

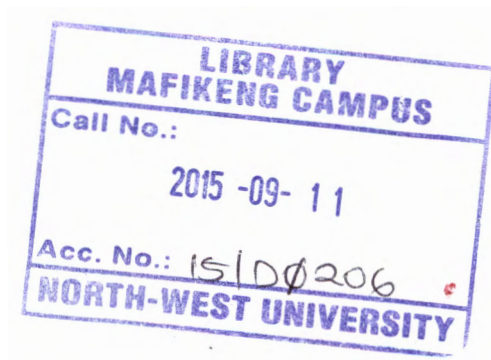
Community resilience to disasters in Botswana

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ABSTRACT

Communities in Botswana have suffered from floods, drought, wild-land fires, windstorms, and heavy rains. The perpetual losses suffered by Botswana motivated the need for research to identify and analyse factors that make communities vulnerable and non-resilient to disasters. The aim of the research was to investigate the resilience and adaptability of communities to disasters in the South East Administrative District, Botswana. This was achieved by undertaking a documented investigation and analysis of hazards and risks, vulnerabilities, and capacities prevalent in three communities (Ramotswa, Otse, and Mogobane) and appraising the perceptions and conduct of exposed individuals and communities. Furthermore, this field study of communities in the South East District was conducted in 2013 using both qualitative and quantitative research method.

The increasing frequency of disaster worldwide (and in Botswana) is complicated further by human induced hazards and climate change. It is estimated that 170 million people worldwide were affected by disasters in 2001 and it is further predicted that by 2025, over half of the people living in developing countries will be highly vulnerable to floods and storms. As such, poverty and vulnerability have been found to account for 98% of those killed and affected by natural disasters in developing countries.

Both qualitative and quantitative research paradigms, the disaster risk reduction and Hyogo Framework for Action inform all aspects of this study. The paradigms and framework provided the context for constructing the research questions and the research methodology. The study was organized in two phases. The first phase was qualitative where 88 participants, 6 (six) focus groups, and 26 key informants were interviewed to understand their perception of hazards and risks, vulnerability, and resilience and their experiences of disasters. In addition, it was intended to identify prevalent hazards and assess the impact of disasters on the life of community members, as well as existing disaster policies in the district. Focus group discussions and interviews with participants and key informants were conducted. The second phase was quantitative where 3567 (94%) respondents completed the questionnaires to establish the extent of the problem and its scope, and to describe prevalent resilience characteristics. The crisis, stress, social constructivism and

resilience theories and the ecological perspective provides the analytical lens for the interpretation of data from participants, respondents, key informants, and focus groups discussions.

A key result from the analysis is that communities are vulnerable and are constantly under disaster threat. Although there is a district disaster management committee, it is only active during emergency response and does not address the pre and post disaster activities. As such, communities, families, and individuals lack fundamental knowledge, skills, and techniques that would enhance their resilience to disasters. After reflecting on the issues that make them vulnerable, the participants, key informants, focus groups, and respondents proposed disaster resilient measures for their communities and /or district. In addition, the social workers and community members proposed a radical shift from being reactive to adopting proactive measures to disaster and to empower themselves to reduce disaster related risks.

This study raises arguments for the need to adopt a disaster risk reduction measures designed and implemented alongside community development projects. In particular, that it is necessary to train action teams (social workers, community leaders, disaster related committees, and volunteers) that would keep communities informed and alert about hazards in their physical environment and guiding them to act accordingly during emergencies.

(ACRONYMS)

BRCS: Botswana Red Cross Society

DDC: District Development Committee

DDMC: District Disaster Management Committee

DP: Disaster Preparedness

DR: Disaster Response

DRR: Disaster Risk Reduction

IFRC: International Federation of the Red Cross and Red Crescent Societies

NDMO: National Disaster Management Office

SADC: Southern African Development Community

UN: United Nations

UNHFA: United Nations Hyogo Framework for Action

VCA: Vulnerability Capacity Assessment

VDC: Village Development Committee


VDMC: Village Disaster Management Committee

DECLARATION

I declare that this thesis is my own work and has not been submitted in any form for another degree or diploma at any university or other institution of tertiary education. Information derived from the published and unpublished work of others has been duly acknowledged in the text and a bibliography is provided at the end

A handwritten signature in black ink, appearing to read 'Kgosietsile Maripe', written over a horizontal line.

Kgosietsile Maripe

A handwritten date '2/5/14' in black ink, written over a horizontal line.

Date

PREFACE AND ACKNOWLEDGEMENTS

The community resilience to disaster study in Botswana was conducted in only three communities of the South East Administrative District. It covered Ramotswa, Otse, and Mogobane areas or villages of Ga-Malete and not all the areas that constitute the district. It also reflects the disaster experiences of the people from these areas and the hazards to which they are exposed. The findings and recommendations may not apply to other areas outside this study. In addition, this does not mean that they are the only areas affected by disasters in the district but time would not permit coverage of all areas. The Office of the President, the University of Botswana, the Ga-Malete Tribal Authorities, the District Commissioner, and the Council Secretary in the South East District of Botswana and the North-West University in South Africa contributed to the success of the study. The Office of Research and Development (ORD) of the University of Botswana played a fundamental role by providing ethical clearance, supporting the application for the research permit, and financing the project.

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Great minds are created and made functional by the supreme and sovereign God, the one who gives strength and encouragement to acquire knowledge. To God is the Glory forever and ever, Amen.

Proverbs 18:15 "The heart of the prudent acquires knowledge, and the ear of the wise seeks knowledge."

I acknowledge the special role played by my supervisors – Dr Marilyn Setlaltoea and Dr J. Sekudu (former supervisor) -without whose support and wisdom this work would not been successfully accomplished. On another level, I thank them for their trust in my capabilities. It was their unwavering confidence that kept me working to the very end. I sincerely thank them for the persistent support in unleashing my potential.

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My daughters Merapelo, Mofenyi, and Pelonolo, are pillars in my life that turned the love of God into reality and encouraged me to remain strong. I salute you and encourage you to appreciate that the sky is not the limit to a curious mind. You can grow as far as you desire in life. Tap from the uncommon paths and search the unsearched to chart the course for the future.

I thank my mother Idah Maripe, my siblings, nephews, and nieces for the encouragement and prayers you provided on my behalf. Your presence and love motivated me to move on and learn. Thank you very much and may God bless you.

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CHAPTER ONE

BACKGROUND TO THE STUDY

1.1. INTRODUCTION

Natural, technological, and human made disasters continue to be a major challenge and drawback to economic development worldwide (IFRC, 2009:132a). The Botswana Press Agency (BOPA, 2008: 3) reported that Sven Harmeling, the Polish Prime Minister, in Poland stated that 15000 people around the world died in 2007 from extreme weather events. Tearfund (2004:4) showed that Hurricane Mitch in Central America killed 27, 000 people in 2001 and the Gujarat earthquake in India killed 20, 000 in the same year. Furthermore, the Bam earthquake in Iran in 2003 killed 30,000 people beside the structural damages it caused. The numbers of those killed increases for developing countries where hundreds of thousands of people continue to perish due to natural disasters. In 2000, the torrential rain and floods that brought devastation and catastrophe to Mozambique affected Botswana, damaging roads, houses, and crops, and killing livestock (IFRC: 2007: 155).

The increase in the frequency of natural disasters that affect developing countries is complicated by human induced hazards and climate change posing a huge humanitarian challenge for the international community. The reason is that poverty and vulnerability account for 98 percent of those killed and affected by natural disasters in developing countries (Lopez-Marrero & Tschakert, 2011: 229). In 2001, an estimated 170 million people worldwide were said to have been affected by disasters and it was further predicted that, by 2025, over half of the people living in developing countries would be highly vulnerable to floods and storms (LaTrobe, 2004:4; Rock & Corbin, 2007: 383).

Disasters in Botswana are a challenge for social work as for economics and the environmental sciences. The economists are not only concerned with the distribution of goods and services but also the undisrupted productive economic capacities of communities whereby they can withstand disasters; the environmental scientist seek to ensure a sustainable, productive, and safe physical environment for communities; while social workers ensure that individuals, groups, and communities are functional

within their socio-economic environment without disruptions from disasters. Holden (2000:103) argues that the physical environment provides the following services to the society:

- Resources for wealth creation, based upon renewable and non-renewable types
- Ability to act as a waste disposal system assimilating the wastes of industrial production and other activities such as leisure and tourism
- Influencing our well-being by providing us with aesthetic appreciation and landscapes for recreation
- Providing us with a life support system (the combination of different ecosystems provides us with oxygen and water without which we could not exist).

The International Federation of Social Workers affirms that social work must address barriers, inequalities and injustices, and everyday personal and social problems, and respond to crises and emergencies (Zastrow, 2010: 40). The profession (from the 1920s) has focused on the interaction between people and their environment. The environment varies in this regard from the familial to the communal, economic, political, and geographic (Ife & Tesoriero, 2006: 242).

Social work historically emerged through the influence of world religion, economics, and politics to address disaster effects (Zastrow, 2010: 40). The Judeo-Christian ethic, increased vagrancy and begging at the advent of the industrial revolution. The introductions of the 1601 Poor Laws in England and the Great Depression in 1929 were the factors that brought about a shift in the conceptualization of social problems and the introduction of social security programs by governments.

Botswana is a landlocked country in southern Africa with a GDP growth rate of 4.1 percent in the year 2013. It is considered a middle income country with a per capita GDP of \$16, 800 in 2012 and one of the fastest growing economies in Africa during the last decade (Central Statistics Office (CSO), 2013). Although it is relatively stable politically, it is surrounded by countries experiencing political and economic hardships (Botswana Government, 2010:20). It is a member of various regional and international organizations, such as the Southern African Development Community

(SADC), whose secretariat it houses; the African Union (AU); the United Nations (UN); and the Commonwealth. In addition, it is a signatory to a number of United Nations treaties and conventions including the Hyogo Framework for Action (HFA) (UNISDR, 2005; Botswana Government, 2010:17). The HFA is a global commitment to implement disaster risk reduction with the aim of building the resilience of nations and communities to disasters by 2015 (UNISDR, 2005:1). As such, the Hyogo Framework of Action is intended to inform changes in policies, related legislation, community mobilization, integrative development, and sustainable economic growth (Botswana Institute of Development and Policy Analysis (BIDPA), 2007:3). The incorporation of these conventions into national laws and policies requires the efforts of both government and communities working jointly towards sustainable community economic development.

Botswana, amongst other socio-economic challenges, is prone to persistent droughts, wild fires, floods, windstorms, HIV and AIDS, and animal diseases which the Government has combatted for the past four decades. The National Policy on Disaster Management (1996:1) states that, from 1981 to 1987 and 1991- 1992, the country experienced inveterate and severe droughts. These episodes greatly affected communities dependent on subsistence agriculture particularly rain-fed agriculture and livestock. These are common experiences in Botswana (as in other southern African countries) during the dry period (Botswana Government, 2010:17). Osman-Elasha (2009:1) argues that, currently, 300 million Africans have no access to safe drinking water and 313 million others lack basic sanitation. This state of affairs has led to various health, economic, and social problems in Africa. In addition, Gaborone and surrounding villages in Botswana experience severe water shortages during the dry season which has been a major drawback for the economic growth of the country. The scarcity of potable and industrial water jeopardizes the social and economic development of the people (Vision Council, 2009:6).

The limited amount of rainfall in Botswana has led to depletion of vegetation, soil erosion and land degradation, over-harvesting of trees, and unwillingness by poor communities to conserve natural resources (Maripe and Maundeni, 2010:5). In periods of excessive rainfall, there has been massive destruction to the physical

environment and houses, crops, and plants, as well as the rapid development of gullies (Botswana Press Agency (BOPA), 2009: 4). Disasters, therefore, threaten the socio-economic and political progress of nations and communities and claim hundreds of lives of poor people. It is argued that natural disasters are one strand in a complex web of factors affecting economic development, community livelihoods, and conservation management strategies (UNISDR, 2005:1).

Community and individual resilience is not only a necessary characteristic but an important attribute for survival during disasters or catastrophes. Rock and Corbin (2007:383) argue that major disasters cause a multiplicity of social and economic problems and wreak havoc in the lives of individuals, families, and communities. As such, communities must take deliberate action to prepare themselves for such eventualities for survival and sustenance. The challenge is that developing countries lack adequate public health infrastructure and structural emergency planning, efficient communication and transportation systems, and the human and material resources to mitigate against major disasters and / or ensure quick recovery (Tobin & Whiteford, 2002:28).

Aghabakhshi and Gregor (2007:347) assert that social workers' skills in communication, networking, stress management, and therapeutic listening are fundamental in both immediate and long-term responses to disasters. Social workers have to acknowledge that social capital will sustain communities experiencing change when it is coupled with elements of trust, reciprocity, and mutuality. Hawkins and Maurer (2007:1777), in their study of how New Orleans residents in the USA utilized their social capital to survive Hurricane Katrina, found that homogeneous and heterophilous (diverse) interactions amongst residents are essential elements for resilience during disasters. According to Airhihenbuwa (2010:1) when responders address issues confronting communities, they must take culture into account because they are assuming some roles and responsibility on behalf of the community. He asserts that culture is central to knowledge production, distribution, and acquisition in building resilience towards hardships.

Social work must address factors that negatively affect and make communities vulnerable to social injustice, poverty, and disaster. Reducing community

vulnerability to factors that promote deprivation, pollution, environmental degradation, and poverty, reduces individual vulnerability as well. Social work interventions in Botswana and in the African context must deal first with the community and then transcend to the individual level unlike in the west where the opposite is the norm (Osei-Hwedie, 2007: 26; International Federation of Social Workers (IFSW), 2000: 1). The radical social work perspective and professional emphasis on community development, accommodates community safety and resilience towards disaster as a well situated subject of study in the social work profession. It is indispensable for social workers to study factors that promote community safety and resilience, strengthen community preparedness capacity to bounce back, establish early warning systems, and monitor locally related hazards. It is also important for social workers to conduct on-going research in their communities to ascertain levels of resilience, safety and mitigation, and preparedness to respond to local disaster hazards (IFSW, 2000:1). The proposed study assessed how social work services respond to disasters and the adaptive systems of communities in the south eastern part of Botswana which are vulnerable to various natural disasters.

1.2. PROBLEM STATEMENT

Botswana, as a developing country, is overwhelmed by storms, floods, livestock diseases, and droughts which prove complex to address. The National Disaster Management Office (NDMO, 2009: 11) reported that in 2007 and 2008 four districts which are, Chobe, South East, Ngamiland, and Ghanzi, were seriously affected by floods, heavy rains, and wild fires besides common minor hazards, such as road accidents, malaria, and foot and mouth disease. In 2007, 12.7 percent of the total land area in Ngamiland district was burnt and 157 households were affected by floods necessitating evacuation to temporary camps. Other hazards that endanger communities in the district are foot and mouth disease, contagious bovine pleura pneumonia, tsetse fly, locusts, and lethobo flies (Maripe & Maundeni, 2010: 5). In the same year, Ghanzi district suffered from floods and wild fires which destroyed more than 5 million out of the 11, 791, 000 hectares of communal and state land. In Chobe the floods and wild fires affected Satau, Parakarungu, and Kachikau villages besides the common animal disease outbreaks, migratory pests, and HIV and AIDS in the areas (NDMO, 2009: 8).

The International Federation of Red Cross and Red Crescent Societies (IFRC) (2009:127; IFRC, 2009: 1) states that weather related disasters globally have increased from an annual average of 200 in the early 1990s to more than 350 a year since the year 2000. The increase in disasters relates to equally rising numbers of people affected worldwide. These numbers have risen from an average of 190 million per year in the 1990s to 243 million in 2008. IFRC (2009: 77) further states that the high number of climate related disasters in 2008 (floods, storms, heat-waves, and droughts) accounted for 60 percent of grants allocated by its Disaster Relief Emergency Fund (DREF), of which Botswana was a beneficiary for Gweta and nearby villages.

Disasters affect all categories of people from the young to the elderly, the sick, women and children, people living with disability, and the economically deprived who are more vulnerable to various hazards. The Asian Development Bank (2005: 3) showed that 600 million people worldwide live with physical, sensory (deafness, blindness), intellectual or mental health impairments; significant enough to make them vulnerable to disaster hazards. It is indicated by the World Bank (2004: 1) that 80 percent of the 600 million live in developing countries. They are vulnerable to disasters because of their disability and are further subjected to discrimination during humanitarian interventions (IFRC, 2007: 87). Their vulnerability is complicated by the nature of their impairment and whether they are capable of accessing the available disaster warning information or disaster capacity building programs.

A community resilience study is necessary for communities in Botswana that continue to suffer from wild fires, animal/ cattle diseases, drought, HIV and AIDS, recurring floods, windstorms, and heavy rains (Maripe & Maundeni, 2010: 5). Disasters and related hazards have caused massive damage and loss of life in the South East District, and continue to pose a serious threat to poor Botswana communities. Although the poverty level has declined from 47 percent at the millennium to 28 percent, it is still high (Vision Council, 2009: 6). The percentage of those living below the poverty datum line is still high for a population of just over 2 million and it is likely to increase when disasters strike.

Disaster risk in Botswana is complicated by the prevailing socio-political and economic issues afflicting other southern African nations (Botswana Government, 2010: 17). Therefore, disaster hazards cannot be ignored in developed or developing countries. The combination of natural and technological hazards (NATECH) usher in diverse disaster problems that are more destructive to human lives and the environment than in the past (UNEP, 2002: 276). Disaster challenges, if not attended to, may culminate in unintended consequences and complicate community socio-economic problems.

Botswana communities' knowledge on how to systematically deal with hazards prevalent in their area is worrisome. Sometimes, communities are unwilling to cooperate with responders, relocate to places of safety, or change habits that make them vulnerable to disasters (Maripe & Maundeni, 2010: 5). This complicates the generation of appropriate disaster strategies that would protect the key development sectors like agriculture, water, energy, transport, and health (Hellmuth, Moorhead, Thomson & Williams, 2007: 3). These communities which comprise predominantly subsistence farmers have lost crops and livestock which are the very basis of their livelihood (NDMO, 2009). The loss of cattle and crops predisposes these subsistence farmers to poverty because many do not have alternative means of economic support (Maripe & Maundeni, 2010: 5; Harding, 2007: 295).

Although the Government has made concerted efforts to design systems and approaches to manage disaster hazards, these have not translated into community safety and resilience. Besides, disaster related information from developed countries is failing to reach decision makers and communities in a useful and usable form (Rock & Corbin, 2007: 383). Disaster challenges in Botswana demand a cultural reorientation in communities' lifestyles, a change in their way of thinking, and the development of integrative policy guidelines. Effective disaster risk management relies on a practice that is inclusive of various levels in decision making. Therefore, this study will assess factors that hinder or promote community safety and resilience in Ramotswa, Otse, and Mogobane in the South East Administrative district of Botswana, such as community strengths and weaknesses and systems to manage the prevailing vulnerability to disasters. Currently, no study has been conducted to address this challenge in Botswana; especially within communities themselves. This

study therefore seeks to ascertain the role played by social work and if nothing was done in all instances, to indicate the importance of social work role in disaster risk reduction.

1.3. RESEARCH QUESTIONS

Grinnell (2001: 75) states that specific research questions identify the general problem and the population to be studied. Furthermore, they tell the researcher what he or she wants to know and alert him or her to potential data sources. It was against this understanding that the following questions were formulated:

- What disaster related policies, legislation, systems, and strategies are available to enhance community resilience?
- What are the available community preparedness systems, measures and disaster risk reduction strategies?
- What are the community perceptions of disaster hazards, vulnerability, and risk in the South East Administrative District?
- Which disaster, hazards, and risks are prevalent and pose high risk for communities in the South East District?
- Which are high disaster risk areas and what enhances resilience to disasters in those areas?
- What role do social workers play in building community resilience to disasters in the south east district?
- What proposed intervention strategies would be appropriate for policy makers, social work, and communities?

1.4. OPERATIONAL CONCEPTS

- **Community:**

A community is a group of individuals and households living in the same location and having the same hazard exposure, who can share the same objectives and goals in disaster risk reduction (Victoria, 2008: 271). According to Brueggemann (2006: 116) communities are natural human associations based on ties of intimate personal relationship and shared experiences in which each of us mutually provide meaning in our lives, meet our needs for affiliation, and accomplish interpersonal goals. In this

case, community will refer to groups of individuals and households in the same locality and vulnerable to similar hazards and risks, and who can jointly devise actions to reduce risks.

- **Community resilience:**

Lopez-Marrero and Tschakert (2011: 229) and Schoch-Spana (2008: 130) define community resilience as the capacity of a community to absorb hazard disturbance, learn from mistakes in past responses, reorganize after disturbing events, and prepare for future possible shocks and anticipated impacts. Godschalk (2003: 137) views local resiliency as the ability to withstand an extreme natural event without suffering devastating losses, damage, diminished productivity, or quality of life and without a large amount of assistance from outside the community. In this case, community resilience refers to the ability of the community to survive catastrophic effects within a reasonable time using locally available resources.

- **Disaster:**

A potentially traumatic event that is collectively experienced, has an acute onset, and is time delimited; disasters may be attributed to natural, technological or human causes (Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008: 127). Rock and Corbin (2007: 383) see disaster as a severe destruction that greatly exceeds the coping capacity of the affected community. Therefore, disaster will refer to any natural or man-made event that negatively affects the normal functioning of a community.

- **Disaster risk reduction:**

Disaster risk reduction is a systematic approach to identifying, assessing and reducing the risks of disaster (Twigg, 2007: 6). IFRC (2009: 2a) view disaster risk reduction as reducing disaster risks (losses) through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, correct management of land and the environment, and improved preparedness for adverse events. Disaster risk reduction will refer to systematic ways of mapping hazards and risks and designing strategies to reduce vulnerability.

- **Hazard:**

Hazard refers to a potentially damaging physical event, phenomenon or human activity that may cause loss of life or injury, property damage, social and economic disruption or environmental degradation (UNISDR, 2005:1; IFRC, 2000: 6). NDMO (2009: 52) defines hazard as a dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption or environmental damage. A hazard in this study will refer to any event natural or man-made that may seriously affect livelihood and human life.

- **Risk:**

Risk refers to the expected or anticipated losses (lives lost, people injured, property damaged, and economic activities or livelihoods disrupted) from the impact of a given hazard on a given element at risk over a specific period of time while risk analysis involves *determining* the probability or possibility of disaster happening (IFRC, 2000: 6a). National Disaster Management Office (NDMO, 2009: 50) define disaster risk as the potential losses of lives, health status, livelihoods, assets and services, which could occur in a particular community or society over some specified future time period. Risk in this study refers to the likelihood of disasters and the potential losses that may be incurred.

- **Vulnerability:**

Vulnerability relates to an individual's or community's lack of capacity to cope with specific threats at a certain point in time (IFRC, 2000: 6a). Pelling and Uitto (2001: 51) state that vulnerability is a product of physical exposure to natural hazards and human capacity to prepare for or mitigate and recover from any negative impacts of disaster. Vulnerability to disaster refers to the exposure of a community to suffer losses or damage in the event that a disaster occurs.

1.5. AIMS AND OBJECTIVES OF THE STUDY

1.5.1. AIM

The aim of this study is to investigate the role of social workers, and resilience and adaptability to disasters of communities in the South East Administrative District, Botswana.

1.5.2. OBJECTIVES

According to Brueggemann (2006: 67) objectives refer to specific activities that need to be accomplished to attain goals and each objective should be smart and meet five criteria, that is, attainable, realistic, time-bound, specific, and measurable. The objectives of this study are as follows:

- To interrogate community perception of hazards, vulnerability, and disaster risks in the South East District
- To determine community preparedness systems, measures and disaster risk reduction strategies
- To identify community related disaster policies, legislation, and programmes in the district
- To determine hazards and risks that are prevalent and pose high risk for communities in the South East District
- To identify areas of high disaster risks and vulnerabilities in the three communities of the South East District
- To identify the role of social workers in enhancing community resilience to disasters
- To design community based disaster strategies for the South East District disaster committee.

1.6. DELIMITATION AND LIMITATIONS OF THE STUDY

According to Creswell (1994: 110) delimitation suggests how the study will be narrowed in scope. Limitation indicates a potential weakness in the design of the study. The scope of this study was limited to three communities of the South East Administrative District of Botswana; involving community leaders, community

members, village disaster committees, stakeholders, and social workers at the local level.

Secondly, the limitations may result from the researcher's personal convictions as an instrument of data collection in a qualitative study about certain issues in the study may affect the site or pose a threat to plausibility or validity. The researcher was careful not to over-immense himself with participants of the study to minimize the difficulties in collecting credible data. In addition, the presence of the researcher ensured that the ecology of the natural setting was not altered to capture reality as it existed naturally (Cohen, Manion, & Morrison, 2000: 129; Bogdan & Biklen, 1998: 82). The 15 days spent in the field were not sufficient to collect extensive information that could lead to definitive conclusions about the experiences of the vulnerable communities. The respondents and participants were at work during the day and came back in the evenings, and some of those at home were not as forthcoming as expected due to other community and individual commitments and /or not willing to participate in the study.

1.7. STRUCTURE OF THE STUDY

- Chapter One: Introduction and Orientation to the study
- Chapter two: The chapter gives a general overview of Botswana and disasters
- Chapter three: This chapter provide an extensive literature review of the subject under study
- Chapter four: This chapter presents the research methodology
- Chapter five: This chapter presents policy analysis and interpretation in relation to the study
- Chapter six: Phase I Qualitative Findings for Ramotswa, Mogobane, and Otse communities presented
- Chapter seven: This chapter presents the discussion of the qualitative phase
This chapter presents the discussion of the qualitative phase
- Chapter eight: Phase II: Quantitative Findings / Results Ramotswa, Mogobane, and Otse communities presented
- Chapter nine: This chapter presents the discussion of the quantitative phase

- Chapter ten: This chapter presents the conclusion and recommendations of the study

1.8. CONTRIBUTION TO SOCIAL WORK

The study is envisioned to contribute to the improvement of the social work profession in various ways including social work education in Botswana. It will identify key areas of focus that the profession should incorporate in its work with individuals, groups, and communities as well as issues central to policy advocacy in the country. The significance of the study is detailed below:

1.8.1. SOCIAL WORK PRACTICE

Social workers employed in the Ministry of Local Government serve in communities that are prone to and suffer from various disasters. These communities face several problems, including poverty, which makes them vulnerable to disasters. The disaster formula shows that hazard + vulnerability or hazard x vulnerability = disasters. It is unwise to ignore factors that make people vulnerable to disasters like poverty. The aftermath of disasters complicates poverty levels for communities and makes eradication interventions irrelevant or complex. The study will provide a framework for social workers working with communities on how to build safety and resilience through disaster risk reduction.

1.8.2. SOCIAL POLICY:

The findings will assist the strengthening of community-based disaster programmes, policies, legislation, and systems. It will provide a base for the evaluation of disaster management policy and its relevance to the needs and vulnerabilities of communities as well as provoke professional debates on the state of community disaster preparedness in Botswana. It will further contribute to the development of relevant community disaster risk reduction measures.

1.8.3. RESEARCH:

The study identified areas for further research to strengthen the disaster knowledge base in the context of Botswana. It will provide scholarly perspectives for social

workers to study vulnerable communities and design appropriate technologies to reduce disaster risks and vulnerabilities.

1.8.4. EDUCATION:

The study will serve as a source of information for the realignment of the University of Botswana social work curriculum. It will guide the design of a comprehensive and relevant social work educational programme to address community resilience to disasters. The development of such an educational programme will enhance the training of community development practitioners to implement community based disaster management programmes (CBDMP) and engage in educational public awareness campaigns.

1.9. SUMMATIVE CONCLUSION

The chapter argues that disasters are increasingly serious problems for individuals, groups, and communities worldwide. It further asserts that the frequency of natural disasters affecting poor communities in developing countries, Botswana included, are complicated by climate change and poverty. As such, poverty cripples the ability of communities, groups, and individuals to absorb and withstand the impact of disasters. They are made vulnerable by the losses they incur during prolonged droughts, heavy rains, windstorms, and HIV and AIDS. Basing on these factors, social workers practising with communities, groups and individuals are to position themselves to assist communities prepare and respond effectively to disasters.

CHAPTER TWO

OVERVIEW OF DISASTERS IN BOTSWANA

2.1. INTRODUCTION

This chapter gives an overview of common disaster hazard distribution at global, continental, regional, and local level and the related complication suffered by the people. It gives an overview and the geographic location of Botswana as a country, its structure of governance, economic status, international and regional relationships, and population composition. It also shows the map of the districts and the south east administrative district where the study was conducted.

2.2. INTERNATIONAL AND REGIONAL DISTRIBUTION OF DISASTER HAZARDS

Globally disasters are problematic for developed, developing and less developed countries (Pelling & Uitto, 2001:50). Although disasters may vary from country to country depending on the socio-political and economic status of each country, they may complicate already existing problems of poverty, political conflict, unemployment, and weak economies. They stall developments and erode economic achievements and the ability to absorb the shocks brought about by disasters (Drabek, 2001:76). Asian countries are troubled by tsunamis, cyclones, tornadoes, and earthquakes. The USA is affected by wild land fires, floods, and cyclones (UNISDR, 2003: 5). Australia faces floods, fierce wild fires, and heavy rains (Inter-American Development Bank, 2007:1). China is prone to earthquakes, mudslides, floods, cyclones, and tornadoes while Israel had to deal with cross – border political conflicts, terrorism, structural failures, and droughts (LaTrobe, 2004).

The southern Africa region which comprises some countries south of the equator deals with similar hazards which are droughts, floods, food insecurity, increased population movement, poor hygienic conditions, scarcity of water, aftermath of war, and political as well as economic instability (Maripe, 2011: South Africa Weather Service, 2003). South Africa experienced years of racial discrimination and oppression, political intolerance, and inequalities. It also suffered from floods, road and mining accidents, HIV & AIDS, windstorms, and is prone to droughts (SADC,

2001:8). Namibia is also prone to droughts, floods, and wild-land fires and is recovering from the wounds of civil war. Zimbabwe, Zambia, and Mozambique are within the earthquake belt and are also recovering from civil unrest that dragged on for years. Lesotho and Swaziland have been affected by floods, windstorms, food insecurity, and cold fronts because of climate change (UNISDR, 2003).

2.3. OVERVIEW OF BOTSWANA

Botswana is a land locked country in the sub-Sahara region of Africa. It borders South Africa on the south and eastern side, Namibia in the west, and Zambia and



Figure 1: Map of Botswana

Zimbabwe in the North and North West. Botswana covers an area of 600,370 sq. km making it just slightly smaller than Texas and slightly larger than France (World Bank, 2013). It has a population of about 2,030,738 million people which is concentrated in the eastern part along the railway line that runs from the Cape to Cairo and the west is a hub for wildlife and

tourism (Central Statistics Office, 2011). Botswana is a multi-party democracy with a relatively stable political environment. It gained independence from Britain in 1966 with the late Sir Seretse Khama being the first President, following a unicameral governing structure with strong emphasis on a decentralized administration policy system (Davis, 1996).

2.4. BOTSWANA GOVERNANCE STRUCTURE

The central government is made up of 12 Ministries with executive powers within the Botswana's governance structure. It is the principal authority in developing and driving Botswana's socio-economic and cultural policies and programmes. The local government falls within the Ministry of Local Government and Rural Development which has two cities, four (4) town councils, and nine (9) district councils. The District Commissioners who head the district administration, play an administrative role, and are assisted by elected and nominated councilors and district development committees (Botswana Government, 2010-2013).

Currently there are nine administrative districts in the country (Southern, South East, North East, Kgatleng, Kweneng, Kgalagadi, Ghanzi, Central, and North West). These have been further divided into sub-districts to enable efficient and effective service delivery at the community level. It is a multicultural society characterized by the Herero's, BaNgologa, Bakwena, and the Basarwa in the west; Bayeyi, Bahambukushu, Basobeya, and Batawana in the North West; Bakalanga and Bakhurutse in the north east; Bangwato and Bakgatla in the central district; Balete in the south east; and Bangwaketse and Barolong in the southern part. These are dominant groups who are Tswana speaking among others (Tlou & Campbell, 1999).

2.5. BOTSWANA'S ECONOMIC STATUS

Botswana economy has grown over the years from 1966 guided by National Development Plans (NDP). The country is currently implementing NDP 10 (2009 – 2016). Its Gross Domestic Product (GDP) is estimated at \$17,327,510,031 with GDP growth of 5.7 % in 2011 and an inflation rate of 8.8% which is considered to be high (World Bank, 2011). The economy of Botswana is heavily dependent on mining (diamonds, copper, gold, and coal), tourism, and the beef industry that is currently performing badly in the international market. Davis (1996: 175) noted, in 1974, that the cattle-rearing industry would be overtaken by mining and at the time, the beef industry accounted for 60% of exports.

The government is committed to driving the economic diversification policy and strategy through Botswana Export Development and Investment Authority (BEDIA). The discovery of diamonds transformed the country economic status from being one of the least developed to middle income status (World Bank, 2011). Davis (1996: 175) states that economic expansion in Botswana resulted from diamonds, nickel, and copper which placed the country amongst the world's top diamond producers. The economic expansion doubled the average income per person in the country. Botswana has been applauded worldwide for its prudent resource management and distribution, good governance, low corruption levels, and commitment to social justice. It has used its mining revenues for infrastructural development; improvement of health services, financing education and skills development, and potable water reticulation to rural and urban communities.

2.6. INTERNATIONAL AND REGIONAL RELATIONS

Botswana is a member of regional, continental and international bodies. It is a member of the Southern African Development Community (SADC), the African Union (AU), the Non-Aligned Movement (NAM), the United Nations (UN), the Commonwealth of Nations, and the European Union (EU). SADC was established in 1980 to strengthen cooperation in economic and political development amongst member states while the AU was meant to fight to decolonize the whole of Africa and to work for a strong continent through cooperation in political, economic, and / or military areas (Tlou & Campbell, 1999: 388). The Non-Aligned Movement (NAM) was established by the leaders of the third world countries who feared that war might breakout between the western (USA) and eastern blocks (USSR). It was meant to work for world peace to end the cold war by not aligning with either the east or the west, to oppose any interference in the internal affairs of member states by big powers, and the division of the world into spheres. The country has benefitted from the United Nations Development Programmes and the Commonwealth of Nations in dealing with economic and political problems in the region. Botswana exports a large percentage of its beef to European Union member countries (Tlou & Campbell, 1999: 390).

2.7. GENERAL OVERVIEW OF DISASTERS IN BOTSWANA

Botswana has suffered great economic losses from natural disasters such as, drought, livestock / cattle diseases, heavy rains and floods, thunder and windstorms, health hazards (malaria, HIV and AIDS, vectors, and cholera), wild land fires, and environmental degradation. These disasters are widespread across the local government district in the country and the effects have been complicated by the prevailing socio-physical environment (Botswana Government, 1996). As such, the impact of disasters varies according to the districts depending on the socio-economic mode of the community living in the area. Some communities in the north east and western part of Botswana have been impoverished completely by the outbreak of foot & mouth disease, anthrax, and CBPP (cattle lung disease) which decimated their livestock (Botswana Government Report, 2010- 2013). Foot and mouth disease is the cause of the beef industry in Botswana continuing to shrink over the years (NDMO, 2009). It is not known whether the beef industry will revive again and sustain the European Union market as at independence. Besides livestock related hazards,

drought is a major threat for subsistence and commercial agriculture in the country. This is complicated further by HIV and AIDS which is the lead consumer of the Ministry of Health budget in terms of providing Anti-Retroviral Therapy (ART), Preventing Mother to Child Transmission (PMTCT), monitoring systems, education and public awareness campaigns, and surveillance.

2.8. BACKGROUND OF THE SOUTH EAST DISTRICT

The Local Government Administrative District of the South East which covers the following areas: Gaborone, Tlokweng, Ramotswa, Taung, Boatle, Mogobane, and Otse are also affected by disasters.

South East Administrative District is home to Balete and Batlokwa tribal groups who settled there before independence. The Balete were part of Mzilikazi's chiefdom which settled in Ramotswa while others who had migrated with them from South Africa went to settle in the current Zimbabwe. Besides being Tswana



Figure 2: Map for districts in Botswana

speakers, they still consider themselves to be Ndebele ka Mzilikazi (Matebele a mantshonyana a ga Msilikatse) (Davis, 1996). Although Batlokwa and Balete are found in the same administrative district, they subscribe to different cultural norms and totems. Kgosi Seboko is the paramount chief of the Balete based in Ramotswa while kgosi Puso Gaborone is the chief of the Batlokwa at Tlokweng. Three areas in the South East District which have been randomly sampled for this study will be studied, these are; Ramotswa, Mogobane, and Otse. Figure 2 is a map that shows the districts in Botswana; the south east is marked in red near the capital city of Gaborone.

2.9. SUMMATIVE CONCLUSION

Botswana, as a landlocked country, has established regional and international relationships with countries that have diverse resources and expertise in various fields. Although it is has been adversely affected by political, economic, and social problems in the region and internationally, it has continued to remain stable.

Botswana suffers not only from national natural hazards but also from cross- border challenges such as floods, foot & mouth disease, and wild land fires from Namibia, Zambia, South Africa, and Zimbabwe. Besides, the country has good governance and enjoys relative political and economic stability that guarantees an opportunity to strengthen its disaster risk reduction systems. It can draw assistance from the vast expertise available at the United Nations, SADC, and the commonwealth countries that are advanced in building community resilience.

CHAPTER 3

LITERATURE REVIEW AND THEORETICAL FRAMEWORKS

3.1. INTRODUCTION

The aim of this chapter is to define and provide an analytical review of literature dealing with disasters at various levels from the international, continental, and regional to national levels. It will identify the specific programmes, strategies, and approaches that have evolved over time, reasons for their development, and their relevance to the context of Botswana. This chapter will also discuss the appropriate conceptual model the study will propose for community resilience.

Professionals have defined the term disaster with the intention to showing its destructive nature to the environment and the severe effects on the normal functioning of society. Rock & Corbin (2007: 383) defines disaster as “a severe destruction that greatly exceeds the coping capacity of the affected community.” The definition is similar to that of (Norris *et al*, 2008: 127) who view it as “a potentially traumatic event that is collectively experienced, has an acute onset, and is time delimited and attributable to natural, technological or human causes.”

3.2. INTERNATIONAL PERSPECTIVE ON DISASTER RISK REDUCTION AND RESILIENCE

Organizations worldwide have taken the initiative to deal with disasters after the 2004 Tsunami that affected a number of countries. These organizations are found at international, continental, regional, and country levels. They have made significant progress in designing pre and post disaster risk management tools, systems, and procedures. These range from community voluntary organizations to church based, inter-governmental, and non-governmental organizations. Although some organizations at an international level were more inclined to specific target groups, they continue to play a pivotal role in emergency response.

3.2.1. UNITED NATIONS AND SISTER ORGANIZATIONS

The United Nations is an inter-government organization established with a mandate to deal with natural and man-made disasters to save human lives worldwide. It has

different departments to account for various legal and operational mandates under its auspices. The Office for the Coordination of Humanitarian Affairs (OCHA) and the United Nations Development Programme (UNDP) are two of the organizations which are mandated to coordinate humanitarian affairs and disaster emergency and build the capacity of national governments of countries prone to disasters. OCHA in particular was established pursuant to the adoption of the Secretary General's Programme for Reform by the General Assembly Resolution 46/182 to mobilize and coordinate effective and principled humanitarian action in partnership with national and international humanitarian actors. The aim is to:

- Alleviate human suffering in disasters and emergencies
- Advocate for the rights of people in need
- Promote preparedness and prevention
- Facilitate sustainable solutions

According to UNISDR (2005), the United Nations (UN) declared the 1990s as the international decade for natural disaster reduction and in 1994 adopted the Yokohama strategy and plan of action for a safer world. The UN further resolved that all governments, that of Botswana included, should give more resources to preventing and reducing risk based on the five UN priorities for action. This seems to lag behind in Botswana at both district and national level making it difficult to undertake risk reduction measures. The role that government in general and social work in particular is unable to perform is to:

- Ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation.
- Identify, assess, and monitor disaster risks and enhance community and individual early warning systems.
- Use knowledge, innovation, and education to build a culture of safety and resilience at community and individual levels.
- Reduce the underlying risk factors and
- Strengthen district disaster preparedness for effective response.

The United Nations has intervened in many countries which have experienced various kinds of disasters from natural-technological (natech) to manmade. It has intervened in Sudan, Somalia, Cote d'Ivoire, Mozambique, Namibia, Angola, Madagascar, and Israel. In terms of natural disasters, it has assisted Burma, China, Japan, Kenya, Eritrea, and Ethiopia. The UN has established an International Strategy for Disaster Reduction office (UN/ISDR) to assist communities and countries to become resilient to natural disasters and to integrate disaster risk management in sustainable development (UN 1972-2002). This followed the encouragement of the former UN Secretary General Kofi Annan that there must be a shift from a culture of reaction to a culture of proactiveness to disasters.

3.2.2. INTERNATIONAL RED CROSS MOVEMENT AND NATIONAL SOCIETIES

Although the United Nations appears to be the lead agency in disaster coordination, the Red Cross Movement was the first organization that emerged to respond to humanitarian need posed by disaster. It was born in 1859 from the experiences of Henry Dunant, a Swiss businessman who witnessed the battle of Solferino where dead and wounded soldiers were left without any assistance (International Federation of the Red Cross and Red Crescent Societies (IFRC), 2008). He had to abandon his business agenda to mobilize volunteers to bury the dead, attend to the wounded, trace the relatives, and later send the wounded to hospitals. Today, the Red Cross Movement is represented in over 183 countries to provide humanitarian assistance during and after disasters. Its legal and operational mandate is to prevent and alleviate human suffering working as an auxiliary to public authorities. The movement is guided by seven fundamental principles which are: humanity, impartiality, neutrality, independence, voluntary service, unity, and universality (International Committee of the Red Cross (ICRC), 2001; IFRC, 2009).

The International Red Cross Movement is a three arms organization with specified roles and responsibilities as follows; 1) the International Committee of the Red Cross (ICRC) mandate is to help victims of war and internal violence, to promote compliance with international humanitarian law, and to ensure respect for the human being; 2) the International Federation of the Red Cross and Red Crescent Societies (IFRC) is mandated to address natural disasters and build National Societies' capacity to serve the nation; and 3) National Societies (NS) are authorized to act as auxiliaries to the public authorities of their own countries in the humanitarian field and

provide a range of services including disaster relief and health and social programmes (Botswana Red Cross Society, 2006).

The International Federation of Red Cross and Red Crescent Societies (IFRC, 2009) asserts that the global village is overwhelmed by disaster of varying magnitude. For example, the Philippines from 1971 to 2000 suffered nearly 300 natural disasters that killed 34 000 Filipinos while from 1990 to 2000, 35 million people across the country were severely affected (IFRC, 2009: IFRC, 2010). Until lately, many countries in the world have suffered severe economic losses as a result of natural and / or human induced disasters (IFRC, 2004).

IFRC (2007) has shown that tsunamis continue to cause massive devastation for Asian countries while hurricanes, lightening, cyclones, and floods equally affect America, Europe, and African countries. The complexity of natural disasters is compounded further by climate change that presents unpredictable weather patterns. As such, changes in weather patterns make development a complex process and speed up environmental degradation. The World Conference on Natural Disaster Reduction (2005) found that 2/3 of all disasters are climate or weather related. The impact of these disasters is multifaceted, complex, and, most importantly, has serious effects on community development in the districts of Botswana. Despite the existence of the Red Cross movement in Botswana, community resilience to disasters is inadequate.

3.2.3. UNITED STATES OF AMERICA DISASTER MANAGEMENT EXPERIENCE

In the United States of America hazards like hurricanes, cyclones, veldt fires, floods, and terrorism have caused massive destruction to infrastructural developments like roads, telecommunication, buildings and bridges and high mortality rates and injuries, as well as consuming billions of dollars in humanitarian response. Due to the escalation in costs, disasters are no longer a concern only for humanitarian actors but also for financial institutions like the World Bank, Inter American and Asian Development Bank, and Germany's GTZ (Inter-American Development Bank, 2007).

Graig deSaliva (2011) President of the National Association of Social Workers in the USA, states that social workers have continued to take centre stage in disaster management. For example, their role in disaster response was more visible during

the Oklahoma City Bombing that occurred on the 19th April, 1995; World Trade Centre and Pentagon September 11, 2001 disaster; and Hurricane Katrina that hit New Orleans in September, 2005. The role of social workers involved mobilizing Red Cross volunteers to fill response positions nationwide, leading state wide disaster recovery in Texas and Louisiana, and administering the US\$200,000 Federal grant to identify and deploy social workers to the Gulf Region.

Hawkins and Maurer (2010) conducted a qualitative longitudinal study in New Orleans, using grounded theory and ethnographic elements to examine the different types of social capital of bonding, bridging, and linking through the lens of social work. They used a life course perspective with a grounded theory which included semi-structured interviews followed by more directed interviews. The interviews were tape-recorded and transcribed verbatim and field notes were taken, compared, and analysed. The intention was to understand how residents utilized their social capital to survive the storms, relocate, and rebuild their lives and communities. It was further intended to increase social workers' understanding of the nature of social capital and how it can strengthen or hinder individual and community development following a catastrophic event. They found that homogeneous communities exhibited mere bonding but less bridging and linking social capital at societal and institutional level which is instrumental in speedy recovery during disturbances.

Furthermore, they found that the breakdown of heterophilous disaster response especially at the national level, lack of pre-hurricane disaster preparedness, no Red Cross sanctioned shelters within New Orleans, no drivers for evacuation busses, and neglected levees all contributed to the magnitude of the disaster. They argued that communities that are economically and racially segregated would find it difficult to build heterophilous bridging and linking social capital. They would be at risk of damage from weather-generated disaster because of slow recovery efforts due to the lack of financial capital and political power (Hawkins & Maurer, 2010). This is a possible outcome for communities in Botswana that have not strategically defined their disaster risk reduction measures.

