	none	Below 5	6-10	11-15	16 and above	Cattle						Sheep						Donkeys and Horses						Goats						Poultry					
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Sheep																																					
Donkeys and Horses																																					
Goats																																					
Poultry																																					
<p>A15: What type of crops do you grow? (Tick Multiple)</p> <p>Maize=1</p> <p>Sorghum=2</p> <p>Tobacco=3</p> <p>Cotton=4</p> <p>Cassava=4</p> <p>Pearl millet=6</p> <p>Other (specify).....=7</p>																																					

B: EFFECTS OF FLOODS AND DROUGHTS

B16: How have floods affected people in this community?

Effect	Level of Effect				
	No effect at all	Little effect	Moderately affected	Affected	Very much affected
Loss of land					
loss of livestock					

loss of farming implements					
Family breakdown					
Children married off for food					
Children dropped out of school					
Death within the household					
Loss of employment/income					
Malnutrition					
Other(specify)					

B17: How have droughts affected people in this community?

Effect	Level of Effect				
	No effect at all	Little effect	Moderately affected	Affected	Very much affected
Loss of land					
loss of livestock					
loss of farming implements					
Family breakdown					
Children married off for food					
Children dropped out of school					
Death within the household					
Loss of employment/income					
Malnutrition					
Other(specify)					

<p>B18: What do you think are the causes of floods in this area?</p> <p>Climate change=1 Geographical location=2 Changes in cultural beliefs systems=3 Moral decadence=4 Other(specify).....5</p>	<p>B19: What do you think are the causes of droughts in this area?</p> <p>Climate change=1 Geographical location=2 Changes in cultural beliefs systems=3 Moral decadence=4 Other(specify).....5</p>
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C: BASIS OF PEOPLE'S RESILIENCE TO FLOODS AND DROUGHTS

FLOODS SECTION

DROUGHTS SECTION

C20: What do you consider as the most important asset to enable recovery following a flooding?(List to 5 most important)

- Access to capital (cash)=1
- Access to liquid assets=2
- NGO or government assistance=4
- Help from friends and relatives=4
- Availability of piece jobs=5
- Ownership of livestock=6
- Subsidized seed and fertilizer=7
- Having reserves in grain bank=8
- Prayer s, hope and endurance=9
- Other(specify)..... 10

C21: What do you consider as the most important asset to enable recovery following a drought?(List to 5 most important)

- Access to capital (cash)=1
- Access to liquid assets=2
- NGO or government assistance=4
- Help from friends and relatives=4
- Availability of piece jobs=5
- Ownership of livestock=6
- Subsidized seed and fertilizer=7
- Having reserves in grain bank=8
- Prayer s, hope and endurance=9
- Other(specify)..... 10

C22: What are the main strategies that you take to increase crop productivity in the event that flooding occurs?

- Early planting=Yes No
- Digging ditches=Yes No
- Other(specify)=

C23: What are the main strategies that you take to increase crop productivity in the event that droughts occur?

- Irrigation=Yes No
- Growing drought resistant crops=Yes
- No
- Other (specify).....

C24: What coping strategies has your household had to use in the last 4 years to ensure access to food after a flooding event

		Yes=1
		No=0

C25	Borrow food, or rely on help from friends and /or relatives in the community.	
C26	Gather wild food or hunt	
C27	Rely on church members	
C28	Rely on NGOs	
C29	Rely on the government	
C30	Reduce the number of meals eaten per day	
C31	Rely on piece jobs	
C32	Other (specify)	

C33: What coping strategies has your household had to use in the last 4years to ensure access to food after a drought event

		Yes=1 No=0
C34	Borrow food, or rely on help from friends and /or relatives in the community	
C35	Rely on wild fruits	
C36	Trading	
C37	Gather wild food or hunt	
C38	Rely on friends and relatives outside the community	
C39	Harvest immature crops	
C40	Rely on church members	
C41	Growing drought resistant food crops	
C42	Rely on NGOs	
C43	Restrict consumption by adults so children can eat	
C44	Rely on the government	
C45	Rely on piece jobs	
C46	Other (specify)	

C47: What measures do you take to protect your crops from being destroyed by wild animals during drought?

Scaring animals away by making noise=Yes No

Staying in the field day and night=Yes

Spraying=Yes No

Other (specify).....

D: TYPES OF SOCIAL CAPITAL AND THEIR ROLE IN ENHANCING COMMUNITY RESILIENCE.

<p>D48: Are there any cultural ceremonies that are held in this community that facilitate the dissemination of disaster information? Yes =1 No=0</p>	<p>D49: If yes, what are they? Rain making ceremony=1 Nhimbe=2 Other(specify).....3 Nhimbe=people working together with a common goal.</p>
<p>D50: Who helps you when there is a flood (Tick more than one) NGOs=1 Government=2 Friends=3 Relatives=4 Church/club members=5 Who gives you the most help</p>	<p>D51: Who helps you when there is a drought?(Tick more than one) NGOs=1 Government=2 Friends=3 Relatives=4 Church/club members=5 Who gives you the most help</p>
<p>D52: Do you also help (them/the person)? Yes=1 No=0</p>	<p>D53: Do you also help (them/the person)? Yes =1 No=0</p>

I would like to know the role of community relationships and interactions in enhancing your resilience to floods and droughts.

Questions	Strongly disagree	Disagree	neutral	agree	Strongly agree
D54: Community members are willing to help each other with food.					

D55: Community members are willing to help each other with clothes when flooding hits the area.					
D56: Some people in this community have a tendency to discriminate against others in food provision when a disaster strikes.					
D57: People in the neighborhood believe in mutual assistance.					
D58: There is solidarity in this community.					
D59: I will continue staying in this community.					
D60: My community has a high level of cooperation following a disaster.					
D61: This community is highly resilient to floods and droughts because of their associations.					
D62: The most vulnerable groups in my community are given strong support by other community members.					
D63: Community interactions significantly help people to cope with disasters in this community.					
D64: People with more connections with other people are more resilient to floods and droughts.					
D65: If you do not help others in my community, people will ignore you in the future (when the disasters strike)					
D66: Our government plays a pivotal role in enhancing resilience in this community.					

D67: I trust friends in the neighboring villages in the event that a disaster strikes.					
D68: The more you help others during and after a disaster, the more you increase your connections and chances of getting help when a disaster strikes again.					
D69: NGOs offers best services in offering help to community members in the community than the government.					
D70: If I am asked to contribute money towards a community disaster risk management I will be willing.					
D71: I rely more on information from the radio and television.					
D72: rely more on information from the internet.					
D73: I strongly believe that traditional leaders and village heads provides information that helps the majority of community members to deal with floods and droughts.					
D74: I am willing to spend most of my time supporting disaster management activities of the community.					
D75: If I am to face another flood I will be able to respond better.					
D76: If I am to face another drought I will be able to respond better.					

	all	Most	some	few	None
D77:With how many of each people in each of the following categories do you					

frequently communicate with during and after a disaster					
Your family members	5	4	3	2	1
Relatives	5	4	3	2	1
Your neighbours	5	4	3	2	1
Church members	5	4	3	2	1
The government	5	4	3	2	1
Non-governmental - organisations	5	4	3	2	1
Friends					
	all	Most	some	few	None
D78: Among people in each of the seven groups above, how many do you think will help you instantly as soon as your lodge a request?					
Your family members	5	4	3	2	1
Relatives	5	4	3	2	1
Your neighbours	5	4	3	2	1
Church members	5	4	3	2	1
The government	5	4	3	2	1
Non-governmental - organisations	5	4	3	2	1
Friends	5	4	3	2	1

D79: I would like to know which individuals have helped you during and after a disaster.

Individual	Source or nature of relationship (church member, relative, friend and neighbour	Gender	Age	Residence (within The community or outside the community)	Type of help	Did the person ask for favors in the future	Did you help the person before

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D80: Do you like working with others to reduce the impacts of floods in this community

5 very much 4 somewhat 3 undecided 2 not really 1 not at all

D81: Do you like working with others to reduce the impacts of droughts with others.

5 very much 4 somewhat 3 undecided 2 not really 1 not at all

D82: How often do you assist the elderly people in this community when disasters occur?

5. Almost always 4 sometimes 3 every once in a while 2 Rarely 1. Never

E: INSTITUTIONAL ARRANGEMENTS AND THEIR EFFECTS ON PEOPLES LIVELIHOODS.

E83: Are there any restrictions on uses of natural resources according to priorities that are set by governing organisations=**Yes =1 No=0**

E84: If yes, please indicate from the following

Restriction on water use= Yes No

Restriction on cutting down trees=Yes No

Restriction on grass cutting= Yes No

Restrictions on fruit harvesting=Yes

Thank you for your time and participation. Your contribution will be very important in developing ways to improve capacities of communities to be more resilient to disasters such as floods and droughts in the future.