3.2.4. DISASTER EXPERIENCE AND RESPONSE IN CHINA AND CAMBODIA

China and Cambodia are examples from which Botswana might learn. The IFRC (2008) has shown that China and Cambodia are prone to natural disasters that affect

lives and livelihoods of millions of people. These vulnerable communities were helped by their national Red Cross Societies to prepare for and withstand such disasters. They were assisted to implement community based disaster preparedness programmes (CBDP) that embrace integrated programming and cooperation with local authorities both of which have contributed to their appropriateness, efficiency, and sustainability (IFRC, 2007). Botswana districts do not have community based disaster preparedness programmes though they are vulnerable to similar hazards that affect livelihoods.

Floods in China are increasing in frequency and it is counted amongst the most disaster prone countries in the world subject to flash floods, landslides, earthquakes, typhoons, and drought. These hazards ruin millions of hectares of farmland and livelihoods. Furthermore, poor rural sanitation and unsafe and unprotected water supplies present enormous health hazards. The effluent washed from crude village latrines contaminates surface and ground water. Soaring urban populations, environmental degradation, poverty, and disease compound seasonal hazard to create a situation of chronic vulnerability. Flood disasters have had adverse effects on the country's' economy such as in the late 1990s when 1666 hundred million Yuan were lost (Guo Quisheng *et al*, 1999).

The Chinese intervened through community vulnerability reduction and integrated planning supported by the European Commission's Humanitarian Aid Department (ECHO). It promoted a comprehensive community disaster plan that combined sanitation (toilet construction), health, and hygiene education, disaster preparedness, and water supply activities. This approach ensured communities' access to safe water supply, improved sanitation, and hygiene education to help prevent the spread of disease. Health education was meant to ensure that they had the resources and knowledge to support a sustainable improvement in their general health and living conditions (IFRC, 2007). In Botswana, communities bank on the top-down approach rather than driving their own disaster risk reduction efforts. The objectives of community disaster preparedness programme in general are to:

- Support the development of the skills, knowledge, and education resources of the Red Cross Society in participatory disaster preparedness methods

- Improve the preparedness of vulnerable villages by developing their capacities to identify and implement disaster mitigation (IFRC, 2008: 3).

Cambodia is another country that established community based disaster programmes because the lowland areas of Kratie province are bordered by the Mekong River in the west, its tributary to the north, and a series of lakes to the east experience seasonal flooding and agricultural drought. During rainy season the Mekong River overflows its banks, fertilizing fields and flooding the forest. While the phenomenon sustains the farming and fishing livelihoods of the local communities, it has also put them at high risk when the annual flooding is higher and longer than normal (IFRC, 2008: 4).

Therefore, in 2003 the Cambodian Red Cross Society conducted a vulnerability capacity assessment (VCA) in 27 villages. The VCA encouraged participation from all sectors of the community which led to the formulation of village disaster reduction plans. The plans were meant to serve as guides for households and communities in undertaking activities to prepare for or mitigate the impact of various hazards. The following people were identified as the most vulnerable groups by the VCA process:

- People living in marginalized areas
- Women with many children under the age of 12 years
- The elderly or widowed, and
- People living with HIV and those with disability (IFRC, 2008)

A programme to reduce risk and improve preparedness was designed and adopted. They then established community disaster management committees similar to those in China. The programme sought to empower villagers, local volunteers, and community based organizations to work together with the aim of increasing understanding of various hazards, raising awareness of risks, and responding to disasters when they occur. They established teams from community members and Red Cross volunteers which were trained to carry out various tasks, making use of local expertise and experience (IFRC, 2009a). The teams were divided as follows:

- A flood forecast and early warning dissemination team
- An evacuation team equipped with a community boat
- A team to clean and set up safe areas and
- A team to educate communities on flood related health issues.

3.2.5. ISRAELI SOCIAL WORKERS' DISASTER EXPERIENCE

According to Yanay and Benjamin (2007) social workers, the police service, the forensic institute, and notification units in Jerusalem municipality are assigned to the disaster sites. It is at the sites that social workers use formal and informal ties to establish a closely knit helping network. In this regard, Sweifach, LaPorte, and Linzer (2007) conducted a qualitative study in Jerusalem using a semi-structured focus group protocol to examine how Israeli social workers contend with ethical issues regarding confidentiality and disclosure in the aftermath of a terrorist attack. The focus group questions addressed four areas: how / if the respondent's personal life has been affected by a terrorist act, how / if the respondent's professional practice has been affected by a terrorist act, how / if the respondents experienced any practice or ethical conflicts during the aftermath of a terrorist attack, and examples of practice or ethical conflict. The study was motivated by the existence of strict government protocols and procedures that social workers and others must adhere to when responding to and coping with the effects of terrorist attacks and wars.

During times of crisis in Israel, social workers' provide families with information and assistance, meet worried members searching for missing relatives, and accompany families to the morgue. They apply social work skills associated with relationship-building, empathy, solace, and provision of information to the helping process. They are expected to bring the human touch that a distraught, beleaguered, and grieving family desperately needs in traumatic times. It is argued that the helping process under these conditions is complex, infused with subjectivity, confusion, and conflict which undermines the ability of social workers to render effective service, especially where decisions are laden with ethical and moral overtones (Sweifach, LaPorte & Linzer, 2007). In Botswana, social workers are called to assess the damage and ascertain the loss and, thereafter, recommending for possible food rations. They are

not involved as stakeholders with professional knowledge of dealing with loss and grief.

3.2.6. IRAG DISASTER EXPERIENCE

According to Harding (2007) Iraq has suffered more from human-created disasters than natural disasters as in other countries. The assertion is that human-made disasters cause human suffering especially among vulnerable groups, disproportionately women, children, and older and poor people (Rock & Corbin, 2007). This acknowledges the need for social workers' intervention to protect the weak and vulnerable and promote social justice and respect for humanity. The same author states that social work is predicated on the values of social justice and elimination of all forms of oppression, discrimination, and inequality, including those that are disaster related. Despite their participation, it is asserted that social work response in Iraq was limited to helping victims deal with trauma by providing mental health and social services, and planning and implementing responses to natural and technological disasters. He proposed that social work should play a major role in shaping policies to prevent and effectively respond to human-made disasters (Harding, 2007).

3.3. DISASTER EXPERIENCE ON THE AFRICAN CONTINENT

Literature shows that 330 million people in sub-Sahara Africa live in extreme poverty and fail to keep pace with the rest of the world in terms of development. Poverty makes people vulnerable to various hazards (including HIV and AIDS) and limits their choices (IFRC, 2009). Natural disasters such as floods and sudden illness in Africa overwhelm poor households and destroy their ability to cope. They experience crop failure without alternative and sustainable means to provide for their family subsistence (IFRC, 2007). It is estimated that 70 percent of the population of sub-Saharan Africa survives on subsistence agriculture which relies heavily on rain and fails when there is no rain. Other problems prevalent in Africa like malaria are influenced greatly by climate change and affect the poor more than other groups (IFRC, 2009).

According to Woods and Lusaka (2009) droughts have increased in frequency in north and western Uganda. The changing rainfall patterns have led to food insecurity

and increased social conflicts between communities for scarce water and pastures. OCHA (2009) estimated that in 2008 there were 108 internationally reported disasters 99 percent of which were climate related. The number of people affected by disasters annually has doubled over the last twenty years from 9 million to 16.7 million in 2008. Drought accounts for 75 percent of disasters on the continent and 220 million people are annually exposed. It is stated that the poor and the most vulnerable communities are the ones who suffer most from the negative effects of climate change (Holmes, 2009). OCHA projects that by 2020 rain-fed agriculture will have reduced by half because of shifting rainfall patterns (OCHA, 2009).

3.3.1. REGIONAL AFRICA'S PERSPECTIVE ON DISASTER RISK REDUCTION AND RESILIENCE

The South Africa Weather Service (2003) states that southern Africa has experienced floods in 2003 that affected more than 500, 000 people and displacing nearly 100 000 in Angola, Botswana, Madagascar, Malawi, Namibia, and Zambia. The floods are said to have washed away 230, 000 hectares of crops and left nearly eight million people food insecure and at heightened vulnerability. The challenges brought about by floods are complicated further by cholera epidemics affecting more than 150,000 people in the nine countries.

In Angola, the 2008 floods killed 60 people, affected 220 000, more than 81 000 were displaced, and 4000 houses were destroyed. The Madagascar Cyclone, Jade, in the same year killed 6 people, affected 60,818 people, left 4000 without shelter, and 5628 houses damaged. The situation was worse in Namibia where 350 000 people were affected, 92 were reported dead, and 54,581 were displaced or left without shelter. This is a sign of the vulnerability of the southern Africa region towards disasters (OCHA, 2009).

3.4. NATIONAL PERSPECTIVE ON DISASTER RISK REDUCTION AND COMMUNITY SAFETY AND RESILIENCE IN BOTSWANA

The impact of extreme weather conditions on agriculture and livestock production have been felt heavily in Botswana. The country is semi-arid and characterized by 75 percent of the land being a semi-desert (Osei-Hwedie, 1998). Botswana's major engines of foreign exchange growth besides diamonds are tourism and agriculture

which are climate sensitive. The tourism industry in Botswana is based on wetlands, grasslands, forest reserves, and wildlife without which the national economy will decline in its gross domestic product (Botswana Review, 2010).

The effects of climate change have negatively impacted community tourism and agriculture due to increased floods and severe drought. Climate change is defined as “any change in climate over time, whether due to natural variability or as a result of human activity” (Cipryk, 2009: 2). Vulnerability to climate change varies depending on the combined effect of the systems internal coping capacity and the nature and severity of the shock.

3.4.1. ROLE OF CENTRAL GOVERNMENT

The Botswana Government has established a disaster management system to coordinate programmes at both national level and district levels. A National Disaster Management Office (NDMO) was established in 1996 in the office of the President to coordinate disaster related issues, after the national disaster policy was approved by Parliament (Botswana Government, 1996). In 2009, the Government of Botswana and the United Nations Development Programme produced a national disaster risk management plan which specifies roles and responsibilities for different stakeholders in the country (Botswana Government, 2009). In 2008, the NDMO with the assistance of a consultant, assessed disaster hazards and risks common to various districts and villages in the country and a report to that effect was published in 2008 (SRK Consulting, 2008). The report identified the following hazards: drought, floods, road and rail accidents, civil unrest, major event hazards, service delivery failure, and industrial hazards as the major hazards in the South East District. These hazards are common in Mogobane, Otse, Ramotswa, Tlokweng, Lobatse, and Gaborone which are communities in the district.

3.5. SOCIAL WORK AND COMMUNITY SAFETY AND RESILIENCE TO DISASTERS

Morales and Sheafor (1995) identified disasters and disaster aid as an arena for social work practice. The founder of the crisis response organization, Eye of the Storm (Robb, 2003), states that while the National Association of Social Workers (NASW) Code of Ethics mandates that social workers deliver appropriate

professional services in public emergencies, too many are unprepared in this field of assistance. Nevertheless, this does not deter helping professionals from overcrowding crisis scenes only to impede or paralyze relief efforts, creating a situation described as “helpers helping helpers rather than victims”.

Social workers as agents of change should have knowledge and skills to assist individuals and families to identify hazards and implement mitigation measures to cushion the impact of disasters (IFSW, 2000; Yanay and Benjamin, 2007). This is possible only when communities understand disaster risk reduction and have built their capacity to implement the appropriate programmes. Disaster risk reduction refers to: a series of interconnected actions to minimize disaster vulnerability by avoiding (prevention) or limiting (mitigation and preparedness) the adverse effects of hazards within the broad context of sustainable development (Harding, 2007). Victoria (2008: 271) states that a disaster risk reduction framework for vulnerable communities must aim at:

- Reducing vulnerability and increasing capacities of vulnerable groups and communities to cope with, prevent or minimize loss and damage to life, property, and the environment;
- Minimizing human suffering, and
- Hastening recovery.

3.5.1. THE BASIS OF COMMUNITY WORK IN DISASTER RISK AND VULNERABILITY

Social work applies three methods in its work with clients, that is, individual work /family or clinical social work, social group work, and community work. Brueggemann (2006: 131) has termed them: micro, mezzo, and macro social work. As such, in a bid to address vulnerability to disasters suffered by people in communities, social work practice with communities becomes appropriate. Macro social workers use three traditional approaches (community social work planning, community development, and community organization) each with its own theoretical model or perspective to engage people in the community (Brueggemann, 2006: 131). According to Ife and Tesorerio (2006: 174) community development is “about setting

out on a journey of discovery, and about valuing and trusting the process. This requires the community worker to abandon the idea of knowing where she /he is heading, and instead, to be prepared to have faith in the process and the wisdom and expertise of the community itself.”

One of the purposes of social work practice with communities is to guarantee sustainable development through hazard and risk management compatible with social work practice (Brueggemann, 2006: 131; Maripe & Maundeni, 2010). The safety and security of communities is all encompassing and thus includes disaster risks and hazards. This sets a good foundation for local government and other agencies to mainstream disaster risk reduction in their programmes at community level (UN, 2009). Socio-economic improvements of communities will be realized when disaster hazards and risks are reduced and prevention mechanisms established. Brueggemann (2006: 131) argues that macro social workers work to improve the sustainability of the community, create economic development projects, construct community development corporations, and arrange for social services, programs, and opportunities. It is essential for social workers to acknowledge that disasters have the potential to drastically reverse years of economic accomplishment within a split of a second. As such, Ife and Tesoriero (2006: 185) are of the view that community building must target social capital and strengthen social interaction within the community, bringing people together and helping them to communicate with each other in a way that can lead to genuine dialogue, understanding, and social action.

Harding (2007) argues that social work is predicated on the values of social justice and elimination of all forms of oppression, discrimination, and inequality. This supports the contention voice of the International Federation of Social Workers (2010) that social work must address the barriers, inequities, and injustices that exist in society. It must respond to crises and emergencies as well as to everyday personal and social problems. Harding (2007) further asserts that social work, from 1990 to 2003, during 59 armed conflicts in 48 separate locations, ignored human-made disasters that displaced millions of people as refugees and killed more than 1.5 million children.

He proposed that social work adopt the social development paradigm in pursuit of the profession's mission and values to assist the victims of human-made disasters. Community driven development and reconciliation must address human-made disaster scenarios where conflict, insecurity, and violence dominate much of daily life as in Somalia (IFRC, 2008). Harding (2007) asserts that social work should play a major role in shaping policies to prevent and effectively respond to these disasters.

According to Victoria (2008: 276) a comprehensive community based disaster management programme must be characterized by the following:

- People's participation: community members must be the main actors and propellers; they also directly share in the benefits of disaster risk reduction and development.
- Priority for the most vulnerable groups, families, and people in the community: in urban areas the vulnerable sectors are generally the urban poor and informal sector while, in rural areas, these are the subsistence farmers, the fisherfolk and indigenous people, the elderly, the differently abled, children, and women (because of their care giving and social function roles).
- Risk reduction measures are community specific and are identified after an analysis of the community's disaster risk (hazards, vulnerabilities and capacities, and perceptions of disaster risks).
- Existing capacities and coping mechanisms should be recognized: Community Based Disaster Management builds upon and strengthens existing capacities and coping strategies.
- The aim is to reduce vulnerabilities by strengthening capacities: the goal is building disaster resilient communities.
- Disaster risk reduction links with development and addresses vulnerable conditions and causes of vulnerabilities.
- Outsiders have supporting and facilitating roles.

3.5.2. VULNERABILITY OF COMMUNITIES TO DISASTERS

Communities globally are afflicted by disasters of various types some of which result from natural hazards and human activity. The Asian and African countries appear to be the hardest hit in terms of disaster that range from Tsunamis, windstorms, floods

or climate-related problems, and droughts. A number of communities in Kenya, South Africa, Zimbabwe, Zambia, Namibia, and Botswana have suffered from episodes of disasters on an annual basis (IFRC, 2009). Communities that suffer severely from the impact of various disasters are poverty stricken, discriminated against, and marginalized (IFRC, 2010). The IFRC (2007: 1) asserts that the number, severity, and impact of disasters have been increasing dramatically due to climate change, environmental degradation, poverty and inequity, unplanned mass-urbanization, rapid population growth, and conflict.

Extreme climatic events threaten the lives and livelihoods of the poor more than other social groups. Climate change may be characterized by extensive heat, extremely cold winters, flooding, windstorms, prolonged episodes of drought, and heavy rains. The International Federation of the Red Cross and Red Crescent Societies (2007) found that 250 million people are affected by natural disasters every year. This is complicated further by the behavior of community members' management of the environment, livestock, agricultural practices, and attitudes towards the changing weather patterns.

It has been established by the Intergovernmental Panel on Climate Change (IPCC) that there are gaps in the utilization of climate change information: integrating climate into policy; integrating climate into practice; climate service; and climate data (Osman-Elasha, 2009). Red Cross / Red Crescent (2008) reported that there is strong increase in climate related disasters in terms of numbers, economic damage, and people affected. It recommends disaster risk reduction as the best approach (rather than disaster response) and it should include an early warning system, adopting drought resistant crops, and reforestation to prevent flooding. Africa has been identified as the continent most vulnerable to projected climate change related disasters because of its highest statistics regarding population growth and food insecurity (Osman-Elasha, 2009).

Cipryk (2009: 5) states that the United Nations has identified mitigation and adaptation as the most relevant two broad responses to climate change worldwide. Mitigation refers to an anthropogenic intervention to reduce the source or enhance the sinks of greenhouse gases while adaptation to the impact of climate change

refers to adjustments in natural or human systems in response to actual or expected climate stimuli or their effects which moderates harm or exploits beneficial opportunities (IPCC, 2007: 750).

3.5.3. SOCIAL WORK PRACTICE AND DISASTER REDUCTION IN BOTSWANA

Social workers serving in Botswana's District Councils and villages are supposedly members of the District Disaster Management Committees (DDMC) and are expected to perform their function in line with the UN priorities for action (Botswana Government, 1996). However, social workers roles and responsibilities are not clearly defined apart from conducting an assessment in the aftermath of a disaster. There are no efforts by social workers serving in communities' prone to disasters to design preparedness, prevention, strategies for mitigation, and recovery programmes in line with the United Nations mandate.

Botswana Millennium Development Goal Report (2004) acknowledges that the country lacks adequate preparedness and management capacity to handle natural disasters. It established mechanisms to minimize exposure to natural disasters such as ensuring quick and effective response and recovery and better decision making, improved planning, effective risk management, and innovation in development and environmental protection activities.

Services rendered by social workers employed by central and local government in Botswana to those affected by natural disasters are temporary and limited to provision of food rations (Botswana Government, 2002). Besides, the policy is silent about involvement in disaster risk and hazard management. The provisions are short-term relief oriented rather than preventive or focused on mitigation, and preparedness. It implies that the role of social workers is more visible during disasters and wanes immediately after the emergency period. Disaster relief excluding recovery is a short term and temporary intervention that leaves the survivors more vulnerable to similar hazards in the future.

The skill development for low income groups provided for by the policy may be a positive move towards improving livelihoods but if it excludes disaster reduction it is bound to fail (Botswana Government, 2002). The home economics unit in local

authorities, which seeks to equip families with practical skills in home management and child care in order to improve living standards and quality of life, should incorporate community disaster risk reduction to improve family livelihoods (Directorate of Public Service Management, 2000).

Community social work in Botswana focuses on social development and encompasses mass education and literacy; general social work (including rehabilitative casework, investigating individual cases of indigence or other forms of hardship such as physical disability and provision of recreational activities for youth (Hedenquist, 1992). Community development practice emphasizes work with village development committees (VDC), a local association responsible for coordinating village institutional development activities, including disaster response and management. VDCs were established by a Presidential Directive in 1968 to implement government principles of self-reliance and unity. Their functions are to: identify and discuss local needs; formulate proposals for the development of the community; and raise funds for the general benefit of the village (Ministry of Local Government and Lands, 1968; Botswana Government, 1996). Furthermore, village development committees lack training in disaster risk management to effectively discharge their roles.

Disaster management thus falls within the context of community development and is considered an area of social work practice with communities. Social workers should ensure that resident groups play a more central role in both planning and implementation of community based disaster programmes. Their role should include the identification of hazards, risks, and capacities within communities to prevent, reduce, and respond to disasters. Disaster management is defined as “an integrated series of activities and strategies involving disaster mitigation, disaster preparedness, and emergency response implemented within the national development context” (Botswana Government, 1996: 7). The adverse effects of disasters thwart sustainable economic progress and may hamper the realization of the national vision. The Botswana National Vision 2016 promotes the building of a safe and secure nation (Presidential Task Force, 1997).

3.5.4. FACTORS THAT PROMOTE COMMUNITY RESILIENCE AND SAFETY IN RELATION TO DISASTER

Community and individual resilience is not only a necessary characteristic but an important attribute for survival during disasters or catastrophes. Rock and Corbin (2007) argue that major disasters cause a multiplicity of social and economic problems and wreak havoc in the lives of individuals, families, and communities. As such, communities must take a deliberate step to prepare against such odds for purposes of survival and sustenance. The challenge is that developing countries lack adequate public health infrastructure and structural emergency planning, efficient communication and transportation systems, and the human and material resources to mitigate major disasters and / or ensure quick recovery (World Bank, 2004).

Aghabakhshi and Gregor (2007) assert that social workers' skills in communication, networking, crisis management, stress management, ecological perspective, social constructivism, and therapeutic listening are fundamental in both immediate and long-term responses to disasters. Social workers have to acknowledge that social capital will sustain communities going through change when it is coupled with the elements of trust, reciprocity, and mutuality. Hawkins and Maurer (2007) in their study of the manner in which New Orleans residents (USA) utilized their social capital in surviving Hurricane Katrina, found that homogeneous and heterophilous interactions amongst residents are essential elements of resilience during disasters.

According to Airhihenbuwa (2010) when people address issues confronting communities, they must take culture into account because they are assuming some role and responsibility on behalf of the community. He asserts that culture is central to knowledge production, distribution, and acquisition, even in building resilience in communities towards hardships and disaster.

3.6. DISASTER RELATED THEORETICAL PERSPECTIVES

This study explored crisis, stress management, resilience, ecological, and the social constructivism theories to explain how individuals, communities, and nations withstand and deal with disaster and /or traumatic events. Rock and Corbin (2007: 383) argue that major disasters cause a multiplicity of social and economic problems and wreak havoc in the lives of individuals, families, and communities. Community

and individual resilience is not only a necessary characteristic but an important attribute for survival during disasters or catastrophes. As such, communities should take deliberate steps towards preparing for survival and sustenance.

3.6.1. CRISIS THEORY

Crisis theory is traced back to Sigmund Freud, the progenitor of psychoanalytic in 1926. This school of thought sought to understand how a person confronted with an overwhelming threat, and difficult in coping, would behave. A crisis is a threat to homeostasis, a stressful life experience affecting the stability of an individual so that their ability to cope or even function may be seriously compromised or impaired (Gleason, 2008). It is a temporary state of upset and disequilibrium, accompanied by confusion and disorganization. The disorganization may be integral to reducing problem-solving abilities to a point that traditional management strategies may not be effective (Atkinson, Atkinson, Smith, Bem, and Hoeksema, 1996: 478):

A crisis often results when individuals, communities, and nations face a serious stressor with which they have no prior experience. There are two conditions to a crisis; the perception that the event will lead to considerable upset or disruption and the person's ability to resolve the disruption with the available coping methods they can use (Gleason, 2008). According to Norris *et al.* (2008: 131) stressors are aversive circumstances that threaten the wellbeing or functioning of the individual, organization, neighbourhood, community or society.

Disasters, whether natural or man-made, are unpredictable stressors that disrupt individuals' and community functioning. The stress resulting from a crisis will vary depending on the severity, duration, and surprise of the stressor. Morris and Maisto (1998: 477) argue that stress is an environmental demand that creates a state of tension or threat and requires change or adaptation. It results from the characteristics of the stressor, the appraisal of the stressor, the response to or effects of the stressor, and the various conditions that influence the relations between the stressor, stress appraisal, and stress response. It should be noted that a crisis, just like stress, is not the event itself but rather the individual's perception of and response to the situation (Gleason, 2008) and often accompanied by acute responses such as helplessness, confusion, anxiety, shock, and anger.

Crises are classified under two headings, the situational and the developmental crisis. Situational crises are physical illness and injury, unexpected or untimely deaths, crime, natural and man-made disasters, and situational crises of modern life (Kirst-Ashman, 2010: 256). The developmental crisis refers to events such as birth, which is a crisis both for the mother and the infant, the onset of puberty and adolescence, marriage, the menopause, and so on as we progress through the biological stages of life. Events such as birth, which is a crisis both for the mother and the infant, the onset of puberty and adolescence, marriage, and menopause, as people progress through the biological stages of life (Browne, 2007). The situational rather than the developmental will be the focus of this study as it relates to disasters which are external disruptive factors.

3.6.2. RESILIENCE THEORY

Resilience theory was first introduced by a Canadian ecologist C.S. "Buzz" Hollang in 1973. It is premised on two radical positions: the first is that humans and nature are strongly coupled and coevolving and should therefore be conceived of as one 'social-ecological' system; while the second is that the long-held, implicit assumption that systems respond to change in a linear and therefore predictable fashion is altogether wrong (Folke, 2010: 14). Resilience thinking holds that systems are understood to be in constant flux, highly unpredictable, and self-organizing with feedback across multiple scales in time and space. This implies that there are complex adaptive systems exhibiting the hallmark features of complexity. A key to the feature of complex adaptive systems is their ability to self-organize along a number of different pathways with possible sudden shifts.

Resilience draws from fundamental social work skills essential for immediate and long term response to disasters which are communication, networking, stress management, and therapeutic listening (Aghabakhshi & Gregor, 2007: 347). These are effective based on the social capital within the community coupled with the elements of trust, reciprocity, and mutuality. Social capital entails three important aspects which are bonding, linking, and bridging which have to be strong and built before any disaster occurs. For example, New Orleans residents (USA) survived Hurricane Katrina through strengthened homophilous bonding (relationships amongst people who are similar) and heterophilous bridging social capital (relationships

among people who are dissimilar in terms of age, socio-economic status, race / ethnicity, and education) (Hawkins & Maurer, 2007: 1778). Aghabakhshi and Gregor (2007: 347) assert that social workers' skills in communication, networking, crisis management, stress management, ecological perspective, social constructivism and therapeutic listening are fundamental in both immediate and long-term responses to disasters. Social workers acknowledge that social capital will sustain communities going through change when it is coupled with the elements of trust, reciprocity, and mutuality. Hawkins and Maurer (2007: 1778) found that New Orleans residents (USA) utilized their social capital to survive Hurricane Katrina through homogeneous and heterophilous interactions among residents, which are essential elements for resilience during disasters.

Resilience science focuses on these sorts of regime shifts and tipping points. It looks at incremental stresses, such as accumulation of greenhouse gases in combination with chance events like storms, fires, even stock market crashes, that can tip a system into another equilibrium state from which it is difficult, if not impossible, to recover. The challenge is that developing countries lack adequate public health infrastructure, structural emergency planning, efficient communication and transportation systems, and the human and material resources to mitigate major disasters and / or ensure quick recovery.

The crisis and resilience theories will assist the researcher to identify the characteristics of traumatic events in the communities of the South East District. These characteristics are the dangers and opportunities, the seeds of growth and change, a state of disorganization and disequilibrium, and breakdown in coping within the community. Furthermore, it is important to identify the community's ability to cope with situational crises which have a sudden onset and are unpredictable, the perception that it will not happen to them, and their preparedness to manage the emergency. The assessment will give an indication of what could be expected after a crisis in a community and whether survivors will emerge on a higher or lower level of functioning.

The literature review shows that disasters are catastrophic by nature and leaves behind traces of destruction that may last for years, not only in the minds of people but also in the history of the society. As such, natural and / or man-made disasters

present incidents or situations to the physical and the social environments that pushes them out of balance. Hazards such as floods, droughts, heavy rains, high and unpredictable temperatures, and windstorms have the potential to adversely affect the environment and the people. These are further complicated by unemployment, poverty, poor rains, crop failure and poor harvest, and lay-off due to economic collapse. The reaction to stressors depends on the capacity of individuals, families, or communities to cope with the change brought about by the situation. Lack of capacity generates the perception that the event will lead to considerable damage, disruption, and imbalance in their lives. These disruptions may result from the damage and depletion of resources already suffered before the advent of the current event that makes it difficult for the people to withstand the shock. Availability of capacity reduces the severity, duration, and surprise of the stressor but the disaster situation may negatively affect capacity and increase severity, duration, and surprise. The south east district of Botswana is frequented by floods, service failure, road and rail accidents, and drought. Additional stressors are further complicated by climate change that presents unpredictable temperatures, recurring drought, and water scarcity. These shocks push systems out of equilibrium and, if one system is affected, other systems are affected as well and have to make adjustments at the same time to restore their equilibrium. The time it takes for a system to make these adjustments determines its resilience to shock.

3.6.3. ECOLOGICAL PERSPECTIVE

The ecological perspective provides a useful framework for social workers who work with clients within the context of their social environments. According to Hull and Kirst-Ashman (2004: 9) a social environment consists of: the types of homes in which people live, the types of work they do, the amount of money available, and the laws and social rules they live by. All these are critical capacities that need to be assessed to ensure the readiness of people to withstand, respond to, and recover from disasters. The perspective assumes a person-in-environment focus which views people as constantly interacting with various systems around them, such as: family friends, work, social services, politics, religion, goods and services, and educational systems. The person is portrayed as being dynamically involved with each of these and human service practice must be directed at improving these interactions (Kirst-Ashman, 2010: 21). This aligns with the practice framework of social work which

aims at enhancing the functional ability of individual, groups, and communities. The focus is referred to as improving the person-in-environment fit. The communication and interaction taking place which may be positive or negative are referred to as transactions.

The effectiveness or non-effectiveness of these transactions is determined by the energy, adaptation, coping, and interdependence prevailing in the social environment. Energy refers to the natural power of active involvement among people in the form of inputs (a form of energy coming into a person's life and adding to that life) and outputs (a form of energy going out of a person's life or taking something away from it). Adaptation refers to the capacity to adjust to surrounding environmental conditions, that is, changing in relation to new conditions and circumstances to continue functioning effectively (Hull & Kirst-Ashman, 2004: 9). The ecological perspective states that, as people are constantly exposed to changes and stressful life events, they need to be flexible and capable of adaptation. This is possible only when people have deliberately identified the hazards and risks and their level of vulnerability and worked to reduce risks and be prepared for any eventuality. Social workers with their technical ability must help people in communities to adjust to changes and stressful life events in their social environment (Kirst-Ashman, 2010: 21). The intervention is meant to help clients cope (the way we deal with problems we experience) as a form of adaptation with the new demands placed on them by changes in the environment. Social workers focus on the interdependence (mutual reliance of each person on each other person) characterizing the transactions and life in the community (Hull & Kirst-Ashman, 2004: 10).

3.6.4. SOCIAL CONSTRUCTIVISM

Social constructivism is a theory that is closely associated to the constructivism which explains how the individual cognitively engages in the construction of knowledge but differs with it on the notion that social constructivism claims that knowledge and meaning are historically and culturally constructed through social processes and actions (Young & Collin, 2003: 374). The constructivism perspective is associated with the following theorists Bruner (1990); Kelly (1955); Piaget (1969); Von Glaserfeld (1993); and Vygotsky (1978). It is more concerned with how we know

and how we develop meaning (epistemological perspective) (Bujold, 2002: 474). These processes are said to be internal to the individual that is, integrating knowledge (or meaning) into pre-existing schemes (assimilation) or changing the schemes to fit the environment (accommodation) (Young & Collin, 2004: 376).

In essence, it asserts that it is the individuals' mind that constructs reality. Social constructionism was developed by Kant in 1781 with emphasis on the social rather than the individual processes as in constructivism. It postulates that knowledge in some area is the product of our social practices and institutions, or of the interactions and negotiations between relevant social groups (Bujold, 2002: 474). The contention is that knowledge is sustained by social processes and that knowledge and social actions go together. It has less interest in the cognitive processes that accompany knowledge (Young & Collins, 2004: 377). It further points, not only to the social construction of knowledge but to its historical and cultural location of that construction. It is said to ask evaluative, political, and pragmatic questions regarding the choices one makes. As such, it is quite fundamental to assess how individuals and communities perceive disasters, risks, and their vulnerability because the meaning, assimilation, and accommodation they possess are socially constructed and may lead to preparedness or unpreparedness.

3.7. DISASTERS RELATED POLICIES, ANALYSIS, AND INTERPRETATION

The analysis of international, regional, national, and local disaster policies that are intended to build the capacity of communities to disasters is crucial. This study is informed by the United Nations Hyogo Framework of Action (UNHFA) 2005-2015 which aims at building communities safe and resilient to disasters. As such, the United Nations Hyogo Framework for Action, the national policy on disaster management, and other related documents serve as the guiding documents that are central to this study. Furthermore, an assessment will give an indication whether the national policy on disaster has been aligned to the international and regional frameworks.

3.7.1. UNITED NATIONS HYOGO FRAMEWORK FOR ACTION (UNHFA)

Botswana is a member of the United Nations and a signatory to a number of convention and treaties including disaster related protocols like the Hyogo

Framework of Action. The United Nations Hyogo Framework of Action (UNHFA) 2005-2015 was developed and adopted after a conference held in Kobe, Hyogo, following the tsunami that affected several nations across the world in December, 2004. The conference reviewed the 1994 Yokohama strategy and endorsed the fact that disaster risk reduction should be the focus for the developed, developing, and less developed countries. The HFA further states that communities and local authorities must be strengthened to manage and reduce disaster risks through access to information, resources, and implementation of disaster risk reduction actions (NDMO, 2009: 61; UNISDR, 2005: 5).

The HFA has five priority areas that each country must integrate into its disaster risk management approach. The five priority areas according to the (UNISDR, 2005: 6; NDMO, 2009: 62) are to:

- Ensure that disaster risk reduction is a national and a local priority with strong institutional basis for implementation.
- Identify, assess, and monitor disaster risks and enhance early warning.
- Use knowledge, innovation and education to build a culture of safety and resilience at all levels.
- Reduce the underlying risk factors.
- Strengthen disaster preparedness for effective response at all levels.

In terms of UNHFA priority area 1, the countries and governments which adopted the framework are expected to integrate risk reduction measures into development policies and planning at all levels including poverty reduction strategies, government sectors, and multi-sectorial policies and plans. In addition, to promote community participation in disaster risk reduction by adoption of policies, networking, management of volunteer resources, assignment of roles and responsibilities, and delegation and provision of necessary authority and resources. For priority 2, the governments are expected to develop early warning systems that are people centred, timeously, and understandable to communities at risk with particular relevance to gender, culture, and livelihood characteristics.

Early warning systems are useful guide on relevant action to be adopted during disasters for effective operations by responders to disasters: Priority 3 (I), they are to promote community-based training initiatives considering the role of volunteers, as appropriate, to enhance local capacities to mitigate and cope with disasters; Priority 4 (i) (a) they should encourage the sustainable use and management of ecosystems, including through better land-use planning and development activities reduce risk and vulnerabilities; and for priority 5 (e), governments must promote the establishment of emergency funds, where and as appropriate, to support response, recovery and preparedness measures (UNISDR, 2005: 6-13).

3.7.2. UNITED NATIONS VOLUNTEERS

The United Nations organization has a volunteer unit in Botswana that ensures that volunteers are trained and available to serve in times of disasters. Their availability depends on the need of a country to strengthen the preparedness and response capacities of communities to disasters. The process involves the country identifying capacity needs, expertise available, and gaps, and volunteerism must be part of the disaster management strategy, preparedness, and response (NDMO, 2009). Botswana at a national and local level has not exploited this grey opportunity in the strengthening of community capacity. It has engaged the Peace Corps and others in the area of health and education but not in disaster risk management.

3.7.3. SADC DISASTER RELATED POLICIES AND PROTOCOLS

Botswana as a member state of the Southern Africa Development Community (SADC) has to align its disaster policy to the international and regional disaster frameworks. SADC disaster management technical committee (DMTC) comprises of heads of the national disaster management units together with their technical experts. It is reported that the SADC disaster management at sub regional level was traditionally reactive before it was aligned with the United Nations Hyogo Framework for Action in 2005/6 (NDMO, 2009: 5). SADC (2000: 22) indicates that the SADC disaster management committee held its first meeting after floods that affected the entire region in 2000 to design common strategies and early warning systems. It recommended that:

- The region should work collectively to create a common language and procedures for management.
- Member states should adopt common warning symbols to use in situations. These should be included in the school curriculum.
- SADC should commit to assist member states in undertaking Vulnerability Assessments and Risk Mapping.
- SADC member states should ensure that there is close collaboration between and among SADC institutions and other organizations involved in similar management activities in the region (SADC report, 2000: 22).

3.7.4. BOTSWANA GOVERNMENT DISASTER RELATED POLICIES AND LEGISLATION

Botswana policy on disasters was approved by parliament through a presidential directive (Cab. 27/96) in 1996, after 30 years of independence from Britain (in 1966). It was 2 years after the adoption of the Yokohama disaster strategy in 1994 at a world conference in Yokohama, Japan. The policy formulation followed episodes of drought from 1981-1992 and incidences of floods, veldt fires, epidemics, pest infestations, transport and industrial accidents, and chemical spills that affected the country (Botswana Government, 1996:1). Botswana disaster management structure is on three levels as stipulated in the policy which are:

- The National Committee on Disaster Management (NCDM) which is chaired by the Deputy Permanent Secretary in the Office of the President. It consists of the deputy permanent secretaries from all the line ministries, together with representatives from the Botswana Defence Force, the Botswana Police Service, the Botswana Red Cross society, non-governmental organizations, and United Nations agencies.
- The National Disaster Management Technical Committee (NDMTC) and the National Disaster Management Office which were established in 1998; the NDMO is the secretariat to both the NCDM and NDMTC. Its mandate is to coordinate all disaster management activities in the country.

- The district disaster management committees (DDMC) which are responsible for addressing disaster issues with the district councils, represented by the Council Secretary in partnership with the District Commissioner. Each district has a multi-sectorial disaster management committee which is chaired by the District Commissioner (Botswana Government, 1996: 13; SADC report, 2000: 12).
- At the village, the overall responsibility for disaster management rests with traditional leaders and organized groups identified by each district disaster management committee (Botswana Government, 1996: 13).

The disaster policy statement acknowledges that the strategy to address recurring droughts was a non-integrative approach to disasters, hence the need for the adoption of a policy on disaster management (National Policy on Disaster Management, 1996: 1). Although the action by government for an integrative approach to disasters is commendable, the policy is not supported by legislation and has not been reviewed or revised after 17 years of approval (NDMO, 2009).

It was in 2009 that Botswana developed its national disaster risk management plan with the assistance of the United Nations Development Programme (UNDP). The plan was developed after a countrywide study to identify hazards and risks was conducted in 2008 by the National Disaster Management office. It is this plan that seeks to reconcile the national disaster policy with the 2005 United Nations Hyogo Framework of Action (NDMO, 2009: 1). The plan encourages sectors to develop sector specific plans that would enable them to identify specific hazards and risks within their scope and define their response accordingly. The challenge is that there is no legislation to enforce action by sectors except for the Ministries of Health; Agriculture; and Environment, Wildlife, and Tourism that are compelled to do so by the nature of their work. NDMO (2009: 7) reported that the 2008 HIVRA study recommended disaster risk reduction legislation, a single set of uniform definitions aligned with international concepts, formal reporting structures, monitoring and evaluation, and review of the national policy on disaster management. These

recommendations which are essential to the strengthening of community resilience are still in the planning stages.

NDMO (2009: 16) indicated that the Department of Forestry and Range Resources has developed a policy and strategic framework on wild land fire management. These (policy and the strategic framework) are meant to address issues of biodiversity and ecosystem integrity, human health, safety, enhancement of socio-economic benefits, and fire ecology and research. The proposed policy needs legislation, regulations, and other binding instruments to provide jurisdiction and a related mandate for fire operations and planning in the country.

3.7.4.1. NATIONAL DISASTER RELIEF FUND

Botswana has an emergency fund specifically for disaster response housed under the Office of the President but focusing more on response than risk reduction and recovery. The Act regulating the fund cover relief measures during the emergency phase of disasters and it has not incorporated disaster risk reduction measures as part of its processes (NDMO, 2009). As such, it does not fund activities that are geared towards disaster preparedness, mitigation, and prevention (Botswana Country Report, 2004:6). However, it does provide compensation in terms of cash payments and cattle restocking to farmers who lost cattle through the elimination of animal disease and funds supplementary feeding for vulnerable groups (under-fives, pregnant women, and lactating mothers). Although it's a positive measure to cushion against the impact of disasters, it is still a reactive measure which does not contribute effectively to safety and resilience in households and communities.

3.7.4.2. MINISTERIAL RESPONSIBILITIES

The policy on disaster management adopted the multi-sectorial approach that assigned ministries / departments the responsibility to prepare, prevent, mitigate, and respond to the disasters that fall under their portfolio. The Botswana Country Report (2004:5) states that ministries/ departments have to ensure that all development projects are protected from disaster impacts. Some of the disaster related responsibilities are stated in the Herbage Preservation Act Cap 38:02 which deals with the protection of vegetation; Factories Act Cap 44:01 which makes provision for safety in design and construction of factories and the handling of explosives and

inflammable substances; Fire Service Act Cap 40:04 which address fire control; Waste Management Act of 1998 which regulates the management of controlled waste; and Disease of Animal Act of 1977 which promotes the prevention and control of animals diseases.

3.7.5. BOTSWANA RED CROSS SOCIETY

The Red Cross Society has been working with communities in Botswana since 1968 as a branch of the British Red Cross (IFRC, 2008). The Botswana Red Cross Society (BRCS) is authorized to act as an auxiliary to the public authorities of their own country in the humanitarian field and provide a range of services including disaster relief and health and social programmes (Botswana Red Cross Society, 2006). It is one of the 183 national societies worldwide forming the International Federation of Red Cross and Red Crescent Societies providing humanitarian assistance before, during, and after disasters to communities. Its legal and operational mandate is to prevent and alleviate human suffering in working as auxiliary to public authorities. It is guided by the seven fundamental principles which are: humanity, impartiality, neutrality, independence, voluntary service, unity, and universality (International Committee of the Red Cross (ICRC), 2001; IFRC, 2009).

The International Committee of the Red Cross (ICRC), which is the mother body of the Red Cross Movement, is mandated to help victims of war and internal violence, to promote compliance with international humanitarian law, and to ensure respect for human rights. The International Federation of the Red Cross and Red Crescent Societies (IFRC) is mandated to address natural disasters and build national societies' capacity to serve in nations. The IFRC has adopted a 2020 disaster risk management strategy designed with the participation of national societies to reduce the number of deaths, injuries, and losses from disasters. The strategy is implemented by the Red Cross societies within the context of their national needs and supported by the Federation (IFRC, 2009: 1).

Botswana Red Cross Society has been in the country for 45 years providing humanitarian services in a number of areas; health, blood donation, disaster relief, and the training of first aiders. It has trained a number of volunteers in different communities of Botswana and has branches in Kanye, Francistown, Kasane,

Moshupa, Maun, and Gaborone. With the support of the International Committee of the Red Cross (ICRC) and the International Federation of the Red Cross and Red Crescent Societies (IFRC), the BRCS has the capacity to train volunteers and disaster actions in communities to implement disaster risk reduction. Although it appears that over the years its visibility and coverage has declined, it has the human and material resources to undertake the training and assist communities to monitor hazards and risks (IFRC, 2009).

3.8. SUMMATIVE CONCLUSION

Literature shows that disasters, whether man-made or natural, are very destructive and emotionally demanding on the people affected. It is the affected individuals and communities that need to work towards reducing the risk while enjoying the resources in their environment. Some vulnerable communities, with the assistance of the Red Cross Society and other agencies, have deliberately taken the initiative to identify and reduce hazards and risks to strengthen their resilience. These communities have begun to enjoy the benefits of their proactive initiatives and safety from hazards. It further indicates that social workers using their professional knowledge, skills, and techniques combined with disaster risk management training are instrumental in building community resilience to disasters.

There are vast resources available for use by communities that are geared towards reducing disaster related risks. Despite the lack of DRR legislation in the country, there are frameworks and systems that need coordination, harmonization, and symbiotic connection to build the linking social capital needed for community resilience. This is made possible by people who want long term relief from past disaster related devastating losses and pain, seeking information and adopting appropriate measures to mitigate and prevent similar experiences. Communities working with their indigenous leadership can join hands with the Red Cross, UN, and other local structures to build their resilience. It is within the operational mandate of these organizations to promote disaster risk reduction relevant educational and awareness programmes in vulnerable communities. The failure to reach vulnerable communities may deny them beneficial information, services, programmes, and resources necessary for their disaster security.

CHAPTER 4

RESEARCH METHODOLOGY

4.1. INTRODUCTION

Research methodology implies how social science research should be organized, structured, and conducted. It describes the procedures a researcher uses to study a problem in sufficient detail to enable readers to interpret the findings and conclusions. Methods of research include four important aspects: 1) sources of data, 2) measurement processes used, 3) procedures carried out by the researcher, and 4) analysis of the information collected that was used to answer the research question or test the hypotheses (Eichelberger, 1989: 246; Marshall & Rossman, 2006: 97).

This study utilized mixed methods, for example, combining both qualitative and quantitative research methods. Dures, Rumsey, Morris and Gleeson (2010:333) state that mixed methods is a powerful third paradigm that provides the most informative, complete, balanced, and useful research results. This assertion is supported by numerous researchers who have applied the mixed method in their studies (Burke, Johnson, Onwuegbuzie, & Turner, 2007: 112). It is accepted as the third wave or third movement or third research paradigm in many fields of practice (Leech & Onwuegbuzie, 2011: 170). The researcher used this method to explore the resilience to disasters of three communities in the South East District of Botswana which are: Otse, Mogobane, and Ramotswa.