APPENDIX B: KEY INFORMANT GUIDE: COMMUNITY AND PROVINCIAL LEVEL

Type of Information		Type of respondents in key positions to provide information
Floods	Droughts	
<p>Historical background of the district and ward</p> <p>Snapshots on floods in the community</p> <p>Trends in agricultural productivity (2000-2005,2006-2010,2010-2015)</p> <p>How are the changes affecting people?</p> <p>Perceptions on floods</p> <p>How do people access land for cultivation and accommodation in this area.</p>	<p>xx</p> <p>Snapshots on droughts in the community</p> <p>Trends in agricultural productivity (2000-2005,2006-2010,2010-2015)</p> <p>Perceptions on droughts</p> <p>xx</p>	<p>District Administrator, MP, Councilor and Village Heads.</p>
<p>What does your organisation do in terms of disaster preparedness, recovery and response?</p> <p>Guiding questions</p> <p>1) Geographical area covered</p> <p>2) People served and the programs.</p> <p>How does your organisation work with the following different groups</p>	<p>What does your organisation do in terms of disaster preparedness, recovery and response?</p> <p>Guiding questions</p> <p>3) Geographical area covered</p> <p>4) People served and the programs.</p> <p>How does your organisation work with the following different groups of people in the community in</p>	<p>NGOs</p>

<p>of people in the community in preparedness, recovery and response?</p> <p>a) The most vulnerable groups</p> <p>b) Other organisations</p> <p>c) Individuals</p> <p>d) Schools and hospitals</p> <p>e) Women clubs</p> <p>Does your organisation work with other organisations?</p> <p>If yes describe how effective the collaboration is in terms in disaster response, recovery and preparedness?</p> <p>In your view is this community resilient to floods? Explain in detail.</p>	<p>preparedness, recovery and response?</p> <p>f) The most vulnerable groups</p> <p>g) Other organisations</p> <p>h) Individuals</p> <p>i) Schools and hospitals</p> <p>j) Women clubs</p> <p>Does your organisation work with other organisations?</p> <p>If yes describe how effective the collaboration is in terms in disaster response, recovery and preparedness?</p> <p>In your view is this community resilient to droughts? Explain in detail.</p>	
<p>How are peoples livelihood activities are affected by floods?</p> <p>What factors make the most vulnerable groups more vulnerable to floods?</p> <p>How are different categories of people in this community affected by floods?</p> <p>Can you please describe the way people in this community make use of their interactions to deal with floods?</p>	<p>How are peoples livelihood activities are affected by droughts?</p> <p>What factors make the most vulnerable groups more vulnerable to droughts?</p> <p>How are different categories of people in this community affected by droughts?</p> <p>Can you please describe the way people in this community make use of their interactions to deal with droughts?</p>	<p>All key informants except the District Administrator, health care workers and school heads.</p>

<p>How are different categories of people in this community affected by droughts?</p> <p>What strategies are being employed by the people in the community to deal with floods?</p> <p>What strategies are being employed by the people in the community to deal with droughts?</p> <p>What strategies are being employed by the vulnerable people to cope with floods?</p> <p>How do social relationships in this community help people to deal with droughts?</p> <p>How are you working with the most vulnerable groups to reduce negative impacts of floods?</p> <p>As people in key positions what are you doing to help the most venerable groups as well as people in the community to reduce the negative impacts imposed by droughts</p> <p>As people in key positions what are you doing to help the most venerable groups as well as people in the community to reduce the negative impacts imposed by floods</p>	<p>How are different categories of people in this community affected by droughts?</p> <p>What strategies are being employed by the people in the community to deal with droughts?</p> <p>What strategies are being employed by the people in the community to deal with droughts?</p> <p>What strategies are being employed by the vulnerable people to cope with droughts?</p> <p>How do social relationships in this community help people to deal with droughts?</p> <p>How are you working with the most vulnerable groups to reduce negative impacts of droughts?</p> <p>As people in key positions what are you doing to help the most venerable groups as well as people in the community to reduce the negative impacts imposed by droughts?</p> <p>How do you think personal networks among the people can help them successfully cope with droughts?</p> <p>What type of households can successfully deal with droughts?</p>	
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<p>How do you think personal networks among the people can help floods?</p> <p>What type of households can successfully deal with floods?</p> <p>What do you think are the needs of the community for the people to be able to successfully deal respond to floods</p> <p>What do you think hinder community resilience to floods?</p> <p>What do you think hinder community resilience to floods?</p> <p>Describe how people make use of trust when responding to floods?</p> <p>Describe how people make use of social connections when responding to floods?</p> <p>What do you think needs to be done to promote sustainable livelihoods and ensure food availability?</p>	<p>What do you think are the needs of the community for the people to be able to successfully deal respond to floods</p> <p>What do you think are the needs of the community for the people to be able to successfully deal respond to droughts?</p> <p>What do you think hinder community resilience to floods?</p> <p>What do you think hinder community resilience to droughts?</p> <p>Describe how people make use of trust when responding to droughts?</p> <p>Describe how people make use of social connections when responding to droughts?</p> <p>What do you think needs to be done to promote sustainable livelihoods and ensure food availability?</p>	
<p>Are any strategies that are being taken by people that are not effective? Explain.</p> <p>Are there any changes in people's strategies? Please explain.</p> <p>Do you think encouraging the community to work together is useful? Explain in detail.</p> <p>What do you think will be the impact on the community if NGOs</p>	<p>What do you think will be the impact on the community if NGOs pull out from helping people in this community to deal with droughts?</p>	<p>D.A chief village heads NGOs MP</p>

<p>pull out from helping people in this community to deal with floods?</p> <p>Does culture have any effect in people's ability to cope with floods and droughts? Explain in detail.</p> <p>What cultural attributes do you think impede the successfulness of certain groups of people to deal with floods and droughts?</p>		
<p>Are there any projects that you have introduced to increase community's adaptive capacity and resilience to floods and droughts?</p> <p>How are the people coping to ensure food security during and after flooding?</p> <p>How are the people coping to ensure food security during and after a drought?</p> <p>How is your organisation selecting beneficiaries?</p>		<p>NGOs</p>
<p>What are the livelihoods activities that the local people depend on?</p> <p>How effective are these livelihoods in ensuring food security?</p> <p>What are the main livestock do people keep in this area</p> <p>What are three main crops that people grow?</p> <p>Are there any new crops that are being grown by people these days?</p>		<p>Village heads</p> <p>Councilors</p>

<p>What are those crops and why are people growing them?</p> <p>Is the community willing to work together as a group to cope with floods and droughts?</p>		
<p>What type of food is eaten by the majority in this area?</p> <p>What are the features of households that are food secure</p> <p>How are the people managing with food insecurity?</p> <p>What time of the year the most households are become food secure and food insecure?</p>	<p>What are the features of households that are food secure</p> <p>How are the people managing with food insecurity?</p> <p>What time of the year the most households are become food secure and food insecure?</p>	<p>Village heads Councilors</p>
<p>Can you please explain the implications of institutional arrangements in people's livelihood strategies?</p>	<p>Can you please explain implications of institutional arrangements in people's livelihood strategies?</p>	<p>Village heads, Chief, Councilor, District administrator and Headmasters</p>
<p>How are floods affecting people's health in this community?</p> <p>How are droughts affecting people's health in this community?</p> <p>What strategies are you taking to promote people health in times of floods?</p> <p>What strategies are you taking to promote people health in times of floods</p>	<p>How are floods affecting people's health in this community?</p> <p>How are droughts affecting people's health in this community?</p> <p>What strategies are you taking to promote people health in times of droughts?</p> <p>What strategies are you taking to promote people health in times of droughts?</p>	<p>Health care workers</p>

What challenges are you facing with in trying to help people in the community?	What challenges are you facing with in trying to help people in the community?	
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APPENDIX C: FOCUS GROUP DISCUSSIONS: The Elderly in Muzarabani Community