The intention was to explore the perceptions, thoughts, experiences, and opinions of community members', key informants, stakeholders (United Nations Development Program (UNDP) and Southern Africa Development Community (SADC), and social workers regarding the extent of the disaster risk and their readiness to act proactively against adverse effects. A mixed research method was preferred to enable the researcher to comprehensively collect multiple data using different methods in such a

way that the ensuing combination is likely to culminate in complementary strengths and non-overlapping weaknesses (Leech & Onwuegbuzie, 2011: 170). It also enabled the researcher to freely interact with interviewees and provided an opportunity to observe physical and environmental hazards within the community. Therefore, the study adopted a combination of both qualitative and quantitative paradigms

Grinnell (2001: 106) views qualitative research as a method of exploring a social problem or maze that has multiple entry points and paths without knowing whether the maze will lead to a place of importance or not. However, it is entered out of the researchers' curiosity and conviction about a phenomenon and how it may affect human life. Baker (1999) indicates that qualitative studies aim at constructing meaning from social environments, as well as gaining a deeper understanding of the meaning of social existence. Qualitative research uses a holistic perspective to report and take into account the generation of detailed descriptions and portrayal of participant perspectives as well as an emphasis on the meanings that participants assign to their experiences (Bogden & Biklen, 1998: 35; Golafshani, 2003: 600; Miles, Matthew & Huberman, 1994; Cohen, Manion, & Morrison, 2000: 23). It was necessary for the researcher to take into account the complex and multiple social, physical, economic, and political contexts in which community disaster experiences and responses are influenced and reinforced. These contexts allowed the researcher to appreciate fully the disaster experiences of communities, what they are doing or planning to do to reduce risks, and gain a clear perspective of what they go through on a daily basis. In addition, Babbie (2008: 96) emphasizes that the qualitative method is appropriate for studying people's experiences, attitudes, and behaviours in their natural settings.

Although the study was qualitatively inclined, it applied a quantitative survey of a sample selected from the study population for complementarities. A survey design enabled the researcher to provide a quantitative description of some fraction of the population through the data collection process of asking questions and generalizing findings from a sample to a population (Creswell, 1998: 117). This process subscribes to the sequential mixed method research design where the researcher presents the study in two phases: the first phase being the qualitative and the second component being the quantitative

(Creswell, 1994: 177; Leech & Onwuegbuzie, 2011: 171). It was the intention of the study to elaborate and enhance the findings derived from both the envisaged qualitative and quantitative phases.

4.2. RESEARCH DESIGN

A research design advances assumptions about the social world, how science should be conducted, and what constitute legitimate problems, solutions, and criteria of proof. In addition, it encompasses theories and methods of research (Creswell, 1998:146). There are four frequently used designs within the qualitative paradigm for human and social science research which are; ethnographies, grounded theories, case studies, and phenomenological studies. In the mixed methods, there are 35 mixed methods research designs (Tashkkori & Teddlie, 2003; Onwuegbuzie & Collins, 2007: 290) but the most common is the time orientation dimension. Time orientation refers to the process of the study that clarifies whether the qualitative and quantitative phases of the study will be conducted concurrently or sequentially. The time orientation dimension suitable for this study was the sequential design where sufficient time was spent on both phases.

This study adopted a case study design for the qualitative and a survey design for the quantitative following a two-phase model for complementary and expansion purpose (Creswell, 1994: 175; Onwuegbuzie & Collins, 2007: 290). Leech and Onwuegbuzie (2007: 267) attest that mixed methods research design falls within a continuum from mono-method design to partially, or fully mixed methods design. The fully mixed sequential design mixed both qualitative and quantitative elements sequentially at one or more stages or across the stages of the study (Creswell, 1994: 175).

According to Grinnell (2001: 109) a case study is a description or an exploration or in-depth understanding of a few cases, rather than a general understanding of many cases or people. A case can be a person, a group, a community, an organization or an event. This is a cross-sectional, as opposed to longitudinal study. Cross-sectional studies follow the unit of analysis for a short period as is the scope of this study. A case study design enabled the researcher to study a social phenomenon within its environment, for example the locations and social set up. It utilized exploratory research questions to

examine disaster hazards, risks, and community approaches meant to reduce related risks. Exploratory studies are often conducted when a researcher is examining a new interest or when the subject matter of the study is relatively uncharted (Babbie, 2008: 97).

In the first stage, the study focused on exploring key informants' who were pastors of local churches, kgosi and headmen, school heads, and village development committee chair persons, social workers, and community members' disaster experiences in Ramotswa, Mogobane, and Otse, which is an area that has not been studied in this regard in the context of Botswana. This research design resonated well with the research questions guiding the study which explored how disaster related knowledge and experiences could enhance local community resilience and assess the need for integrated disaster risk reduction systems necessary to ensure sustainable livelihoods.

The second stage used a questionnaire which was constructed based on the feedback drawn from the qualitative data and modified after pilot testing with specific and focused items that enabled the researcher to describe, explore, and explain the disaster experiences of the policy makers, stakeholders, survivors, and community leaders to complement the findings on how to build community resilience. Since the researcher was not aware of any study that has been conducted on community resilience towards disasters in Botswana, the explanatory sequential mixed research design was appropriate for this study (Onwuegbuzie & Collins, 2007: 295; Leech & Onwuegbuzie, 2011: 170). These authors assert that the method enables the researcher to close the information gap that may result from one method and enable the researcher to seek for clarification at any given time during the study

4.3. POPULATION

The target population for the study referred to people or all possible units of analysis who had some particular characteristics in common. It is from this population that a sample which consisted of one or more elements was drawn (Monette, Sullivan, & DeJong, 1998: 125; Babbie, 2008: 221). A clear definition of the population made

sampling relatively simple and generalization and conclusions from the sample accurate. The definition specified four aspects: (1) content which refers to the particular characteristics held in common by the members of the population; (2) unit indicates the unit of analysis; (3) extent of population referred to its geographic coverage; and (4) time factor referred to the period during which a unit would have to possess the appropriate characteristic in order to qualify for the sample (Monette et al., 1998: 125).

The total population from which the sample was drawn is 37 696 for the three (3) localities aggregated as follows; 27 760 for Ramotswa, 7 636 for Otse and 2 300 for Mogobane (CSO, 2006: CSO, 2011). The total sample population drawn for the three communities in the South East Administrative District where the study was conducted was 3, 770. It was from this sample that only a total of 2 980 respondents were reached for the quantitative part of the study. The sample of the study was drawn from key informants and community members including: councillors, chiefs, headmen, religious leaders, members of disaster and village development committees, government officials (District Commissioners, social workers, police officers, and council secretaries), and stakeholders. Currently the administrative district has several functional committees in all its geographic villages. The respondents provided the researcher with insights into their experiences of natural disasters like floods, animal diseases, drought, and wild fires that they have suffered in the past few years.

For this study, the qualitative sample consisted of 30 instead of 50 participants per village community. A small sample was selected so that comprehensive knowledge and cultural consensus (culturally shared views) about the topic under study could be yielded and to minimize saturation (Manson, 2010: 4). This is in agreement with Yegidis and Weinbach (1991: 206) and Babbie (2008: 313) who noted that exploratory research tends to use smaller samples. Most samples used by researchers in non-funded qualitative studies are about 10-25 people because they are time consuming and use in-depth interviewing which may require further probing for more information (Grinnell, 2001: 109).

The selected small sample resonated well with Hancock (1998) and Rubin and Babbie (2008: 136) who posited that exploratory studies are intensive and time consuming by nature. In addition, Baker (1999) and Babbie (2008: 207) state that small samples are appropriate for studies that use interviews because they consume time and the interviewer probes deeply into the phenomenon to obtain more relevant information and knowledge. The interest was to explore disaster experiences of community members, leaders, various committees, and social workers at the local level and report findings in their own words as well as in numbers.

4.3.1. SAMPLING AND SAMPLING TECHNIQUES

Sampling is a process of selecting a few cases out of some larger grouping for study to derive findings and information that is relevant for all members of the group (Monette et al, 1998: 134). Curtis, Gesler, Smith, and Washburn (2000: 1002) state that selecting a sampling design involves a series of decisions, that is, how many individuals to include, how to select these individuals, and conditions under which this selection will be conducted. Grinnell (2001: 207) defines sampling as the selection of some units to represent the entire population from which the units were drawn. There are two major categories of sampling procedures: probability and non-probability. The mixed method sampling process according to Onwuegbuzie and Collins (2007: 290) follows a similar process but with 35 mixed methods research sampling designs. The time orientation dimension sampling process was adopted for both phases of the study for expansion and complementarities. This implied that different sampling designs were used for each phase of the study to satisfy the requirements of the research paradigm (qualitative and quantitative).

A non-probability sampling procedure was used to select the sample scheme and size for the qualitative phase of the study. Qualitative sampling techniques are concerned with seeking information from a specific group or sub-group in the population (Hancock, 1998). A purposive sampling method was used for the first phase of the study to select the sample. Purposive sampling refers to sampling with a reason in mind as subjects are selected because of some characteristics that they share (Patton, 1990: 170). The purposive sampling technique was used because there was no guarantee that all

possible respondents have an equal chance to share their insight or experience of the phenomenon under study (Babbie & Wagenaar, 2004; Babbie, 2008: 204). The researcher used information provided by the tribal authority to identify community leaders in the wards, the various committees relevant to the study, and religious leaders and survivors of disasters. Community members who were respondents were selected based on the location of their homestead, particularly, those who live along rivers and disaster plains or survivors who were previously assessed by social workers, to gain insight into their experiences.

The criterion for selecting key informants for the study was that they should be serving in one or more of these portfolios: councilors, religious leaders, government officials (social worker, police officer, district commissioner, and council secretary), kgosi (chief) or headman, and chairpersons of disaster or village development committees. The researcher classified respondents and participants of the study according to their roles, responsibilities, and committee membership to examine commonalities and differences. As such, the researcher documented unique and diverse insights of key informants in their special capacities. Purposive sampling enabled the researcher to identify participants and respondents who proffered rich information about common disasters, hazards, risks, and vulnerabilities prevalent in the south east district communities.

Thereafter, the multistage or multilevel sampling was used to select the respondent for the second phase of the study (survey). The multistage or multilevel sampling involved the use of two or more sets of samples that are extracted at different levels of the study (Onwuegbuzie & Collin, 2007: 292). It is a procedure in which the final units to include in the sample are obtained by first sampling among larger units called clusters, in which the small sampling units are contained (Monette et al, 1998: 134). The sampling design enabled the researcher to conduct both one to one interviews and administer the questionnaires to obtain the respondents' perspectives on community resilience to disasters. The qualitative phase of the study enabled the researcher to identify a population of survivors, leaders, vulnerable groups, and active players in the disaster arena where samples were drawn for the second phase of the study. Thereafter, the data from the qualitative component were used to develop a survey questionnaire for

the quantitative component. It was then that the multilevel or multistage sampling procedure was used to select a different subset of respondents that represented approximately 10 % of the population of the selected villages (Onwuegbuzie & Collins, 2007: 296). In the second stage, the simple random sampling procedure was used to select a different subset of respondents from disaster survivors, community leaders, social workers, members of district disaster committees, and the police.

4. 4. PILOT STUDY

A pilot study is a small-scale or trial run of all the procedures planned for use in the main study. It was not only for administering the data – gathering instrument but also to test the procedures for selecting the sample and the application of the statistical procedures to be used in the data analysis stage (Monette, Sullivan & DeJong, 1998: 9). Grinnell (2001: 189) states that pretesting is not concerned with the answers to the questions but rather with the difficulties respondents may have in answering the questions.

4.4.1. PILOT – TESTING OF THE DATA COLLECTION METHOD

Pilot testing was conducted with a small number of community members in Tlokweng which is a community in the same district and experiencing similar disaster hazards but not included in the study sample. South East District comprises a number of communities under its administrative authority which are: Taung, Tlokweng, Mogobane, Boatile, Kgale, and Otse. As such, Taung, Tlokweng, Boatile, and Kgale were excluded from the target communities where research was conducted although they are geographic communities within the South East Administrative District. The researcher pilot-tested both the individual face to face interview guides and the questionnaires with ten community members and two community leaders, and an interview guide for focus group discussion with the members of the village development committee in Tlokweng. The purpose was to ascertain the level of reliability and validity of the data collection instruments. It was through this process that appendices “A” the interview guide for key informants, “B” the interview guide for participants and “C” the questionnaire were modified for accuracy purposes. The researcher further worked with the research

assistants after they had gone to pre-test the instruments to identify, modify, and delete questions that were repeated, marked questions which were not applicable to the general public but only to social workers, correcting the Setswana and English version questions as well as providing accurate instruction on the questionnaire directing respondents to proceed to specified questions basing on the previous or past responses.

4.5. METHOD OF DATA COLLECTION

According to Grinnell (2001: 103) the data collection method is the heartbeat of a research project. It consists of a detailed plan of procedures that aims to gather data to answer a research question or test a hypothesis. This study adopted three data collection methods which are face-to-face interviews, questionnaires, and focus group discussion, that were complemented through the review of disaster policy documents of various stakeholders. The researcher engaged ten (10) research assistants who assisted with the face-to-face interviews and managing the recording of proceedings during the focus group discussions. The aim and objectives of the study were detailed in the consent form (appendix 5A & 5B which were written in both English and Setswana) that participants and respondents had to sign before they were interviewed or agreed to complete the questionnaire. Researcher and the research assistants read the consent form to the participant or respondent before information was solicited from them. The researcher facilitated and supervised the face to face interviews, administration of the questionnaire, and focus group discussion in the Setswana language, which is a national language spoken by the participants. Amongst the ten (10), two (2) had a bachelor of social work degree, one a diploma, and the seven (7) were undergraduates still pursuing their professional qualification. The researcher had a full day workshop with the research assistants to familiarize with the data collection instruments, the disaster risk reduction concepts, and to pilot the instruments.

4.5.1. FACE-TO-FACE INTERVIEW

An interview involves a conversation between the interviewer and the respondents with the purpose of eliciting certain information from the latter (Bell, 1999). Qualitative

interviews were used to solicit in-depth descriptions, explanations, and narratives of experiences of ninety (90) community members, thirty (30) leaders, ten (10) social workers, and five (5) stakeholders dealing with disaster (appendix 2 and 3 refers). Separate interview guides were designed for each category of respondent as mentioned above. In an in-depth interview, the interviewer elicits information that people might consider quite personal and which cannot be discussed in a group (Babbie & Rubin, 2001: 345; Rubin & Babbie, 2001:390). Most interviews were conducted in the homes and offices of the participants so that the researcher could have an opportunity to observe housing structures, physical environment, and preparedness against disasters. Standard procedures of interviewing and probing were revised by the researcher before conducting the interviews.

4.5.2. FOCUS GROUP DISCUSSIONS

The focus group discussion was chosen to explore the community members' perception of disaster hazards and risks, to draw hazard and risk maps, and to ascertain their level of preparedness. The focus group interview used open-ended questions so as not to elicit information that people might consider personal to discuss in a group (Babbie & Rubin, 2001: 345). The open-ended questions offered the researcher an opportunity to ask for clarification where he did not understand or to probe for further clarification. It also enabled the researcher to observe non-verbal cues and how the respondents feel about the topic under discussion.

There was a total of six instead of nine focus groups as had been intended which implied two (2) instead of three (3) focus groups for each community with about six to eight (6-8) men and seven to nine (7-9) women proportionally. It was difficult to convene three focus group discussion because some community member had relocated to the fields and cattle post, others were at work, and there was another study in progress where researchers for a different institution were also collecting data from community and the participants were exhausted to spare some time. The researcher observed on-going social processes without upsetting, disrupting or imposing an outside point of view (Grinnell, 2001: 287; Rubin & Babbie, 2001: 390). The researcher observed events and

activities as they happen in their natural settings (in this case, the communities). By moving around the community, the researcher identified physical hazards, risks, and vulnerabilities without disrupting or imposing his point of view. The researcher observed how the community members' work together to identify disaster related issues during the mapping process. The proceedings of the focus group discussions and individual interviews were not tape recorded for accuracy and verification purposes because the participants were unwilling.

4.5.3. QUESTIONNAIRE

The researcher used self-designed questionnaires for the second phase of the study. These questionnaires were accompanied by a covering letter that explained the purpose, objectives of the study, requirements, and what was expected from the respondents in completing the questionnaire (appendix 4 refers). The questionnaires' structure included demographic, attitudinal, behavioural, and factual items for attention by the respondents (Creswell, 1998:122; Babbie, 2008: 292). In addition, the respondents were required to use the rank ordered scale, that is, from the highest to the lowest significance. The respondents were drawn from social workers, members of the district disaster management committees, community leaders, the police, and survivors of disasters. A questionnaire was designed to suit the categories respondents mentioned above. A total number of 3 780 questionnaires were distributed and 2 980 were completed because the sample size of respondents changed based on the outcome from the data generated from the first phase of the study. The researcher ensured that the sample size comprised 10 % (percent) of the affected population per community. The questionnaire collected data that related to disaster systems, strategies, programmes and interventions that are available and those that are envisaged by the policy makers and survivors.

4.6. DATA ANALYSIS

According to Grinnell (2001: 111) data analysis is iterative, which means, the researcher must read and reread the volumes of data collected to look for patterns and themes that help to capture how research participants are experiencing the social problem under study.

In this study the researcher used qualitative and quantitative data analysis processes and interpretation to find general statements about relationships between categories of data collected qualitatively. Data was winnowed to enable the researcher to categorise according to disaster risk reduction and resilience themes and to proceed to the final narrative. The themes were the main concepts in the field of disasters that informed the objectives and the research questions for comprehensive analytical conclusions to be drawn from the study. Creswell (1998: 125) and Babbie, 2008: 122) advise that data should be reduced to themes. The researcher interpreted qualitative data based on the insights, intuition, and hunches of the participants. For the quantitative data, the researcher used the computerized statistical package (SPSS) to compute and analyse data from the respondents.

4.6.1. PROCESS OF QUALITATIVE DATA ANALYSIS

Qualitative data analysis involved moving through the analytic circles as opposed to being fixated to a linear fashion (Huberman & Miles, 1994:10; Babbie, 2008: 122). Moving through analytic circles enables the researcher to address several aspects of analysis as he or she goes around the circles of the spiral image of data analysis. The researcher incorporated the systematic method of data recording appropriate for the study setting (key informants, focus group discussions, and observation) and participants that facilitated analysis, before data collection commences. Since qualitative data is voluminous, the researcher organized it into files and index cards. Data from the focus groups and observations were transcribed into text units and thereafter transcripts were read through several times in order to make sense of the data as a whole. Data analysis for the qualitative phase was two pronged, that is, data was analyzed at the research site during data collection and away from the site after a period of data collection.

In this study, the researcher supervised ten (10) research assistants who conducted face-to-face interviews, and administered questionnaire and moderated focus group discussion to gather data from community leaders (chiefs, church leaders, and headmen), village committees (Village Development Committee, Parent Teacher

Association and Village Health Committee) members, social workers, and community members who agreed to participate in focus group discussions and face to face interviews and complete the questionnaire.

4.6.2. ANALYSIS OF ONE TO ONE INTERVIEW:

Thereafter, the researcher together with the research assistants studied the details of the data to obtain the whole picture described in the data before breaking it into parts. The researcher wrote memos in the margins which were key phrases, ideas, and concepts occurring to him during the individual interviews. This initial process helped the researcher to interact with and explore the database (Creswell, 1998: 52). Category formation is the nerve centre of qualitative data analysis in which the researcher will describe the data in great detail and develop themes through a system of classification. The classifications were drawn based on the major themes and main concepts characterizing the study (disaster experiences, hazards, risks, vulnerabilities, capacities, and resilience). The use of descriptive and explanatory details was based on the disaster terminology related to community resilience studies, that is, to describe the social, physical, and geographic environmental hazards and associated risks. The researcher classified data taking it apart in order to isolate it in relevant categories and themes.

4.6.3. ANALYSIS OF FOCUS GROUP DISCUSSIONS (FGD) AND OBSERVATIONS:

The focus group discussions involving village disaster / development committees, and community members developed participatory concept mapping to gain an understanding of people's knowledge about disasters by graphically representing and relating elements, to identify the gaps in knowledge and information. The concept mapping exercise required the participants to brainstorm all the possible disaster hazards and risks and state how each may affect them. They identified and agreed on which hazard/s pose the highest risk for the community and the available capacities to address the risks. The data from focus group discussions was used to generate two concept maps, one for hazards and the other for capacities to allow comparisons between wards and villages (Lopez-Marrero and Tschakert, 2011: 235).

Secondly, the data from focus group discussions were used to generate participatory sketch maps for assessing and comparing their understanding of the spatial distribution of hazards and risks as well as the distribution of different exposure zones within the communities. The exercises were useful to elicit local experiences, knowledge, and perceptions of hazards within a spatial context and were confirmed through observation. The data were used to identify, draw, and define areas of high, medium, and low exposure to hazards within each community. As such the process elicited insight into the reasons why participants identified the areas they did and what the implication of the hazards were for each community. Therefore, the data enabled the production of a community and composite map for three communities showing specific areas of high and low risk and specific areas for use as evacuation sites (Lopez-Marrero and Tschakert, 2011: 234).

4.6.4. ANALYSIS OF QUANTITATIVE DATA.

The survey data analysis follows a sequence of stages that are stated as follows: step 1: The researcher reported by tabulating the number of returns and non-returns of the survey instrument based on the number of respondents and non-respondents; step 2: Response bias was determined by following non-respondents by phone to assess whether their responses differ substantially from those of respondents; step 3: A descriptive analysis was made of all independent and dependent variables including the means, standard deviations, and range of scores for the variables (Creswell, 1994: 122:).

4.6.5. DOCUMENT ANALYSIS

The analysis of documents took into account four aspects which are; authenticity, representativeness, credibility, and meaning (May, 2011: 208; Grinnell, 2001). The researcher made reference to the national, regional, and international disaster policies and programmes, national legislation (statutory acts and regulations), and strategic frameworks from social workers, stakeholders (UNDP, Red Cross Movement, and SADC), disaster committees, and community leaders in the analysis.

4.7. TRUSTWORTHINESS

Trustworthiness is crucial for qualitative studies to ensure reliability and validity of findings. This was ensured by adopting and integrating the Guba's model as stated (in Krefting, 1991). Qualitative study is trustworthy when it accurately captures and reports the experiences of the participants (Morse, Barrett, Mayan, Olson, & Spiers, 2002). The rigor of qualitative methodology is based on four components of trustworthiness, which are; credibility, transferability, dependability, and confirmability (Krefting, 1991: 214-222). Shenton (2004) unpacked Guba's terms regarding rigor in qualitative studies as follows:

- **Credibility:** This includes measures that increase the probability that credible findings will be produced. Krefting (1991) and Shenton (2003) argue that credibility will be established through prolonged engagement with the subject matter and allowing participants to validate whether the reported findings represents their experiences. The question is how congruent are the findings with reality?
- **Dependability:** once credibility has been established, the question may be asked; how dependable are the results? Shenton (2004) is of the view that dependability issues are addressed more directly when the processes within the study are reported in details, thereby enabling a future researcher to repeat the work, if not necessarily to give the same results.
- **Confirmability:** Shenton (2003) asserts that the concept of confirmability is the qualitative investigator's comparable concern to objectivity. Steps must be taken to ensure that the findings are the results of the experience and ideas of the informants rather than the characteristics and preferences of the researcher. As such, the researcher through audit trail demonstrates as clearly as possible the evidence and thought process that led to conclusions.
- **Transferability:** it refers to the probability that the findings will have meaning to other communities and others in similar situations. The researcher provides the information that potential appliers might need to make decision on transferability (Shenton, 2004; Krefting, 1991).

4.7.1. MEAURES FOR ENSURING TRUSTWORTHINESS

The process of data verification was conducted following Guba's model of trustworthiness described in Krefting (1991: 215-216; Shenton, 2004). Table 1 below shows the strategies that were taken to ensure trustworthiness in this study following to Guba's model.

Table 1: Strategies for ensuring trustworthiness in the qualitative phase of the study

Criterion	Strategies for assessing the criteria	Specific actions taken by researcher
Truth value	Credibility	<ul style="list-style-type: none"> • Triangulation of data sources (individuals, focus groups & key informants) • Triangulation of methods (qualitative approach-narratives, quantitative approach structured questionnaires) • Member checking testing of protocols, analytic categories & interpretations with participants • Peer examination (presentation of research findings with impartial colleagues) • Reflexivity (researcher assessed own biases and noted them) • Findings were presented at Departmental seminar and to South East district leaders
Consistency	Dependability	<ul style="list-style-type: none"> • Triangulation of data sources (individuals, focus groups & key informants)

		<ul style="list-style-type: none"> • Independent editor assisted with data organization • Peer examination (promoter and other colleagues provided supervision)
Applicability	Transferability	<ul style="list-style-type: none"> • Intense description of the research methodology, literature control, and verbatim quotations taken from the narratives • Purposive selection of the sample (the sample consisted residents, workers, and professionals who reside, work and experienced in diverse fields as well as belonging to cultural and age groups.
Neutrality	Confirmability (it is more linked with credibility, dependability, & transferability)	<ul style="list-style-type: none"> • Triangulation of data sources (individuals, focus groups, & key informants) • Reflexivity (the researcher identified own biases to ensure that data were free from bias)

4.8. FEASIBILITY OF THE STUDY

In 2009, the Government of Botswana and UNDP produced a national disaster risk management plan which specifies roles and responsibilities for different stakeholders, including communities (National Disaster Management Office, 2009: 2). The year before, the National Disaster Management Office (NDMO) had assessed disaster hazards and risks common in various districts and villages in the country and a report to that effect was released the same year (SRK Consulting, 2008: 8). The report identified

the following hazards: drought, floods, road and rail accidents, civil unrest, major event hazards, service delivery failure, and industrial hazards as problematic in the South East Administrative District. These hazards and related risks are common occurrences in Mogobane, Otse, Ramotswa, Tlokweng, Lobatse, and Gaborone.

The research was carried out in the South East District of Botswana, in particular Otse, Ramotswa, and Mogobane which are prone to disasters and need preparedness strategies towards the hazards. South East District was selected because of its proximity to Gaborone, which is the capital city of Botswana and provides a proper context for disaster resilience studies. South East District provided a comprehensive picture of both rural and urban settings and constituted a useful scenario for disaster risk reduction modalities for both.

The researcher was in touch with the Ministry of Local Government and Rural Development, the District Commissioner, the Chief, and the relevant authorities in South East District to seek for permission to conduct the study. The researcher was funded by the Office of Research and Development at the University of Botswana to carry out the study. In addition, an amount of P5000, 00 was set aside by the researcher as seed money to employ and train research assistants to conduct the interviews and administer the questionnaires.

In addition, the prospective respondents were drawn from already existing village development committees, village health committees, key informants (chiefs, district commissioners, religious leaders, social workers), and survivors of disasters. Besides stakeholders working for SADC and UNDP situated in Gaborone, all other respondents resided and worked in the South East District administration centre. They are also the gatekeepers into the communities who grant permission to those who might want to conduct a study. The researcher was granted permission by the Office of the President, village authorities, and related organizations to carry out the study in their communities. The collection of data for the first and second phases in the three communities was conducted within a period of six (6) weeks.

4.9. ETHICAL CONSIDERATIONS

Ethical clearance was sought and granted by the Botswana National Disaster Management Office under the Office of the President, the South East District Commissioner, the South East District Council Secretary, and the Kgosi-kgolo of Ba-Malete, the Otse and Mogobane Kgosi respectively and community members (. The proposal was submitted to the ethics committee of the University of Botswana and the North-West Universities and they approved and granted permission to conduct the study (appendix 7 refers). In addition, the following ethical considerations applied in this study: no deception, informed consent, and voluntary participation, withdrawal from investigation, confidentiality, and protection of participants. The social work profession practice is premised on the application of ethical considerations based on its ethics, morals, and values (Grinnell, 2001: 55; Babbie, 2008: 77). According to the United States National Association of Social Workers (1999), ethics are a set of moral principles, rules, or standards that govern the conduct of members of a group, in this case the practitioners and researchers (appendix 5A and 5B refers). The respondents were fully informed about the nature and purpose of the study, the procedure to be used and the expected benefits. They were given sufficient information to assist them to reach an informed decision about participating in the study. Furthermore they were informed that the interviews may be tape recorded for purpose of accurate transcription of the responses.

4.9.1. AVOIDANCE OF HARM TO RESPONDENTS

Respondents were assured that they will not be harmed by taking part in the study and that they were not under pressure to participate (Grinnell, 2001:63; Babbie, 2008: 68). When the respondent showed that the interview elicits emotional feelings and sad memories, the interview was stopped and the researcher requested to come back the following day. The participants and respondents were informed they would be referred for counseling with appropriate professionals when the need arises and the researcher will use his social work knowledge to link him/her with the service. The researcher is a qualified social worker capable of providing counseling to clients but for purposes of continuity and follow up on the recovery of the respondent, a request for counseling

services was handed to social workers in the area, the researcher was to provide debriefing only to restore the respondents functional state. A request letter for anticipated counseling service bearing the full particulars of the researcher was handed to the Social and Community Development Office, South East District Council at the commencement of the study.

4.9.2. INFORMED CONSENT

Participants provided oral or written consent, whichever was applicable and approved as appropriate for the specific participant. Culturally appropriate steps were taken to secure informed consent and avoid an invasion of the privacy of the respondents. The researcher explained exactly what the research entailed in a language the participants understood. The participants were asked to sign or affix a fingerprint on a consent form that was provided and this is attached as an appendix (Grinnell, 2001: 58; Creswell, 1998: 165; Babbie, 2008: 67).

4.9.3. VOLUNTARY PARTICIPATION

The researcher ensured that the respondents' consent to participate in the study was voluntary and free from any coercion. Participants were not deliberately misled to obtain information from them (Grinnell, 2001: 62; Babbie, 2008: 67).

4.9.4. WITHDRAWAL FROM INVESTIGATION

Participants were informed from the beginning that they have the right to withdraw from the research at any time. They were free to do so, if they felt that there was something personal that they would not like to disclose to anyone (Grinnell, 2001: 58; Creswell, 1998:165).

4.9.5. CONFIDENTIALITY, PRIVACY, AND ANONYMITY

Participants were informed that they were protected from any victimization that may arise from the information given which will also be held in confidence. Their identities or names will not be traced back from the interview guide because transcripts will be identified by codes. The respondents were accorded the protection of privacy as a basic human right (Grinnell, 2001:65; Creswell, 1998: 165; Babbie, 2008: 69).

4.9.6. DECEPTION OF PARTICIPANTS

The researcher ensured that participants and respondents were not bribed to take part or provide information in this study. They were not given any inducement or rewards for participating except the programmes that will be developed as a result of the study findings (Grinnell, 2001:66; Creswell, 1994:148; Babbie, 2008: 72). The participants were also provided with all the necessary information pertaining to the study before they could be requested to give consent to participate. Though that is the case, respondents and participants may be compensated for transport costs incurred during the study period.

4.10. ACTIONS AND COMPETENCE OF THE RESEARCHER

Researchers are ethically required to be competent and qualified to undertake proposed scientific research. The emphasis on ethical requirements is emphatic when the researcher is conducting a sensitive investigation (Creswell, 1994:149). Qualitative research depends entirely on the qualification and competence of the researcher as the primary instrument for data collection and analysis. The researcher has participated as such in a number of sensitive studies and gained necessary competencies. This is so because data are mediated through this human instrument rather than through inventories, questionnaires or machines (Creswell, 1998: 165). This is meant to avoid research failures and the production of invalid research results.

The researcher is a holder of Bachelor and Master Degrees in Social Work and is conversant with academic research requirements. He is currently in the academic training field and supervises social work undergraduates in conducting social work research. He is a team member of UB-UPENN research on adolescent sexual behaviours and currently carrying out a tracer study for the Social Work Department, University of Botswana. As such, the research work carried out has oriented and prepared him to conduct face-to-face interviews and focus group discussions. In addition, the researcher will benefit from the supervisor who has a Doctoral degree and

colleagues in the Social Work Department at the University of Botswana to guide and oversee the researcher throughout the process.

The researcher applied for a study permit through the Office of Research and Development at the University of the Botswana and the Office of the President (Botswana Government) to collect data from the respondents and participants. The objectives of the study were explained in detail and clearly to the community leaders and respondents before administering the research instrument. A letter of introduction was obtained from the Department of Social Work (North West University) stating the reasons for conducting the study to accompany the research permit. This allayed suspicions and fears about why the study is being conducted amongst communities, leaders, and residents.

4.11. SUMMATIVE CONCLUSION

The study applied both qualitative and quantitative methods of investigations and the related process to collect and analyse data from participants, respondents, key informants, and focus groups. Six aspects of ethical consideration were applied to ensure that parties to the study are protected and understand the significance of their actions in the study. Data was collected from 88 (eighty eight) participants, 6 (six) focus groups, 26 (twenty six) key informants, and a total of 3567 respondents for the quantitative phase of the study. The data was collected by the researcher with the assistance of 10 research assistants after they were trained on the data collection instruments and pre-tested in Tlokweng, an area not targeted in the study although it is in the same district.

CHAPTER FIVE

THEORETICAL PERSPECTIVES, DISCUSSION, AND APPLICABILITY

5.1. INTRODUCTION

This chapter presents the theoretical perspectives, their interconnectedness, and applicability to the study of community resilience to disasters in Botswana. The theories have been applied to a number of disaster studies internationally and they provide the underlying assumptions about disasters. They also explain how people behave in the event of a crisis.

5.2. RELEVANT AND APPROPRIATE THEORETICAL PERSPECTIVES AND ENDORSEMENT OF APPLICABILITY

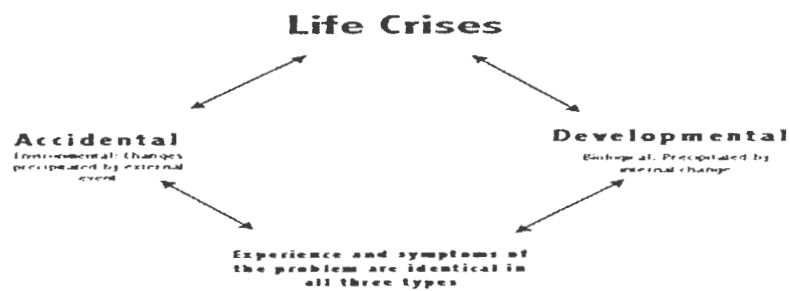
This study adopted the crisis, stress, ecological perspective, social constructivism, and resilience theories to explain how individuals, communities, and nations withstand and deal with disaster and /or traumatic events. Crisis theory postulates that disasters (as crisis) create stress or increase stress levels in the lives of the affected and the survivors while resilience theory demands that the system should make necessary adjustments to cushion the demands associated with crisis and thus reduce the level of stress. The system can make appropriate adjustments when communities have constructed necessary disaster knowledge through interactions and negotiations facilitated by the ecological perspective. It enables the community to appraise the energy, adaptations, coping, and interdependence prevailing in the social environment.

5.2.1. CRISIS THEORY

Crises are classified into two: situational and developmental. Situational / accidental crises (which are the focus of this study) refer to physical illness and injury, unexpected or untimely deaths, crime, natural and man-made disasters, and situational crises of modern life (Kirst-Ashman, 2010: 256). A disaster incident as a situational or accidental crisis is an intersection between a natural hazard and the vulnerability of an individual, family and / or community that leads to a disruption of normal life. Disasters resulting from natural or man-made hazards are characterized by massive damage to property

(houses), infrastructure (roads, structures, water supplies, telecommunications, and energy production centres), deaths, injuries, mass displacements, and separation of families. The magnitude of disasters places the affected communities and individuals under undue pressure to adjust and to summon personal or community resources to respond to the crisis. Figure 3 below represents types of crises and the factors associated with each type.

Figure 3: developed by Ivor Browne

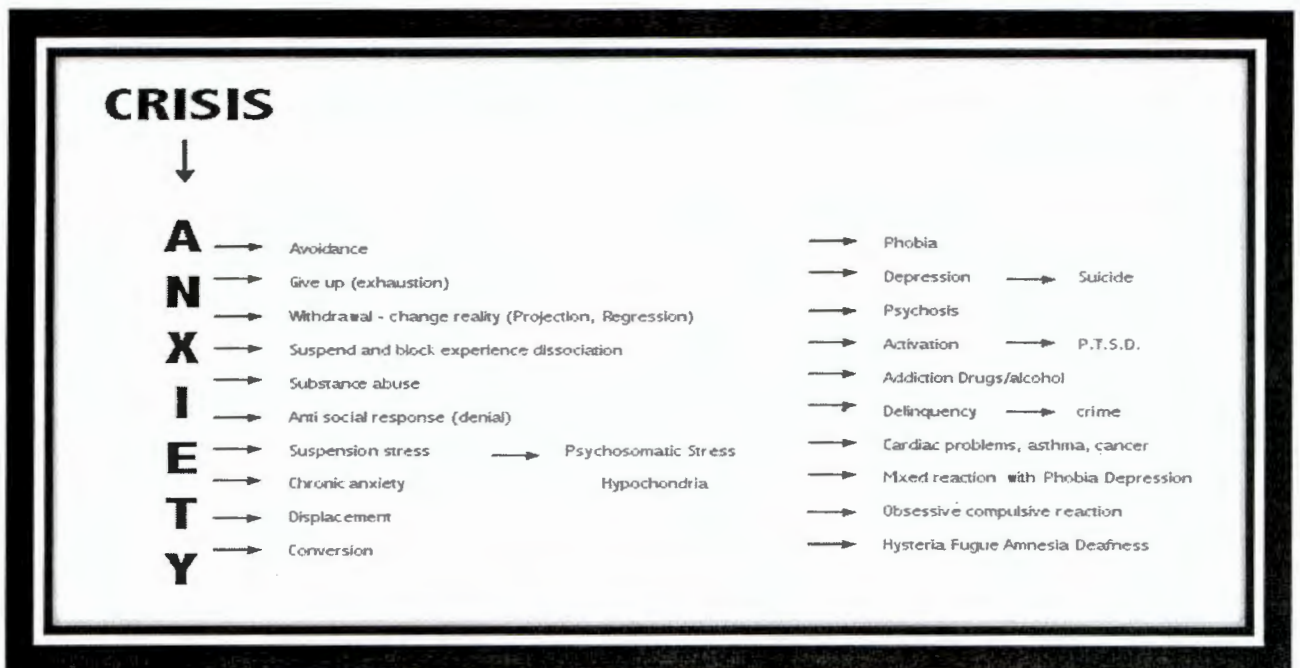


A crisis is a threat to homeostasis, a stressful life experience affecting the stability of an individual so that their ability to cope or even function may be seriously compromised or impaired (Gleason, 2008). It is a temporary state of upset or disequilibrium, accompanied by confusion and disorganization. The disorganization may be integral to reducing problem-solving abilities to a point where traditional coping strategies are not effective (Atkinson, Atkinson, Smith, Bem, & Hoeksema, 1996: 478). The phases of crises are discussed below:

- Phase 1: Initial rise in tension from the impact of the stimulus calls forth habitual problem solving responses.
- Phase 2: Lack of success and continuation of stimulus is associated with increasing upset and ineffectuality.
- Phase 3: Further rise in tension acts as a powerful internal stimulus and calls out emergency problem solving mechanisms - novel methods to attack the problem, trial and error, and attempts to define the problem in a new way.

- Phase 4: As tension mounts beyond a further threshold, its burden increases to breaking point. To avoid major disorganization the person employs restitutive methods to reduce anxiety and open up maladaptive pathways. These can lead eventually to the development of various psychiatric syndromes shown in the figure below:

Figure 4: borrowed from Ivor Browne crisis theory



Disasters, whether natural or man-made, are unpredictable crises with the potential to disrupt individual, family, and community functioning especially when the foregoing are unprepared. They destroy buildings, cause death and injuries, force people to relocate or push them out of their habitat, and completely disorganize families. The Red Cross & Red Crescent Movement (2010: 5) reported the complexity of multiple hazards in Haiti that occurred before the earthquake, and the painful awareness that the rainy season would be followed by hurricanes (like Gustav, Hanna, and Ike and tropical storm Fay), which left hundreds of people dead, tens of thousands homeless, and aggravated chronic malnutrition in several parts of the country.

Affected individuals, families, and / or communities depend on available resources and capacities at their disposal and in their environment to manage the crisis. Inadequacy of resources or capacity to contain the situation or event within a reasonable time period adversely affects adjustment and cushioning against the shock. Deficiency of resources or capacity causes the individual, family, and community to fall out of balance, causing them to worry about loss and mourn the inability to recover from the effects of the disaster leading to anxiety related to mental health challenges.

5.2.2. STRESS THEORY

The stress resulting from a situational crisis varies depending on the severity, duration, and surprise of the stressor. In cases where disasters have destroyed uninsured houses and livelihoods beyond the individual's or community's ability to recover, stress is inevitable. Morris and Maisto (1998: 477) argue that stress is an environmental demand that creates a state of tension or threat and requires change or adaptation. The environment will place an inconsiderate demand on the individual or community to respond with limited social, economic, and psychological resources, which are not always readily available. When demand resulting from disasters exceeds ability and capacity is unable to meet strong needs, stress results (Israel & Schurman, 1990: 191). It becomes an aversive circumstance that threatens their well-being or the functioning of individuals, organizations, neighbourhoods, communities or society (Norris *et al.*, 2007: 127). It results from the characteristics of the stressor, appraisal of the stressor, the response to or effects of the stressor, and the various conditions that influence the relations between the stressor, stress appraisal, and stress response (Norris *et al.*, 2007).

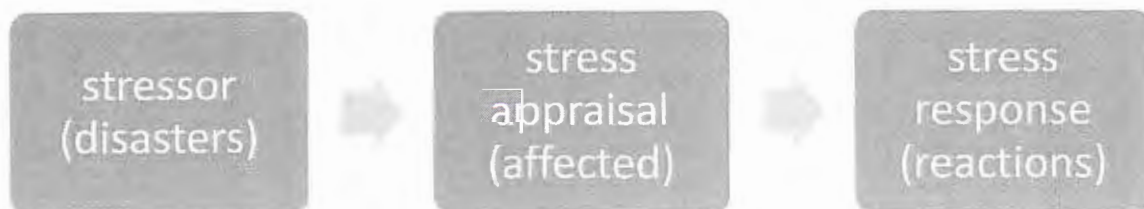


Figure 5: shows the process of stress response

In this case the stressor (disaster / hazard) and the impact it has on individuals, families, and communities will be appraised on the basis of the availability or lack of capacity to cope and the stress appraisal will determine the stress response of the affected persons. All kinds of losses resulting from disasters demand an urgent recovery system and the longer it takes, the more stressful it becomes (Neale, Davison, & Haaga, 1996: 193). For example, the loss of life is irreplaceable; a house may be rebuilt or reconstructed depending on the resources, incurred injuries may be permanent or temporary; and the loss of livelihoods may be difficult to recover after a disaster. Disasters (floods, earthquakes, hurricanes, war, and imprisonment) are classified as cataclysmic events. These combined with daily problems, chronic strain, and the lack of resources to control the challenges compound the stress levels of individuals, families, and communities and reduce their capacity to cope with and prepare for future disaster events (Drabek, 2001). Chronic strains include poverty, long term unemployment, racism, on-going workload, interpersonal demands at work, family conflicts, and loss and / or gain of roles. According to Norris *et al.*, (2007: 128) specific stressors that have been found to affect post disaster mental health include:

- Bereavement.
- Injury to self or family member.
- Life threat.
- Property damage.
- Financial loss.
- Community destruction and displacement.

5.2.3. ECOLOGICAL PERSPECTIVE

The ecological perspective is used to appraise social welfare problems and situations and determine specific theories that are appropriate for intervention (Ambrosino, Emeritus, Emeritus, & Ambrosino, 2005: 49). The social environment includes but is not limited to homes, work, laws, policies and social rules in the community. It enables the assessment of the microsystem (individual), mesosystem (relationship between microsystems), exosystem (settings like school boards, local government), and

macrosystem (community) at different levels of the social environment (Ambrosino et al, 2005: 59). The constant interactions and transactions of community members with the various systems around them determine their resilience and / or vulnerability to disasters (Kirst-Ashman, 2010).

Therefore, it is crucial to integrate disaster risk reduction knowledge, measures, and practice in these transactions and interactions to improve community resilience. The perspective facilitates the exploration of diversity, gender, and cultural differences including the effectiveness or non-effectiveness of interactions. The exploration targets the energy, adaptation, coping, and interdependence prevailing in the social environment. These are crucial for community disaster preparedness, response, prevention, mitigation, recovery, and reconstruction. The ability and flexibility of the people exposed to hazards and their adaptation provides a platform for developing resilience measures against disasters (Hull & Kirst-Ashman, 2004). This is dependent on the development of appropriate interventions based on the mapped out disaster terrains, pieces of the puzzle, and vulnerability factors. The interest is not only in the coping ability of communities but also their adaptation as determined by the changing nature of hazards and risks and disasters (Ambrosino *et al.*, 2005). In addition disasters, like other crises, offer communities in their social environment an opportunity for growth. Figure 6 below shows the interactions of individuals with various systems around them and that improvement should target these transactions that may make them vulnerable to disasters and other related risks.

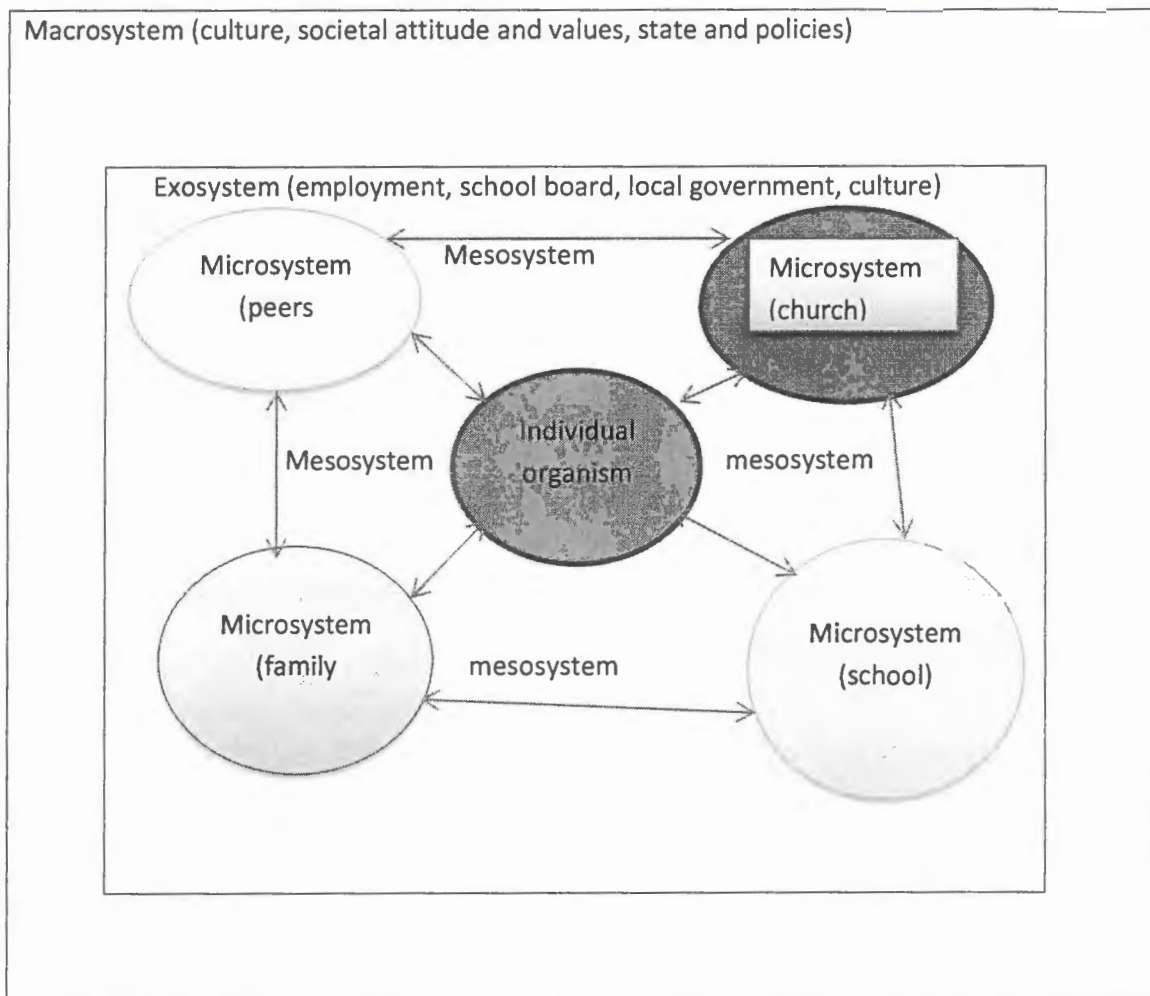


Figure 6: Ecological Perspective model (Understanding social work and Social Welfare) (Ambrosino et al., 2005: 56)

5.2.4. SOCIAL CONSTRUCTIVISM

Cohen, Duberley, and Mallon (2002) argue that social constructivism posits that knowledge is constructed as opposed to created and is concerned with the nature of knowledge and how it is created. It is said to have emerged some thirty years ago with its origins in sociology and associated with the post-modern era. Social constructivism is crucial in assisting the researcher to appreciate how the community constructs knowledge on prevalent hazards in its environment. Berger and Luckmann (1991) assert that the interaction of people with the social world leads to the understanding of

society as both an objective and subjective reality. As such, the social world influences people to develop routines and habits that may promote and sustain their vulnerability or enhance their capacity to disasters. The social practices and institutions together with the disaster sensitive interactions and negotiations between relevant social groups will produce needed disaster knowledge which will increase resilience and reduce vulnerability of communities to disasters (Bujold, 2002). The prevailing habits and routines ascertain the level of community preparedness, response, and resilience to disasters. Therefore acquiring habits and routines will ensure efficiency and effectiveness in disaster risk reduction and developing the knowledge and social actions that go together. It is critical to ask evaluative, political, and pragmatic questions on hazards and risks, and community perceptions on disasters, and identify actions are applied to protect the communities.

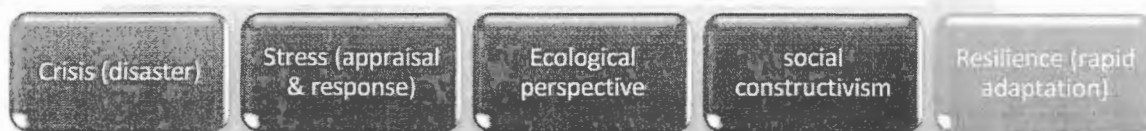
5.2.5. RESILIENCE THEORY

According to Folke (2010: 40) resilience is the capacity of a system, be it an individual, a forest, a city, or an economy, to deal with change and continue to develop. Disasters affect the normal functioning of society in many ways from the marginal to the extreme where everything collapses such as the earthquake in Haiti which demolished structures and killed thousands of people (Red Cross Red and Crescent Movement, 2010: 6). Therefore, resilience is both about withstanding shocks and disturbances (like climate change or financial crisis) and using such events to catalyze renewal, novelty, and innovation. It is as essential that individuals, families, and communities prepare to prevent or minimize disaster disruption or situational crises. Resilience theory encourages individuals, families, communities, and countries to anticipate, adapt, learn, and transform human actions in light of the unprecedented challenges of the turbulent world (Folke, 2010: 41). Anticipation and adaptation are products of deliberate efforts to learn from past events and proactively transform relevant human actions before an impending crisis occurs.

Disruption arising from disaster is explained by crisis theory; the unexpected change together with its demands for resources that the affected may not have leads to stress

which is explained by stress theory; and the adaptation, adjustment, shifts and learning from the crisis and resultant stress that require the system to rapidly make proper and immediate adjustment to return to its equilibrium, is explained by resilience theories. Tobin and Whiteford (2002: 28) assert that community resilience is dependent on pre-existing social, economic, and political conditions as well as post-disaster response, relief efforts, mitigation strategies, and longer term rehabilitation programmes. The level of equilibrium required by individuals, families, and communities during a crisis is dependent on available capacity to contain the perturbation. It is important to ascertain whether people / communities have identified the characteristics of likely traumatic events in their environment before a disaster occurs and prepare to respond accordingly. Norris *et al.*, (2007: 129) argue that resilience can fail when resilience resources are redundant, that is, when they are themselves damaged or disrupted by the stressor. The figure below shows the link between theories:

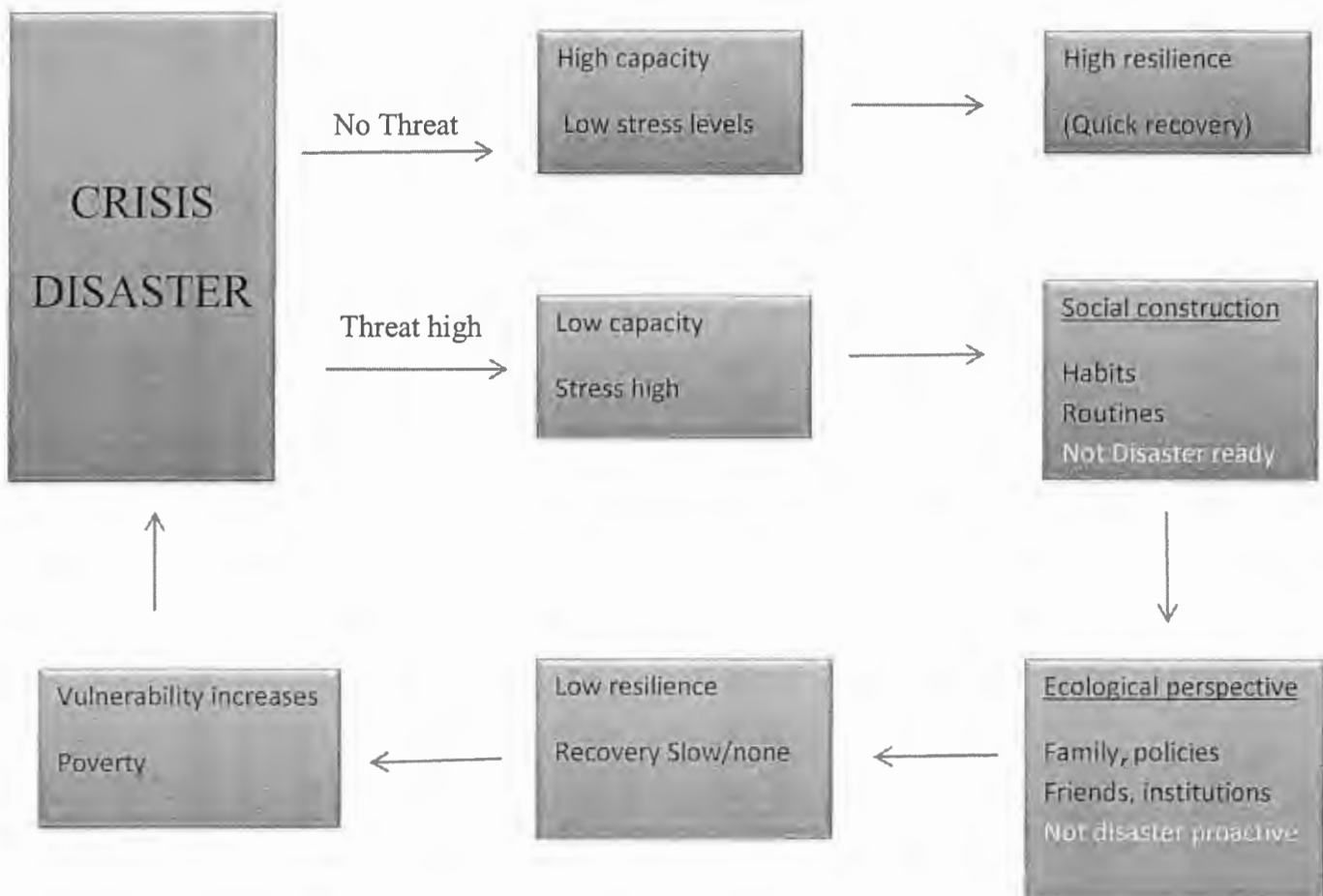
Figure 7: the theoretical linkages



The characteristics of a crisis are the dangers and opportunities, the seeds of growth and change, a state of disorganization and disequilibrium, and the breakdown in coping within the community. Furthermore, it is crucial to identify the community's ability to cope with situational crises which have a sudden onset and are unpredictable, the perception that it will or will not happen to them, and their preparedness to manage the emergency during times of stability. The assessment will give an indication of what could be expected after a crisis in a community and establish whether survivors will emerge on a higher or lower level of functioning. According to Norris *et al.*, (2007: 128) resilience is the process that produces adapted outcomes; the more rapid the return to pre-event functioning, the greater the resilience. A model of resilience to hazard in

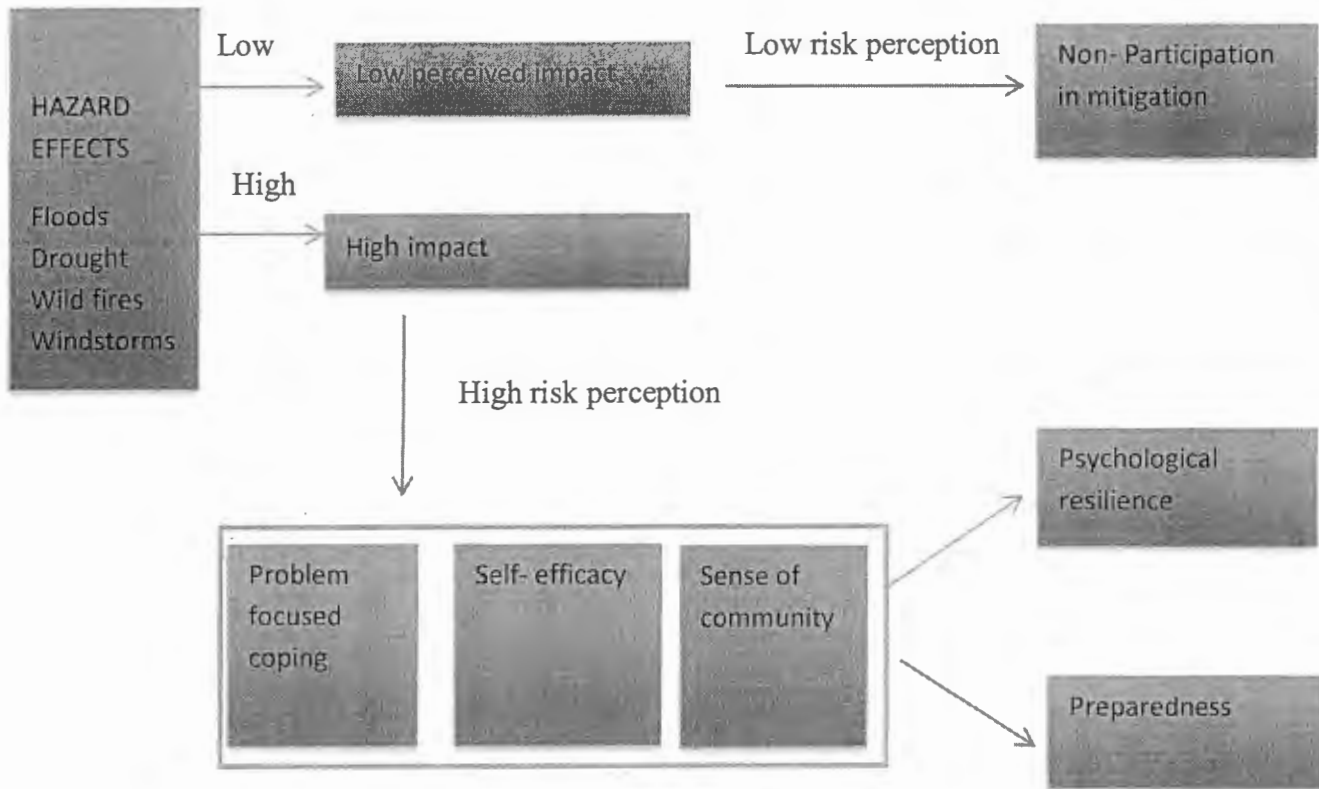
figure 9 below, that individuals can easily use was adopted by Paton and Johnson (2001: 271) borrowing from Bishop *et al.* (2000) and Miller *et al.*, (1999). It simply requires the identification of hazardous effects. If low, mitigation measures are not needed, and if high, the perception of risk has to be high to lead to the assessment of problem focused coping, self-efficacy, and a sense of community that will guarantee preparedness and psychological resilience. Figure 8, below shows model developed following the theoretical basis for analysis of the situation and linkages.

Figure 8: Theoretical linkages in situational analysis



MODEL OF RESILIENCE TO CRISIS

Figure 9: Model of resilience drawn from Paton and Johnson (2001)



5.3. SUMMATIVE CONCLUSION

The theoretical base indicates that the unpreparedness for crises and disasters, in particular, is distressing to individuals and communities who are already poor, unemployed, and disadvantaged. It is presupposed that resilience to crisis requires anticipation that it will strike thus providing an opportunity for change and growth. It is then that the individual or community can assess its ability to bounce back to normal functioning. Thus preparedness, prevention, and mitigation are not only desirable but mandatory to build resilience. These are made possible through a deliberate process of reconstructing the objective and subjective realities of society that take disaster threats seriously and acquiring appropriate routines and habits. The new routines and habits are developed by disaster simulation exercises and other measures that community members and leaders undertake to promote new patterns of thinking and conduct

during crises. Otherwise, communities and /or individuals with skewed resources, not acquiring new routines and habits, and barely surviving on a day-to-day basis, are highly likely to fall out of balance completely when a crisis strikes. Thus, it is critical that the ecological perspective should be adopted in the process of building community resilience to disasters.

CHAPTER SIX

PRESENTATION OF QUALITATIVE DATA

PHASE I: QUALITATIVE FINDINGS FOR RAMOTSWA, MOGOBANE, AND OTSE COMMUNITIES

6.1. INTRODUCTION

This chapter presents the qualitative findings from Ramotswa, Otse, and Mogobane which are the three communities in the South East Administrative District targeted by the study. The findings are reported in relation to a specific community represented in the study and include the observations of key informants from the respective areas. The interviews were meant to explore whether there are similarities or differences in perception of the hazards, risks, and vulnerabilities experienced. It was established that there is high vulnerability, low awareness of hazards and risks, poverty, a high level of unpreparedness, dominance of the reactive approach (response-based), predominance of women in communities, commonality of hazards, lack of mitigation measures, over-reliance on government, victim mentality, inadequate community DRR activities, climate change issues, gender issues in disasters, unemployment, undefined role of communities in DRR, and inadequacy of DRR knowledge.

6.2. BIOGRAPHICAL DATA OF PARTICIPANTS IN RAMOTSWA, OTSE, AND MOGOBANE

In Ramotswa, a total of 29 participants from three wards were interviewed and their biographical characteristics are as shown in the tables below. Twenty three (23) (79%) of them were single, while 5 (17%) were married, and 1 (4%) was a widow.

6.2.1. AGE, GENDER, MARITAL STATUS OF PARTICIPANTS IN RAMOTSWA

The participants' age representation shows that many are in the age bracket 20-30 years, followed by 31- 40 years, 51 and above, and the least being aged 41- 50 years; the majorities were women who constituted 90% of the total number of participants compared to 10% who were men. Seventy-nine percent (79 %) of the participants were single, 17 % married, and 4 % widowed. A majority of the married participants were in

the age bracket 51 and above. The data was collected during the day while other community members' were at work; it implies that women rather than men are usually at home during the day in Ramotswa. Table 1 below gives the age, sex, and marital status of participants from the Ramotswa community.

Table2: age, sex, and marital status of Ramotswa participants

Age		Sex		Marital status		
		Male	Female	Single	Married	Widow
20 - 30	10	1	9	10	-	-
31- 40	9	2	7	9	-	-
41- 50	3		3	2	1	-
51 & above	7		7	2	4	1
Total	29 (100 %)	3 (10%)	26 (90%)	23 (79%)	5 (17 %)	1 (4%)

The employment and qualification status of participants indicates that only 7 (24%) were employed while 76% were not. In terms of educational status, 12 (41%) had a primary school qualification or below while 7 (24%) had a junior certificate, 4 (14%) a BGSCE, 4 (14%) a Certificate / or Diploma in varying fields, and 2 (7%) a bachelors' degree.

6.2.2. AGE, GENDER, AND MARITAL STATUS OF OTSE PARTICIPANTS

Table 3 below show that 44 % of the participants in Otse were aged 51 years and above and 28 % were aged between 31-40 years. The gender representation shows some bias towards females at 72 % compared to 28 % of male. Amongst the participants, 59 % were single, 34 % married, and 7 % widows and widowers. It also shows that the people who are found in the homestead during the day in the Otse community are aged between 31 and 40 years and 51 years and above and those who are between 41 and 50 years are away from their homes during the day.

Table3: age, gender, and marital status of Otse participants

Age		Gender			Marital status		
		Male	Female		Single	Married	Widow
20 - 30	4	1	3	14 %	5	-	-
31- 40	8	3	5	28 %	6	1	-
41- 50	4	1	3	14 %	1	3	-
51 & above	13	3	10	44 %	5	6	2
Total	29	8 (28 %)	21 (72 %)	100 %	17 (59 %)	10 (34 %)	2 (7 %)

6.2.3. AGE, GENDER, AND MARITAL STATUS OF MOGOBANE PARTICIPANTS

Table 4, 5, and 6 below shows the biographical data of 30 participants selected and interviewed from wards in Mogobane. It shows their gender, age, place of birth, marital status, employment, and educational level.

Table 4: gender and age of Mogobane participants

Gender	Age			
	21 -30yrs	31-40 yrs.'	41 – 50 yrs.'	51 yrs.' & above
Male	2	3	1	1
Female	4	5	4	10
Total	6	8	5	11

Table 4 above shows the gender and age of participants. The dominant age group is 51 years & above followed by 31- 40 years, 21-30 years, and finally 41-50 years. It also shows that women outnumber men in all age categories.

Table 5: place of birth, marital status, and employment of Mogobane participants

Place of birth	Marital status			Employment		
	single	married	divorced	employed	self employed	unemployed
Ramotswa	4	1	1			6
Mogobane	9	8	1	4	1	13
Selibe Phikwe	1					1
Kanye	1			1		
Gaborone	2			1		1
Magotlhwane	1					1
Lobatse	1					1
Total	19 (63%)	9 (30%)	2 (7%)	6 (20%)	1 (3%)	23 (77%)

Table 5 above shows the birthplace of participants and their marital, and employment status. The majority of participants are residents of Mogobane, who were born and grew up in the area, followed by those from Ramotswa who relocated to live in Mogobane. In terms of employment, only 7 (23 %) of the participants were employed while 23 (77 %) were unemployed. The participants' marital status shows that the majority, 19 (63 %), were single, 9 (30%) were married, and only 2 (7%) were divorcees. Table 6 below shows that the 23 % that were employed had a lower primary education up to degree level. The majority of the participants had a primary education, junior certificate, and a certificate or diploma qualification but they were not employed.

Table 6: place of work, organization, and qualification of Mogobane participants

Place of work	Type of organization		Qualification				
	Government	Private	Std. 7	J C	BGSCE	Cert/Dip	Degree
Mogobane	6	1	4	2		1	1
Other areas			11	7	1	3	
Total	6	1	15	9	1	4	1

6.2.4. EMPLOYMENT AND QUALIFICATION STATUS OF RAMOTSWA PARTICIPANTS

Forty-four percent (44%) of the Otse participants were unemployed, while 28 % were employed by Government and the private sector, 14 % were self- employed, and a further 14 % were subsistence farmers. They reported that those who were employed worked and lived in Otse while others commute to Ramotswa on a daily basis. In terms of qualifications, 59 % of the participants had basic primary education and below, 24 % had either a certificate or a diploma, 10 % had a junior certificate, and 7 % had BGCSE (see table 7 below):

Table 7: employment status, qualification, length of service & organization

Employment status		Qualification		Length of service		Organization	
Employed	8 (28%)	Std 7 & below	17 (59%)	0-5 yrs.'	5	Gov't	5
Self employed	4 (14%)	JC	3 (10%)	6-10 yrs.'	2	Private	3
Farmer	4 (14%)	BGCSE	2 (7%)	11-15 yrs.'	1	NGO	1
Unemployed	13 (44%)	Cert / Diploma	7 (24%)	16-20 yrs.'	-	IGO	-
Total	29 (100%)	29 (100%)		21 & above	2	Other	1
					10		10

6.2.5. POSITION AT WORK IN RAMOTSWA

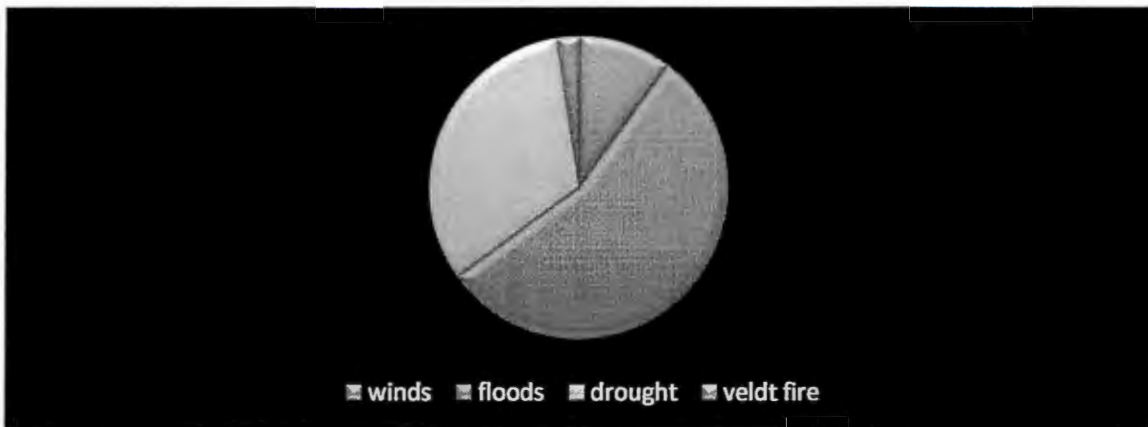
Each participant worked in their respective agencies and capacities as a cleaner, builder, maid, monitoring and evaluation officer, secretary, or casual labourer. A majority of the participants worked for individuals and private companies, and the rest for government, and non-governmental organizations.

6.3. COMMON TYPES OF DISASTER IN RAMOTSWA

The participants identified wind, floods, drought, and wild-land fires as common disaster hazards in their community, in particular, Ramotswa. In terms of prioritization of risk,

floods (which are represented in red in the pie chart below) are the most frequent, followed by drought, then winds, and lastly wild fires. Figure 10 below refers:

Figure 10: common hazards in Ramotswa



In Otse, the participants identified disaster types as floods, high temperatures, drought, locusts, poverty, rain, and hailstones, windstorms, veldt fires, and earthquakes (see figure 11 below). In terms of prioritization, floods are - the most prominent, followed by high temperatures, drought (causing poverty), rain, windstorms, and hailstones. Locusts, earthquakes, and veldt fires seem not to be frequent and do not pose any serious threat to the community. This suggests that the community does not engage in preventative measures against less threatening hazards. Some participants when answering a question on the type- of disasters in the community, said:

“Merwalela le lehuma” (floods and poverty)

“Merwalela, lehuma, le mogote o o feteletseng” (floods, poverty, and high temperatures)

“Tsatsi le le feteletseng, lehuma, merwalela” (high temperatures, poverty, and floods)

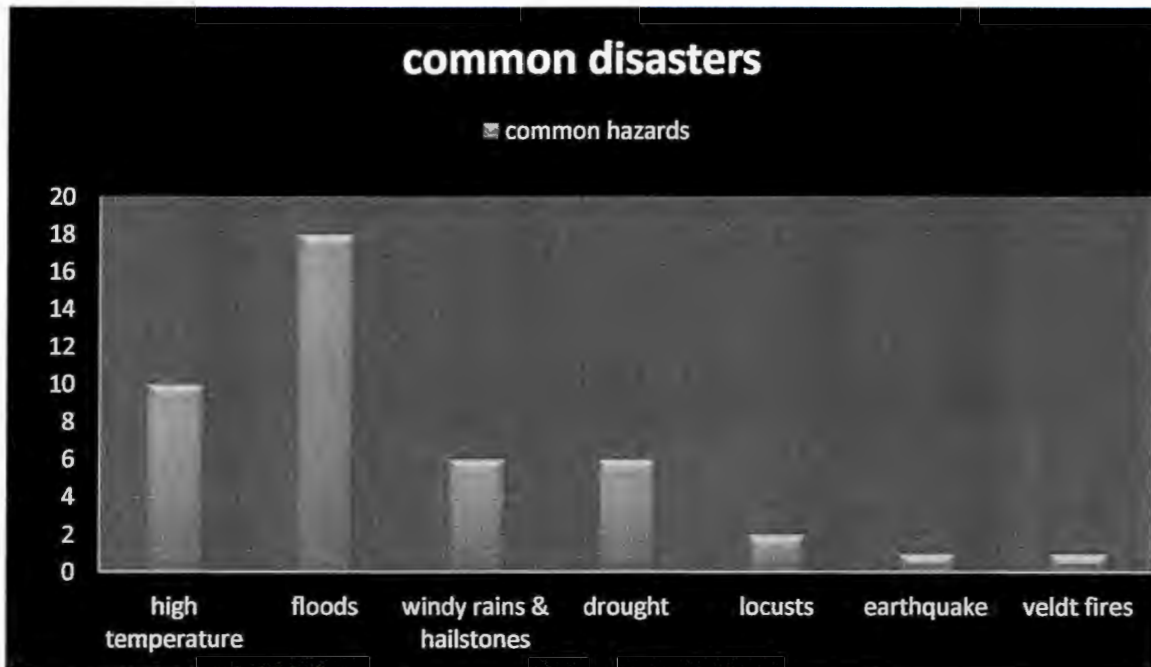


Figure 11: Common disasters in Otse

In Mogobane they identified floods, drought, wild fires, high temperatures, windstorms, torrential rains, and lightning as common natural disasters. They identified floods, drought, and lastly fires as the three most troubling hazards in Mogobane. Figure 12 below shows the common hazards:



Figure 12: types of hazards in Mogobane

6.3.1. PLACES AFFECTED BY DISASTERS IN RAMOTSWA, OTSE, AND MOGOBANE

The participants identified the following places in Ramotswa as high disaster risk zones that are seriously affected: Taung, Ramotswa station, Goo-Dimpe, Goo-Moeng, Siga, Magope, and Morokologadi. The areas below the hills and mountains and near streams as well as those closer to bridges are also affected by floods. These include Nkaikela and Goo-Siko where drought seriously affects the fields (*masimo*) and grazing areas. The participants said:

“The places are near the hill”

“Roads and bridges are destroyed”

“Taung near the bridge”

In Otse, participants identified Tswapong, Rankoromane, Botshabelo (which lack a drainage system) and Bokaa wards which are nearer to the hills as particularly affected by water flowing from the hills. Drought and high temperatures impact the entire community, while windstorms affect Ikageleng ward mostly because there are no windbreaks. The following were some of the affected areas according to participants:

“Ramotswa, Otse”

“Northern part of Botswana, Ntlhantlhe, Kgomokasitwa”

“All areas are affected”

“Drought occur village wide”

“Bokaa, Tswapong, where the areas are closer to the hill so water descends down on them”

Places affected by disasters in Mogobane, have been identified as Rabadukane, Borotsi, Lenganeng (which is near the dam), Mogobane, Thabantsho, Segorong, fields and / or lands (*masimo*) where floods have washed away the topsoil, and Mojadife as the wards that are affected most by disasters. They specified that the areas most affected by floods are Rabadukane, Borotsi, and Mogobane. Some participants stated:

“Badukane, Mojadife – the places are nearer to the dam”

“Badukane, Borotsi because there are bridges to avoid overflowing water”

“The whole village is affected by drought, floods affect lands/ masimo and Segorong as water descends downhill”

“Hills surrounding the village experience veldt fires and drought affect the whole village”

6.3.2. RANKING OF HAZARDS IN OTSE, MOGOBANE, AND RAMOTSWA

In Ramotswa, 76 % stated that floods which are represented in a pie chart in figure 10 above are the most frequent, followed by drought (at 45%), then wind (14%), and lastly veldt fires. In Otse, they ranked the hazards according to association with which the highest risk and they identifying floods, high temperatures, and poverty (which is not necessarily a hazard but a vulnerability factor associated with drought). They stated that windstorms, rains, and earthquake pose less threat to the community. Some participants identified and listed the following hazards as those they believe to pose a high risk for their community:

“Floods (Merwalela) and high temperatures – (the flood waters were diesel infected)”

“Floods and drought”

“Drought (government assisted by providing food for cattle) and floods”

In terms of ranking, in Mogobane, the most destructive and feared are floods and drought. The planning for preparedness, response, and prevention is envisaged to address the three hazards in figure 10 below including poverty. Figure 10 below shows the three main hazards in Mogobane.

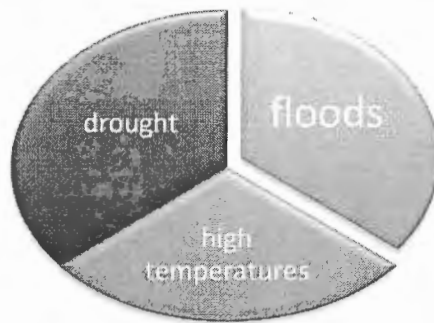


Figure 13: the three main hazards in Mogobane

6.4. COMMUNITY CAPACITIES TO COPE WITH THE DISASTERS

Seventeen participants (that is 59%) stated that their community does not have the capacity to deal with the identified disasters while twelve (41%) identified the police, houses, water and boreholes, the hospital, prayer, bridges, tarred roads, and the Fire Department as capacities to respond to disaster. It is apparent that disasters and related concepts are not subjects that participants in Ramotswa are used to discussing. The participants in response to the question on whether they have the capacity to contain disasters said:

“People are relocated to safe places”

“Bridges and roads”

“No capacities because the bridges and roads are destroyed”

“Go epiwa ga didiba, se se ka fokotsa leuba ka gone le fa dipula di le boutsana metsi a tla nna teng mo didibeng” (the boreholes must be drilled in preparation for drought so that water would be available in times of drought).

“Ga gona sepe” (there is no capacity)

In Otse, participants identified the following as capacity to reduce the impact of hazardous situations: hills, culverts for water drainage, supplementary feed for cattle provided by the government, school buildings, church buildings, clinics, water catchment tanks, and tarred roads as increasing their capacity to contain disasters. Some participants when answering the question on whether they have the capacity to respond to disasters, said:

“Ga rena bokgoni” (we have no capacity)

“Ga rena bokgoni mme gona le dikomiti jaaka disaster management” (we don’t have capacity but there is a disaster management committee)

“We could accommodate people in schools, hospitals, and churches”

Although some participants in Mogobane presumed that they did not have the capacity to cope with disasters, others proactively identified pastoral farms, culverts, roads, bridges, clinics, and the assistance provided by the police as having capacity to deal with disasters in their communities. Participants said:

“There is no capacity, we are not prepared at all; police educate people on disaster management”

“Ga re na ditlamelo” (we do not have resources)

“Ga re na bokgoni” (we don’t have capacity)

“Ba VDC gantsi ke bone ba thusang” (VDC members do help)

6.4.1. COMMUNITY DISASTER ACTION TEAMS IN RAMOTSWA, OTSE, AND MOGOBANE

Twenty two participants (76%) stated that they do not have community-based disaster action teams while seven (24%) said that there is a disaster committee that is led by the District Commissioner. Some said that the police, councilors, and village volunteers do help at times when there are disasters. They agreed that they do not have systematically arranged community based structures to prepare, prevent, and respond to disasters and thus they usually rely on the police, Botswana Red Cross Society, councilor, the Village Development Committee, and the District Disaster Committee. Some participants in answering the question as to whether they have action teams, said:

“Available but (we) don’t know them”

“Yes, members from the police and volunteers from the village”

"No community based disaster action teams, we rescue ourselves. Volunteers help sometimes"

"No we don't have"

The participants in Otse, stated that they do not have community based action teams and resources to deal with disaster threats and responses but depend on the district administration and council for assistance. They reported that the village development committee members sometimes work with the councilor and the Botswana Red Cross Society volunteer to assist the survivors in the event of disasters. Participants' responses included:

"Not aware"

"Ga di yo" (there are no action teams)

"Ga e o Ramotswa ke yone e thusang" meaning (that there are no action teams but help comes from Ramotswa)

In Mogobane, participants stated that they do not have disaster action teams; they depend on the district disaster committee and volunteers from the council. The communities become passive recipients of service from the intervention efforts of external providers. Participants stated that:

"Ga re na ditlhopha tse di beilweng ka fa molaong" (we don't have official action teams)

"There are no community based action teams"

"We are not aware of any such teams"

6.4.2. COMMUNITY RESPONSE TO DISASTERS IN RAMOTSWA, OTSE, AND MOGOBANE

The participants indicated that their response involves giving food, clothing, tents, and blankets to the survivors of disaster. They also referred the affected to the district disaster committee, village development committee, social workers, and councilor, and

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help to collect donations from sympathizers in the community. Other participants answering the question on how they respond to disasters said:

“Councilors do help”

“Ask assistance from the social worker”

“Support by donating blankets, food, clothing, and money”

“Asking help from government but as we villagers there is nothing that we can help with”

In Otse, they reported that those who survive disasters are given blankets, clothes, and food. The community members are requested to assist with the identification of the affected and refer them to social workers who would then offer accommodation, help with the reconstruction of their habitat, supply them with tents, and assess whether they would qualify for a new house. Sometimes the social worker and the councilor are not aware of the incident, and then the community member would take the initiative to inform them about the disaster. They said:

“Re kgaogana se re se tshotseng” (we share what we have)

“Everybody helps themselves”

“We provide accommodation freely for victims in our homes”

Twenty six participants in Mogobane (87%) stated that they sometimes respond by providing clothes, food, and tents after consulting with other members of the community. Social workers also assist with tents and food. Churches help and community members contact the council officers for help. Four (13%) said that the community does not assist at all. The participants said:

“the community donate food, blankets”

“Police and social workers help with tents”

“Everybody helps themselves”

6.4.3. COMMUNITY EARLY-WARNING SYSTEMS IN RAMOTSWA, OTSE, AND MOGOBANE

The participants indicated that they do not have community-based early warning systems in place. They rely on the weather information provided by the Department of Meteorological Services broadcast on television and Radio Botswana. However, not all community members have a television set or a radio or are able to read the Dailynews. In addition, the disaster committee holds workshops in Ramotswa to sensitize community members on what to do during floods. Some participants when answering a question on whether they have an early-warning system, said:

“Not available”

“No early warning systems”

“Warned through television and radios”

“Yes, weather reports through television and radios”

The participants in Otse reported that they have no community early warning systems besides listening to the weather forecasts on radio and television. Some participants were adamant that they do not have early warning systems and said:

“I have not heard or seen any”

“I only get information from radio. I am not aware of any system in the village”

“There are no early warning systems; information comes mostly from radio and television”

In Mogobane, twenty participants (67%) said that the community does not have early warning systems in place but 10 (33%) stated that although they do not have community early warning systems, they depend on Radio Botswana and television for weather forecasts and warning. Two participants said:

“Immediately when rain falls heavily, people are warned to be prepared”

“Gantsi ba tepo loapi ke bone ba tsibosang” (The meteorological department gives warning)

6.4.4. COMMUNITY EVACUATION PLANS IN RAMOTSWA, OTSE, AND, MOGOBANE

The participants in Ramotswa reported that they do not have disaster evacuation plans other than relying on the police, the fire department, and the Botswana Defense Force to evacuate people with helicopters and boats during floods.

“No evacuation plans”

“BDF always help when they are called”

“I don’t know”

“The police and the BDF from Gaborone helped with their helicopter to help people who were stuck on trees”

“E teng ke mapodisi le masole (yes it exist involving the police and the army) but they take time to come to a scene”

In Otse, participants testified that they also do not have community evacuation plans besides the assistance provided by soldiers from the Botswana Defence Force who evacuate the people from flooded areas. They said:

“There are no evacuation plans”

“Ga gona thulaganyo ya phalotso, ke rona re thusang” (there is no evacuation plan, we are the ones who help)

“Ga re na thulaganyo ya phalotso” (we don’t have an evacuation plan)

In Mogobane, seventeen (57%) of the participants showed that the communities do not have evacuation plans and rely on the Botswana Defense force, the police, and the Red Cross Society to evacuate the affected. Thirteen (43%) stated that there are no evacuation systems within the community and, if they are there, they are not aware of them. Some participants said:

“Re na le thulaganyo ya phalotso ke ba sepodise le masole” (We have an evacuation plans it is the police and army)

“Yes BDF and police help, but they are short staffed and do not work 24/7”

“Ga re na thulaganyo ya phalotso” (we do not have an evacuation plan)

6.4.5. COMMUNITY DISASTER PROTOCOLS IN RAMOTSWA

Eighteen participants (62%) reported that there are no disaster protocols for the community while 11 (38%) held contrary opinions. Some affirmed that there are protocols which they could not produce as proof besides stating that they are guided by police officer on how to behave during floods. They know that they have to support school going children as well as being asked to report any life threatening incident or missing person to the police or Chief. In answering a question on whether they have a disaster protocol, participants said:

“No”

“Not aware”

“Ga ke ise ke utlwe ka yone” (I don’t know anything about it).

The participants in Otse stated that they do not have community disaster protocols and they mostly rely on their chief (kgosi) as the leader of the community to guide the people during disasters. Some participants said:

“Ga re na tsamaiso e e salwang morago” (we don’t have protocols)

“Ga re na tsamaiso e e salwang morago, re dira se re se laoletsweng ke baeteledi pele” (we don’t have protocols but we follow instructions from our leaders)

“Tsamaiso e e salwang morago e dirwa ke ba Red Cross” (protocols come from the Red Cross)

In Mogobane, twelve participants (40%) stated that they have a community disaster protocol. People are assisted after disaster, prayers for rain are held at the dam during drought seasons and, in some cases, traditional herbs are used after a lightning strike.

Other participants said the government leads in alerting people to impending disasters and the chief would call kgotla gatherings to discuss disaster related challenges. Eighteen (60%) of the participants stated that there are no protocols to follow before, during, or after disaster in their community. Some said:

“Re na le tsamaiso e e salwang morago” (we have protocols)

“Ga re na thulaganyo ya phalotso, rona re a thusana” (We don’t have an evacuation plan, we just help each other)

“Prayer for rain are offered at the dam”

6.5. KEY INFORMANTS FROM RAMOTSWA, OTSE, AND MOGOBANE

The nine (9) key informants interviewed in Ramotswa were aged between 36, and 63 and four (44%) of them were female while five (56%) were males serving in different capacities in the community. They grew up in different communities in Botswana and other countries, four (44%) being born in Ramotswa, one (1) in Serowe, one (1) in Mmadinare, one (1) in Mahalapye, one (1) in Gaborone and one (1) in Zambia.

In Otse, they were all residents aged between 43 and 55 years, the oldest being 78 and they were all residents of Otse. They grew up in different communities in the country; two from Otse, two Ramotswa, one from each of the villages of Lekgolobotlo, Molepolole, and Moshopa, and the last from Serowe. The characteristics of the 8 key informants are that; five (63%) were males and three (37%) were females.

In Mogobane, nine (9) key informants were interviewed to obtain their perceptions of disasters, hazards, and related risks. The youngest key informant was 28 years of age and the oldest was 67. Six (67%) were females while three (33%) were men (between the ages 52 and 67). Six (three males and three females) (67%) of the key informants were born in Mogobane and the remaining three females (33%) were born in Kang, Ramonaka, and Mahalapye respectively.

6.5.1 EDUCATIONAL LEVEL OF KEY INFORMANTS FROM RAMOTSWA, OTSE, AND MOGOBANE

Their educational qualification of Otse key informants ranged from lower primary level; standard 4 to standard 7; Junior Certificate (form 3); General Certificate of Education; Cambridge certificate, and tertiary certificate (one key informant). Amongst those from Mogobane, four females (44%) had a Diploma qualification in different disciplines, four (two males and females) (44%) a primary education, and one (12%) was not willing to disclose his qualification.

6.5.2. POSITION IN THE COMMUNITY

The key informants served in different capacities in the community; one was involved in community development, another was a nurse, one a deputy school head at the junior secondary school and another was deputy head of a primary school. Furthermore, one was a vice chairman of the parent-teacher association at Mogobane primary school, another was a court representative; there were chairpersons of a disability committee, and a village development committee, and the last one was a train driver. The key informants in Otse reported that they hold varying positions in the community: a Roman Catholic pastor; an Evangelical Lutheran Church of Botswana pastor; a leader of Leeba Support Group; an Otse - south VDC Vice Chairperson; a deputy school head; a police officer; and a chief (kgosi) of the community.

6.5.3. OFFICIAL RESPONSIBILITIES OF KEY INFORMANTS IN RAMOTSWA, OTSE, AND MOGOBANE

They serve in different capacities in the community as teachers, police officers, social and community development officers, religious leaders, and four (44%) were members of village development committees. The responsibilities of key informants included teaching; protection of life and property; social and community development; preaching the gospel; praying for people; providing counseling; leading the development of the village by building houses and toilets; fundraising; supervising lpelegeng workers; updating the community on any information from the main kgotla; taking care of disabled members of the community; helping the youth to abstain from criminal

behaviour; and participating in various community activities such as President's day commemoration and independence celebrations. One key informant said her official responsibility is:

"To protect life and property"

In Otse, one pastor reported that his duties included settlement of civil disputes at the kgotla, marriage solemnization, and teaching the word of God. The other pastor's role was confined to teaching the word of God. The VDC vice-chairperson was involved in serving the community, assessing their needs, and guiding community development goals. The deputy school head's responsibilities were to ensure that the pupils receive the best education, are well fed, treated with love, and accommodated in classrooms. The police officer's duty is to protect members of the public and their property; and the chief settles communal disputes and presides over civil and criminal matters at the customary court.

In Mogobane, the Community development officers' responsibilities included monitoring, implementing programmes, evaluating projects, sensitizing the community on government policies, identifying the needs of the community, and advising on how to bridge the gap through capacity building. The nurse works with patients who visit the clinic for consultation; while the school heads guide teachers in the school to produce better results, instill a sense of responsibility in students, and monitor academic performance; the village development committee identifies and leads developments in the community; and the court president presides over cases and reconciles those who are in conflict.

6.5.4. PERIOD OF TIME IN THE AREA

The key informants had lived in Ramotswa for varying periods of time: one for 4 years, two (2) for 5 years, one (1) for 9 years, one (1) for 10 years, and the last four (44%) all their lives. *One key informant said*

"I have lived here for 4 years"

Beside the six key informants whose entire lives were in Mogobane, three key informants reported that they have lived in the community for more than one year. The community development officer has lived in Mogobane for more than 1½ years, the deputy school head for 2 years, and the nurse for 4 years. Although they may not have been in the area for a long period, they had experience of the community in relation to disasters.

6.5.5. DISASTER OCCURRENCES IN RAMOTSWA, OTSE, AND MOGOBANE COMMUNITIES

Six of the key informants (67%) stated that they were aware of disasters that had occurred in Ramotswa in the past 2-5 years while 3 (33%) had no prior knowledge of such occurrences in the area. These three came to Ramotswa as employees from places like Mmadinare, Mahalapye, and Gaborone and had been in the area for only a limited period. The key informants identified floods, drought, heavy rains, and high temperatures as common disasters in the community. Figure 14 below confirms what the participants identified in this regard:



Figure 14: the type of disasters in Ramotswa

In Otse, the key informants confirmed the occurrence of disasters in 2013 and in the past 2 years in their communities. The disasters included thunderstorms (heavy rains), floods, and drought. In Mogobane, apart from the one who had been in the community for a year and half and had no experience of disaster, the rest of the participants

confirmed their occurrence in the past in the community. They have experienced floods, drought, and heavy rain.

6.5.6. AREAS AFFECTED BY DISASTERS IN RAMOTSWA, OTSE, AND MOGOBANE

The key informants stated that community members, public officers and other workers are affected by disasters, some people were killed by floods in the past, and the following areas were the worst hit: Magopane, Ramotswa station, homes near the rivers, and Molelo wa badimo. In Otse, they identified Lesetlhana, Ikageleng, Motlabeng, and Tswapong wards as areas that were affected by disasters and where many people lost their property. The damaged properties were buildings, roofs, and furniture. In Mogobane, They indicated that the whole village is affected; especially farmers, students (pupils), and school going children who could not cross to schools in Badukane, Mogobane, Lengana, Borotsi, and Mojadife ward. Those who were not affected were the ones who were warned prior to the floods. The key informants indicated that the safe areas are those in the southern part of the village near the kgotla or within Kgosing ward.