Floods	Droughts
<p>Introductions and background</p> <p>Can anyone explain the nature of floods in this area?</p> <p>What are your experiences to them?</p> <p>What are your perceptions of floods?</p> <p>How are floods affecting your livelihood strategies?</p> <p>What strategies are you employing to counter the adverse effects posed by floods?</p> <p>Are there any new strategies (Those that are different from the ones people used to take 3 years back) that you are taking to reduce the impacts of floods?</p> <p>If so name and explain the strategies?</p> <p>What challenges do you encounter in coping with floods?</p> <p>How are you working with the community to reduce the adverse impacts of floods?</p>	<p>xx</p> <p>Can anyone explain the nature of droughts in this area?</p> <p>What are your experiences to them?</p> <p>What are your perceptions of droughts</p> <p>How are droughts affecting your livelihood strategies</p> <p>What strategies are you employing to counter the adverse effects posed by droughts</p> <p>Are there any new strategies that you are taking to reduce the impacts of droughts? If so name and explain the strategies?</p> <p>What challenges do you encounter in coping with droughts?</p> <p>How are you working with the community to reduce the adverse impacts of droughts?</p>
<ol style="list-style-type: none"> 1) If these disasters (floods and droughts) are to hit this area, would you be able to respond successfully to them? 2) What do you think you need to successfully respond to them? 3) Which group of people do you think are the most vulnerable groups to disasters? 4) What do you think the community should do to help these vulnerable groups to be able to successfully cope with floods and droughts? 5) In the community, what is your favourite group of people? 6) Does this community make disaster recovery easy? 	

- 7) Do you think the community like working together? Explain more on this.
- 8) In your everyday life who are the most important groups of people to you especially when coping with floods and droughts?
- 9) Where exactly do you turn to in the event that the community is struck by a disaster?
Why
- 10) When World vision and Red Cross Society as well as other non-governmental organisations relocate to other areas will you be able to cope successfully?
- 11) Are there any challenges that you face in terms of accessing resources (land and inputs)? Explain in detail.
- 12) Did you learn any lessons in terms of coping with droughts and floods from 2010 up to now?
- 13) What are your future plans in relation to floods and droughts and livelihood and food security?
- 14) Can we draw a sketch map showing your community /ward and the location of natural resources some other important facilities such as schools and clinics among others?
- 15) What else would you want to say?

Key

xxxxxxx=already covered.

Thank you

APPENDIX D: FOCUS GROUP DISCUSSIONS: Single Headed Households in Muzarabani Community

Floods	Droughts
<p>Introductions and background</p> <p>Can anyone explain the nature of floods in this area?</p> <p>What are your experiences to them?</p> <p>Probe on the occurrence of floods</p> <p>What are your perceptions of floods?</p> <p>What is the main shock (s) in this area and how does it affect you livelihood activities</p> <p>What strategies are you employing to counter the adverse effects posed by the shock?</p> <p>What challenges do you encounter in coping with floods?</p> <p>Did you learn any lessons in terms of coping with floods from 2010 up to now</p>	<p>Introductions and background</p> <p>Can anyone explain the nature of droughts in this area?</p> <p>What are your experiences to them?</p> <p>Probe on the occurrence of droughts</p> <p>What are your perceptions of droughts?</p> <p>What is the main shock (s) in this area and how does it affect you livelihood activities</p> <p>What strategies are you employing to counter the adverse effects posed by the shock?</p> <p>What challenges are you facing in coping with droughts?</p> <p>Did you learn any lessons in terms of coping with droughts from 2010 up to now</p>
<p>Which group of people do you think are the most vulnerable groups to disasters such as floods and droughts?</p> <p>What do you think can this group be assisted so that it will be able to with stand harsh conditions imposed by floods and droughts?</p> <p>Are there any challenges that you face in terms of accessing resources (land and inputs)? Explain in detail.</p> <p>What are your future plans in relation to floods and droughts and livelihood and food security?</p> <p>When world vision and Red Cross society as well as other non-governmental organisations relocate to other areas will you be able to cope successfully?</p> <p>What do you think the community should do to help these vulnerable groups to be able to successfully cope with floods and droughts?</p> <p>In the community, what is your favourite group of people?</p> <p>Does this community make disaster recovery easy?</p>	

Do you think the community like working together? Explain more on this.

In your everyday life who are the most important groups of people to you especially when coping with floods and droughts?

14) Can we draw a sketch map showing your community /ward and the location of natural resources some other important facilities such as schools and clinics among others?

Any comment?