6.5.7. AREAS LESS AFFECTED BY DISASTERS IN RAMOTSWA, OTSE, AND MOGOBANE

The less affected were the north-east, north-west, south, Ramotswa central, south east, and Mothubakwane areas of the Ramotswa community. In Otse, they intimated that other wards, particularly those that are far from the Malladiepe hill on the eastern side of Otse village, are usually spared from thunderstorms and floods. However, in Mogobane, they stated that all areas in the community are affected by disasters.

6.5.8. COMMUNITY RESPONSE TO DISASTERS IN RAMOTSWA, OTSE, AND MOGOBANE

The key informants reported that the councilor, the chief, the leaders, the police, disaster committee, neighbours, the district commissioner's office, social workers, and heads of wards and villagers responds to disasters. They stated that neighbours, the

district commissioner, district council officials, pastors and church leaders, and the police are usually the first responders to assist the affected. One key informant when answering the question as to who the first responders to disasters are, said:

“The DC and District Council officials, for example, the disaster management committees are always prepared to respond though they lack resources”

With regard community response to disasters in Otse, the key informants reported that, during disasters, the neighbours would contact the councilor and the disaster officers in Gaborone, who would then visit the affected areas and provide survivors with tents. Most often, it is the government officials who assist the affected and the efforts of community members are geared towards repairing damaged roads and erecting tents. In Mogobane, community response to disasters involved asking for assistance from the Botswana Defence Force (BDF) (army), and the councilor who provided clothes and food. Parents accompanied their children to school to prevent drowning, and built storm channels to direct the flow of water away from school. They alleged that, during drought, the community members' work together to pull out weak cattle that became stuck in the mud. Those who responded first to floods were school heads, parents of school going children, the VDC chair person, the kgosi, and the councilor

6.5.9. COMMUNITY PREPAREDNESS AND RESPONSE PLANS IN RAMOTSWA, OTSE, AND MOGOBANE

The key informants reported that they are not aware of any community preparedness and response plan for their community besides the trenches that have been built to guide water flowing to the river. They also stated that the deputy tribal leader always warned community members about disasters though the bulk of the work remains with the district commissioner's office in coordinating disaster related activities. One key informant when answering a question on whether they have a preparedness or response plan, said:

“Nnyaa” “No we do not have a community preparedness plan”

In Otse they indicated that they have neither disaster preparedness nor a response plan. Although some key informants in Mogobane claimed to have a community preparedness plan, others have refuted the claim and said they do not know of any community disaster preparedness or response plan.

6.5.10. ROLE OF KEY INFORMANTS BEFORE, DURING, AND AFTER DISASTERS

The key informants reported that the social and community development officer are membership of the district disaster management committee which helps them to prepare and respond to disasters during scheduled meetings. It assesses those affected and provides them with food, clothing, and housing (where necessary) by engaging different stakeholders. The pastor said that he prays and counsels the people affected to cope with the loss and to find ways to recover from disasters.

The chairperson of Mothubakwane Village Development Committee reported that the committee educates community members on disaster preparedness and assists with tents and food. Ramotswa North Central Village Development Committee chairman stated that they refill the pits and refer the survivors from their ward to social workers, police, and the chief for assistance. The Ramotswa North-West Village Development Committee chairperson said that the committee engages the community in preparing, evacuating, providing shelter, and food to the affected. The committee further lends the survivor corrugated iron to erect temporary shelters until they have recovered from the disaster.

The role of key informants in Otse is limited to teaching people to protect themselves, creating awareness about disasters, assist with food and comforting, warning people, search and rescue, and to assess the damage incurred by survivors. In Mogobane, they stated that they sensitizes students in schools about natural disaster and prepare them to remain calm and to be careful when they go back home. They also accompany them home after school. Some said they provide technical assistance during assessment and distribute tents and food to survivors of disasters.

6.6. FOCUS GROUP DISCUSSION FOR RAMOTSWA, OTSE, AND MOGOBANE

The focus group discussions in Ramotswa consisted of tribal leaders and members of the village development committees in their respective wards. Although the majority of the tribal leaders are men, the Paramount Chief, who is a woman, brought other women to provide a balanced discussion on disasters and related hazards. They stated that the role and responsibilities of the Kgosi-kgolo (Paramount Chief) are to:

- Promote the welfare and peace of the tribe
- Prevent crime
- Preside over cases
- Promote culture and tribal ceremonies and educate the community
- Represent the tribe (morafe) at the House of Chiefs and advise government on tribal issues.

The Botswana Government (1987:48) in Section 85 (5) of the constitution of Botswana stated that the “House of Chiefs shall be entitled to discuss any matter within the executive or legislative authority of Botswana of which it consider it is desirable to take cognizance in the matters of the tribe and tribal organization it represents and to make representation thereon to the President, or to send messages thereon to the National Assembly.”

The tribe settled in the current location in Botswana from the northern Transvaal in South Africa in 1856. They are a clan of the Ndebele who migrated to Botswana until they reached Kweneng district where they had conflict with the Bakwena tribe and were forced to retreat to Mankodi and Ramotswa where they are now settled. They also fought with the Bangwaketse whom they overpowered; the Bangwaketse had occupied the current Ga-Malete.

The focus groups confirmed what the participants and key informants identified as hazards and common disasters. These hazards are:

- a) Floods from the Taung River which killed people in 2006,

- b) Wild fires which caused some to sustain injuries,
- c) Drought,
- d) Flash floods resulting from road construction and poor storm water drainage,
- e) Hailstones, and
- f) Rains that interfere and halt the movements of the people to and from other towns and districts.

The focus group discussion (FGD) indicated that at Magopane – Pitse e sule, the road has been raised too high and it blocks the normal water flow, hence flooding in nearby homes. In addition, Rakgomo valley culvert is too small to contain the level of water flow: it causes Rasiga clinic to flood and the children unable to cross to school. Though that is the case, parents do not accompany their children to school during flood times. The two primary schools Siga and Kgetlhang are seriously affected by floods.

Disasters affect all groups of people in the community (children, youth, and adults). In particular, it was reported that more men than women have died as a result of disasters. Some have lost all their cattle through drought because there was no grass for grazing or water for the animals. They respond to disasters by calling community members to extinguish fires and they feel particularly vulnerable to floods. They only rely on the police to provide assistance. The community has designed initiatives to strengthen itself against disasters. An example is the community disaster management committee, formed in 2005, which lacks disaster risk reduction training. It opened a trust fund account in 2004 and has tried to mobilise resources to cover disaster related losses. The chairperson is a member of the District Disaster Committee which is not active and not inclusive of community members. The focus group suggested that the following should be disaster risk reduction activities:

- Community outreach and education;
- Kgo:la meetings (though the attendance is poor unlike in the past where the Chief or Kgosi had to take action against those who did not attend);
- Training workshops for the community disaster committee;
- Cattle and / or livestock management;

- Covering water drainage pits;
- Conducting research to guide actions and solutions;
- Desisting from cutting down trees during the day and following the culture that prohibits the cutting down of mokgalo and mosetlha trees;
- Observing the ploughing times and ploughing in the morning rather than in the afternoon; and
- Roofing of houses should be done in the morning rather than in the afternoon. Culturally, the ancestors are not supposed to be disturbed by the sound of the hammers in the afternoon and evening.

They are also concerned that wild animals, in this case, baboons kill their livestock and that kudus eat their crops which form the base of their livelihood. They are worried that current generations are not in favour of nature conservation of nature and cut down trees at will. As a result they suffer hailstones and heavy rains that destroy the harvest. They do not have early warning systems in the community because they have lost the cultural warning systems and depend on weather forecasts on television and radio. Some remembered that when a tree had been struck by lightning the cultural belief was that it had to be cut down and burnt to ashes to avoid similar incidences in the future. They do not have evacuation plans and disaster protocols and they are of the view that agriculture specialists should guide communities to adopt correct measures to combat drought.

The focus group discussions in Otse involved 12 tribal leaders (6 men and 6 women) who are also members of the village development committee. They identified floods, high temperatures, drought, windstorms / hailstones, and wild fires as the disasters in their community. They explained that wild fires are caused by careless community members who make fires in the bush and then leave without extinguishing them. Such outbreaks are experienced around September every year when the grass is dry. According to the discussants, floods affect houses near the hills because of the water flowing from the hills down the slopes. The focus groups confirmed the hazards that the participants and key informants had identified and their ranking:

- Drought worsened by poverty,
- Floods,
- High temperatures, and
- Windstorms.

It was also confirmed by the focus group that they do not have the capacity to cope with disasters and thus rely heavily on government assistance. Community members are reluctant to be part of the fire fighting crews and they are not trained to manage the fires, though they are expected to assist. They, together with the police and wild life officers, use tree branches to extinguish the fires, an exercise that is hazardous for community members. They reported that they do not have community based disaster action teams and protocols. They request for training that will enable them to prepare and respond appropriately to disasters.

The two focus group discussions in Mogobane involved six (6) men who are tribal leaders and seven (7) women who are members of the village development committee. They identified the disasters in their community as floods, thunder and lightning, drought, over harvesting of trees without permission from community leaders, and wild land fires. The inconsiderate harvesting of trees is believed to cause hailstones in the community as punishment from the gods. They explained that wild-land fires are caused by careless community members who make fire in the bush, some church members who conduct prayer rituals and leave the fire unattended, natural bio-gas processes, and sun heated bottles. The fire outbursts are experienced around September at the Otse and Mantshwane hills, which are livestock grazing area.

Some reported that it is common for cattle and people to be killed by lightning and thunderbolts in the community. Cattle were killed by lightening in 2012 and farmers lost their livelihood. In addition they said that even though their land is good for ploughing and planting sorghum, they have resorted to maize because of the infestation of quail. These birds have built nests in the Village Mountains, dam, and reeds. Furthermore, the

overharvesting of sand in the river has affected the flow of water and the ecology. In terms of hazard ranking, drought is more troubling than wild land fires and floods.

The community is alerted about the fire by sounding a bell at the kgotla and community members are expected to participate in putting out the blaze. They have been using tree branches to extinguish fires and Somarelang Tikologo has donated the rubber flaps for that purpose but community members are not trained in fire fighting. They reported that they do not have community based disaster teams, related protocols or standard operating procedures. It was established that they need training in:

- Disaster preparedness, response, and prevention and
- Design evacuation plans and protocols.

6.7. SUMMATIVE CONCLUSION

The findings show that the majority of participants are single, unemployed, and of low educational level. It was further established that amongst those who are working, many are in low paying jobs where they work as maids, cleaners, and casual labourers. Data shows that communities are aware of hazards that lead to disasters such as floods, drought, high temperature, winds, and veldt fires. They also know the areas that are mostly affected whenever there is floods and drought. Though the hazards and areas are known to the community leadership and members, no disaster risk reduction measures have been developed to deal with the threats and challenges. Although communities have assisted the affected with food, clothing, tents, and blankets, they have not systematically organized themselves to prepare and respond to disasters. They depend much on the response of the army, the councilor, and the police as well as asking help from social worker, village development committee, and district disaster management committee. They do not have community preparedness and response plans, disaster action teams, early warning systems, evacuation plans, and disaster protocols. It is also evidently stated that roles and responsibilities of different players in the community disaster field have not been clearly defined. Information on type of hazards and / or disasters, areas affected, disaster measures in place, and challenges

were confirmed by the focused group discussions and key informants. It was further established that community members do volunteer during disasters but they lack training in the field. It can explain why communities are active during disasters and inactive before and after disasters.

CHAPTER SEVEN

DISCUSSION OF QUALITATIVE FINDINGS

7.1. INTRODUCTION

This chapter presents the discussion of the qualitative findings of the study for the three communities in the South East Administrative district. It adopted a mixed method (quantitative and qualitative) of research which is considered the third paradigm, for purposes of complementarity and triangulation. The qualitative phase involved a total of 88 instead of 150 participants, 6 focus group instead of 9, and 26 key informants.

7.2. BIOGRAPHICAL DATA

The qualitative biographical-data for the selected communities show that single people are in the majority amongst the participants (79% for Ramotswa, 59% for Otse, and 63% for Mogobane). Age representation for participants is dominated by those between 20 and 30 years in Ramotswa and 51 and above in Otse and Mogobane. Although the age differences would give a balanced view of the perception of community hazards and related risks, the missing age group was covered in the quantitative phase.

In terms of gender, the females were dominant: 90% in Ramotswa, 72% in Otse, and 77% in Mogobane. Although, the representation may appear unbalanced, women are amongst the most vulnerable to disaster and are overrepresented amongst the poorer households. Harding (2007: 295) stated that disasters cause human suffering to vulnerable groups, disproportionately women, children, older people, and the poor.

7.3. COMMON HAZARDS IDENTIFIED BY PARTICIPANTS

Disaster risk reduction requires communities not only to be aware of hazards and related risk but also to work proactively towards preparedness, prevention, and mitigation (where possible). Therefore, knowledge of potential natural hazards without the institution of appropriate risk reduction measures is dangerous. The measures designed to mediate disasters are of particular importance to community resilience studies. According to UNISDR (2005: 6) a hazard refers to "a potentially

damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation. Hazards can include latent conditions that may represent future threats and can have different origins: natural (geological, hydro-meteorological, and biological) or induced by human processes (environmental degradation and technological hazards). The definition shows that a hazard is pregnant with destructive power and requires communities to determine preventive and mitigation measures to reduce its impact and /or prepare people to respond in an efficient and effective manner. A hazard is associated with the disastrous impact it has on human life and the environment. It is known for causing

- loss of life or injuries,
- property damage,
- social and economic disruption or environmental dilapidation.

Therefore, communities have to deliberately prepare and prevent hazards from translating into disastrous consequences by adopting resilient measures. Preparedness of countries and /or communities ensures that appropriate and effective actions are executed before, during, and after emergencies. This is made possible by setting up early warning systems, coordinative and institutional arrangements, evacuation and emergency operations management, public awareness, disaster and evacuation drills, and stockpiling of relief material (Victoria, 2008). Communities in the present study have not organized themselves to set up working, effective, and efficient disaster systems.

Participants in designated areas identified the natural hazards and associated risks that frequent their communities. The intention was to establish their perceptions of hazards, vulnerability, and risks and how they had responded and would want to respond in the future. The exercise was fundamental to creating awareness towards building community resilience and safety to disasters. Although some participants in selected areas showed high levels of ignorance regarding disaster and related hazards, others were aware of natural hazards and related risks although this had not translated into preparedness. The International Federation of Red Cross and Red Crescent Societies (IFRC, 2007: 2) states that there is “no such thing as natural

disaster instead earthquakes, tsunamis, volcanic eruptions, landslides, storms, fires, floods, and droughts are natural hazards which only become disasters when they disturb or destroy society's normal functioning". Therefore, preparing communities to carefully organize their lives in relation to the common hazard in their locality is important in avoiding and / or minimising the disruptions that may occur.

It is ascertained that communities and individuals who deliberately plan to reduce disaster risks in their communities continue to enjoy greater benefits than those who do not. Rock and Corbin (2007: 383) argue that recovery from disaster for unprepared communities and countries can take many agonizing years. They give an example of Guyana which was still recovering (in 2007) from the 2005 flood and Grenada from 2004 Hurricane Ivan which killed 28 people. As such, recovery from disasters for unprepared individuals, communities, and countries may constitute an additional burden to already weak economies and social structures and divert development resources to pay for reconstruction costs that could have been avoided.

Disaster occurs when a hazard intersects with the vulnerability of individuals and / or communities. UN/ISDR (2005: 7) stated that "Disaster risk arises when hazards interact with physical, social, economic and environmental vulnerabilities. Events of hydro-meteorological origin constitute the large majority of disasters." The participants in the qualitative section of the present study identified floods, drought, and wild land fires as common disasters in Ramotswa; In Otse, they also documented floods, drought, high temperatures, rains, windstorms, and hailstones; in Mogobane they also acknowledged floods, fires and drought. The difference is that Ramotswa and Otse also suffered from windstorms while Mogobane and Ramotswa were hard hit by wild-land fires. Hailstones and high temperatures seemed to be a concern only for Otse. Although each community has specific hazards, participants identified common hazards as floods and drought for all three communities. This responded to the research objective and question .4 which were meant to establish the disaster hazards and risks prevalent in the communities as well as identifying those hazards which pose a high risk to the people. It is equally a confirmation of the claims of the national policy on disasters that drought and flood are problematic to the socio-economic status of the entire country. Despite that

awareness, no measures have been taken by communities to mitigate or prevent the impact of these hazards on their lives. Whether deliberate or through neglect, the communities need assistance to adopt appropriate measures to deal with the hazards and associated risks. Although some measures needed for community protection against disasters are beyond the capacity of local communities alone, government and other stakeholders are required to provide technical and financial support (although the communities have a greater role to play). There is need to build drainage systems and bunkers around the hills, develop building codes for wards, and design appropriate disaster protocols.

7.3.1. PLACES VULNERABLE TO DISASTERS

It is important for individuals, communities, and leaders to know areas within the community that experience and are frequented by specific natural disaster hazards and related risk. These areas are supposed to be marked according to the type, frequency, and intensity of the prevalent hazard and the type of exposure the residents might experience. Vulnerability, according to UN/ISDR (Geneva 2005: 7), refers to “the conditions determined by physical, social, economic, and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards”. Objective no.5 of the study aimed at identifying areas of high disaster risk and vulnerability in the three communities. The participants in Ramotswa identified Taung, Ramotswa Station, Go-Dimpe, Go-Moeng, Go-Siga, Magope, and Morokologadi as high disaster risk areas; in Otse, they identified Tswapong, Rankoromane, Botshabelo, and Ikageleng wards; and in Mogobane, Rabadukane, Borotsi, Lenganeng, Mogobane, Thabantso, Segorong, and Mojadife wards were identified as those frequented by floods. These areas are situated near rivers and dams and below the hills. This reveals that communities are conscious of the hazards and risks characterizing their socio-physical environment but they are inadequately prepared to reduce these risks.

7.3.2. CAPACITY TO DEAL WITH DISASTERS

Although some participants rebutted the allegation that they have capacity and resources to cope with disasters, others identified physical structures and government officials as community resources to reduce the impact of disasters. Norris *et al.*, (2007: 128) argue that communities that are dependent on a narrow

range of resources are less able to cope with changes that involve the depletion of that resource. In Ramotswa, the participants identified the police offices, houses, water and boreholes, hospital, availability of prayer by pastors, bridges, tarred roads, and the Fire Department as capacities while 59% adamantly said they do not have the capacity to deal with disasters. Capacities in the disaster field refer to all resources an individual, family, community, and / or country has to cope with, reduce the impact of, and recover from disasters (NDMO, 2009: 50).

South East Administrative District has some resources that could be used to mitigate disaster risks and build resilience but these resources have not been adequately explored. Norries et al (2007: 127) argue that to build community resilience, communities must reduce risk and resource inequities, engage local people in mitigation, create organizational linkages, and boost and protect social support and plans. Therefore individuals and communities must take a deliberate step towards identifying and assessing resources within their environment which could be used to prepare, respond, and recover quickly from disasters. In Otse, they identified hills, culverts for water drainage, supplementary cattle feed provided by government during drought, school buildings, church buildings, clinic, and water catchment tanks and tarred road as capacities. IFRC (2007) suggests that communities should rely on local knowledge to identify the dangers they face, assess their capacities and vulnerabilities, and formulate solutions. Mogobane participants identified farms, culverts, roads, bridges, clinics, and police offices as resources to deal with disasters. None of the participants considered themselves as vital community resources in terms of their physical stature, knowledge, experience, and skills to combat disasters in their environment.

7.3.3. COMMUNITY EARLY WARNING SYSTEMS IN RAMOTSWA, OTSE, AND MOGOBANE

Early warning systems are fundamental to disaster resilience and safety for communities and families. IFRC (2009: 17) argues that early warning and early action can save thousands of lives and livelihoods, reduce vulnerability, and strengthen resilience. The selected communities do not have structured early warning systems and / or traditional systems. They rely heavily on Radio Botswana and Botswana television weather broadcast which gives an overview of the weather

and nothing beyond. The radio and television weather forecast focus more on prediction of the weather than on response and expected behaviour. Furthermore, the messages do not communicate in simple and understandable terms the information about risks to vulnerable members of the community. The messages need to be further translated to address the realities of the community and guide members to respond appropriately. Another disadvantage with the television and radio forecast is that it does not reach every resident because some do not own a television set or radio. Comai (2007: 7) states that an early warning system provides the framework for a systematic process of gathering and analysing data, based on several indicators defined by the organization and prepared after reviewing the different key actors in a specific environment.

The International Federation of the Red Cross and Red Crescent Societies World Disaster Report (IFRC, 2009: 7) stated that the decline in injuries, loss of livelihoods and deaths from disasters in Mozambique is partly due to the establishment and improvement of early warning systems. Traditional societies in Botswana had ways of gathering and analysing information concerning various threats in their environment and devised a system of educating their members to protect themselves and prevent losses (Tlou & Campbell, 1999). These traditional early-warning systems were organized in the form of fairy tales, stories, and songs, and by observing the migration of certain animals or birds and / or position of the stars or moon in their environment. All these seem to have lost significance because the current generation does not consider them to be effective in an era of scientific discovery.

7.3.4. COMMUNITY EVACUATION PLANS

Evacuating people from a disaster scene is a complex temporary relocation process that should not be taken for granted as it requires extensive prior preparation. Without proper evacuation systems and preparation, it may turn out to be a frustrating and very stressful exercise for survivors. According to Perry (1979: 25) evacuation which is instituted before disaster impact can result in the preservation of life, reduction of personal injuries, and the protection of property.” The qualitative data in the present study indicate that the selected communities do not have disaster evacuation plans. They rely heavily on the police, the army (BDF), and the Fire

Brigade service for evacuation during disasters without developing pre and post community evacuation activities.

The communities do not have marked evacuation routes, evacuation sites, and developed evacuation protocols that community members could follow before, during, and after disasters. The lack of evacuation plans is an extremely precarious matter that caused the loss of lives in Ramotswa in 2006. The failure to develop an evacuation plan is rather choosing a reactive stance with its negative consequences than a proactive position to mitigate against disaster risks. Drabek (2001: 76) argues that thousands who perished or suffered injury because of the three extreme in the United States (hurricane Georges, Mitch, and torrential rains) events are testimony to both the hazardous of the place and the positive potential represented by effective disaster warning and evacuation systems.

The reactive approach to disasters assumes that communities will deal with the unexpected rapid change as it develops and without considering the complexities that may result from the situation itself. Comai (2007: 8) argues that the ability to anticipate potential environmental changes is crucial to the operation of a good intelligence unit. The intelligence function does not fail to detect early signals and there is no misconception about them leading to timely analysis and decision making. In the case of the South East district, the decision is made long after the event which does not help the vulnerable survivors to fully recover from the shock. This predicament is what the DRR initiative seeks to avoid by minimizing the impact of disaster in communities.

7.3.5. COMMUNITY DISASTER PROTOCOLS

Community disaster protocols are essential communication tools for effective and efficient response to disasters. Bruinsma and Hoog (2006: 1) view protocols as structured workflow of individual emergency services (such as the fire department, police department, medical services, and volunteers) involved in the mitigation process. Collaboration, coordination, and competencies are operationalized every time these situations occur, leading to an almost automatic synergy of the services and optimization of the workflow and protocols. The selected communities have not developed community disaster protocols that community members could use during

and after disasters. The data shows that community members rely heavily on the government or the chief (Kgosi) to provide guidance during emergencies. This state of unpreparedness characterizing communities in the district may culminate in unintended consequences during disaster emergencies. The essence of disaster protocols is to provide useful information during disasters to avoid confusion and destruction that may arise from unpreparedness. Bruinsma and Hoog (2006: 1) further argue that "errors in emergency response caused by conflicting or unclear protocols surface when they are least wanted: during the actual emergency response. Strategic decisions have to be made very quickly, by decision makers who quite often do not have full insight into the tasks that are being performed, who is performing them and what resources are still available." This can be avoided beforehand by designing appropriate, rehearsed, and relevant disaster protocols for communities and the district.

7.4. KEY INFORMANTS AND THEIR CHARACTERISTICS

The characteristics of key informants show interesting variations. The age status in Ramotswa ranged from 36-63 years and the majority were males. In Otse it was 43 – 78 years with the majority again being males. However, in Mogobane it was 28 – 73 years and the majority were women. It shows that those in position of influence are predominately men in Ramotswa and Otse but that women in Mogobane predominate. Thus, although male perceptions dominate in this study women's response is also presented.

7.4.1. KEY INFORMANTS POSITION IN THE COMMUNITY

The key informants hold varying positions of influence in their respective communities. They serve as community development officers, nurses, deputy school heads, chair-persons of various committees including Parent – Teacher Associations (PTA) and Village Development Committee (VDC), Court representatives, teachers, police officers, religious leaders (pastors), and Chiefs (Dikgosi). They have wide experience from their job orientation, and involvement in diverse community related roles and their perceptions are very important to this study.

7.4.2. KEY INFORMANTS AND DISASTER OCCURRENCES

The key informants identified three major common hazards (floods, drought, and heavy rains) that are disastrous. This is unlike the participants who identified floods and drought. They then added thunderstorms amongst the hazards in Otse and high temperatures in Ramotswa. IFRC (2000: 6) defined a hazard as “the potential occurrence, in a specific time period and geographic area, of a natural phenomenon that may adversely affect human life, property or activity to the extent of causing a disaster.” In terms of the areas affected by hazards, the key informants identified the same wards as those identified by the participants except Molelo wa Badimo ward in Ramotswa; In Otse, the key informants added Lesetlhana and Motlhabeng; and Mogobane key informants identified and endorsed all the wards the participants had previously selected.

7.4.3. KEY INFORMANTS AND COMMUNITY DISASTER RESPONSE

The key informants from the three communities reported that they obtain disaster related assistance from government officials, in particular the army (BDF), the police, the district disaster committee, and social workers. Community participation is minimal and, in some instances, non-existent. Where it exists, it involves parents accompanying their children to school during rain-flood times and heads of wards checking the status of their constituency during floods and drought, particularly in Mogobane. The communities seem not to be playing a leading role in community disaster response.

7.4.4. KEY INFORMANTS AND COMMUNITY PREPAREDNESS AND RESPONSE

According to IFRC (2000: 19) the aim of preparedness planning is to identify assignments and specific activities, covering organisational and technical issues, to ensure that response systems function successfully in the event of a disaster. The key informants for the selected communities confirmed that they do not have community disaster preparedness and response plans. As such, their roles during disasters are not clearly defined besides waiting for the district disaster committee to assess and provide relief to the survivors. In Ramotswa, the pastors affirmed that they provide counselling and prayer for disaster survivors and the village development committee assists community members with tents and food. IFRC (2000: 12) states that offering education and training in preparedness measures,

basic rescue techniques, and first aid and emergency treatment is an important component of risk reduction plans.

7.5. THEORETICAL BASES AND FINDINGS

The study is based on the crisis, stress, ecological perspective, social constructivism, and resilience theories to qualitatively assess resilience to disasters of communities in the South East District. It is quite evident from the qualitative data that communities experienced and suffered serious losses from disasters, which are situational crises. Situational crises refer to a threat to homeostasis, stressful life experience affecting the stability of an individual so that their ability to cope or even function may be seriously compromised or impaired. Participants intimated that their communities have suffered from floods, drought, windstorms, wild fires and high temperatures. As such, some members of the community lost their relatives through drowning, while others sustained injuries, their roads and infrastructure were damaged and including their shelter damaged (Norris *et al*, 2008). These are heavy and irreparable losses incurred during disasters which were equally taxing emotionally and difficult to brush aside. Data also showed that the participants' lack of adequate disaster knowledge to prepare and protect against atrocities predisposed them to high level of vulnerability and stress in times of disasters.

The community stress was accentuated by the social, economic, and physical losses suffered in the past and the fear that they might lose more lives and /or sustains injuries, lose property. It is complicated further by poverty which is a socio-economic vulnerability factor leading to substance and drug abuse. The poverty is worsened by the loss of livelihoods in terms of livestock, crops, and homes from past disaster experience from which recovery and reconstruction was difficult due to lack of resources. It is crucial for social workers working with families and communities in disaster prone areas to acknowledge the existence of unseen emotional wounds afflicting the communities. Therefore, crucial to adopt the crisis intervention, stress management, ecological approach, social constructivism and resilience frameworks as they work towards modifying the social environment to be more responsive to the needs of disaster vulnerable members and cultivating safety and resilience thinking. The crisis theory shows that it leads to anxiety breeding avoidance and phobia; emotional exhaustion (give up) leading to depression and suicidal behaviours;

sometimes the affected withdraw from reality and regression sets in; while some abuse substance and later develop addiction to drugs/ substance; other develop cardiac problem, asthma, and cancer, and others are involved in criminal activities.

Community resilience to disasters is possible when community members and institutions are consciously commit resources to identify the inherent dangers associated with hazards and related risks. Thereafter, construct knowledge and social actions geared towards mitigation and / or prevention disasters thus shunning away from unhealthy habits and routines. Social constructivists attest that disaster knowledge must be generated through social processes that are accompanied by related social action through continuous simulation exercises (rehearsals) (Bujold, 2002). The current community knowledge on disaster associated dangers and risks, and losses are not only detrimental, but also lack social actions geared towards reducing the impact and building resilience in communities.

As such, the process of stimulating disaster risk reduction in ecological systems is crucial and should aim at improving the interactions, negotiations and transactions, institutions, social services, and policies at all levels of the community. The improvements must be geared towards changing unproductive routines and habits that may be detrimental during disaster emergencies (crises) (Ambrosino *et al*, 2005). The focus on social processes is pivotal to the development and acquisition of knowledge, habits, and routines acquired from conscious analysis of hazards and risks and building resilience against disasters in families and the community. This will be strengthened further by the adaptation of efficient and effective community based disaster risk reduction measures and systems and the establishment of disaster action teams, demarcation of evacuation sites, designing related protocols, active early warning systems, and engaging on public education and awareness campaigns to build actions and behaviours appropriate for resilience to situational crises (Norries: *et al*, 2008: UNISDR, 2005).

7.6. SUMMATIVE CONCLUSION

The qualitative findings show that communities are aware of the hazards that are prevalent in their physical environment and have responded to disasters through the help of the village development committees and community leaders (dikgosi,

councilors, teachers, pastors, and tribesmen). The participants, focus group discussants, and key informants agreed that floods, drought, rains, and windstorms are common disasters in their district but they are not prepared to deal with them. The systems, strategies, and relevant structures have not been established due to lack of resources and technical ability. The data show that communities in the past have engaged in disaster related activities though they were more confined and focused only on disaster emergency response and nothing else.

The assumption behind the action is that, once the emergency needs have been met, the reconstruction and recovery will be dealt with by the survivors alone. It has been found that disasters destroy the limited resources that survivors have and completely disable their recovery. After disasters, communities together with structures that responded to disasters have not developed mitigation, prevention, and recovery strategies. As such, communities have continued with the costly reactive approach at the expense of their safety and resilience without making reference to the disaster risk reduction framework. The DRR framework is meant to replace the reactive approach with an improved way of dealing with disasters. Although they have responded to disasters, they have not addressed their preparedness and mitigation needs, including establishing and training teams in disaster risk management.

CHAPTER EIGHT

PHASE II: QUANTITATIVE FINDINGS / RESULTS

RAMOTSWA, MOGOBANE, AND OTSE COMMUNITIES

8.1. INTRODUCTION

This chapter presents the quantitative findings of the data collected in three communities in the South East District Administrative area to investigate resilience and adaptability to disasters of communities. The intention was to ascertain whether there are disaster related policies, systems, and strategies to enhance community resilience; how community's view of natural hazards influence community resilience to natural disasters; community perceptions of disaster hazards, vulnerability, and risks in their communities; which disaster hazards and risks are prevalent and pose high risk for communities in the south east administrative district; areas of high disaster risk and what enhances resilience in those areas; and finally the role social workers play in building community resilience to disasters.

8.2. BIOGRAPHICAL-DATA CHARACTERISTIC OF RESPONDENTS

A total number of 3567 respondents completed the questionnaire that had 62 item questions besides the bio-data section. The intention was to reach a total of 3800 respondents in the three communities but circumstances beyond the control the researcher did not allow this to happen. Three respondents withdrew in the process of completing the questionnaires and others were reluctant to be part of the study. Therefore, 94 % of the targeted number was reached for this study and for the two communities. In Otse and Mogobane the target numbers of respondents were reached with minimal challenges. Table 8 below shows the numbers:

Table 8: The total number of respondents by gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	1416	40	40	40
	female	2151	60	60	100
	Total	3567	100	100	

8.2.1. AGE OF RESPONDENTS

Table 9 below shows the respondents' age groups. Those aged 20 years & below are 160, 21-30 years are 1543, 31-40 years are 973, 41- 50 years are 384, and those aged 51 years & above are 502. The over represented group is those aged 21-30 at 43 %, followed by the 31-40 year age group at 27%, then the 51& above at 14%, the 41-50 at 11%, and the least representative was the 20 & below age group at 5%.

Table 9: the number of respondents by age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 & below	160	5	5	5
	21-30	1543	43	43	48
	31-40	973	27	27	75
	41 -50	384	11	11	86
	51 & above	502	14	14	100
	Total	3562	99	100	
Missing	System	5	1		
Total		3567	100		

8.2.1.1. AGE AND GENDER REPRESENTATION

In terms of the respondents' age and gender ratio, 1416 (40%) are males and 2151(60%) are females. In terms of age – gender distribution, 55 males and 105 females are aged 20 & below; 692 males and 851 females are aged 21-30 years; 352 males and 621 females are aged 31- 40 years; 142 males and 242 females are aged 41-50 years; and 173 males and 329 females are aged 51& above. Table 10 below refers:

Table 10: age and gender cross tabulation for respondents

		gender		Total
		male	female	
age	20 & below	55	105	160
	21-30	692	851	1543
	31-40	352	621	973
	41 -50	142	242	384
	51 & above	173	329	502
Total		1414	2148	3562

8.2.2. MARITAL STATUS OF RESPONDENTS

There are 2617 single persons which constituted 73 % of the total number of respondents, 722 (20%) are married, 60 (2%) are divorcees, 139 (4%) are widows/widowers, and 29 (1%) did not disclose their status. Table 11 below refers:

Table 11: marital status of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	single	2617	73	74	74
	married	722	20	20	94
	divorced	60	2	2	96
	widow /widower	139	4	4	100
	Total	3538	99	100	
Missing	System	29	1		
Total		3567	100		

8.2.2.1. MARITAL – GENDER STATUS OF RESPONDENTS

In terms of gender, 1069 of the singles are males and 1548 are females; 269 males and 453 females are married; 27 males and 33 females are divorced; and 39 males and 100 females are widowed. The cross-table 12 below shows that females are overrepresented in all categories:

Table 12: marital - gender status of the respondents

		gender		Total
		male	female	
Marital	single	1069	1548	2617
	married	269	453	722
	divorced	27	33	60
	widow /widower	39	100	139
Total		1404	2134	3538

8.2.3. EDUCATIONAL LEVEL OF RESPONDENTS

With regard to education it was found that 778 (22%) had standard seven below; 1054 (30%) have a junior certificate; 883 (25%) had a BGCSE; 543 (15%) had a certificate or diploma; and 247(7%) had a bachelors' degree. Therefore, in descending order of the level of education respondents are over represented at the

junior certificate, then BGCSE, Standard 7 & below, and certificate / diploma level. Women are over represented in all these levels as the numbers of women are greater than those of men also reflecting the general trends in the society. Table 13 below refers:

Table 13: the educational level of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Std 7 & below	778	22	22	22
	junior certificate	1054	30	30	52
	BGCSE	883	25	25	77
	Cert / Diploma	543	15	16	93
	Degree	247	7	7	100
	Total	3505	98	100	
Missing	System	62	2		
Total		3567	100		

8.2.3.1. EDUCATION – GENDER STATUS OF THE RESPONDENTS

In terms of qualification of the respondents, 295 of those with standard 7 and below are males and 483 are females; 423 of those with junior certificate are males and 631 are females; 339 of those with BGSCE are males and 544 are females; 237 of those with certificate / diploma are males and 306 are females; and 97 of those with degrees are males while 150 are females. The female respondents are greater in number than males at all educational levels. Table 14 below indicates the difference:

Table 14: the qualification – gender status of respondents

		gender		Total
		male	female	
qualification	Std 7 & below	295	483	778
	junior certificate	423	631	1054
	BGCSE	339	544	883
	Cert / Diploma	237	306	543
	Degree	97	150	247
Total		1391	2114	3505

8.2.4. EMPLOYMENT STATUS OF RESPONDENTS

Table 15 below shows that 910 (26%) of the respondents are employed, 252 (7%) are self-employed, 83 (2%) are subsistence farmers, 2229 (63%) are unemployed, and 93 (3%) did not disclose their status.

Table 15: employment status of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	employed	910	26	26	26
	self-employed	252	7	7	33
	farmer	83	2	3	36
	unemployed	2229	63	64	100.0
	Total	3474	98	100	
Missing	System	93	2		
Total		3567	100		

8.2.4.1. EMPLOYMENT AND MARITAL STATUS OF RESPONDENTS

In terms of employment, the table below shows that 603 single persons are employed, 150 are self-employed, 27 are farmers, and 1759 are unemployed; 265 of the married are employed, 78 were self-employed, 30 are farmers, and 340 are unemployed; 14 of the divorced are employed, 15 are self-employed, 6 are farmers, and 23 are unemployed; and 18 of the widows / widowers are employed, 9 are self-employed, 20 are farmers, and 90 are unemployed. Table 16 below refers:

Table 16: employment – marital status of respondents

		employment				Total
		employed	self-employed	farmer	unemployed	
Marital	single	603	150	27	1759	2539
	married	265	78	30	340	713
	divorced	14	15	6	23	58
	widow /widower	18	9	20	90	137
Total		900	252	83	2212	3447

8.2.4.2. EMPLOYMENT – EDUCATION STATUS OF RESPONDENTS

In terms of employment and qualification status, table 17 below shows that those with primary education (Standard 7 & below), 113 are employed, 50 are self-employed, 41 are farmers, 562 are unemployed; those with junior certificate, 251 are employed, 70 are self-employed, 14 are farmers, 695 are unemployed. Of those with BGCSE 171 are employed, 89 are self-employed, 15 are farmers, and 590 are unemployed. Of those with certificate or diploma 238 are employed, 29 are self-employed, 11 are farmers, and 242 are unemployed. Of those with a degree 125 are employed, 11 are self-employed, 2 are farmers, and 102 are unemployed.

Table 17: employment – qualification status of respondents

		employment				Total
		employed	self-employed	farmer	unemployed	
qualification	Std 7 & below	113	50	41	562	766
	junior certificate	251	70	14	695	1030
	BGCSE	171	89	15	590	865
	Cert / Diploma	238	29	11	242	520
	Degree	125	11	2	102	240
Total		898	249	83	2191	3421

8.2.4.3. EMPLOYMENT – AGE STATUS OF RESPONDENTS

The employment – age status of the respondents reveals that age group 21-30 is overrepresented in the unemployment category, followed by 31-40 years, 51 & above, and lastly the 41- 50 years. In the employment category, the age group 31-40 years is in the majority, followed by 21- 30 years, and then 41 – 50 years. The self-employed category is dominated by the age group 31- 40 years, followed by 21 – 30 years, and then the 41- 50 years. Lastly, the farmers' group is dominated by the age group 51 & above, followed by 31- 40 years, and then 21-30 years. The employment- age table 18 below shows the age distribution by employment.

Table 18: employment – age status of the respondents

		employment				Total
		employed	self-employed	farmer	unemployed	
age	20 & below	11	1	0	143	155
	21-30	332	75	10	1068	1485
	31-40	385	110	20	442	957
	41 -50	132	56	9	181	378
	51 & above	47	9	44	394	494
Total		907	251	83	2228	3469

8.2.5. PLACE OF WORK FOR RESPONDENTS

Five hundred and fifty six 556 (16%) of employed respondents worked and lived in Ramotswa, 269 (8%) lived there but worked in other places, 165 (5%) worked and lived in Mogobane, 51 (1%) worked and lived in Otse, and others besides those who are unemployed did not disclose their place of work. Table 19 refers:

Table 19: respondents place of work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Ramotswa	556	16	53	53
	Mogobane	51	1	5	58
	Otse	165	5	16	74
	Other	269	8	26	100
	Total	1041	29	100	
Missing	System	2526	71		
Total		3567	100		

8.2.5.1. OCCUPATION OF RESPONDENTS

The occupation status of the employed respondents shows that 691 (19%) work in unclassified jobs, 230 (6%) are government officials, 53 (2%) are shop assistants, 12 are church leaders, 5 are social workers, and 2 are traditional leaders. Table 20 below shows the distribution.

Table 20: occupation of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	shop assistant	53	2	5	5
	government official	230	6	23	28
	social worker	5	0	1	29
	traditional leader	2	0	0	29
	church leader	12	0	1	30
	other	691	19	70	100
	Total	993	28	100	
Missing	System	2574	72		
Total		3567	100		

8.2.5.2. LENGTH OF SERVICE OF RESPONDENTS

Of the employed respondents, 548 (15 %) have been employed for 5 years and less, 207 (6%) have been working for a period of between 6-10 years, 78 (2%) for 11 years but not more than 15 years, 54 for 21 and more years, and 44 for 16 and less than 20 years. The majority of the respondents have work experience of not more than 5 years. Table 21 below refers:

Table 21: the length of service for working respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-5 yrs.	548	15	59	59
	6-10 yrs.	207	6	22	81
	11-15 yrs.	78	2	8	94
	16-20 yrs.	44	1	5	94
	21 & above	54	2	6	100
	Total	931	26	100	
Missing	System	2636	74		
Total		3567	100		

8.2.5.3. EMPLOYING ORGANIZATIONS

Thirteen percent (461) of the respondents are employed by private companies; 444 (12%) are employed by government; NGOs employed 64 which constitutes 2% of those employed, and the Inter-Governmental Organizations (IGOs) employment profile is quite insignificant. Table 22 below refers:

Table 22: the organization where respondents work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	government	444	12	46	46
	private	461	13	48	93
	ngo	64	2	7	100
	igo	2	0	0	100
	Total	971	27	100	
Missing	System	2596	73		
Total		3567	100		

8.3. RESPONDENT'S KNOWLEDGE OF HAZARD, VULNERABILITY, AND RISK

The question sought to establish whether the respondents had prior knowledge on hazards, vulnerabilities, and disaster risks in their communities. In this regard 1947 (55%) of the respondents said that they had knowledge while 1591 (45%) had no knowledge. Table 23 below indicates that almost half of the respondents lacked knowledge on disaster hazards, vulnerabilities, and risks prevalent in their communities.

Table 23: knowledge on hazards, vulnerability, and risks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	1947	55	55	55
	no	1591	45	45	100
	Total	3538	100	100	
Missing	System	29	0		
Total		3567	100		

8.3.1. HAZARD, VULNERABILITY, AND RISK – MARITAL STATUS OF RESPONDENTS

The data shows that 1387 of single respondents had some knowledge while 1214 did not; 448 of the married had knowledge while 267 did not, 38 of the divorced had some knowledge while 22 did not, and 63 of the widow / widowers had knowledge compared to 75 who did not.

8.3.2. HAZARD, VULNERABILITY, AND RISKS – GENDER OF RESPONDENTS

In terms of gender distribution, 791 of male respondents had knowledge on hazards, vulnerabilities, and risks while 611 did not and 1156 females had knowledge while 980 did not. The numbers of both men and women who had knowledge were higher than those without.

8.3.3. RESPONDENTS' MEANS OF KNOWLEDGE ACQUISITION

A majority (526 or 15%) of respondents indicated that they acquired information from the media; 14% (497) from school, 13% (464) from self-reading; 6% (220) were survivors of disasters; and 4% (156) from workshops. Media, school, and self-reading were the main sources of information. Table 24 below refers:

Table 24: source of knowledge on disasters

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	workshop	156	4	8	8
	reading	464	13	24	33
	school	497	14	26	59
	media	526	15	28	86
	survivor	220	6	12	98
	work	38	1	2	100
	Total	1901	53	100	
Missing	System	1666	47		
Total		3567	100		

8.3.4. TYPE OF DISASTER RELATED INFORMATION RESPONDENTS ACQUIRED

The type of disaster related knowledge respondents acquired is shown in table 25 below. It demonstrates that 1909 (54%) respondents answered the question and, 580 (16%) stated that their knowledge was on disasters risks, 501(14%) on prevention, 305 (9%) on preparedness, 272 (8%) on hazards, and 251 on vulnerabilities.

Table 25: type of knowledge on disasters

Knowledge on disaster		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	prevention	501	14	26	26
	vulnerability	251	7	13	39
	preparedness	305	9	16	55
	hazard	272	8	14	70
	disaster risks	580	16	30	100
	Total	1909	54	100	
Missing	System	1658	46		
Total		3567	100		

8.3.4.1. CONTENT OF KNOWLEDGE AND RESPONDENTS' AGE

The data shows that the groups aged 20 years and below had more knowledge on disaster risks, prevention, hazard, preparedness, and vulnerability; the 21-30 year age group had knowledge on disaster risks, prevention, preparedness and hazard, and vulnerability; those aged 31-40 years reported that their knowledge was on disaster risks, prevention, preparedness, vulnerability, and hazard; the 41- 50 year group indicated disaster risks, prevention, preparedness, hazard and vulnerability; and the 51and above age group know more about in disaster risks, preparedness, prevention, hazard, and vulnerability. The knowledge for all groups was more about disaster related risks.

8.3.4.2. KNOWLEDGE ABOUT AND MARITAL STATUS OF RESPONDENTS

Marital status and disaster related knowledge is categorized as follows: 387 single respondents had knowledge on prevention, 392 on risks, 195 on preparedness, 191 on vulnerability, and 186 on hazards. For the married, 151 had knowledge on disaster risks, 94 on preparedness, 91 on prevention, 64 on hazards, and 44 on vulnerability. With regard to the divorced, 16 had knowledge on disaster risks, 6 on prevention, 6 on vulnerability, 6 on hazard, and 3 on preparedness. Of the and widows and widowers, 18 had knowledge on disaster risks, 13 on hazards, 11 on preparedness, 9 on vulnerability, and 5 on prevention.