Thank you

APPENDIX E: FOCUS GROUP DISCUSSIONS: Child headed Families in Muzarabani Community

Floods	Droughts
<p>Introductions and background</p> <p>Why are you living in this place?</p> <p>Probe on the occurrence of floods</p> <p>What are your experiences to floods in this area?</p> <p>What are your perceptions to floods?</p> <p>What do you think are the main problems that are being imposed by floods</p> <p>How are you coping with these problems you have mentioned above?</p> <p>How are you coping to reduce the impacts of floods?</p> <p>How are you working with the community to reduce the adverse impacts of floods?</p> <p>What is the community doing to help child headed families deal with floods?</p> <p>What do you think are the basis of your resilience to floods?</p>	<p>Introductions and background</p> <p>Why are you living in this place</p> <p>Probe on the occurrence of droughts</p> <p>What are your experiences to droughts in this area?</p> <p>What are your perceptions to droughts?</p> <p>What do you think are the main problems that are being imposed by droughts?</p> <p>How are you coping with these problems you have mentioned above?</p> <p>How are you coping to reduce the impacts of droughts?</p> <p>How are you working with the community to reduce the adverse impacts of droughts?</p> <p>What is the community doing to help child headed families deal with droughts?</p> <p>What do you think are the basis of your resilience to droughts?</p>
<p>Are there any challenges that you face in terms of accessing resources (land and inputs)? Explain in detail?</p> <p>Which group of people do you think are the most vulnerable groups to disasters such as floods and droughts?</p> <p>What do you think can this group be assisted so that it will be able to with stand harsh conditions imposed by floods and droughts?</p> <p>What do you think needs to be done in relation to child head families and disaster (floods and droughts)?</p> <p>When world vision and Red Cross society as well as other non-governmental organisations relocate to other areas will you be able to cope successfully?</p>	

Did you learn any lessons in terms of coping with droughts and floods from 2010 up to now
What are your future plans in relation to floods and droughts and livelihood and food security?

What do you think the community should do to help these vulnerable groups to be able to successfully cope with floods and droughts?

In the community, what is your favourite group of people?

Does this community make disaster recovery easy?

Do you think the community like working together? Explain more on this.

In your everyday life who are the most important groups of people to you especially when coping with floods and droughts?

14) Can we draw a sketch map showing your community /ward and the location of natural resources some other important facilities such as schools and clinics among others?

What else do you want to say?

Thank you

APPENDIX F: FOCUS GROUP DISCUSSIONS: Women in Muzarabani Community

Floods	Droughts
<p>Introductions and background</p> <p>What are your experiences to droughts in this area?</p> <p>What are your experiences of floods in this area? Probe on the occurrence of floods</p> <p>What strategies are you taking to deal with floods?</p> <p>Are there strategies changing (are there any new methods that you are devising since 2010)? If so please name and explain them in detail.</p> <p>As women what do you think are the obstacles that are hindering your success in coping with floods?</p> <p>What are your perceptions on floods?</p> <p>What are your perceptions on floods?</p> <p>Are there any challenges that you face in terms of accessing resources (land and inputs)? Explain in detail.</p> <p>Which group of people do you think are the most vulnerable groups to disasters such as floods?</p> <p>What do you think are the basis of your resilience to floods?</p>	<p>Introductions and background</p> <p>What are your experiences to droughts in this area? Probe on the occurrence of droughts</p> <p>What strategies are you taking to deal with droughts?</p> <p>Are there strategies changing (are there any new methods that you are devising since 2010)? If so please name and explain them in detail.</p> <p>As women what do you think are the obstacles that are hindering your success in coping with droughts?</p> <p>What are your perceptions on droughts?</p> <p>Are there any challenges that you face in terms of accessing resources (land and inputs) during a disaster? Explain in detail.</p> <p>Which group of people do you think are the most vulnerable groups to disasters such as droughts?</p> <p>What do you think are the basis of your resilience to droughts?</p>
<p>What do you think can this group be assisted so that it will be able to with stand harsh conditions imposed by floods and droughts?</p> <p>Did you learn any lessons in terms of coping with droughts and floods from 2010 up to now?</p> <p>How are you working with the community to reduce the adverse impacts of floods and droughts</p> <p>What are your future plans in relation to floods and droughts and livelihood and food security?</p>	

What do you think the community should do to help these vulnerable groups to be able to successfully cope with floods and droughts?

In the community, what is your favourite group of people?

Does this community make disaster recovery easy?

Do you think the community like working together? Explain more on this.

In your everyday life who are the most important groups of people to you especially when coping with floods and droughts?

14) Can we draw a sketch map showing your community /ward and the location of natural resources some other important facilities such as schools and clinics among others?

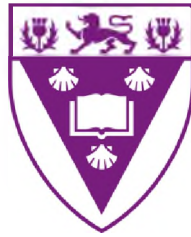
What else do you want to say?

Thank you

APPENDIX G: OBSERVATIONS

1. How are social relationships helping people to reduce the impacts of floods?
2. How are social relationships helping people to reduce the impacts of droughts?
3. What type of social relationships that in the community (Muzarabani)?
4. How are the vulnerable groups making use of Social Capital to increase their resilience to floods?
5. How are the vulnerable groups making use of Social Capital to increase their resilience to floods?
6. To observe the types of Social Capital that helps the most vulnerable group in the community.
7. The location of natural resources some other important facilities such as schools and clinics among others?

APPENDIX H: Focus Group discussion Consent form



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Where leaders learn

You have been selected as one of the participants in the Focus Group Discussion. The aim of this discussion is to share your experiences in floods and droughts and how you have adapted to these disasters. The discussion also seeks to unravel the role of social relationships, community associations, kinship and social networks in enhancing the resilience of the community to floods and droughts. Our discussion is limited to disasters such as floods and droughts and political issues need not to be discussed. The information you are going to provide will be recorded and used for my study only. Participation is voluntary and you are free to withdraw at any time. I would like to inform you that there is no correct answer in the discussion. Each participant is guided by the respect of each other principle. There are no incentives to be given at the end of the Focus Group Discussion.

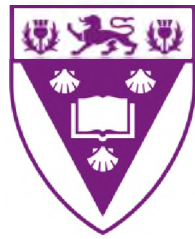
I have read and understood the information on the consent form. I now know what the study is about and the part I will be playing. I know that I do not have to answer all of the questions. I know I am not going to receive anything after the participation and that I can decide not to continue at any time.

Name (Pseudo-name).....

Signature.....

Date.....

APPENDIX I: FOCUS GROUP DISCUSSION CONSENT FORM FOR GUARDIANS OF PARTICIPANTS WHO ARE UNDER 18 YEARS.



RHODES UNIVERSITY
Where leaders learn

..... been selected as one of the participants in the focus group discussion for heads of child headed families in this community. The aim of this discussion is to give them a platform to share their experiences in floods and droughts and how they have adapted to these disasters. The discussion also seeks to unravel the role of social relationships, community associations, kinship and social networks in enhancing the resilience of the community to floods and droughts. Our discussion is limited to disasters such as floods and droughts and political issues will not to be discussed. The information she /he is going to provide will be recorded and used for my study only. Participation is voluntary and participants are free to withdraw at any time. Each participant will be guided by the respect of each other principle.

I have read and understood the accompanying letter and give permission for the child to participate.

Relationship to the child.....

Name (Pseudo-name).....

Signature.....

Date.....

APPENDIX J: CLEARANCE LETTER: RED CROSS

ZIMBABWE RED CROSS SOCIETY

Patron: H.E. The President of Zimbabwe

The Geneva Conventions Act No. 30 (1981): Chapter 17:08

WO 52/67

ALL COMMUNICATIONS TO BE
ADDRESSED TO THE
SECRETARY



HEADQUARTERS:
ZIMBABWE RED CROSS SOCIETY
NO. 10 ST ANNES ROAD
AVONDALE
HARARE
ZIMBABWE
TELEPHONES
+263-4-332197, 332638, 307241/4
FAX: +263-4-335490
P.O.BOX 1406
HARARE
EMAIL: zrcs@ecoweb.co.zw

Your Ref.:

Our Ref.:

18 March 2016

The Provincial Manager
Mashonaland Central
Harare

Dear Sir

RE: CLEARANCE FOR ROSEMARY KASIMBA TO CARRY OUT PHD STUDIES AT OUR MUZARABANI DISTRICT

The Zimbabwe Red Cross Society commands a lot of respect in the humanitarian sector thanks to our level of innovation and first responder tag. To that end, scholars studying at various levels in the academic sector continue showing an interest in us as they go about their business.

To that end, I am writing to give clearance for Rosemary Kasimba who would want to work with Zimbabwe Red Cross at community in Muzarabani District of our Mashonaland Central Province for her PHD studies with Rhodes University under the department of Sociology.

She is mainly interested in the resilience of communities to natural disasters something we are already covering with our CBDRR project supported by Finnish and Danish Red Cross. May you therefore give her maximum support in this endeavour

Thank you for the usual cooperation

Handwritten signature in blue ink, appearing to read 'Phiri M. (Mr)'.
.....
Phiri M. (Mr)
Secretary General

APPENDIX K: CLEARANCE LETTER: PROVINCIAL ADMINISTRATOR

Number 4 Eagleway
Plover Avenue
Mt Pleasant
Harare

12 January 2016

The Provincial administrator
Mashonaland Central Province
Kuvaka House 2nd Street
Bindura

Dear Sir / Madam

RE: REQUEST FOR PERMISSION TO CONDUCT A RESEARCH IN MUZARABANI (CHADEREKA AND KAPEMBERE).