8.3.4.3. KNOWLEDGE AND GENDER OF RESPONDENTS

Of the males, 233 said they had knowledge on disaster risks, 181 on prevention, 137 on hazards, 123 on preparedness, and 104 on vulnerability while 347 females said it was on disaster risks, 320 on prevention, 182 on preparedness, 147 on vulnerability, and 135 on hazards.

8.3.4.4. KNOWLEDGE AND EMPLOYMENT STATUS OF RESPONDENTS

One hundred and sixty-nine (169) of the employed had acquired knowledge on prevention, 153 on disaster risks, 104 on preparedness, 72 on vulnerability, and 68 on hazards; 38 of the self-employed acquired knowledge on disaster risks, 35 on prevention, 30 on preparedness, 22 on hazards, and 16 on vulnerability; 19 of the farmers acquired knowledge on disaster risks, 14 on prevention, 12 on preparedness, 6 on hazards, and 5 vulnerability; and 359 of the unemployed had acquired knowledge on disaster risks, 275 on prevention, 172 on hazards, 158 on vulnerability, and 152 on preparedness.

8.4. DISASTER THREAT AND RESPONDENTS' PERCEPTION

Table 26 below indicates the number of responses to the question as to whether respondents consider themselves threatened by disasters. In reply 3524 (98%) answered and 3034 (85%) confirmed to be threatened while 490 (14%) considered themselves not to be under any threat.

Table 26: disaster threats as perceived by respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	3034	85	86	86
	no	490	14	14	100
	Total	3524	99	100	
Missing	System	43	1		
Total		3567	100		

8.4.1. DISASTER THREAT AND AGE OF RESPONDENTS

Table 27 below shows that all age groups were threatened by disasters. In terms of distribution by age, the group, 21-30 years, perceive themselves to be more at

threat, followed by 31- 40 years, 51 & above, 41 – 50 years, and finally 20 years and below. The Chi-Square tests Asymp. Sig. is .000 for disaster and age variables.

Table 27: disaster threat – age of respondents

		Disaster threat		Total
		yes	no	
age	20 & below	118	42	160
	21-30	1319	200	1519
	31-40	815	147	962
	41 -50	324	55	379
	51 & above	454	45	499
Total		3030	489	3519

8.4.2. DISASTER THREAT AND EDUCATIONAL LEVEL OF RESPONDENTS

The cross-table 28 below indicates that disaster threatens all educational levels and is concentrated around those with junior certificate, followed by BGCSE, standard 7 & below, those with certificate / diploma, and lastly those with a bachelor's degree. The Chi-Square tests Asymp. Sig. is .042 for disaster threats and qualification of respondents.

Table 28: the disaster – qualification of respondents

		Disaster threat		Total
		yes	no	
qualification	Std 7 & below	643	127	770
	junior certificate	922	119	1041
	BGCSE	750	120	870
	Cert / Diploma	462	75	537
	Degree	210	37	247
Total		2987	478	3465

8.4.3. DISASTER THREAT AND MARITAL STATUS OF RESPONDENTS

The cross-table 29 below shows that, although the singles consider themselves to be most threatened by disasters, all statuses are under threat. A majority of the married are also threatened followed by widow/ widowers, and lastly the divorced. Disaster

threats cut across marital lines of respondents and Chi-Square tests Asymp. Sig. is .646.

Table 29: marital status – disaster threat responses

Marital status		Disaster threat		Total
		yes	no	
Marital	single	2220	360	2580
	married	625	91	716
	divorced	52	8	60
	widow / widower	116	23	139
Total		3013	482	3495

8.4.4. DISASTER THREAT AND GENDER OF THE RESPONDENTS

Of the males, 1192 confirmed to be threatened while 210 are not and 1842 of the females stated feeling threatened while 280 are not. The numbers of both males and females threatened by disasters is higher than those who are not threatened.

8.4.5. DISASTER THREAT AND EMPLOYMENT STATUS OF THE RESPONDENTS

Of the employed respondents, 768 consider themselves threatened by disasters while 136 do not; 217 of the self-employed are threatened while 28 are not; 71 of the farmers are threatened while 12 are not, and 1927 of the unemployed are threatened while 311 are not.

8.5. MORE THREATENING HAZARDS

In terms of the hazards that are more threatening, 39% (1406) of the respondents identified drought, 37% (1311) floods, 9% (311) rains, and 4% said wild-land fires (134) and windstorms (126) respectively. Table 30 (below) shows the responses concerning hazards that are considered more threatening:

Table 30: more threatening to respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	drought	1406	39	43	43
	floods	1311	37	40	83
	rains	311	9	10	92
	windstorms	126	4	4	96
	Wild-land fires	134	4	4	100
	Total	3288	92	100	
Missing	System	279	8		
Total		3567	100		

8.5.1. AGE OF RESPONDENTS AND FEELINGS OF THREAT

The threat distribution of disaster hazards across age showed that droughts, floods, rains, and wild-land fires and windstorms threatened the 21-30 and 31-40 years groups more than any others. The 41-50 year group felt threatened more by floods, drought, rains, windstorms, and wild-land fires. The 51 and above group felt threatened more by drought and floods than windstorms, rains, and wild-land fires. The 20 and below groups felt threatened more by drought, followed by floods, rain, wild-land fires, and windstorms.

8.5.2. RESPONDENTS' MARITAL STATUS AND FEELINGS OF THREAT

In terms of the most threatening hazards, 1042 single people were threatened by droughts, 952 by floods, 246 by rains, 112 by wild land fires, and 94 by windstorms; 277 of the married were threatened by drought, 274 by floods, 52 by rains, 26 by windstorms, and 19 by wildfires; 26 of the divorced were threatened by floods, 21 by drought, 7 by rains, and windstorms and wild land fires were not significant for this group; 60 of the widows / widowers were threatened by drought, 48 by floods, 6 by windstorms, 4 by rains, and 2 by wild land fires.

8.5.3. GENDER OF RESPONDENTS AND FEELING OF THREAT

Five hundred and eighty (584) males were threatened by drought, 502 by floods, 105 by rains, 55 by windstorms, and 51 by wild land fires; while 822 females were

threatened by droughts, 809 by floods, 206 by rains, 83 by wild land fires, and 71 by windstorms.

8.5.4. EMPLOYMENT STATUS OF RESPONDENTS AND FEELINGS OF THREAT

Three hundred and eighty one (381) of the employed were threatened more by drought, 297 by floods, 94 by rains, 34 by windstorms and 29 by wild land fires; 104 of the self-employed said they were threatened more by drought, 81 by floods, 35 by rains, 9 by wild land fires, and 6 by windstorms; 36 of the farmers are threatened more by floods, 30 by drought, 3 by rains, 3 by windstorms, and 2 by wild land fires. For the unemployed, 883 were threatened by floods, 864 by droughts, 175 by rains, 91 by wild land fires, and 80 by windstorms.

8.6. VULNERABILITY STATUS OF RESPONDENTS TO DISASTERS

Table 31 below shows that 3096 (87%) of the respondents consider themselves vulnerable in the event that disaster strikes. They state that they will be unable to cope with the disturbance that may result from such an event. Another 403 (11%) said that they were not vulnerable while 2 % (68) did not disclose their feelings with regard to vulnerability.

Table 31: the vulnerability status of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	3096	87	89	89
	no	403	11	11	100
	Total	3499	98	100	
Missing	System	68	2		
Total		3567	100		

8.6.1. VULNERABILITY AND AGE STATUS OF RESPONDENTS

The vulnerability – age cross-table 32 below confirms that all age groups are vulnerable to disasters and that the most vulnerable are: 21 – 30 and 31 -40 years, 51 years & above, then 41-50 years, and lastly 20 years and below. The Chi-Square tests Asymp. Sig. is .019 for vulnerability and age of respondents.

Table 32: the vulnerability – age of respondents

		vulnerability		Total
		yes	no	
age	20 & below	131	27	158
	21-30	1355	160	1515
	31-40	822	128	950
	41 -50	337	39	376
	51 & above	448	49	497
Total		3093	403	3496

8.6.2. VULNERABILITY AND MARITAL STATUS OF RESPONDENTS

In terms of vulnerability and marital status, Table 33 below shows that there is no strong relationship. The single, the married, and the widow / widower are all vulnerable to disasters. Vulnerability thus cuts across the marital status of the respondents and the Chi-Square test Asymp. Sig. is .424 for vulnerability and marital status of the respondents.

Table 33: marital status – vulnerability to disasters

		vulnerability		Total
		yes	no	
Marital	single	2284	283	2567
	married	621	85	706
	divorced	51	8	59
	widow /widower	118	21	139
Total		3074	397	3471

8.6.3. VULNERABILITY AND EDUCATIONAL LEVEL OF RESPONDENTS

Cross-table 34 below indicates that vulnerability to disasters cuts across qualification levels of the respondents. Those with junior certificate consider themselves more vulnerable followed by those with BGCSE, standard 7 and below. Those with a certificate / diploma followed and lastly there were those with a bachelors' degree. The Chi-Square tests Asymp. Sig. is .004 for vulnerability and qualification of respondents.

Table 34: the vulnerability – qualification status of respondents

		vulnerability		Total
		yes	no	
qualification	Std 7 & below	648	114	762
	junior certificate	928	94	1022
	BGCSE	776	92	868
	Cert / Diploma	477	64	541
	Degree	219	28	247
Total		3048	302	3440

8.6.4. VULNERABILITY – GENDER OF RESPONDENTS

1219 males said that they were vulnerable to disasters while 167 said they were not likewise 1877 of the females said they were vulnerable while 236 said they were not.

8.6.5. VULNERABILITY – EMPLOYMENT STATUS OF RESPONDENTS

Seven hundred and seventy four (774) of the employed reported that they were vulnerable while 122 said they were not; 217 of the self-employed were vulnerable while 27 said they were not; 74 of the farmers said they were vulnerable while 8 said they were not; and 1986 of the unemployed said they were vulnerable and 239 said they were not.

8.7. ANTICIPATED DISASTER RISKS BY THE RESPONDENTS

Table 35 below shows that 1542 (43%) fear to lose shelter, 772 (22%) fear they may sustain injuries, 489 (14%) may become poorer, 220 (6%) may suffer loss of livelihoods, and 171(5%) fear they may drown. The main fears are loss of shelter, injuries, and poverty.

Table 35: anticipated disaster risk by respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	loss of shelter	1542	43	48	48
	injuries / disaster	772	22	24	72
	drowning	171	5	5	78
	loss of livelihoods	220	6	7	85
	poverty	489	14	15	100
	Total	3194	90	100	
Missing	System	373	10		
Total		3567	100		

8.7.1. DISASTER ANTICIPATED RISKS AND AGE OF RESPONDENTS

The data show that age groups 20 years and below, 41-50, and 50 & above show similar patterns of anticipated risks which are loss of shelter, injuries, poverty, drowning, and lastly loss of livelihood. Age groups 21-30 and 31-40 years show loss of shelter, injuries / death, poverty, loss of livelihood, and drowning as anticipated risk. What is common for all age - groups is that they fear loss of shelter, injuries, and poverty.

8.7.2. DISASTER RISKS AND MARITAL STATUS OF THE RESPONDENTS

Of the singles, 1144 fear the loss of shelter, 593 injuries / death, (380) poverty, 152 loss of livelihood, and 102 drowning. Of the married, 300 fear loss of shelter, 136 injuries / death, (86) poverty, 58 loss of livelihood, and 50 drowning. Of the divorced, 21 fear the loss of shelter, 18 injuries / death, 10 drowning, 3 loss of shelter, and 3 poverty. Of the widow / widowers, 68 fear loss of shelter, 21 injuries / death, 19 poverty, 7 drowning, and (3) loss of livelihoods.

8.7.3. DISASTER RISKS AND GENDER OF THE RESPONDENTS

Of the males, 594 are threatened by loss of shelter, 297 by injuries and /or death, and 201 by poverty, 107 by loss of livelihoods, and 58 by drowning. The females 948 said they are fearful of losing shelter, 475 of sustaining injuries/ death, 288 being poor, 113 losing livelihood, and 113 drowning.

8.7.4. RESPONDENTS LOW RISK ANTICIPATION

Those who had indicated anticipating low disaster risk did not substantiate what makes them resilient and their responses were insignificant. Table 36 below designates insignificant capacity or the respondents not being aware of what makes them resilient to disaster hazards.

Table 36: the reasons for low risk areas

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	capacity is high	6	0	32	32
	safe zone	13	0	68	100.0
	Total	19	1	100	
Missing	System	3548	99		
Total		3567	100		

8.7.5. RESPONDENTS' PERSONAL DISASTER EXPERIENCE

The respondents were asked to state whether they had experienced disasters personally and 736 (21%) indicated that they have while 2796 (78%) had not, 35 (1%) did not respond. Table 37 below shows that the majority of respondents had not had any personal encounter with disasters.

Table 37: respondents' disaster personal experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	736	21	21	21
	no	2796	78	79	100
	Total	3532	99	100	
Missing	System	35	1		
Total		3567	100.0		

8.7.6. YEAR WHEN RESPONDENTS EXPERIENCED DISASTERS

The 6% experienced disasters in the years 2001- 2005 and 2006-2010; 4% in 1990-1995; and 4% in 1996-2000. The respondents have experience with floods, drought, and rains. Table 38 below refers:

Table 38: the years when disaster was experienced

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1990-1995	128	4	19	19
	1996 -2000	128	4	19	37
	2001 -2005	222	6	32	70
	2006 -2010	210	6	31	100
	Total	688	19	100	
Missing	System	2879	81		
Total		3567	100		

8.7.7. TYPE OF DISASTER EXPERIENCED BY RESPONDENTS

Table 39 below shows the type of disasters that respondents experienced being drought, floods, rains, wild-land fires, and domestic fires. In terms of ranking by percentage, flood is at 9%, drought at 6%, rains at 4%, and lastly both wild and domestic fires at 1% respectively.

Table 39: type of disaster experienced

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	drought	205	6	28	28
	floods	313	9	42	70
	rains	154	4	21	91
	Wild land-fires	24	1	3	94
	domestic fires	44	1	6	100.0
	Total	740	21	100	
Missing	System	2827	79		
Total		3567	100		

8.7.8. RESPONDENTS' RESPONSE TO DISASTER

In terms of responding to the disasters, 220 (6%) said they asked help from relatives, 150 (4%) report to the police, 122 (3%) report to social workers, 109 (3%) ask help from friends, and 52 (2%) report to the kgosi (tribal leader). Table 40 below shows the responses to disasters:

Table 40: response to the disasters by respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ask help from relatives	220	6	34	34
	ask help from friends	109	3	17	50
	report to police	150	4	23	73
	report to social work	122	3	19	92
	report to kgosi	52	2	8	100.0
	Total	653	18	100	
Missing	System	2914	82		
Total		3567	100.0		

8.8. RESPONDENT(S) ABILITY TO DIFFERENTIATE A HAZARD FROM A DISASTER

A total of 3519 respondents answered the question that asked them to state whether they can differentiate a hazard from a disaster and 1705 (49%) indicated that they have the knowledge while 1814 (51%) do not. One percent (48) could not explain their stance. The higher percentages were those without knowledge. Table 41 below shows the results.

Table 41: respondents' knowledge on disaster and hazard distinction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	1705	48	49	49
	no	1814	51	51	100
	Total	3519	99	100	
Missing	System	48	1		
Total		3567	100.0		

8.8.1. RESPONDENTS' ABILITY TO EXPLAIN THE DIFFERENCE TO A CHILD

Furthermore, a question was asked as to whether they could explain the difference to a child and a total of 2988 (84%) respondents replied with 1684 (47%) stating that they could do so while 1304 (37%) could not and 579 (16%) failed to place themselves. It shows that less than 50% could explain the difference between a hazard and disaster to a child and be understood. Table 42 below shows the results.

Table 42: the ability of respondents to explain concepts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	1684	47	56	56
	no	1304	37	44	100
	Total	2988	84	100	
Missing	System	579	16		
Total		3567	100		

8.9. KNOWLEDGE ON RESPONDING TO VARIOUS HAZARDS

This section covers the respondents' knowledge on whether they are equipped to deal with various disaster hazards. Their responses are presented according to the hazard and / or disaster.

8.9.1. KNOWLEDGE ON FLOOD RESPONSE

In terms of floods a total of 3457 (97%) respondents answered and 1216 (34%) stated that they know what to do while 2241 (63%) do not know what to do, and 110(3%) could not evaluate their capability in this regard. It demonstrates that, in the event of floods, 66% will be more vulnerable. Table 43 below shows the responses:

Table 43: knowledge on flood response

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	1216	34	35	35
	no	2241	63	65	100
	Total	3457	97	100	
Missing	System	110	3		
Total		3567	100.0		

8.9. 2. KNOWLEDGE ON WINDSTORMS RESPONSE

For windstorms, 3352 (94%) respondents answered and 1245 (37%) knew what to do while 2107(59%) did not know how to respond, and 215 (6%) could not evaluate their capability. Table 44 below shows that 65% are on the vulnerable side.

Table 44: knowledge on windstorm response

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	1245	35	37	37
	no	2107	59	63	100
	Total	3352	94	100	
Missing	System	215	6		
Total		3567	100.0		

8.9.2.1. KNOWLEDGE ON WINDSTORMS RESPONSE AND AGE OF RESPONDENTS

It was found that all age groups are lacking knowledge on what to do during windstorms. The 20 and below responses were 84 negative and 71 positive; 21- 30 years were 908 negative and 562 positive; 31-40 years were 566 negative and 358 positive; 41- 50 years were 223 negative and 135 positive; and for the 51 and above were 324 negative and 117 positive.

8.9.2.2. KNOWLEDGE ON WINDSTORMS RESPONSE – MARITAL STATUS

For the single respondents 977 said they know what to do while 1533 did not have knowledge on responding to windstorms. For the married, 219 had knowledge while 420 did not and among the divorced, 11 had knowledge and 47 did not. Of the widowed (male and females), 32 had knowledge while 92 did not.

8.9.2.3. KNOWLEDGE ON WINDSTORM RESPONSE AND GENDER

Five hundred and fifty-six (556) males said they knew what to do compared to 774 who did not know; and 689 females knew what to do as compared to 1333 who did not know what to do. There are thus large numbers of both males and females who do not know what to do during windstorms.

8.9.2.4. KNOWLEDGE ON WINDSTORM RESPONSE – EMPLOYMENT

Of the employed, 336 said they knew what to do during windstorms while 535 did not; 90 of the self- employed knew what to do while 147 did not; 28 of the farmers knew what to do while 47 did not; and 774 of the unemployed knew what to do while

1347 did not. The higher numbers in all categories were for those who lacked knowledge in this regard.

8.9.3. KNOWLEDGE ON TORRENTIAL RAIN RESPONSE

A total of 3357 (94%) respondents answered the question that was designed to determine whether they knew what to do in the event of torrential rains. It was found that 1350 (38%) knew what to do while 2007 (56%) did not, and 210 (6%) could not give a clear answer. Table 45 below shows the percentages of people who are vulnerable.

Table 45: knowledge on torrential rains response

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	1350	38	40	40
	no	2007	56	60	100
	Total	3357	94	100	
Missing	System	210	6		
Total		3567	100.0		

8.9.3.1. TORRENTIAL RAINS RESPONSE AND AGE OF RESPONDENTS'

The data shows that those 20 years & below had more information on what to do during torrential rains (87 knew what to do and 68 did not). For 21-30 year age group 858 did not know how to respond while 615 did. For those aged 31-40 years, 532 had no knowledge while 388 knew how to respond. Of the 41- 50 age bracket 220 had no knowledge of what to do while 118 had response knowledge.

8.9.3.2. KNOWLEDGE ON TORRENTIAL RAIN RESPONSE AND MARITAL STATUS

In terms of torrential rains and marital status of the respondents, 1072 single people had knowledge of how to respond while 1436 did not; for the married, 221 had knowledge while 430 did not; 16 of the divorced had knowledge while 39 did not; and for the widow / widower, 36 had knowledge while 86 did not.

8.9.3.3. KNOWLEDGE ON TORRENTIAL RAIN RESPONSE AND GENDER

With regard to gender, 607 of the males knew what to do during torrential rains while 721 did not and 743 females knew what to do as compared to 1286 that did not. There were high numbers for both males and females with regard to their vulnerability in this regard.

8.9.3.4. TORRENTIAL RAIN RESPONSE AND EMPLOYMENT

Of the employed, 393 reported to have knowledge on what to do during torrential rains while 483 did not; 88 of the self-employed had relevant knowledge while 149 did not; 27 of the farmers had knowledge while 49 did not; and 824 of the unemployed had knowledge while 1296 did not.

8.9.4. KNOWLEDGE ON RESPONSE TO OVERFLOWING DAMS

Respondents numbering 3333 (93%) answered a question that explored their knowledge on how to respond to overflowing dams and 1093 (31%) knew what to do while 2240 (63%) do not, and 234 (7%) could not answer the question. Table 46 below shows percentage distribution of who would be vulnerable in this regard.

Table 46: knowledge on overflowing dams' response

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	1093	31	33	33
	no	2240	63	67	100.0
	Total	3333	93	100	
Missing	System	234	7		
Total		3567	100.0		

8.9.4.1. OVERFLOWING DAMS RESPONSE AND AGE OF RESPONDENTS'

Age distribution on what to do during overflowing of dam shows that 106 respondents aged 20 and below had no knowledge while 49 did. For those aged 21-30, 972 had no knowledge and 494 did; 589 of those aged 31-40 years had no knowledge while 323 did; 238 of those aged 41-50 years had no knowledge while 117 did; and 332 of those aged 51 and above had no knowledge while 109 did.

8.9.4.2. OVERFLOWING DAMS AND MARITAL STATUS

Data shows that 854 single respondents had knowledge regarding dealing with overflowing dams while 1643 did not; 188 of the married had knowledge while 453 did not; 9 of the divorced had knowledge while 43 did not; and 35 of the widows / widowers had response knowledge while 87 did not.

8.9.4.3. OVERFLOWING DAMS RESPONSE AND GENDER OF RESPONDENTS

Four hundred and seventy two (472) of the males said they knew what to do in the event of a dam overflowing while 846 did not and 621 of the females knew what to do while 1394 did not.

8.9.4.4. OVERFLOWING DAMS RESPONSE AND EMPLOYMENT

Three hundred and thirty-five (335) of the employed knew what to do while 532 did not; 78 of the self-employed knew what to do while 153 did not; 22 farmers had knowledge while 54 did not; and 646 of the unemployed had knowledge while 1466 did not.

8.9.5. KNOWLEDGE ON WILD ANDLAND FIRE RESPONSE

For wild-land fires, 3321 (93%) of the respondents answered and 1250 (35%) knew what to do while 2071(58%) did not know what to do. Seven percent (7%) or 246 could not say what they would do. Table 47 below shows the numbers of the vulnerable.

Table 47: knowledge on wild land fires response

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	1250	35	38	38
	no	2071	58	62	100
	Total	3321	93	100	
Missing	System	246	7		
Total		3567	100		

8.9.5.1. WILD-LAND FIRE RESPONSE AND AGE OF RESPONDENTS'

The age distribution indicates that of those aged 20 and below, 87 knew what to do while 68 did not. Of the 21-30 year age group 879 did not have relevant knowledge

while 581 had the knowledge; of the 31-40 year group 579 indicated that they had no knowledge while 338 did; 225 of those aged 41-50 had knowledge while 124 did not; and 318 of those aged 51 and above knew what to do while 118 did not.

8.9.5.2. WILD LAND FIRE RESPONSE AND MARITAL STATUS OF RESPONDENTS

One thousand (1000) single people had knowledge of the wild land fire response while 1503 did not; 198 of married people had knowledge while 430 did not; 15 of the divorced had knowledge while 35 did not; and 30 of the widows /widowers had knowledge while 89 did not.

8.9.5.3. WILD LAND FIRE RESPONSE AND GENDER

Of the male respondents, 532 said they knew what to do with wild land fires while 783 did not and 718 females know what to do while 1288 did not. There are high numbers of both males and females who lack wild land fire response knowledge.

8.9.5.4. WILD LAND FIRE RESPONSE AND EMPLOYMENT STATUS

Of the employed, 363 had knowledge while 497 did not; 85 of the self-employed have knowledge while 147 did not; 31 farmers have knowledge while 43 did not; and 754 of the unemployed had knowledge while 1352 did not.

8.9.6. KNOWLEDGE ON DROUGHT RESPONSE

A total of 3305 (93%) of the respondents answered a question on drought and 1064 (30%) knew what to do while 2241 (63%) did not, and 262 (7%) could not answer the question. Table 48 below displays the numbers of those who are vulnerable to drought.

Table 48: knowledge on drought response

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	1064	30	32	32
	no	2241	63	68	100
	Total	3305	93	100	
Missing	System	262	7		
Total		3567	100.0		

8.9.6.1. DROUGHT RESPONSE AND AGE OF RESPONDENTS

The age and knowledge distribution on what should be done during periods of drought shows that all age groups lacked appropriate response knowledge. Ninety-one (91) of those aged 20 and below lacked drought response knowledge while 65 had some knowledge; of those aged 21 – 30 years, 947 lacked knowledge while 509 had knowledge; of the 31 – 40 year age group, 628 lacked knowledge while 282 had knowledge; of the 41-50 year group, 235 had no knowledge while 112 had knowledge; and for those 51 years and above 339 lacked knowledge while 93 had knowledge.

8.9.6.2. DROUGHT RESPONSE AND MARITAL STATUS OF RESPONDENTS

The data shows that 864 of the single respondents had knowledge while 1631 did not; for the married, 159 had knowledge while 462 did not; 12 of the divorced had knowledge while 37 did not; and 23 of the widow / widower group had knowledge while 96 did not.

8.9.6.3. DROUGHT RESPONSE AND GENDER OF RESPONDENTS

Four hundred and fifty-eight (458) of the males said they knew what to do in response to drought while 850 did not and 606 females had knowledge while 1391 did not. The numbers of both males and females lacking knowledge are high.

8.9.6.4. KNOWLEDGE ON DROUGHT RESPONSE AND EMPLOYMENT

Of the employed 292 had knowledge while 559 did not; 82 of the self-employed had knowledge while 149 did not; 27 farmers had knowledge while 47 did not; and 647 of the unemployed had knowledge while 1456 did not.

8.9.7. KNOWLEDGE ON CLIMATE CHANGE RESPONSE

Climate change response shows that out of a total of 3296 (92%) of the respondents, 720 (20%) know what to do while 2576 (72%) do not, and 271 (8%) could not give a definite response. Table 49 below indicates almost 80% of respondents are not prepared for dealing with climate change.

Table 49: knowledge on climate change

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	720	20	22	22
	no	2576	72	78	100
	Total	3296	92	100	
Missing	System	271	8		
Total		3567	100		

8.9.7.1. KNOWLEDGE OF CLIMATE CHANGE RESPONSE AND AGE OF RESPONDENTS

The data shows that all age groups are equally lacking in knowledge on how to respond appropriate to climate change. For age 20 and below 106 replied in the negative and 53 in the affirmative; in the 21-30 age group 1074 lacked knowledge and 374 had knowledge. Of the 31-40 years old 730 had no knowledge and 177 had knowledge. In the 41-50 age groups, 291 had no knowledge while 57 had knowledge. For those of 51 and above age group, 374 had no knowledge while 56 had knowledge.

8.9.7.2. CLIMATE CHANGE RESPONSE AND MARITAL STATUS RESPONSE

Of the single people, 596 had knowledge on climate change response while 1890 did not; 92 of the married had knowledge while 528 did not; 9 of the divorced had knowledge while 40 did not; and 20 of the widows / widowers had knowledge while 100 did not.

8.9.7.3. CLIMATE CHANGE RESPONSE AND GENDER

Of males numbering 314 said they knew what to do to respond to climate change while 987 did not and 406 of the females knew what to do while 1589 did not.

8.9.7.4. CLIMATE CHANGE RESPONSE AND EMPLOYMENT

Of the employed, 199 said they knew what to do while 652 did not; 52 of the self-employed knew what to while 177 did not; 11 farmers knew what to do while 62 did not; and 447 of the unemployed had knowledge while 1651 did not.

8.9.8. KNOWLEDGE ON EARTHQUAKE RESPONSE

Earthquake response shows that, of a total of 3298 (93%) of the respondents, 286 (8%) know what to do while 3012 (84%) do not, and 269 (8%) did not respond. This is, because we never have them. Table 50 below displays that 92% would be vulnerable in an earthquake situation.

Table 50: knowledge on earthquake response

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	286	8	9	9
	no	3012	84	91	100
	Total	3298	92	100	
Missing	System	269	8		
Total		3567	100		

8.9.8.1. EARTHQUAKE RESPONSE AND AGE OF RESPONDENTS'

The data shows that all age groups equally do not know what to do in the event of an earthquake. For age group 21 years and below, 141 had no knowledge while 16 had some knowledge; 1315 of those aged 21-30 years had no knowledge while 137 had knowledge; 824 of those aged 31-40 had no knowledge while 83 had knowledge; in the age group 41-50 years, 322 had no knowledge while 26 had knowledge; and for those 51 years and above, 407 had no knowledge while 23 did have knowledge.

8.9.8.2. EARTHQUAKE RESPONSE AND MARITAL STATUS OF RESPONDENTS

Of the single people, 231 had knowledge on earthquake response while 2259 did not; 46 of the married had knowledge while 573 did not, 2 of the divorced had knowledge while 49 did not; and 6 of the widows / widowers had knowledge while 111 did not.

8.9.8.3. EARTHQUAKE RESPONSE AND GENDER OF RESPONDENTS

Of the males, 117 said they know what to do while 1188 did not and 169 females said they know what to do while 1824 did not.

8.9.8.4. EARTHQUAKE RESPONSE – EMPLOYMENT

Eighty-two (82) of the employed had knowledge while 771 did not; 27 of the self-employed had knowledge while 201 did not; 3 farmers had knowledge while 69 did not; and 171 of the unemployed had knowledge while 1929 did not.

8.9.9. MEANS OF KNOWLEDGE ACQUISITION BY RESPONDENTS

Twenty-three percent (831) of the respondents stated that they acquired information through reading, 564 (16%) from television or radio, 367 (10%) through other sources, 250 (7%) from workshops, and 83 (2%) from the print media. The majority obtained information through self-efforts (reading), television, radio, and other sources. Table 51 below shows the sources of information for the respondents:

Table 51: the source of disaster information

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	workshop	250	7	12	12
	self - reading	831	23	40	52
	TV / Radio	564	16	27	78
	media	83	2	4	82
	none of the above	367	10	18	100
	all of the above	3	0	0	100
	Total	2098	59	100	
Missing	System	1469	41		
Total		3567	100		

8.9.10. RESPONDENTS’ SUGGESTIONS ON HOW TO SHARE KNOWLEDGE

Those who had replied in the negative on any of the preceding questions were asked to suggest what needs to be done to close the knowledge gap. Table 52 below shows that 3359 (93%) of the respondents replied and 1781 (50%) want education / awareness campaigns, 638 (18%) opted for public or kgotla meetings, 553 (16%) want disaster training, 262 (7%) wants pamphlets to be distributed, and 77 (2%) felt that nothing should be done while 239 (7%) could not state their position.

Table 52: disaster information dissemination actions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	disaster training workshop	553	16	17	17
	education / awareness	1781	50	54	70
	public meetings / kgotla meetings	638	18	19	89
	distribute pamphlets	262	7	8	97
	all the above	17	1	1	98
	nothing	77	2	2	100.0
	Total	3328	93	100	
Missing	System	239	7		
Total		3567	100		

8.9.10.1. RESPONDENTS' CHOICE OF WHO SHOULD BE HELD RESPONSIBLE

Table 53 below shows that 3359 respondents answered in terms of who should be responsible for implementing their suggestions. Fifty-nine percent (2114) said it should be government, 530 (15%) tribal leaders, 417 (12%) communities, 170 (5%) the district commissioner, 121 (3%) the council secretary, and 208 (6%) did not state their position. The responses show that it was felt that the government, tribal leaders, and communities should take the lead in disaster related situations.

Table 53: responsible parties for information dissemination

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	government	2114	59	63	63
	tribal leaders	530	15	16	79
	district commissioner	170	5	5	84
	council secretary	121	3	4	88
	communities	417	12	12	100
	all of the above	6	0	0	100
	11.00	1	0	0	100
	Total	3359	94	100	
Missing	System	208	6		
Total		3567	100		

8.10. DISTRICT / COMMUNITY RELATED DISASTER POLICIES, LEGISLATION, AND PROGRAMMES

8.10.1. RESPONDENTS' KNOWLEDGE ON DISASTER RISK REDUCTION

The respondents were asked to state their knowledge on disaster risk reduction and from 3518 (99%) of the respondents who answered, 1023 (29%) know what DRR is all about but 2495 (70%) did not, and 49 (1%) did not state their position. Table 54 below indicates the responses.

Table 54: knowledge on Disaster Risk Reduction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	1023	29	29	29
	no	2495	70	71	100
	Total	3518	99	100	
Missing	System	49	1		
Total		3567	100		

8.10.1.1. KNOWLEDGE ON DRR AND AGE OF RESPONDENTS

The data show that all age groups have little disaster risk reduction knowledge. Of those that have some knowledge, 532 are aged 21-30 years, 273 are 31-40 years, 107 are 41-50 years, 61 are 50 years and above, and 50 are aged 20 & below. Of those who have no DRR knowledge, 991 are aged 21-30 years, 682 are 31-40 years, 434 are 50 years and above, 275 are aged 41-50, and 110 are aged 20 years and below. All the age groups have high numbers without knowledge on disaster risk reduction.

8.10.1.2. KNOWLEDGE ON DRR AND MARITAL STATUS OF RESPONDENTS

Of the single respondents, 783 have knowledge on DRR while 1802 did not have; 205 of married respondents had knowledge while 509 did not; 19 of the divorced had knowledge while 40 did not; and 9 of the widows / widowers had knowledge while 127 did not.

8.10.1.3. KNOWLEDGE ON DRR AND GENDER OF RESPONDENTS

Four hundred and twenty-one (421) of the males had knowledge on DRR while 977 did not and 602 females had knowledge while 1518 did not. There are high numbers of both males and females who lack knowledge on DRR.

8.10.1.4. KNOWLEDGE ON DRR AND EMPLOYMENT STATUS

Of the employed, 305 said that they have knowledge on DRR while 596 did not; 69 of the self-employed reported to have knowledge while 179 did not; 17 farmers had knowledge while 66 did not; and 615 of the unemployed had knowledge while 1618 did not.

8.10.1.5. RESPONDENTS' REASONS FOR LACK OF DRR KNOWLEDGE

The 1176 (33%) respondents who lacked knowledge on DRR were asked for reasons and 993 (28%) stated that they have not heard about disaster risk reduction before this study, 148 (4%) could not get information on DRR, and 35 (1%) said they were not interested in the subject. Table 55 below displays the reasons of respondents.

Table 55: reasons for lack of DRR knowledge

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	lack of information	148	4	13	13
	no interest	35	1	3	16
	lack of knowledge	993	28	84	100
	Total	1176	33	100	
Missing	System	2391	67		
Total		3567	100		

8.10.1.6. SOURCES OF INFORMATION ON DISASTER RISK REDUCTION (DRR)

Those who had knowledge on DRR, 399 (11%) obtained information through self - motivated reading, 351 (10%) through the media, 134 (4%) from both primary and secondary schools, 103 (3%) from a workshop, and 30 (1%) from their district disaster committee. Table 56 below shows the sources of information.

Table 56: source of DRR knowledge

Sources		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Self- reading	399	11	39	39
	workshop	103	3	10	49
	media	351	10	35	84
	primary / secondary school	134	4	13	97
	district disaster committee	30	1	3	100
	Total	1017	29	100.0	
Missing	System	2550	71		
Total		3567	100		

8.10.2. RESPONDENTS' KNOWLEDGE OF UNHFA

Knowledge of United Nations Hyogo Framework for Action (UNHFA) is low in the district. A total of 3494 (98%) of the respondents answered the question. Table 57 below indicates that 3311 (93%) did not know about the HFA and only 183 (5%) said they have knowledge on the framework, while 73 (2%) could not answer the question.

Table 57: knowledge on UNHFA

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	183	5	5	5
	no	3311	93	95	100
	Total	3494	98	100	
Missing	System	73	2		
Total		3567	100		

8.10.2.1. UNHFA KNOWLEDGE AND AGE OF RESPONDENTS

The data shows that age groups 21-30 (94) and 31 – 40 years (53) had knowledge of UNHFA as compared to other age groups 41-50 years, 51 and above, and 20 & below had equally small numbers (12) respectively.

8.10.2.2. UNHFA KNOWLEDGE AND MARITAL STATUS OF RESPONDENTS

Of the single respondents, 147 had knowledge of the Hyogo Framework for Action while 2417 did not; 25 of the married had knowledge while 686 did not; 5 of the

divorced had knowledge while 54 did not; and 5 of the widow / widower group had knowledge while 131 did not.

8.10.2.3. RESPONDENTS' APPLICATION OF UNHFA AT WORK

In terms of application of the HFA, Table 58 below shows that 3375 (95%) responded to the question and 3315 (93%) had not applied it in their work situation while 60 (2%) said they had done so. A further, 192 (5%) did not address the question.

Table 58: number who applied HFA at work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	60	2	2	2
	no	3315	93	98	100.
	Total	3375	95	100	
Missing	System	192	5		
Total		3567	100		

8.10.2.4. UNHFA APPLICATION AND AGE OF RESPONDENTS

The data show that 29 respondents in the category 21-30 years and 20 in the group 31-40 years had applied the Hyogo Framework of Action. In other age categories, 7 in age group 50 and above, 3 in age group 41- 50 years, and 1 in the 20 & below age group also applied it. The UNHFA is an instrument that is neither well understood nor applied by communities.

8.10.2.5. UNHFA APPLICATION AND MARITAL STATUS OF RESPONDENTS

Forty (40) of the single respondents had applied the instrument while 2425 had not; 13 of the married respondents applied it while 680 had not; 3 of the divorced had applied it while 57 had not; and 4 of the widows / widowers had applied it while 129 had not.

8.10.2.6. RESPONDENTS' EXPLANATION ON UNHFA

The respondents were asked to state whether or not they had applied the Hyogo Framework for Action in their work and 866 responded. Of these, 861 (24%) had no idea what it was about and an insignificant number claimed that they were trained on

it. However, as Table 59 (below) indicates, large numbers lack knowledge of the protocol.

Table 59: respondents' explanation of answer on HFA knowledge

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes, i was trained on HFA	5	0	1	1
	no idea what it is	861	24	99	100
	Total	866	24	100	
Missing	System	2701	76		
Total		3567	100		

8.11. COMMUNITY PREPAREDNESS SYSTEMS, MEASURES, AND DISASTER RISK REDUCTION

This part was meant to assess whether the district / communities have disaster preparedness systems, measures, and disaster risk reduction programmes. The responses have been tabled accordingly.

8.11.1. DISTRICT DISASTER ACTION TEAMS

Table 60 below shows that 3430 respondents answered the question about the existence of district disaster action teams while 137 did not respond. The 938 (26%) said that they have district action teams while 2492 (70%) said they do not have teams at all.

Table 60: district disaster action teams

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	938	26	27	27
	no	2492	70	73	100
	Total	3430	96	100	
Missing	System	137	4		
Total		3567	100.0		

8.11.2. COMMUNITY DISASTER ACTION TEAMS

Another question sought to establish whether communities in Botswana have action teams and 3524 respondents replied. Twenty-two percent (778) said that they have such teams while 2746 (77%) denied their existence. Table 61 below shows the responses on the existence of community disaster action teams.

Table 61: community disaster action teams

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	778	22	22	22
	no	2746	77	78	100
	Total	3524	99	100	
Missing	System	43	1		
Total		3567	100.0		

8.11.3. DISTRICT / COMMUNITY DISASTER POLICY

Respondents numbering 3517 answered the question that sought to establish whether they have a district or community disaster policy. Seven hundred and thirty-seven (21%) said they have such a policy while 2780 (78%) said they do not have a policy of this nature either at district or community level. Table 62 below indicates the response on the matter:

Table 62: district / community disaster policy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	737	21	21	21
	no	2780	78	79	100
	Total	3517	99	100	
Missing	System	50	1		
Total		3567	100		

8.11.4. DISTRICT PREPAREDNESS PLAN

Table 63 below indicates that 3523 respondents answered the question that was intended to establish whether they have a district preparedness plan and 44 responses were missing. Seven hundred and one (20%) said that they have a

preparedness plan while 2822 (79%) denied the existence of such a plan at either district or community level.

Table 63: district disaster preparedness plan

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	701	20	20	20
	no	2822	79	80	100
	Total	3523	99	100	
Missing	System	44	1		
Total		3567	100		

8.11.5. DISTRICT DISASTER STRATEGY

Three thousand five hundred and seventeen (3517) responded to a question that sought to determine whether they have district / community disaster strategy and 48 responses were missing. Six hundred and seventy-seven (19%) said they have a strategy while 2842 (80%) said they do not have such a strategy at either levels (district or community). Table 64 below shows the responses on the existence of district disaster strategy.

Table 64: district /community disaster strategy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	677	19	19	19
	no	2842	80	81	100
	Total	3519	99	100	
Missing	System	48	1		
Total		3567	100		

8.11.6. DISTRICT / COMMUNITY RESPONSE PLAN

Table 65 below shows that 3518 answered the question that intended to establish whether they have a district / community response plan (49 responses were missing). Nine hundred and seven (25%) said they have a response plan while 2611 (73%) said they do not have a disaster response plan at either district or community level.

Table 65: the response on district / community response plan

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	907	25	26	26
	no	2611	73	74	100
	Total	3518	98	100	
Missing	System	49	2		
Total		3567	100		

8.11.7. DISTRICT / COMMUNITY DISASTER ZONES

Table 66 below shows that 3523 respondents answered the question about whether they have district / community disaster zones and 44 were missing responses. Sixteen percent 574 said they have such zones while 2949 (83%) denied their existence in their locality.

Table 66: district / community disasters zones

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	574	16	16	16
	no	2949	83	84	100
	Total	3523	99	100	
Missing	System	44	1		
Total		3567	100		

8.11.8. DISTRICT / COMMUNITY EARLY WARNING SYSTEMS

In response to the question as to whether they have district /community early warning systems 3519 replied and 48 did not. Twenty-five percent (887) said that they have early warning systems while 2632 (74%) said they do not have them at either the district or community level. Table 67 below shows the responses:

Table 67: response on district / community disaster early warnings

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	887	25	25	25
	no	2632	74	75	100
	Total	3519	99	100	
Missing	System	48	1		
Total		3567	100		

8.11.9. DISTRICT / COMMUNITY DISASTER EVACUATION PLANS

Table 68 below shows that 3526 responded to the question to ascertain whether they have district / community disaster evacuation plans and 41 are missing responses. Eight hundred and ninety-four (25%) said that they have an evacuation plan while 2632 (74%) denied the existence of an evacuation plan at either level.

Table 68: district / community disaster evacuation plan

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	894	25	25	25
	no	2632	74	75	100
	Total	3526	99	100	
Missing	System	41	1		
Total		3567	100		

8.11.10. DISTRICT / COMMUNITY DISASTER PROFILE

Another question sought to establish whether they have a disaster profile for the district / communities and 3517 answered while 50 responses are missing. Five hundred and seventy-nine (16%) said they have a profile while 2938 (82%) said they do not have a disaster profile at either level. Table 69 below shows the responses on the matter:

Table 69: disaster profile for the district and community

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	579	16	17	17
	no	2938	82	83	100
	Total	3517	98	100	
Missing	System	50	2		
Total		3567	100.0		

8.11.11. COMMITTEES IN THE DISTRICT / COMMUNITY

The respondents were asked to identify committees that exist in their communities and 3479 replied while 88 responses were missing. Ninety percent (3203) identified village and district development committees, 118 (3%) said there are no committees at all, 70 (2%) identified village / district health committees. The other committees like village / district disaster management committees and village / district multi-sectorial AIDS committees were insignificant. Table 70 below indicates the available committees:

Table 70: committees in the district / communities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	VDC / DDC	3203	90	92	92
	VHC / DHC	70	2	2	94
	VMSAC / DMSAC	44	1	1	95
	VDMC / DDMC	20	1	1	96
	all of the above	24	1	1	97
	none	118	3	3	100
	Total	3479	98	100	
Missing	System	88	2		
Total		3567	100		

8.11.12. WHO DO RESPONDENTS CALL DURING DISASTERS

Table 71 below displays the respondents' view of who they call, when there is a disaster, from among the police, tribal leaders, relatives and friends, district commissioner, and social workers or whether they would call all of them. Almost three and half thousand (3466) answered the question and 2098 (59%) said they would call the police, 425 (12%) social workers, 354 (10%) tribal leaders, 316 (9%)

relatives and friends, and 254 (7%) stated that they would contact the district commissioner.

Table 71: the respondents and people called to help

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	police	2098	59	61	61
	tribal leader	354	10	10	71
	relatives & friends	316	9	10	81
	district commissioner	254	7	7	88
	social worker	425	12	12	100
	all of the above	8	0	0	100
	none	11	0	0	100
	Total	3466	97	100	
Missing	System	101	3		
Total		3567	100		

8.11.12.1. THE HELPERS THAT RESPONDENTS WOULD CALL DURING DISASTERS BY AGE OF RESPONDENTS

The data shows that all the age groups would call the police first and then the social worker except for those aged 20 years & below who have the tribal leaders as their second preference. The preferences for those aged 20 years & below are: 81 (police), 26 (tribal leaders), 21 (relative and friends), 19 (social workers), and 6 (the district commissioner). For age 21-30 years, 948 will call the police, 163 social workers, 143 tribal leaders, 143 relatives and friends, and 105 the district commissioner;

With regard to those aged 31-40 years, 603 would call the police, 108 social workers, 78 tribal leaders, 78 relatives and friends, and 71 the district commissioner. Of the age group 41-50 years, 216 would call the police, 58 social workers, 37 the district commissioner, 35 tribal leaders, and 24 relatives and friends. Finally of those aged 51years and above, 247 would call the police, 77 social workers, 72 tribal leaders, 49 friends and relatives, and 35 the district commissioner. Figure 12 below refers:

8.11.12.2. THE HELPERS THAT RESPONDENTS WOULD CALL DURING DISASTER BY MARITAL STATUS OF RESPONDENTS

Of the single respondents, 1621 prefer police, 277 social workers, 236 tribal leaders, 226 relatives, and 178 the district commissioner. Of the married, 370 prefer the police, 106 social workers, 85 tribal leaders, 68 relatives, and 68 the district commissioner. Of the divorced, 27 would call the police, 11 the social worker, 10 a tribal leader, 7 relatives, and 3 the district commissioner. Of the widow / widower group, 63 would prefer the police, 30 social workers, 18 tribal leaders, 14 relatives, and 5 would call the district commissioner.