I am hereby seeking permission to conduct a research in your area Muzarabani. I am a registered PhD candidate (**Rosemary Kasimba 14K6108**) in the Department of Sociology at Rhodes University, South Africa. My supervisor is Professor Monty Roodt.

I am mainly looking at **the resilience of the community to natural disasters specially floods and droughts**. The main objective of the study is to understand the role of social capital in enhancing community resilience. This research is mainly for academic purpose.

To assist you in reaching a decision, I have attached to this letter a copy of an ethical clearance certificate issued by Rhodes University.

Your permission to conduct this study will be really appreciated.

Yours faithfully

Rosemary Kasimba

CC: The Provincial Administrator
: District Administrator



May you please assist her accordingly.
Rosemary Kasimba

APPENDIX K: CLEARANCE LETTER: UNIVERSITY



RHODES UNIVERSITY
Where leaders learn

Department of Sociology
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PO Box 94, Grahamstown, 6140,
South Africa
t: +27 (0) 46 603 8361
f: +27 (0) 46 603 7549

www.ru.ac.za

03 November 2015

TO WHOM IT MAY CONCERN

This letter serves to confirm that **MS ROSEMARY KASIMBA (Student No. 614K6108)** is a registered PhD candidate in the Sociology Department at Rhodes University. As part of the PhD Degree, our students are required to conduct research.

Please note that the research process is a vital component of our teaching programme and we would appreciate any assistance that you could give to enable her to meet her commitments in this regard.

Yours Sincerely

A handwritten signature in black ink, appearing to read 'M. Roodt', written in a cursive style.

Professor Monty Roodt
Supervisor

APPENDIX L: PROGRAMME IN THE FIELD

Introductions

Councillors of wards
 Village heads
 Community

Data Collection Programme

	Chadereka	Kapembere
Questionnaire administration	169	136
Focus Group Discussions	Elderly x2 Child heads (male)x2 Single heads of households Female heads x2 Male x2	Elderly x2 Child heads (male)x2 Single heads of households Female heads x2 Male x2
Key Informants Interviews	GMB officials x2 District Administrator Member of Parliament Chief Civil protection unit NGOs field officers (Here I ended up doing 5 from different NGOs that were operating in the area) Agricultural Extension Officers x2 Health workers x2	
	2 school heads Councillor	2 school heads Councillor
Observations (continuous process)	female headed householdsx5 child headed householdsx5 Elderly x5 (Observing their general	5 female headed householdsx5 5 child headed householdsx5 Elderly x 5 (Observing their general interaction

	interaction with regard to how disaster resilience.)	with regard to how disaster resilience.
--	---	--

APPENDIX M: Table 1: Table for Determining Sample Size from a Given Population.

NSNSNS

10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Key

N= is population size

S=sample size

APPENDIX N: PICTURES IN THE FIELD



An interview with a key informant who is the Project Manager for Help and Germany in Chadereka





A photo with Chadereka ward (second from left, 6 village heads and one of my research assistants)



A photo with Kapembere women who have stayed in the area for more than 10 years



The researcher at the footbridge that was constructed by Chadereka community members across Nzoumvunda River.



In the field working with the Zimbabwe Red Cross Society in Muzarabani.

Posing for a photo with women (one of the most vulnerable members in the society) in Kapembere



One day at Mbuya Serina's homestead



Posing for a photo with some women in Kapembere



Administering a questionnaire in Kapembere



In the field with very high temperature.



Councillor Mutunda introducing me to some of the community members in Kapembere



In the field in Chadereka going under shade to eat my watermelon.



One of the days in the field



In the field in Chadereka chatting with men who were herding cattle near the Hoya River



Where I slept the first day I arrived in Chadereka (at Gunduza Primary School)



Posing for a photo with some community members in Chadereka



A focus group discussion with child heads in Chadereka



At Mbuya Amos's new house after her house was destroyed by water. This new house was built by villagers.



Chatting with some of Chadereka village heads



Posing for a photo when I was taken to Mbuya Amos's home garden



MEDRA PROJECTS

Patsikamambo Community Garden



Piggery Project by MeDRA in Kapembere