8.11.12.3. RESPONDENTS’ ACTION BASED ON ABILITY TO HELP OR NOT

The respondents were asked to state whether their call for help was on the basis of responders’ ability to help or not and 3501 answered the question with 2811 (79%) stating that they assumed the responders had the ability to help while 690 (19%) said they just called with no preconceived idea as to what could be done. Table 72 below gives the figures:

Table 72: people called and ability to help

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	2811	79	80	80
	no	690	19	20	100
	Total	3501	98	100	
Missing	System	66	2		
Total		3567	100		

8.11.12.4. RESPONDENTS’ PERCEPTION OF HELPER’S EFFICIENCY OF RESPONSE

In terms of efficiency to respond, 3493 answered and 2430 (68%) said they call because of perceived efficiency of those they contacted to help while 1063 (30%) said that they would just call. Table 73 below shows the responses:

Table 73: people called and efficiency to help

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	2430	68	70	70
	no	1063	30	30	100
	Total	3493	98	100	
Missing	System	74	2		
Total		3567	100		

8.11.12.5. AREAS OF HIGH, MEDIUM, AND LOW RISKS AND VULNERABILITIES

Respondents were asked whether they know areas of high disaster risk and 3514 answered and 53 responses were missing. Of those who replied, 938 (26%) said they know areas of high risk while 2576 (72%) said they do not know these areas. The areas they identified are Taung, Ramotswa, Goo Siga, Tswapong, rivers, Ikageleng, Lesetlhana, Mogobane, Masimo, Badukane, Bokaa, and Borotsi. The very high disaster risk areas are: Taung, Ramotswa, Goo Siga, Lesetlhana, and Tswapong. Figure 14 refers

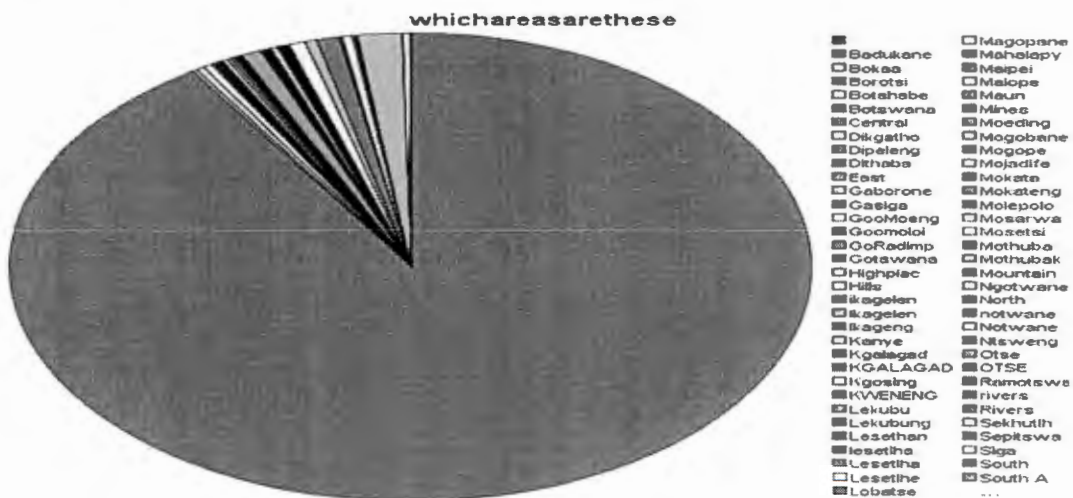


Figure 15: areas affected by disasters

8.11.12.6. THE NATURE OF DISASTERS IN IDENTIFIED AREA

The kinds of disasters that are prevalent in the areas are: floods (17%), crime (3%), rains, drought, and fires (2%), while windstorms are insignificant. Table 74 below shows the types of disasters prevalent in the identified areas:

Table 74: the prevalent disasters in the district

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	floods	594	17	65	64.8
	crime	120	3	13	78
	drought	56	2	6	84
	fires	60	2	7	91
	rains	72	2	7	98
	windstorms	15		2	100
	Total	917	26	100	
Missing	System	2650	74		
Total		3567	100		

8.11.12.7. AREAS OF MEDIUM AND LOW DISASTER RISKS

Table 75 below shows that 3450 respondents answered the question that sought to establish whether they know areas of medium to low disaster risks and 424 (12%) affirmed that they did while 3026 (85%) said they do not have that information.

Table 75: respondents' knowledge of low and medium disaster risk areas

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	424	12	12	12
	no	3026	85	88	100
	Total	3450	97	100.0	
Missing	System	117	3		
Total		3567	100.0		

8.12. ROLE OF SOCIAL WORKERS IN DISASTER RISK REDUCTION

Table 76 below shows that amongst the respondents, 28 (1%) were social workers while 2261 (63%) were community residents.

Table 76: the number of social worker

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	28	1	1	1
	no	2261	63	99	100
	Total	2289	64	100	
Missing	System	1278	36		
Total		3567	100		

8.12.1. EDUCATIONAL QUALIFICATION OF SOCIAL WORKERS

Table 77 below indicates that the majority of the social workers have a certificate and / or a diploma qualification. Only 6 social workers have a bachelors' degree.

Table 77: the qualifications of social workers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	certificate	8	0	36	36
	diploma	8	0	36	73
	degree	6	0	27	100
	Total	22	1	100	
Missing	System	3545	99		
Total		3567	100		

8.12.2. UNIVERSITIES WHERE SOCIAL WORKERS' GRADUATED

Table 78 below shows that 17 of the social workers are graduates of the University of Botswana, 3 are of universities abroad, and 1 is a graduate of the University of Namibia.

Table 78: the Universities attended

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	University of Botswana	17	1	81	81
	University of Namibia	1	0	5	86
	Overseas universities	3	0	14	100
	Total	21	1	100	
Missing	System	3546	99		
Total		3567	100		

8.12.3. SOCIAL WORKER DAY TO DAY WORK AND DISASTERS

Table 79 below shows social worker's day to day duties do not include disaster risk reduction. In terms of dealing with disasters on daily basis, 14 said they do so sometimes, 4 regularly, 2 on sporadically, and 4 not at all.

Table 79: the disasters and social workers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	sometimes	14	0	58	58
	regularly	4	0	17	75
	sporadic	2	0	8	83
	none	4	0	17	100
	Total	24	1	100	
Missing	System	3543	99		
Total		3567	100		

8.12.4. TYPE OF DISASTERS DEALT WITH BY SOCIAL WORKERS

Table 80 below and figure 14 show the type of disasters social workers have dealt with: 11 have dealt with drought, 5 with heavy winds, 4 with domestic fires, and 2 with floods.

Table 80: social workers and disaster response

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	drought	11	0	50	50
	floods	2	0	9	59
	windstorms	1	0	5	64
	heavy winds	4	0	18	82
	domestic fires	4	0	18	100
	Total	22	1	100	
Missing	System	3545	99		
Total		3567	100		

8.12.5. SOCIAL WORKER'S ROLE DURING RESPONSE

Table 81 below shows the roles that social workers assumed in the process of responding to past disasters. Seven (7) were involved in damage assessment, 6

provided counseling, 4 distributed relief materials, 4 carried out search and rescue exercises, and 3 provided shelter.

Table 81: the role played by social workers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	damage assessment	7	0	29	29
	shelter provision	3	0	13	42
	search & rescue	4	0	17	59
	relief provision	4	0	17	76
	counselling	6	0	24	100
	Total	24	1	100	
Missing	System	3543	99		
Total		3567	100.0		

8.12.6. THE PERCEIVED SOCIAL WORK ROLE IN DRR

The respondents were asked to identify the roles that social workers could undertake in disaster risk reduction at a district /community level. Ten (10) said they should provide education and awareness, 7 assessment, 5 said response / relief, and 1 early warning information. The table 82 below shows the response:

Table 82: the proposed role of social workers in Disaster Risk Reduction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	assessment	7	0	28	28
	relief /response	5	0	20	48
	education /awareness	10	0	40	88
	early warning	1	0	4	92
	all the above	1	0	4	96
	none	1	0	4	100
	Total	25	1	100	
Missing	System	3542	99		
Total		3567	100		

8.12.7. ADEQUATE KNOWLEDGE TO DEAL WITH DISASTERS

Table 83 below shows the responses of social workers to the question of adequacy of their training in being equipped to deal with disasters. In this regard 18 respondents said they were equipped while 6 said they were not.

Table 83: social work knowledge in disaster

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	18	1	75	75
	no	6	0	25	100
	Total	24	1	100	
Missing	System	3543	99		
Total		3567	100		

8.12.8. RATING ADEQUACY OF KNOWLEDGE BY SOCIAL WORKERS

In terms of rating the social work knowledge which prepared them to deal with various social problems including disasters and using a rating from excellent – poor, 7 said it was good, 6 said it was the best, 5 said excellent, another 5 said it was fair, and lastly 4 said it was poor. Table 84 below shows the results:

Table 84: the rating of social work knowledge on disasters

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	excellent	5	0	19	19
	best	6	0	22	41
	good	7	0	26	67
	fair	5	0	19	85
	poor	4	0	15	100
	Total	27	1	100	
Missing	System	3540	99		
Total		3567	100		

8.13. COMMUNITY BASED DISASTER PROGRAMMES FOR THE DISTRICT

The respondents were asked to identify the role of the community in preparing for disasters and 3466 answered while 102 responses are missing. Eighteen percent (634) said they must conduct community education and awareness programmes;

17% (603) identified community action teams; 13% (458) said communities must train others on disasters risk management; 5% (184) said communities should stockpile resources, and 45% (1586) said communities need do nothing to prepare for disasters. Table 85 below shows the responses:

Table 85: the role of community in disaster preparedness

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	form action teams	603	17	17	17
	train others on disasters	458	13	13	31
	stockpiling resources	184	5	5	36
	conduct community education & awareness	634	18	18	54
	none	1586	45	46	100
	Total	3465	97	100	
Missing	System	102	3		
Total		3567	100		

8.13.1. COMMUNITY ROLE IN RESPONDING TO DISASTERS

In terms of the roles communities play in responding to disasters, 3450 respondents answered while 117 responses are missing. 1897 (53%) said communities must conduct search and rescues operations; 183 (5%) said that communities are victims, 139 (4%) said communities are obstructers, and 1231 (35%) said communities must do nothing to respond to disasters. Table 86 below shows the results.

Table 86: the role communities in disaster response

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	search & rescue	1897	53	55	55
	obstructers	139	4	4	59
	victims	183	5	5	64
	nothing	1231	35	36	100
	Total	3450	97	100	
Missing	System	117	3		
Total		3567	100		

8.13.2. ROLE OF COMMUNITY WHEN PREPARING FOR DISASTERS

The respondents think the community should perform the following activities to prepare for disasters: 1226 (34%) said communities must develop a preparedness plan, 902 (25%) develop early warning systems, 870 (24%) organize action teams; and 471 (13%) said communities should do nothing. Table 87 below indicates the results.

Table 87: proposed community actions in disaster preparedness

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	develop a preparedness plan	1226	34	35	35
	organize action teams	870	24	25	60
	early warnings	902	25	26	86
	nothing	471	13	14	100
	Total	3469	97	100	
Missing	System	98	3		
Total		3567	100		

8.13.3. ROLE OF COMMUNITIES BEFORE DISASTERS

Table 88 shows that 2084 (58%) of the respondents are of the view that before disaster strikes, communities must educate and raise awareness; 650 (18%) believe they should monitor hazards and risks; 168 (5%) are of the view that communities must stockpile relief material; and 110 (3%) said communities must conduct drills. The last 555 (16%) responses were missing.

Table 88: community actions before disaster

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	monitor hazards / risks	650	18	22	22
	educate and raise awareness	2084	58	69	91
	stockpile relief material	168	5	5	96
	conduct disaster drills	110	3	4	100
	Total	3012	84	100	
Missing	System	555	16		
Total		3567	100		

8.13.4. EXISTENCE OF A COMMUNITY PREPAREDNESS PLAN

The respondents were asked whether they have a community preparedness plan and 3355 answered with 840 (24%) acknowledging that they have such a plan while 2515 (71%) said that they do not have a plan. Table 89 below shows the responses.

Table 89: community disaster preparedness plan

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	840	24	25	25
	no	2515	71	75	100
	Total	3355	95	100	
Missing	System	212	5		
Total		3567	100		

8.13.5. ROLE OF THE COMMUNITY DURING DISASTERS

Almost three and half thousand (3467) respondents stated that the community should do the following: 1170 (33%) said search & rescue, 760 (21%) said communities should warn others of danger; 530 (15%) advised evacuation; 393 (9%) said they should be the first responders, 86 (2%) said they should be passive recipients of help, and 590 (17%) said communities must do nothing. Table 90 below shows the views of respondents.

Table 90: the role of communities during disasters

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	none	590	17	17	17
	evacuation	530	15	15	32
	search & rescue	1178	33	34	66
	warn others of danger	760	21	22	88
	passive recipients	86	2	3	91
	first responders	323	9	9	100
	Total	3467	97	100	
Missing	System	100	3		
Total		3567	100		

8.13.6. ROLE OF COMMUNITIES AFTER DISASTER

Almost three and half thousand (3463) respondents answered the question and their views are captured as follows: 2246 (63%) said communities must work on rehabilitation, 600 (17%) had no idea what role communities could play; 224 (6%) said they must be passive survivors and 330 (11%) said communities must do nothing. Table 91 below shows the results;

Table 91: the role of communities after disaster

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	none	393	11	11	11
	rehabilitation	2246	63	65	76
	passive survivors	224	6	7	83
	no idea	600	17	17	100
	Total	3463	97	100	
Missing	System	104	3		
Total		3567	100		

8.13.7. DISTRICT / COMMUNITY RECOVERY STRATEGY

As to whether they have a recovery strategy, 2077 (58%) of the respondents said they have while 1135 (32%) said they do not have such a strategy and 355 (10%) responses were missing. Table 92 below shows the results.

Table 92: district recovery strategy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	2077	58	65	65
	no	1135	32	35	100
	Total	3212	90	100	
Missing	System	355	10		
Total		3567	100		

8.13.8. ROLE OF THE KGOSI / CHIEF / TRIBAL LEADER

In terms of the role of the kgosi (Chief) in disaster risk reduction, 1427 (40%) said it should be counseling; 909 (26%) said coordination; 107 (3%) said being a passive actor; 79 (2%) said it is irrelevant, and 937 (26%) said the kgosi should not play any role in this regard. Table 93 below refers:

Table 93: the role of a chief in disaster risk reduction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	none	937	26	27	27
	coordination	909	26	26	53
	counselling	1427	40	41	94
	passive actor	107	3	3	97
	irrelevant	79	2	3	100
	Total	3459	97	100	
Missing	System	108	3		
Total		3567	100		

The pie chart in figure 15 below shows the same information as is reflected in Table 93 above. The respondents were of the view that tribal leaders must provide counselling and coordinate disaster activities in the community. The colours in figure 16 below shows that grey for counselling and the green for coordination are dominant. The blue colour represents respondents who think that chiefs should not have any role in disaster risk reduction.

8.13.8. 1. ROLE OF CHIEF AND PREFERENCE BY AGE OF RESPONDENT

Those aged 20 years and below have categorised the role of the chief as follows: 62 said counselling, 47 no role, 40 coordination, 4 a passive role, and 2 the role of the chief is irrelevant; for age group 21-30, 590 said counselling, 419 said coordination, 373 said no role, 56 said a passive role, and 46 said it is irrelevant. For age group 31-40 years, 409 said counselling, 255 said coordination, 242 said none, 26 said passive role, and 18 said irrelevant. For age group 41-50 years, 183 said counselling, 95 said none, 87 said coordination, 8 said it was irrelevant, and 3 preferred a passive role. For age group and 51 years and above, 183 said counselling, 179 said none, 105 said coordination, 18 identified a passive role, and 5

said it was irrelevant. Figure 16 below shows the distribution by age and the suggested roles for chiefs.

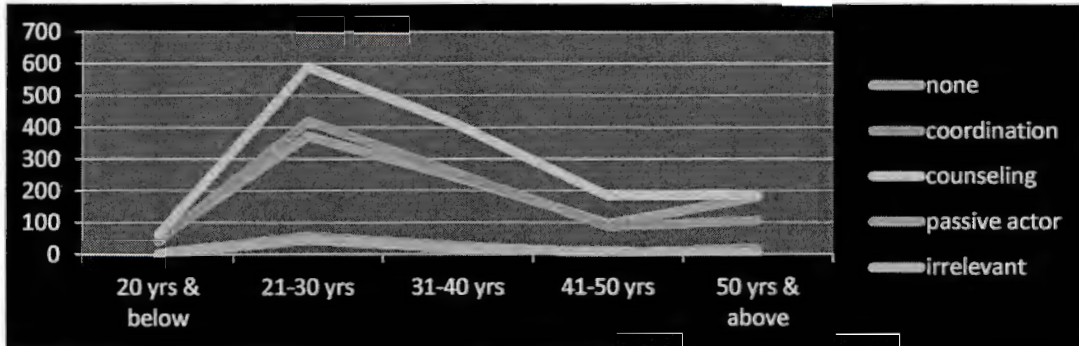


Figure 16: role of Chiefs graphically

13.8.2. THE ROLE OF THE CHIEF – MARITAL STATUS OF RESPONDENTS

Of the single respondents, 1012 said that the chief must provide counselling, 698 said that the chief should play none of the roles, 677 said it must be coordination, 80 advocated a passive role, and 71 said it is irrelevant. Three hundred and twenty-seven (327) of the married said counselling, 183 coordination, 167 said none of the roles was appropriate, 18 identified a passive role, and 6 said it was irrelevant; 31 of the divorced said counselling, 17 said coordination, 10 said none, 1 said a passive role and another said it is irrelevant; 57 of the widow / widowers said the chief should play no role, 48 said counselling, 25 coordination, 6 a passive role, and 1 believed it was irrelevant.

8.13.8.3. THE ROLE OF THE CHIEF / TRIBAL LEADERS IN DRR – GENDER OF RESPONDENTS

Males numbering 579 said the role of the chief should be counselling, 372 identified coordination, 351 said none, 40 said it is irrelevant, and 31 opted for a passive role while 848 females said it should be counselling, 586 said none of the roles, 537 said it should be coordination, 76 said a passive role, and 39 said it is irrelevant.

8.14. SUMMATIVE CONCLUSION

The chapter shows that all age groups, gender, economic status, and educational levels are vulnerable to disasters. It further displays the hazards, risks, and

vulnerability characteristics that are common in the selected areas and the differences depending on the physical environment. In addition, the respondents identified hazards that they do not have capacity to contain. However, data shows that government officials, community leaders, and community members have been active in disaster emergencies. Data further shows that some community members acquired disaster related information through reading and television, which are critical factors to consider in information dissemination.

CHAPTER NINE

PRESENTS

DISCUSSION FOR THE QUANTITATIVE PHASE

9.1 INTRODUCTION

This chapter presents the discussion of the quantitative findings separately from those of the qualitative phase of the study. This phase was intended for complementarity and to ascertain the extent of the problem and status of community members in relation to disaster risk reduction. The discussion carefully identifies the similarities and the differences amongst and between variables, and the gaps that are shown in the data. The quantitative phase findings do confirm what the qualitative findings apprised as the critical issues identified by the key informants and participants.

9.2. BIOGRAPHICAL-DATA CHARACTERISTICS

A total of 3567 respondents returned completed questionnaires besides the spoiled and the non-returns. This constituted 94 % of the target numbers for the communities represented in this study. In terms of gender representation, males constituted 40% while females were 60% and were the majority in all age groups. The biographical -data further shows that the overrepresented age groups are the 21- 30 years at 43 % and 31-40 years at 27%. It also shows that single people comprised 73% and the married 20% and the remaining 7 % percentage were in the other two categories (divorced or widowed).

9.2.1. EDUCATIONAL STATUS OF RESPONDENTS

The qualification status of the respondents is overrepresented at the junior certificate, BGCSE, and Standard 7 levels at 30%, 25% while a further 22% respectively and 22% had a tertiary qualification from certificate to bachelor degree level. In terms of gender, female respondents constituted a majority in some levels, from the lowest to the highest qualification. For example, 50% of those with certificate or diploma and 60 % of those with a degree were females.

9.2.2. EMPLOYMENT STATUS OF RESPONDENTS

The data shows that 35% of the respondents are employed as officials by government, others are in the private sector, and some are farmers while 63% are unemployed. In terms of marital status and employment, from a total of 2539 singles, 69% (1759) are unemployed; for the 713 married respondents, 48% (340) are unemployed; 40% (23) of the 58 divorced respondents are unemployed; and 66% (90) of the 137 widows / widowers are unemployed. The issue of unemployment is a challenge for the communities at all stages of life and it contributes considerably to vulnerability to disaster. Depending on the type of unemployment (seasonal or chronic), the unemployed are tempted to turn to drugs, petty crime, and anti-social behaviours. Botswana Government (2006/7: 5) annual poverty monitoring report shows that unemployment is highest in the 20-24 and 25-29 age groups, especially amongst the female population.

There are 562 (73%) unemployed standard 7 holders out of a total of 766; for the junior certificate holders 695 (68%) are unemployed from a total of 1030; for the BGSCE holders 590 (68%) from a total of 865 are unemployed; and for the 760 with tertiary education (certificate, diploma, and degree holders) 344 (45%) are unemployed (the only group below 50%). It shows that employment correlates with education of the respondents. The higher the qualification the less likelihood there is of being unemployed. The age groups that are overrepresented in the unemployed bracket are the 21-30 and 31-40 groups, besides the 51 and above age group which is closer to retirement age. It was estimated in 2003 by the Central Statistics Office that the South East District unemployment rate was 13.8% in 2003 with a contribution to total unemployment by 2.5% (Botswana Government, 2006/7: 6). The Botswana Core Welfare Indicator Survey (BCWIS) of 2009/10 reveal that unemployment is high amongst adolescents 15-19 years at 41% as compared to 18% at national level. Furthermore, it attests that it is highest among young people 20-24 years at 34% and females at 21% (UNICEF, 2011: 7). In terms of sector employment, government accounted for 12%, private companies for 13 %, and NGO's for 2%.

9.2.3.1. PLACE OF WORK OF RESPONDENTS

The data shows that 16% of those employed are placed in Ramotswa, 5% in Otse, 1% in Mogobane, and 8% worked in other areas outside the three targeted localities. Ramotswa is the headquarters of the district and has a bigger population than Otse and Mogobane. Amongst the respondents, government officials accounted for 6%, shop assistants 2%, and 19% were from other sectors.

9.3. KNOWLEDGE OF HAZARDS, VULNERABILITY, AND RISK

The knowledge of hazards, vulnerability, and risk is central to disaster risk reduction and building community resilience measures or strategies in the society. Paton and Johnson (2001: 274) assert that “the more people who are involved in community activities that engender a sense of community, efficacy and problem solving, the greater will be their resilience to adversity”. The data shows that 55% of the respondents had some knowledge of hazards, vulnerability and risks while 45% did not. It was established that only a small number of adults are involved in community activities through village development committees and the youth are not included in these committees. As such, they are detached from activities that engender a sense of community, efficacy, and problem solving.

In terms of marital status and knowledge of hazards, vulnerability, and risks, 47% of the total number of single respondents, 37% of the total number of the married, 37% of the total number of divorced persons, and 54% of the total number of widows and widowers had no knowledge of hazards, vulnerability and risks. Furthermore, in terms of gender, the data show that 44% of the total numbers of male respondents and 46% of the total number of females have no information on hazards, vulnerabilities, and risks. This demonstrates that the South East district needs to develop its disaster information dissemination activities to improve the knowledge of disaster related issues in communities. They can engage the Botswana Red Cross Society and other inter-government organizations to assist with information dissemination campaigns in the district. IFRC (2007: 2) states that their national societies are uniquely placed to tap into local knowledge and help communities to identify the dangers, assess their capacities and vulnerabilities, and develop solutions. It is through a process of vulnerability and capacity assessment that national Red Cross societies conduct with communities that the knowledge of

disasters in communities is enhanced. The prevailing level of knowledge on disaster concepts in the district is a matter of concern and portrays the extent of the areas vulnerability to disasters.

9.3.1. SOURCES OF KNOWLEDGE ACQUISITION

The respondents obtained the information on hazards, vulnerability, and risks from various sources. Some received it from the media, schools, workshops, self-reading while others have survived disasters. The leading source of information is the media (15%), schools (14%), and reading (13%), and workshops (4%). This demonstrates that the media, school, and reading might serve as efficient and effective disaster information dissemination channels. Norris et al (2008: 127) indicated that community resilience emerges from four primary sets of adaptive capacities, economic development, social capital, information and communication, and community competence. Information and communication is one of the crucial tools that help to build knowledge in people on the subject matter which they are expected to address. The lack of such information renders them vulnerable and incompetent to appropriately address such matters. It is apparent that information does not reach people through a single source but through multiple sources and with different effects on target populations.

9.3.2. TYPE OF DISASTER INFORMATION ACQUIRED

The data show that the type of information acquired concerned disaster risks a 16%, prevention (14%), preparedness (9%), hazards (8%), and vulnerability (7%). There are no significant differences between age groups, gender, and marital status of respondents in terms of the disaster related knowledge acquired. However, there was a slight difference for the employed because there were many who obtained knowledge on prevention rather than disaster risks but for other categories, the trend is the same. This might indicate that the information released to the respondents was limited to disaster risks and prevention only. It is important that disaster information is comprehensively packaged to address all the facets of the disaster cycle and ensures its appropriateness for all age groups, social status, and educational levels.

9.4. DISASTER THREAT AND RESPONDENT PERCEPTIONS

The data show that 85% (3034) of the respondents considered themselves threatened by disasters in the South East District. The threat to disaster cuts across the respondents' marital status, age, education, gender, and employment. They are threatened more by drought (39%), floods (37%), and rains (9%). Other hazards like wild fires and windstorms appear to constitute a lesser threat to communities (4%). In terms of age, it appears that the pattern and order of threat is drought, floods, and rains for the 21-30 and 31-40 year age groups which changes to floods, droughts, and rains when it comes to the 41-50 age-group.

As for the 51 and above age group, the pattern changes to drought, floods, and then windstorms instead of rains. The ranking pattern is quite crucial and gives an indication of the type of knowledge and risk reduction measures that would be suitable for each age-group. It indicates that interventions and programmes devised to address the threats have to be specific to the capacity building needs of age groups as well as being hazard specific. Although the groups are vulnerable, their perception of what is threatening varies in pattern and it confirms the uniqueness of community members.

The marital status of the respondents shows a pattern similar to that pertaining to age groups. Single people and the married are susceptible to drought, floods, and rains while the divorced feel unprotected against floods, drought, and rains; and the widows / widowers are vulnerable to drought, floods, and windstorms (a pattern similar to those aged 51 and above). There is no gender difference in terms of disaster danger perception; the order is drought, floods, and rains. Paton & Johnson (2001: 271) argue that diversity in the manner in which perceived risk is distributed throughout a community adds further complexity to the communication process and provides material upon which social amplification processes can operate. This process can both reduce communication effectiveness and lessen credibility of emergency management. It is fundamental that this diversity is taken into account by those who work with communities on disaster risk reduction to avoid communication complexities.

The data show that communities in the South East District are endangered more by drought, floods, rains, and windstorms. The perceived danger appears to be quite high and a basis for stress in the community even before the advent of any disaster. Existing agitation in the community strain their functional ability to cope with or recover quickly from daily life demands, increasing their vulnerability to disasters. The stress theory states that the already existing strains complicate effective response and recovery from disasters. Stress results from the characteristics of the stressor, appraisal of the stressor, the response to or effects of the stressor, and the various conditions that influence the relations between the stressor, stress appraisal, and stress response (Norris *et al.*, 2007).

In this case, the disaster with its unexpected demands puts individuals and communities under undue pressure to respond in a timely manner. The individual or community appraisal of the stressor is dependent on the available capacity to mediate the demands generated by the disaster. The greater the capacity individuals have to mediate the crisis, the less the problem but the fewer the resources, the greater the strain, hence the potential for stress. Neale *et al.* (1996: 197) argue that the assistance of relatives and friends during times of stress can help people achieve successful problem-focussed or emotion-focused coping. Social support has two aspects: -the structural and the functional; the structural refers to a person's network of social relationships, marital status and number of friends while the functional is concerned more with the quality of a person's relationship. The lack of structural support has been linked to death among the elderly population, more specially men.

9.5. RESPONDENTS' VULNERABILITY PERCEPTION STATUS

The data show that 87% (3096) of the respondents consider themselves vulnerable to disasters. IFRC (2000:6) define human vulnerability as the relative lack of capacity of a person or social group to anticipate, cope with, resist, and recover from the impact of a hazard. Vulnerability has two components: exposure to hazard (drought, floods, and rains) and difficulty in coping with and recovering from them (due to lack of resources). The vulnerability to hazards (drought, floods, rains and windstorms) in the South East District cuts across age-groups, marital status, educational level, and employment status of the respondents. Forty-three percent (43%) anticipate loss of shelter, 22% injuries, 14% increased levels of poverty, and 6% loss of livelihood.

Five percent (5%) fear they might drown. According to stress diathesis theory, stress will emanate from the level of exposure interacting with pre-existing vulnerabilities of the individual or community (Norris et al, 2008: 128). Although the respondents are aware of their vulnerability and fears, they have not determined and defined mediating measures to address their deficiencies.

The respondents consider themselves to be without adequate resources to cope with, respond, and recover from the impact of disasters. Norris *et al* (2008) argues that stressors are adverse circumstances' that threaten the well-being or functioning of the individual, organization, neighbourhood, community or society. The specific stressors that affect post disaster communities are injury to self or family members, life threat, property damage, displacement, and financial loss. This confirms what respondents expressed as their fears and the consequences that resulted from past disasters. Their vulnerability is a consequence of weak social support systems, inadequate economic ability, and weak political support to reduce risks, unfavourable technological systems, and degraded environments (Maripe, 2011: 46). Those who considered themselves safe from disasters could not identify the capacities that give them the impetus to perceive themselves thus. It is crucial that communities identify capacities that guarantee resilience against hazards and risks in their environment.

9.6. DISASTER RELATED PERSONAL EXPERIENCE BY RESPONDENTS

Disaster risk management necessitates assessment of respondents' disaster experiences as this is essential for resilience intervention. It was found that 78% of the respondents had not had personal encounters with disasters while 21% had survived an episode. The percentage of those who had experienced disaster is low compared to those who have not done so and this may account for the reactive approach in the community. Amongst the 21 % that survived disasters, 9% of them survived floods, 6% drought, and 4% heavy rains. A majority of survivors of past disasters included the elderly in the 51 & above age bracket and their challenges were not documented for inclusion in future disaster interventions. Rosenkoetter, Covan, Cobb, Bunting, and Weinrich (2007: 160) assert that disaster can be particularly serious for elderly victims in unsafe neighbourhoods or with inadequate transportation systems and limited personal support. It is crucial to document people experiences of past disasters for incorporation in assessment of needs, being able to

drawing information from the lessons learned, and the design of appropriate measures.

The normal individual reaction to any danger is to seek assistance from families and relatives. The respondents also confirmed a similar pattern when dealing with disasters. It was discovered that 6% asked for help from relatives while 4% reported to the police, 3% to social workers and friends, and 2% to the kgosi (Chief). Hawkins and Maurer (2010: 1777) consider families as construing the bonding social capital (referring to relationships amongst members of a network who are similar in some form) and the police, the social workers, and traditional leaders as the linking social capital (referring to the extent to which individuals build relationships with institutions and individuals who have relative power over them). The three components of social capital (social capital, bonding social capital, and linking social capital) are quite crucial to strengthening the community resilience to disasters. Data further demonstrates that in the south east district, disaster emergency assistance is expected and sought from families before the police, social workers, and /or traditional leaders could be approached. The respondents further reported that when they were overwhelmed, their call for help was answered by family members and later they contacted the police and others. Tobin and Whitehead (2002: 28) argue that those with personal resources or strong kin support networks move away from dependence on assistance programmes and re-establish themselves using these other resources. The kinship support networks in south east district communities must be assessed as a vital capacity against disasters and an important resilience resource.

9.7. RESPONDENTS' ABILITY TO DIFFERENTIATE BETWEEN HAZARD AND DISASTER

Community resilience to disaster requires knowledgeable community members to identify the hazards, project both the possibility and probability of a disaster occurring, and be able to distinguish a hazard from a disaster. The data shows that 51% of the respondents were unable to differentiate between the two. Although these are technical concepts that ordinary members of the community may not be familiar with, there is need for communities to undergo basic disaster training to

enable them to appreciate disaster terminology. Furthermore, it was discovered that 53% of respondents were unable to explain the terms to a child. This identifies the extent to which knowledge and information on disasters has been disseminated to communities as well as the level of community consciousness in this regard.

The exploration of disaster concepts with the community is essential as is the reticulation of water in a locality. It determines the preparedness level of communities to prevailing hazards and risks. Paton and Johnson (2001: 272) argue that effective messages require the identification of individual and community vulnerability factors, definition of relationships between them and hazard effects, and then adaptation of relevant information to each group. Disaster information needs to be translated and presented in a way that accommodates the preconceptions of each group and corrects any errors, consistent with the beliefs, needs, and goals of DRR for each group. Groups in the same environment are not homogeneous but vary in characteristics, needs, assimilation of information, and interests. All these have to be incorporated into any programme that intends to provide information on hazards and risks.

9.8. KNOWLEDGE OF COMMUNITY RESPONSE TO VARIOUS HAZARDS

The respondents have evidently shown that their communities are vulnerable to drought, floods, heavy rains, and windstorms. In addition, the respondents categorically indicated that they are incapacitated in responding to the following hazards; floods, windstorms, torrential rains, overflowing dams, wild land fires, drought, climate change, and earthquakes. Maripe (2011: 45) stated that, in 2006, Ramotswa floods damaged roads and railway lines, killed four people, and flooded the homes of those living along the Ngotwane River. Despite the flood experience in 2006, the study established that 66% of the respondents lack flood and related response knowledge. Rosenkoetter *et al.* (2007: 161) state that if the people do not know how to prepare, if they are unable or do not know they should prepare, then, by definition, they are at risk. Therefore, communities in the district ought to be given accurate information on the hazards and related risks prone to which their locality is prone and then they should be trained to deal with them.

The study further established that 65% of respondents are unprepared for windstorms and have not defined appropriate response actions. Vulnerability to windstorms cuts across age, marital, gender, and employment status of respondents. All these variables (age, marital status, gender, and employment) are supposed to give some people added impetus against hazards more than others but for the South East District, the opposite is the case. All respondents, regardless of their status, are vulnerable to natural hazards and unable to cushion themselves against the impact. The respondents have not devised measures to deal with the hazard and minimise its disastrous effects.

Although Botswana is predominately a dry country, it does receive average to above average rainfall that at times culminates in flooding in some districts, including the south east (Maripe, 2011: 43). The south east is one of the districts that have been affected by heavy rains in 2006 and in subsequent years. As such, communities should have been trained either by the district disaster management committee or the national disaster management office, and prepared to deal with torrential rains and other hazards. Instead the study established that 62% are not knowledgeable on what actions are appropriate to manage torrential rains. In terms of age, only those aged 20 years and below were knowledgeable on what actions would be appropriate to respond to heavy rains. The lack of torrential rains response knowledge cannot be mediated or altered by marital status, gender, and employment criteria of respondents. There is need to build the capacity of families in disaster risk management to strengthen knowledge and reduce vulnerable to heavy rains.

An overflowing dam is a consequence of heavy rains in the dam catchment area that fills the dam beyond its capacity. The Taung River in the South East District that flows into the Gaborone dam is supplied by the water overflowing from the Nywane dam in Otse, the Mogobane dam, and tributaries from Kanye. The River does flow at times with high volumes of water beyond its capacity and it erodes the fields and cattle posts along the banks. As such, 70% of respondents indicated that they and their children are susceptible to drowning in the overflowing dams. The expressed pattern of vulnerability to overflowing dams appears to be similar to that concerning other hazards. It cuts across age, marital status, employment, and gender (BRCS, 2006).

Wild land fires are a serious threat to communities in the south east which has limited cattle grazing land (NDMO, 2009b: 3; Maripe, 2010: 171). The fires have destroyed communal grass and vegetation that is used for cattle free zone grazing even during the dry periods. The data shows that 65% of the respondents are vulnerable to wild land fires and they do not have (or they are not aware of) government defined measures to deal with the fires. Although the age-vulnerability pattern has slightly changed for the age group 20 years and below, 41-50 years and 51 & above age-groups who had some response knowledge to fires, 21-30 and 31-40 years age-groups lacked knowledge. Marital status, gender, and employment show high vulnerability compared to those who considered themselves to have knowledge. Wild land fires are a serious challenge for Botswana communities (including those in the South East District) and it is critical that each district has a well-structured community based system to combat the fires (NDMO, 2009b).

Drought is considered by the respondents to be a dominant and life threatening hazard in the South East District (as it is in the country in general). Maripe (2010: 171) has indicated that drought is a persistent climate related challenge for communities in Botswana. The data authenticated the fact that 70% of the respondents are vulnerable to drought in the south east (NDMO, 2009: SRK Consulting, 2008). Like other hazards, there are no differences in terms of vulnerability to drought according to age, marital status, gender, and employment variables. The respondents have identified their vulnerability to drought and they have to explore capacities and /or resources at their disposal to reduce this vulnerability to drought.

According to Cipryk (2009: 5) climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity. It is a relatively new concept for the respondents and 80% of them stated that they are vulnerable to changing climatic conditions. All the age-groups, marital status, gender, and employment are without knowledge on appropriate measures to reduce vulnerability to changing climatic conditions. Climate change has been found to contribute to the irregular rains, severe periodic droughts, and increasing temperatures (heat waves). It has been established that the frequency pattern of drought and rainfall in Botswana has drastically changed over the years and

confirmed by the national policy on disasters (Botswana Government, 1996). Maripe (2010: 171) stated that weather related disasters have increased as have the number of people affected, in particular those dependent on rain-fed agriculture. It is necessary that robust disaster risk reduction plans provide protective and preventive measures ensuring rapid, efficient, and effective measures to save lives and livelihoods (Cipryk, 2009: 38).

Earthquakes are not common hazards in Botswana and its districts except for some tremors that were experienced in the early 80s. In this study, only 8% of the respondents attested to having earthquake response knowledge while 92% were without knowledge. The vulnerability trend applies to all age groups, marital status, genders, and employment status of the respondents. Some might argue that it is not necessary to adopt protective measures against seismic hazards because the country is not prone to them and is outside the earthquake belt. It is crucial to acknowledge that, in a global village, people are no longer restricted to a locality as they travel and study abroad where earthquakes might be common experiences. It is better to prepare them than to let them remain vulnerable without appropriate attitudes and behaviours for survival in earthquake territories. The Federal Emergency Management Agency (2002: 55) states that earthquake cause buildings and bridges to collapse and power lines to fall and result in fires, explosion, and landslides. They also cause huge ocean waves termed tsunamis.

The evidence shows that communities lack knowledge, skills, and techniques on planning and responding to disaster related hazards and risks. It indicates that community development initiatives have not incorporated disaster risk reduction in all their activities in the community. Paton and Johnson (2001: 274) are of the view that hazard mitigation strategies should be linked to community development activities and the supplementation of community development activities with specific hazard education and reduction initiatives. Community members are not to be viewed only as victims of disasters, but responders during emergencies and pioneers of the reconstruction process after the event. Victoria (2008: 278) argues that capacity building and public awareness activities should enable communities to increase participation and, eventually, to sustain (even on their own) the community based disaster mitigation activities.

9.8.1. MEANS OF KNOWLEDGE ACQUISITION

It has been established, through both qualitative and quantitative data, that information is shared through various media with consumers in the modern world, for example, television, radio, print media, families and friends, and schools. The respondents indicated that they obtained hazards related information through reading (23%), from television and /or radio (16%), through other unnamed sources (10%), from workshops (7%), and from the print media (2%). As such, those who lack information on hazards and related risks have not had access to the necessary information. They have suggested means deemed appropriate to gain knowledge on disasters: 50% want education and/ or awareness campaigns, 18% prefer public and / kgotla meetings, 16% want disaster training, and 7% information dissemination (brochures / pamphlets).

It was further established that 59% of respondents are of the view that government should lead the process of disseminating information on disasters while 15% cited tribal leaders, 12% communities, 5% the district commissioner, and 3% the council secretary. The council secretary and the district commissioner cannot be divorced from government, they are chief executives in the local government districts, and so the call is for the government and communities to act. Paton and Johnson (2001: 274) asserted that participation in identifying shared problems and developing and implementing solutions facilitates the development of problem-focused coping, a sense of community, and commitment to action. This is an ingredient needed by communities in the south east to build their resilience against disasters.

9.9. DISTRICT / COMMUNITY RELATED DISASTER POLICIES, LEGISLATION, AND PROGRAMMES

The intention was to identify disaster related policies, legislation, and programmes available in the district and assess whether they had been aligned to the DRR and UNHFA frameworks. It was found that the district only relied on the 1996 national policy on disaster which has not incorporated risk reduction.

9.9.1. KNOWLEDGE ON UNITED NATIONS DISASTER RISK REDUCTION FRAMEWORK (UNDRR)

The disaster risk reduction concept is relatively foreign to communities mainly because it was introduced after the 2004 tsunami experience in Asia, India, and Africa. UNISDR (2005: 1) states that efforts to reduce disaster risk must be systematically integrated into policies, plans, and programmes for sustainable development, and poverty reduction, and supported through bilateral, regional, and international cooperation, including partnerships. Data shows that 70% of the respondents do not know what disaster risk reduction represents. Furthermore, all age, marital status, gender, and employment groups are equally without knowledge on DRR. The reasons given by respondents in the South East District for the lack of knowledge vary; 28% simply said they do not have DRR knowledge; 4% lacked information; and 1% had no interest in DRR. Disaster Risk Reduction (DRR) is a framework designed by UNISDR (United Nations International Strategy for Disaster Reduction) for governments to promote sustainable development committed to risk identification, analysis, and reduction (Twigg, 2007; NDMO, 2009a: 9).

The respondents disclosed that they obtained information through reading (11%), the media (10%), primary and secondary schools (4%), workshops (3%), and district disaster committee (1%). It is evident that many respondents received more disaster information through reading and the media than any other sources. These sources pass information to a wide audience and can be strengthened for effective and efficient information sharing. The data indicates that the district disaster committee has not efficiently and effectively disseminated disaster information to communities. This also shows that a committee system approach to disasters is more reactive than proactive and needs to be re-organized. It is only active during emergency phase and its visibility wanes immediately thereafter (NDMO, 2009).

9.9.2. KNOWLEDGE RELATED TO UNITED NATIONS HYOGO FRAMEWORK FOR ACTION (UNHFA)

The United Nations Hyogo Framework for Action was developed by the United Nations at a conference on disasters held in Hyogo, Japan in 2005 after the catastrophic tsunami in 2004. Data shows that 93% of respondents in the South East District are not aware of the UNHFA and its objectives. In terms of age groups and

marital status, limited numbers in the age groups 21-30 and 31- 40 years had some knowledge on the framework. It is apparent that only 2% of the respondents had applied the framework and it is not well understood by communities. The HFA is a 10 year framework adopted in 2005 to ensure that disaster risk reduction is a national and local priority with a strong institutional basis for implementation, identification, assessment, and monitoring disaster risks and enhancement of early warning, and the use of knowledge, innovation, and education to build a culture of safety and resilience at all levels (UNISDR, 2005: 6). Although the framework is ending in 2015, data shows that the south east district communities are not aware of it and have not begun to implement its recommendations. The framework promotes community participation in disaster risk reduction through the adoption of specific policies, the promotion of networks, strategic management of volunteer resources, attribution of roles and responsibilities, and the delegation and provision of necessary authority and resources (UNISDR, 2005). It was further established that the framework has not been customized to suit the South East District disaster policy needs and challenges.

9.10. COMMUNITY PREPAREDNESS SYSTEMS, MEASURES, AND DISASTER RISK REDUCTION

The level of preparedness to deal with disaster in the district / community is unsatisfactory and worrisome. The communities of the South East District do not have disaster action teams, action team protocols, district / community disaster policies, district disaster preparedness plan, district / community disaster strategy, a district / community response plan, a district / community disaster zones, a district disaster early warning system, a district / community disaster evacuation plan, a disaster /community disaster profile, and relevant committees. These systems are important to establish functional disaster risk reduction measures that efficiently and effectively discharge appropriate services to the communities. The existence of functional disaster systems that actively engage community members on disaster matters is a necessity for the district.

Disaster actions teams are critical in community based disaster risk mitigation and they play a major role in education and awareness programmes. Action teams can be established in different ways to undertake various tasks and assignments.

Disaster action teams refer to groups of people assigned to undertake a task in the community (first aid provision, erecting shelters, and early warning systems) (IFRC, 2010). Victoria (2008) argues that community groups in disaster management are essential in sustaining the risk reduction process for the community to meet aims and targets. They play various roles to keep community members informed and ready to act in the event of any hazard. Seventy percent (70%) of the respondents confirmed that they have neither district nor community action teams.

In terms of disaster policy, 78% indicated that they do not have a community / district disaster policy that derives from the national policy on disasters. A disaster policy is an important document that states the intentions of the district about disasters and the related setbacks and what should be expected from the district by community members (UNISDR, 2005: 7). A policy serves several purposes (one of which is to avoid duplication of effort) and facilitates the coordination of risk reduction related efforts. The district disaster policy will define the roles and responsibilities of the community, volunteers, and delegate authority and resources.

The district and communities do not have disaster preparedness plans that would guide actions towards protecting community members. A disaster preparedness plan is an important document that defines roles and responsibilities that different stakeholders should perform before, during, and after disasters. It is defined as a framework that outlines activities that are essential to the development of a preparedness strategy (Kent, 1994: 11). It was confirmed by 79% of the respondents that they do not have a disaster preparedness plan for the district and its communities.

The district does not have early warning systems that would process and forward disaster related information to community members in a language that they understand. UNISDR (2005: 7) indicates that early warning systems should be people centred, timely and understandable to those at risk, and take into account demographic, gender, cultural and livelihood characteristics of the target audience, and guidance on how to act upon warning. Data designates that 74% of the respondents have attested to the non-existence of early warning systems in the district. Early warning systems are instrumental in alerting vulnerable members to

take appropriate action to mitigate or escape from danger. Hellmuth *et al.* (2007: 19) state that an early warning system provides forecasts of risks, detects and monitors hazards, and puts out warnings when necessary, paving the way for a coordinated response.

It was established that the South East District has not profiled prevalent disasters other than the national hazard and risks analysis conducted in 2008 by the national disaster management office. Eighty percent (82%) of the respondents confirmed the non-existence of district and / or community disaster profiling. Disaster profiling serves several purposes in the district / community, and particularly guides the design of appropriate strategies and contingency plans. Neither district nor its communities have a disaster strategy to deal with impending hazard and related risks. It was confirmed further by 83% of the respondents that the district has not zoned high, medium, and low risk areas. The profiling of hazard is useful in designing evacuation plans and identifying routes and safe sites for the district.

In addition, 74% of the respondents alluded to the fact that they do not have a district evacuation plan, procedures, and codes in the district. During disasters, evacuation is carried out haphazardly and is dependent on the courtesy of the police. Kent (1994: 31) states that the response mechanisms should be familiar to potential beneficiaries or to those with the responsibility of implementing such measures. An evacuation plan is an important document for the district and / or communities in disaster response. It provides those who evacuate others with the protocols to observe and the routes to follow as well as information needed by the evacuees at the site (Lu, Huang, & Shekhar, 2003).

9.10.1. COMMITTEES AND COMMUNITY ACTIONS DURING DISASTERS

The district has committees formed by community members to contribute to the welfare of their community or district. The community member identified only two main committees which are: district development committee and / or village development committee and the district health committee and / or village health committee. The respondents did not endorse the presence of a district disaster committee or village disaster committee. The qualitative data showed that there is a district disaster management committee that responded to disasters in the past. It

appears in the quantitative data that the activities and visibility of the district disaster committee are insignificant and unknown to the respondents. It further reflects that its visibility and contact with the community is low and irregular.

In terms of who the community would call during disasters, the respondents indicated that they call the police, the social worker, the tribal leader, relatives and friends, and then the district commissioner. According to the policy, the district commissioner is the coordinator of disaster response actions at the district level and the respondents rank him last in the list (Botswana government, 1996). The respondents may not be aware that the police and the social worker are members of the district disaster management committee. It also indicates that the communities need intensive education and awareness on capacities available in the district and those which could be solicited elsewhere. The data also shows that 68% of respondents call the police during a disaster because they believe they are efficient in the provision of assistance while 30% said they call them for lack of an alternative. As such, the 30% would not call the police if they had an efficient and effective disaster response alternative.

9.10.2. AREAS OF HIGH AND MEDIUM RISK AND VULNERABILITY TO DISASTERS

The respondents identified the wards they considered to be vulnerable to disasters as: Taung, Ramotswa, Goo- Siga, Tswapong, Rivers, Ikageleng, Lesetlhana, Mogobane, Masimo, Badukane, Bokaa, and Borotsi. Amongst these, they picked five (5) areas they presumed to be of high risk, and these are: Taung, Ramotswa, Goo-Siga, Lesetlhana, and Tswapong. IFRC (2000: 6) define risk as “the expected or anticipated losses (lives lost, people injured, property damaged, and economic activities or livelihoods disrupted) from the impact of a given hazard on a given element at risk over a period of time.” The respondents were unable to identify the low disaster risk areas in their communities. Data indicates that the wards are affected by different, insignificant, and in-frequent hazards. The respondents identified the kinds of hazards prevalent in the wards as floods, crime, drought, rains, fires, and windstorms which are insignificant.

9.11. THE ROLE OF SOCIAL WORKERS IN DISASTER RISK REDUCTION

Social work is a professional activity of helping individuals, groups, or communities enhance or restore their capacity for social functioning and creating societal conditions favourable to that goal (NASW, 1999). Data shows that amongst social workers who constituted 1% of the total respondents in the study and 8 were artisans with a certificate, 8 were technicians with a diploma, and 6 had a bachelors' degree in social work. Some were trained at the University of Botswana, 1 at the University of Namibia, and 3 at universities overseas. These social workers are employed in the Ministry of Local Government and Rural Development in the Social and Community Development Department. They work with individuals, groups, and communities and some of their clients in the community are the poor and destitute who are vulnerable to disasters. The social worker reported that disasters do not constitute part of their day to day work in the agency. This is a reactive position about disasters which are viewed as tragic events that must be attended to in a relevant manner when they occur. According to Aghabakhshi and Gregor (2007: 347) social workers skills in communication, networking, stress management, and therapeutic listening are vital in both immediate and long-term responses to disasters. They must draw from these skills and engage communities in identifying hazards, vulnerabilities, and capacities that communities and individuals could use to withstand shocks. Data show that 14 social workers perform disaster related work sometimes, 4 do it regularly, 2 on sporadically times, and 4 not at all.

The evidence indicates that social workers do not construe disaster risk reduction as part of their professional responsibility. Harding (2007: 296) argues that social work is predicated on the values of social justice and elimination of all forms of oppression, discrimination, and inequality that characterize human-made disasters. As such, social workers must not distance themselves from natural disaster risk management in order to safeguard their clients against social injustice, discrimination, and inequalities. These are factors that promote vulnerability to disasters that may result from policies and practices that marginalize the poor members of the community. IFRC (2000: 7) identified seven factors that affect human vulnerability to disasters and these are: poverty, increased population density, rapid urbanization, changes in ways of life, environmental degradation, lack of awareness and information, and war and civil strife. Some of these factors are

what social workers grapple with on a day-to-day basis and they would be in a better position to prevent at-risk populations from falling victims to disaster.

The kinds of disasters social workers have dealt with have been identified by the respondents as: drought, heavy rains, and domestic fires, floods, and windstorms. This also confirms that drought is a more frequent hazard than others that threaten the lives of the already poor and destitute in the South East District. Harding (2007: 295) argues that disasters cause human suffering especially among vulnerable groups, disproportionately women, children, older people, and the poor. It is probable that the rains, floods, and drought will further erode the remaining capacity of vulnerable groups, if social workers are not taking risk reduction measures seriously. In Botswana, drought accounts for the loss of livestock and income, and also food insecurity for communities involved in subsistence farming.

Social workers have played diverse roles in disaster response in the past. They have assessed damages, provided shelter, conducted search and rescue, provided relief, and counselling. However, these roles were limited to the emergency phase only and not extended to other phases of the disaster cycle like preparedness, mitigation, and prevention. Sweifach, Laporte, and Linzer (2010) stated that social workers are among the crucial allied professionals providing care in the aftermath of disasters in Israel. In the South East District, social workers were involved more in damage assessment and counselling than in other areas of response during floods and fires. In Barbados, social workers who were involved in disaster recovery efforts, provision of needs assessment, overseeing temporary shelters, and setting up a food distribution centre and administration of trust funds showed deficiencies in their work because they were untrained in the disaster field though they played an important role (Rock and Corbin, 2007: 383). It identifies the crucial nature of social work intervention in disaster risk reduction and measures intended to promote community resilience to disasters. The respondents are of the view that social workers should undertake the following roles:

- Education and awareness.
- Damage assessment.
- Relief provision during response.

The respondent social workers attested to the fact that they possess adequate disaster related knowledge to effectively discharge their roles and responsibilities. In terms of rating the adequacy of knowledge, 5 found it to be excellent, 6 said it was the best, 6 said it was good, 5 said it was fair, and 4 said it was poor. The majority are confident about the professional knowledge they attained at the universities to address disaster related challenges. Rock and Corbin (2007: 283) stated that social work must be committed to helping vulnerable persons including those affected disasters. The heart of the social work profession in helping the marginalized and vulnerable members of the community to deal with social hardships and challenges of the physical environment requires efficient and effective helpers in disaster risk reduction.

Social workers, with their understanding of economics, sociology, and psychology, should be instrumental in building the resilience of communities to disaster. They need to be appropriately trained to mainstream disaster risk reduction and resilience in their daily work activities. Rock and Corbin (2007: 383) have argued that the training of social workers in Barbados has not kept pace with the new requirements in the disaster risk reduction field. These left many traumatized survivors of disasters with emotional injuries and wounds without any relevant treatment because the assistance provided by social workers was focussed on food, clothing, and tents rather than the emotional losses and other long term needs. It is crucial that social workers are not excluded in matters pertaining to community resilience to disasters by development practitioners.

9.12. COMMUNITY RECOMMENDED ACTIONS FOR DRR PROGRAMME

The respondents are of the view that community members must participate in the design of disaster preparedness plan, development of early warning systems, and establishment of action teams; monitoring hazards and risks; and conducting community disaster drills. IFRC (2008: 5) states that community based disaster programmes are meant to help communities cope better with the hazardous environment that provides them with a life sustaining income but at the same time a threat to their livelihoods. The respondents indicated that they prefer the community

based disaster approaches that should include the following aspects for the benefit of the district. They asserted that community members must be involved in:

- Conducting community education and awareness programmes.
- Form community action teams.
- Carrying out community disaster training of volunteers.
- Stockpiling resources in the community.

In terms of responding to disaster, the respondents suggested that communities should be trained and involved in the search and rescue of victims, warning others of danger, and evacuating the stranded during disasters. Although others are of the view that community members should not play any significant role in disaster response, the majority are in support of community based interventions. Schoch-Spana (2008: 10) argues that in disasters, families, friends, co-workers, neighbours, and strangers who happen to be in the area often conduct search and rescue activities and provide medical aid before police, fire, and other official arrive. This gives a true picture of community action in disaster intervention before help comes from others.

After disasters, the respondents' stated that communities must be involved in rehabilitation and reconstruction work in their locality to strengthen the recovery process. They want a community disaster strategy that defines specific steps and resources for action before, during, and after an emergency. Currently, the district does not have a disaster strategy that guides efforts towards reconstruction and recovery. Paton and Johnson (2001: 274) argue that a focus on actively dealing with salient issues helps foster individual and collective efficacy. In this case, it is important for communities to actively engage in salient issues that would foster the individual and collective efficacy necessary to build their resilience to disasters, that is, the binding, bonding, and linking of social capital.

9.12.1. THE DESIRED ROLE OF THE KGOSI / CHIEF/ TRIBAL LEADER IN DRR

Although the Chief and tribal leaders play crucial roles in the community, their role in disaster risk reduction is not well defined in the national policy on disaster. It is assumed that the role of the traditional leadership is known by the community. The

Botswana Government (1996: 13) states that “the overall responsibility for disaster management rests with traditional leaders and organized groups identified by each district disaster management committee...” The policy defines the roles of the district commissioner and holds the office more accountable than that of traditional leaders and communities. In the policy, communities are only perceived as victims to disaster and without capacity to deal with them though their awareness and involvement are crucial to building self-reliance and sustainability. The respondents have identified three roles that tribal leaders, in particular the Chief (kgosi), must undertake in DRR, these are:

- Counseling.
- Coordination.
- Passive actor.

9.13. THEORETICAL BASES OF THE STUDY

The theoretical lens drawn from the crisis, stress, ecological perspective, social constructivism, and resilience theories show that communities in the South East District have to re-organize themselves to be resilient to disasters. Both qualitative and quantitative data show that communities have experienced various disasters, falling in the category of situational crises. These disasters are floods, drought, windstorms, veld fires and high temperatures. As a result, the communities have incurred loss of life, injuries, damage to roads and infrastructure and loss of shelter (Norris *et al.*, 2008). Due to the prevailing low levels of disaster preparedness in communities, it predisposes them to high level of stress and vulnerability to disasters. Stress is complicated further by the fear to lose lives (relatives) and /or sustain injuries, experience property damage, and suffer social and economic disruption accentuated by poverty which is a vulnerability factor. The strain is worsened by the bad memories of past experiences of situational crises and losses incurred from which recovery and reconstruction was slow and at times, complicated by the lack of finance power.

Resilience is only realised and possible when community members and institutions are consciously aware of the inherent dangers associated with situational crises (disasters) and construct knowledge and actions geared towards reducing the impact

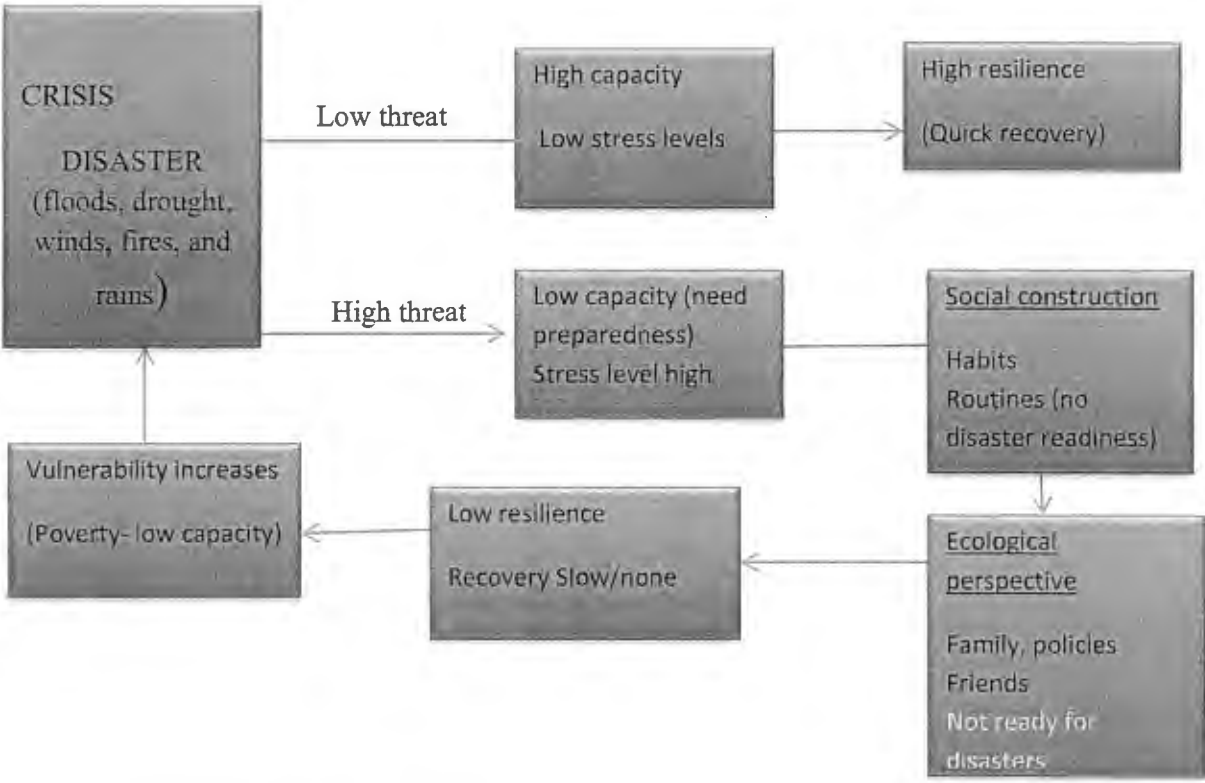
of disasters by increasing the capacity to cope (social constructivism). It is the contention of the crisis and stress managers, ecologists, social constructivists and resilience protagonists that disaster knowledge must be sustained by social processes and that are accompanied by relevant social action profitable for communities to be resilient (Bujold, 2002). The knowledge about disasters, dangers, and associated risks is no sufficient unless it is accompanied by appropriate habits and routines and commitment to social actions intended to reduce the impact of natural and man-made hazards.

The process of stimulating interactions and negotiation in disaster risk reduction is possible with the adoption of the ecological perspective and the generation of knowledge that will benefit all levels of the community to change unproductive routines and habits to build resilient behaviour to disasters (Ambrosino *et al*, 2005). The focus is rather on social processes that are crucial to generate resilience knowledge, habits, and routines rather than those that perpetuates vulnerability. This must be supported by establishing community based disaster risk reduction measures and systems that includes disaster action teams, setting evacuation sites and protocols, early warning systems, and conducting public education and awareness campaigns which are tested by simulation exercises to reinforce appropriate actions and behaviours recommended by social constructivists proponents.

The current disaster management approach in the district is focus more on response, that is, to assist individuals during disasters rather than adaptation of measures to prepare and mitigate against disasters and to build community resilience. The United Nations Hyogo Framework for Action and Disaster Risk Reduction frameworks provide a guide towards the establishment of resilient communities which has not been integrated and assimilated by communities (UNISDR, 2005). It is evident from both the qualitative and quantitative data that vulnerability to disaster in the district predominates across all ages, educational levels, marital status, socio-economic, and gender status. In terms of gender 1219 males were vulnerable while 167 were not and 1877 of females were vulnerable while 236 were not. In terms of employment status, 774 reported that they were vulnerable while 122 were not. 2284 of the singles were vulnerable as compared to

283, and 621 of the married as compared to 85 were vulnerable. It is quite frantic that disaster threats unless abated will continue to psychologically, economically, socially, and physically afflict communities with heavy losses. The data further show high levels of vulnerability to various hazards (floods, drought, windstorms, wild fires, rains, and climate change) with the possibility of becoming more resilient to deal with crises and stress by adopting social processes harnessed with relevant knowledge and actions towards preparedness and safety. Figure 17 below describes the current vulnerability of communities and lack of readiness to deal with disasters and changing climatic conditions.

Figure 17: Model of current state of unpreparedness by communities



9.14. SUMMATIVE CONCLUSION

It is evident that the Ramotswa, Otse, and Mogobane communities are vulnerable to the following hazards: drought, floods, windstorms, and fires and they have not defined effective and efficient preparedness and response systems. Although some respondents are aware of the common hazards, they do not have adequate knowledge and skills to respond to and protect themselves from the hazards. It

indicates the need for systematized educational and awareness campaigns in the communities. The reactive approach to disasters adopted by communities needs to change to a more proactive system. Responding to disasters as and when they occur and then returning to the unpreparedness mode increase the vulnerability to other hazards. The reactive approach has been quite costly in terms of damages, injuries, loss of livelihood, and deaths suffered in these communities. Yet they have not adopted the proactive DRR approach that would save lives and costs for communities.

Although disasters can be prevented by adopting appropriate community measures, the delays in undertaking these measures may complicate efforts to respond to future disasters. Communities must therefore, be mobilized by social workers and community leaders to drive the resilience agenda against disasters. Although some respondents are of the view that chiefs should play a passive role, others are adamant that the chief should take the lead in the process and even provide counselling and coordination of disaster activities in their communities. As such, with proper disaster risk management systems in place and training, the communities will build their resilience to disasters. Disaster risk reduction is a multifaceted approach which requires the deliberate involvement of different stakeholders for the successful attainment of desired ends. Tribal leaders, the business community, church leaders, government, and households should have defined roles and responsibilities in all phases of the disaster cycle. The roles and responsibilities must state actions to be undertaken before, during, and after disasters by each actor in the system.

CHAPTER TEN

SUMMARY, EVALUATION, LIMITATIONS, IMPLICATIONS, ASSUMPTIONS, RECOMMENDATION, AND OVERALL CONCLUSION

10. 1. INTRODUCTION

This chapter provides a summary, evaluates the study, states the limitations, implications, assumptions, draws conclusions and makes recommendations regarding theory, practice, and future research.

10. 2. SUMMARY

Although the data shows that communities have capacities, resources, and systems to cope with disasters, they have not exploited these to improve their resilience to crises. The participants and respondents in this research adamantly confirmed their vulnerability to drought, floods, rain and windstorms. Though some community members were aware of the hazards and the associated risks, they have not acted to translate their knowledge into skills and techniques to protect themselves against disasters. The disaster vulnerability status in these communities applied across the respondents regardless of their social position, from the young to the elderly, single and married persons, and the employed and unemployed. Some have personally suffered losses and sustained injuries from floods, windstorms, and drought. It is evident that the District Disaster Management Committee and other responders focused on short term emergency needs rather than reconstruction, recovery, mitigation, and long term needs. In addition, responding teams did not provide for the long term psychological injuries sustained by survivors during emergencies and these wounds were underestimated and taken for granted. It was assumed that the provision of basic needs like food, blankets, and temporary shelter would relief the psychological wounds and pains of the survivor as well. The reactive approach resulted from the ill-preparedness of communities and the failure to identify the essential needs that may result from crises situations, thus leaving behind a trail of deep emotional wounds in people.

The study further established that Ramotswa, Otse, and Mogobane communities in the south east are not prepared cognitively, emotionally, and socially to reduce the impact of hazards and risks and ultimately disasters. Efforts made by traditional

leaders in Ramotswa were limited to establishing a disaster committee which lacked disaster training, knowledge and skills, and resource to embark on important activities. Despite the existence and participation of the district disaster management committee (DDMC) and / or the village development committee (VDC), the parent-teacher association (PTA), and village health committee (VHC) in disaster response, their efforts have not translated into proactive ecological and social measures towards building resilience. The focus of the district disaster management committee has been the disaster emergency phase and thereafter, failing to integrate response experiential knowledge and social action to establish systems that will prevent and /or mitigate against the impact of future disasters.

Based on the background of the study, it is apparent that communities need training in disaster risk reduction and technical assistance to develop preparedness plans, build disaster action teams, develop relevant strategies such as evacuation plans, and identify the capacities and external stakeholders to provide financial and material resources. In addition, communities need training to assimilate international disaster policies and protocols into the local context strategies and systems. For example, they need training on how to draw critical and relevant information from the United Nations disaster risk reduction frameworks and strategies, and the Hyogo Framework for Action to design their local frameworks and related protocols.

Although social workers felt their university acquired training was adequate to address disaster challenges, it was established that the role of social work in disaster risk reduction in the district was not well defined and somewhat insignificant. Their knowledge and technical skills have not been used to enhance individuals and communities to integrate DRR (disaster risk reduction) knowledge and social actions into their daily lives and work. They have not mainstreamed disaster risk reduction in community development activities and motivated the building of community capacity to withstand disasters by the assessment and establishment of necessary disaster systems. Their work on disaster has been limited to emergency response and, in particular, providing relief to survivors on a short-term basis and neglecting the emotional needs. They have not addressed the preparedness, rehabilitation, recovery and reconstruction, and mitigation phases of the disaster cycle, and other

pre and post disaster activities that are crucial to building resilience to disasters in communities.

Furthermore, it was discovered that communities trust their traditional leaders during crises to provide coordination and counseling even though they may not have professional knowledge in the related fields. As such, the south east district communities recommended that the Chiefs (Dikgosi) must play two major roles during crises: counseling and coordination. However, this would have to be merged with the national policy on disaster does and the national disaster risk management plan which did not assign a role for the Dikgosi but expects them to provide leadership to village development committees on disaster matters.

10.3. EVALUATION

The strength of the study derives from the adoption of the qualitative and quantitative methods of investigation. These enabled the researcher to close the gaps that would have resulted from the flaws of one method. The qualitative through in-depth interviews of participants facilitated the exploration of perceptions, fears, habits and routines, and observation of interactions in relation to disasters in communities while the quantitative enabled further exploration and explanation of disaster experiences of a wider population (policy makers, stakeholders, community leaders, and survivors of disasters) to complement and triangulate the results. The study strongly appraises that disaster vulnerability in the South East district cuts across gender, age, marital status, education, and employment of respondents and characteristic of the community. It further confirms that women and young people are the most vulnerable and disadvantaged groups and concentrated at the bottom of the socio-economic bracket in the community. Their voices have not been captured, their role in disaster risk reduction not defined, and their contribution in community development is not explored and insignificant. It strongly shows that there is need for disaster and socio-economic programmes that will improve the capacity of youth, women, and the elderly.

The key informants validated the information received from participants and respondents. Their valuable contribution was based on their experience of disasters in the community and the interactions and relations that interplayed during disasters.

It provided rich and wide experience of community before, during, and after disasters as well as identifying the common habits and routines during emergency response. Their diverse cultural background provided versatile information on perceptions and available human resource that would be profitable in building linking and bridging social capital. They had knowledge in community health, community development, chairpersons of various committee structures, court representatives (legal structure), teachers, police (protection and crime busters), religious leaders (pastors), and tribal leaders (Dikgosi). These are key people who contribute significantly to the development and welfare of the community. Their contribution brought a blending of professional fields and enrichment of knowledge on hazards and risks affecting the community they service.

10.4. LIMITATIONS OF THE STUDY

The limitations of the study were twofold, that is, the scope and researchers' personal convictions as an instrument of data collection. In the first instance, the finding of the study applies to the selected three (3) out of seven (7) communities in the South East District. As such, caution must be exercised when making generalization based on the results to other communities. They may be susceptible to and / or have suffered from different hazards and risks. Furthermore, south east district is one (1) amongst nine (9) districts in the country and each district has its own geographic and socio-environmental characteristic different from others. Furthermore, it is the limited time spent in the field collecting data and observing the interactional patterns prevailing in the community and as well as the general absence of men in the community.

10.5. CONCLUSIONS

The study on community resilience to disasters in Botswana was in pursuit of six objectives that were reformulated as six research questions. The general aim was to interrogate, both qualitatively and quantitatively, the resilience and adaptability to disasters of selected communities in the south east administrative district in Botswana. The objectives were:

- To examine community perception of hazards, vulnerability, and disaster risks in the South East District. It was discovered that although some community

members were aware of disasters and related risk others were ignorant. Both the participants and respondents ascertained their vulnerability to disasters and their lack of capacity to deal with various hazards and related risks. Vulnerability to disasters was high across all of the community members' demographic variables. They identified hazards and risks that are prevalent in their community as flood, drought, wild fires, windstorms, and heavy rains but they were not adequately equipped to effectively and efficiently respond or mitigate against the risks.

- To determine community preparedness systems, measures, and disaster risk reduction strategies. The community preparedness systems, measures, and risk reduction strategies were assessed and it was established that there is serious inadequacy in the community. Communities have struggled through during disaster emergency response and heavily relied on the assistance from the police, the army, and community leadership. These response actions were on short term basis and were not translated to long term strategies for developing community resilience to disasters. There is a district disaster management committee, where social workers have a representation, it deals only with disaster emergency response, thereafter, remains inactive but there are no similar structures at the village level. The district has not developed disaster preparedness and response plans and strategies; it depends on the national policy on disaster which has not been contextualized to suit the situational context of the district.
- To identify community related disaster policies, legislation, and programmes in the district. The study established that there are national statutes and policies administered by different departments that address other natural hazards but have not been merged into a district disaster policy and programme. These statutes and policies are: the national disaster fund, national policy on disasters, herbage preservation act, factories act, fire service act, waste management act, and disease of animals. These may be quite beneficial to the communities but must be contextualize to meet the

needs of the district and define the roles and responsibilities of specified stakeholders.

- To define areas of high disaster risks and vulnerabilities in the three communities of the South East District. The study has identified in the selected communities areas of high, moderate, and low disaster risk for purpose of setting up evacuation sites and routes as well as for programme targeting. It will be easier to train and pass information to high risk areas than to less vulnerable areas. The people living in the high risk places need guidance in terms of construction of house and other shelters from the physical planner and Landboard authorities.
- To understand the role social workers play to enhance community resilience to disasters. The study established the current role of social worker which does not contribute adequately to the development of community resilience to disasters. It is a reactive approach, short lived, and with no intentions of reducing vulnerabilities, and risks. As such, the study appraises the envisaged role of social workers in disaster risk reduction espoused by the communities. Although some felt that they were prepared academically to address disaster related challenges, this has not translated into community strategies to reduce disaster impacts in communities. It is, therefore, necessary for the district and community strategies to clearly define social worker's role at a district and community level and train them accordingly, so that they will proactively engage communities before, during, and after disasters in building community resilience.
- To design community based disaster resilience strategies for the South East District. The study informed the design of the district / community disaster strategy that has to be adopted and approved by the relevant authorities. The strategy spells out critical areas and the roles and responsibilities of the identified player / stakeholders. It was established, through both the quantitative and qualitative findings, the kind of activities that are incorporated in the strategy and the roles and responsibilities of different structures in the

community. The study provided a framework for the community based disaster strategy and the crucial aspects that would make it even more relevant to the district (see appendix 14).

Therefore, the study has sufficiently articulated the aim and objectives and explored all the relevant areas within the established parameters. The results have shown that communities in the district are not prepared for disasters despite the bad experience from past disaster occurrences. The district has incurred dramatic losses in infrastructure and roads, farmers lost their harvest and livelihoods, and movement to and from the district was restrained severely. It calls for serious actions from the local authorities to muscle up towards building adaptive capacities and social capital to reduce the impacts and / or prevent disasters.

10.6. THE ASSUMPTIONS

The assumptions are that communities have internal capacity to withstand disasters prevalent in their socio-environment. These capacities have to be consciously identified, cultivated, and mobilized for action at the time of emergence. It is also assumed that communities may have the knowledge to deal with dangerous events that may need to be organized and harmonized for the common good. Furthermore, that the district authorities are willing to improve the well-being of the residents by reducing their vulnerability to disaster and increasing their resilience. It is not within the intentions of the study to politicize the findings or failures of institutions but identify capacities, vulnerabilities, and hazards related risks to secure the lives of the citizens with dignity.

10. 7. IMPLICATIONS

10.7.1. THEORY

The five theories enabled the researcher to analyze and interpret data in this study. The crises showed the effect of situational events like disasters on unprepared individuals and communities and their ability to disrupt the functionality of the society, while the stress demonstrated the consequences of inadequate capacity to respond to losses incurred and emotional disturbances that result from the crisis; the ecological perspective points to the interactions and connections that need to be developed and / or strengthened to prepare and respond to crisis, hence reducing

the level of stress; and the social constructivism appraising the knowledge and social actions that are necessary to acquire habits and routines favourable to disaster readiness; and the resilience that comes from the adoption of habits and routines necessary for disaster risk reduction led to adoption of adaptive measures and practices conducive for communities, families, and individuals to be resilient to disasters. The theories are essential and provide guidance to social workers in their assessment of hazards and risks, community readiness to deal with disasters, identify critical factors for intervention, and working with various action teams on educational campaigns.

10.7.2. RESEARCH

Studies on community resilience to disasters are crucial for communities that are prone to disasters and similar studies need to be carried out in other district following the same theoretical frameworks. It is necessary to continue research in the same district and selected communities after the implementation of adopted disaster risk reduction measures to assess attitudes, habits, and routines that would have developed towards community resilience, enhancing capacity, and reducing vulnerability levels. The model in figure 17 shows that the perception of community members on the dangers of hazards determines their willingness to participate in the prevention and mitigation measures against them. The current disaster unpreparedness and high level of vulnerability dictates the need for active participation in mitigation and reduction of vulnerability by all stakeholders in the district.

10.7.3. PRACTICE

Social work practice must incorporate disaster risk reduction in its community practice, group work, and social casework. It is the role of social workers to educate communities on various policies, including national disaster policy and disaster risk management plan. Although the national policy on disaster has not spelled out the role of social workers in the disaster management field, social workers have to advocate for policy change and address vulnerabilities that are common to their communities. It was established by the study that social workers do not incorporate disaster risk reduction in their daily work with communities. It is, rather, an ad hoc activity. As

such, the study on community resilience has recommended roles and responsibilities for social workers and other stakeholders that they could undertake at the district level, including the provision of counseling to the survivors of traumatic events.

10.8. RECOMMENDATIONS FOR THE RESILIENCE STUDY

The study recommends that:

- The District Commissioner and the Council Secretary in the South East Administrative District, as the coordinators of the District Disaster Management Committee (DDMC) should supervise the implementation of these recommendations in the short and long term.
- The district and community needs assistance from social workers, the Botswana Red Cross Society, and the National Disaster Management Office to develop disaster preparedness plans, policy, strategy, and a contingency plan.
- The South East district requires technical and financial assistance from the national disaster management office to undertake training workshops for volunteers in disaster risk reduction and related policies.
- The community and the district need assistance from the national disaster management office to develop their disaster risk management plan & implementation strategy.
- The district and communities require assistance from social workers and District Disaster Management Committee to establish disaster action teams, training of team members, and development of related protocols (Disaster Risk Reduction & Hyogo Framework for Action);
- The district and communities require technical assistance to develop a fundraising and resource mobilization strategy to address the needs of people before, during, and after disasters;
- The communities requires the technical assistance from the physical planner and social workers to zone disaster prone areas and identification of disaster evacuation sites;
- The district and community need technical and financial support to establish and operationalize early warning systems for each of the hazards identified and developing appropriate guidelines;

- There is need for technical assistance to hold simulation exercise (rehearsals) of the preparedness and response plan on a continuous basis for disaster action teams and the communities in the district;
- The National Disaster Management Office (NDMO) / District Disaster Management Committee (DDMC) should conduct tailor made disaster risk reduction workshops for social workers, traditional leaders, and religious leaders in the district;
- The National Disaster Management Office / District Disaster Management Committee should work with schools in disseminating disaster related information to learners and parent-teacher associations;
- The District Disaster Management Committee should develop a disaster information dissemination strategy for the district and communities, including implementation and monitoring and evaluation systems.
- There is need for further research in the area of community resilience to disasters for other communities in the district, who were not included in this study, to identify other causes and effects that may not have been experienced in the studied areas.
- The role of social workers and social work services during and after disasters could be further studied to ensure effectiveness and efficiency of social work interventions. There is need to review the University of Botswana social work education curriculum to include disaster risk reduction at the diploma, degree, and post graduate programmes.
- There is need for a district community based disaster strategy that will address the following:
 - District disaster policy.
 - Preparedness plan.
 - Early warning systems.
 - Evacuation plans.
 - Community disaster protocols.
 - Community disaster action teams.
 - Community awareness and educational programmes.

10.9. OVERALL CONCLUSION

Although communities studied are conscious of hazards and related risks in the socio-environment, they have not devised interventions to reduce the risks but have responded to disaster emergencies. They relied heavily on the government structures; in particular the district disaster management committee that is active only during the disaster emergency phase and thereafter, lies dormant. The existence and presence of this committee has not contributed to the development of mitigation and preventive measures to disasters for the district. It has been more reactive rather than proactively engaging communities on continuous basis with regard to disaster risk management, hence high vulnerability to disasters in the district.

This situation is further compromised by the lack of national disaster legislation, which complicates the work of disaster management practitioners in the country. As a result, no one is held accountable for non-compliance with the prescribed rules and regulations and the requirement stated in the national policy on disasters. Besides, it has been established that the district has not contextualized the national policy, disaster risk reduction framework, and the Hyogo Framework for Action to its disaster needs. This is despite the availability of capacity at the Botswana Red Cross Society, the United Nations Volunteers, United Nations Development Programme, and related organizations that can technically assist communities in the districts to prepare for crises. It is entirely a matter of the district to reflect on its preparedness level and exploring the resources, the needs, and the related technicalities and draw from existing capacities in order to drive its disaster resilience programme.

Based on the regional, continental, and international relationships the country enjoys and its socio-political status prevailing at the moment, communities in Botswana can draw from these capacities to build their resilience to disasters. They can draw lessons from Mozambique, Namibia, Zimbabwe, and many other countries and outsource technical expertise to strengthen community based disaster programmes. On comparative terms, communities in Botswana are not exposed continuous episodes of disasters like those in China and Cambodia which acted to increase their capacity and have successfully reduced risks and their vulnerability. It is through the adoption of similar initiatives that the poverty levels and other factors that make

communities vulnerable to disasters in the country will be identified and eliminated leading to an enhanced sense of community self-efficacy. The necessary social capital for developing resilience to disasters will be stronger enabling a collective commitment to safety and resilience in the district and ultimately the country.

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Appendix 1: Research permit

TELEGRAMS: PULA
TELEPHONE: 3950000
TELEX: 2655 BD



OFFICE OF THE PRESIDENT
PRIVATE BAG 001
GABORONE

Ref: OP 5/59/ 8 XI (27)

REPUBLIC OF BOTSWANA

6th February 2013

Mr. Kgosietsile Maripe

Dear Sir

RE: APPLICATION FOR RESEARCH PERMIT

Please refer to your application for a research permit dated 4th October 2012.

You are herewith granted permission to conduct a research project entitled "**COMMUNITY RESILIENCE TO DISASTER IN BOTSWANA**".

The permit is valid for a period not exceeding seven months from 1st February 2013 until 31st August 2013.

The permit is granted subject to the following conditions:

- i. Copies of any report/ papers written as a result of the study are directly deposited with the Office of the President.
- ii. The permit does not give authority to enter any premises, private establishment or protected area. Permission for such entry should be negotiated with those concerned.
- iii. You conduct the project according to the particulars furnished in the approved application taking into account the above conditions.
- iv. Failure to comply with any of the above stipulated conditions will result in the immediate cancellation of the permit.

Yours Faithfully,

C. Chiseki

For/ PERMANENT SECRETARY TO THE PRESIDENT

**Copied to: Director, Botswana National Library Services
Director, Office of Research & Development – UB
National Disaster Management Office**

APPENDIX '2'

INTERVIEW GUIDE FOR INDIVIDUALS

Dipatlisiso tse di dirwa ka maikaelelo a go diragatsa tse di tlhokwang go wetsa dithuto tse dikgolwane tsa Social Work. Dipatlisiso di seka seka maetsitsipelo mo dibetsong tsa tlholego a metse e le meraro ya kgaolo ya ga Maletle (Borwa Botlhaba): ebong Ramotswa, Mogobane, le Otse. Maikaelelo ke go tlhoma thulaganyo le metlhale e e tshwanetseng go tsibogela le go emelana natso. Ditshekatsheko di tla thusa go tla ka methale ya go ruta beng gae ka bodiphatsa jo bo amanang le matshosetsi a dibetso le go fokotsa manokonoko a teng. Mo tsaya karolo mo di patlisisong tse o kopiwa gore a seka a kwala leina la gagwe mo fomong e. Mme o kopiwa gore a arabe ka bo kgabane ka a lemoga botlhokwa jwa se a se kwalang. O lemotshiwa gape gore, go tlatsa fomo o go dira ka kgololesego mme o ka ikgogela morago nako nngwe le nngwe di patlisiso di ntse di tswelotse.

Biodata

O kopiwa go supa karabo ka go tshwaa e e leng yone mo go tse di supilweng ka fa tlase

Age (Dingwaga):

- (a) 21 – 30 yrs.
- (b) 31- 40 yrs.
- (c) 41- 50 yrs.
- (d) 51 & above (le go feta)

Sex (Bong):

- (a) Male (Monna)
- (b) Female (Mosadi)

Place of Birth (Lefelo la Matsalo):

Marital status (Seemo sa lenyalo):

- (a) Single (Ga ke a nyalwa)
- (b) Married (Nyetswe / Nyetse)
- (c) Divorced (Tlhakilwe / tlhadile)
- (d) Widow / widower (moswagadi / motlholagadi)

Employment status (Seemo sa pereko):

- (a) Employed (Ke a bereka)
- (b) Self- employed (Mogwebi)
- (c) Farmer (Molemi)
- (d) Unemployed (Ga ke bereke)

Place of work (Lefelo la Pereko):

- (a) Ramotswa
- (b) Mogobane
- (c) Otse
- (d) Other

Occupation (O bereka mo maemong afe):

Date of employment (Letsatsi la Phiro):

Length of service (O di ngwaga di kae ontse o bereka):

- (a) 0-5 yrs.
- (b) 6 – 10 yrs.
- (c) 11- 15 yrs.
- (d) 16 – 20 yrs.
- (e) 21 & above

Organization (Mohiri Ke ofe):

- (a) Government (Goromente)
- (b) Private (kompone)
- (c) NGO (maphata a boithaopo)
- (d) IGO (maphata a mebuso ya mafatshe)

Qualification (Thutego):

- (a) STD 7
- (b) JC
- (c) BGCSE / “O” level
- (d) Certificate / Diploma
- (f) Degree & above

Dipotso? Questions

O kopiwa go araba dipotso tse dilatelang ka matsetseleko le bonokopila gore di thuse go bontsha boamaruri ba seemo sa dibetso tsa tlholego mo ga Maletle

1. What are the common natural disaster hazards in your community? Ke dife dibetso tsa tlholego tse di tlhagelelang mo motseng wa lona?

8. Do you have evacuation plans in the event of disasters? A le na le thulaganyo ya phaloso mo nakong ya dibetso? ke efe?

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9. Do you have community disaster protocols? Le na le tsamaiso e e salwang morago ka nako ya dibetso tsa tsholego?

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APPENDIX “3”

INTERVIEW GUIDE FOR KEY INFORMANTS

Introduction

O kopiwa go araba dipotso ka bokgabane go thusa go bona seemo sa bodiphatsa jo bo ka bakiwang ke dibetso tsa tsholego. Dipatlisiso di dirwa jaana go batla metlhale ya go ka fokotsa manokonoko a bakiwang ke tsone diemo tse mo morafeng, gape le go wetsa dithuto tsa sekolo. Ga o patelesege go tsaya karolo mo go tsone, mme o kopiwa go abelana kitso e o nang nayo.

Biodata

1. How old are you? O dingwaga di kae?
2. Place of birth? Legae la botsalo ke ko kae?
3. Gender / Bong? Male (Rre) kana Female (Mme)
4. Educational level / Seemo sa thuto:
5. What is your position in the community? Maemo a gago ke afe mo motseng?
.....
.....
6. What are your official responsibilities in the district? Tiro ya gago e akaretsa go dira eng mo motseng/kgaolong?
.....
.....
.....
7. How long have you lived in this community? O na le lebaka le le kae o nna kana oberekela mo motseng o?
.....
.....
.....
8. Are you aware of any disaster occurrences in the community in the past 2 to 5 years? A go kile gana le dibetso tsa tsholego tse o di gakologelwang mo ngwageng tse pedi kana tse tlhano tse di fetileng?
.....
.....
.....
9. What were they? Ke dife dibetso tseo?.....

APPENDIX "4"

QUESTIONNAIRE FOR RESPONDENTS

INTRODUCTION

Dipatlisiso tse di dirwa ka maikaelelo a go diragatsa tse di tlhokegang go wetsa dithuto tse dikgolwane tsa Social Work. Dipatlisiso di seka seka maetsitsipelo mo dibetsong tsa tlholego a metse e le meraro ya kgaolo ya Borwa Botlhaba: ebong Ramotswa, Mogobane, le Otse. Maikaelelo ke go tlhoma thulaganyo le metlhale e e tshwanetseng go tsibogela le go emelana natso. Ditshekatsheko di tla thusa go tla ka metlhale ya go ruta beng gae ka bodiphatsa jo bo amanang le matshosetsi a dibetso le go fokotsa manokonoko a teng. Mo tsaya karolo mo di patlisisong tse o kopiwa gore a seka a kwala leina la gagwe mo foromong e. Mme o kopiwa gore a arabe ka bokgabane ka a lemoga botlhokwa jwa se a se kwalang. O lemotshiwa gape gore go tlatsa fomo o go dira ka kgololesego mme o ka ikgogela morago nako nngwe le nngwe dipatlisiso di ntse di tswelotse.

This study is conducted in fulfilment of a PhD programme in Social Work. The study intends to assess the resilience of three communities in the South East District to disasters: Ramotswa, Mogobane, and Otse. The intention is to develop the disaster related systems, strategies, and protocols that would be more relevant for the communities. The findings will also be used to design educational material addressing community prevalent community hazards and risks and also to map areas of high / low risk for evacuation purposes. The respondents are requested not to write their names or any other particulars that may disclose their identity on this form. Instead they are asked to treat this matter seriously and answer the questions as accurately as possible. It is important to note that the filling in of the questionnaire is a voluntary process and the respondent is free to withdraw at any time of the process of the study.

BIODATA

Age (Dingwaga): (a) 21 – 30 yrs (b) 31- 40 yrs (c) 41- 50 (d) 51 & above (le go feta)

Sex (Bong): (a) Male (Monna) (b) Female (Mosadi) **Place of Birth** (Lefelo la Matsalo):

Marital status (Seemo sa lenyalo):

(a) Single (Ga ke a nyalwa) (b) Married (Nyetswe / Nyetse) (c) Divorced (Tlhadilwe / tlhadile)
(d) Widow / widower (moswagadi / motlholagadi)

Employment status (Seemo sa pereko):

(a) Employed (Ke a bereka) (b) Self-employed (Mogwebi) (c) Farmer (Molemi) (d) Unemployed (Ga ke bereke)

Place of work (Lefelo la Pereko): (a) Ramotswa (b) Mogobane (c) Otse (d) other

Occupation (O bereka mo maamong afe):

Date of employment (Letsatsi la Phiro):

Length of service (O di ngwaga di kae ontse o bereka):

(a) 0-5 yrs (b) 6 – 10 yrs (c) 11- 15 yrs (d) 16 – 20 yrs (e) 21 & above

Organization (Mohiri Ke ofe):

(a) Government (Goromente) (b) Private (kompone) (c) NGO (maphata a boithaopo) (d) IGO (maphata a mebuso ya mafatshe)

Qualification (Thutego): (a) STD 7 (b) JC (c) BGCSE / “O” level (d) Certificate / Diploma (f) Degree & above

Community perception of hazards, vulnerability, and disaster risks

1. Do you have knowledge on hazards, vulnerabilities, and disasters risks in your community? A o na le kitso ka diemo tse di phatsa, le ka fa di ka go amang ka teng

a. (a) Yes (Ee) (b) No (Nnya)

2. If Yes, how did you acquire the knowledge? Fa o na le kitso? E tsile jang?

- (a) Workshops (Thuto seka dipuisano)
- (b) Reading (Go bala)
- (c) School (Sekolo)
- (d) Media (Metswedi ya dikgang)
- (e) Survivor of disasters (Ba ba halotseng dibetso)
- (f) Work (Tiro)

3. What was the knowledge about? Kitso e ne e itebagantse le eng?

- (a) Prevention (Itshireletso)
- (b) Vulnerabilities (seemo sa go angwa ke dibetso)
- (c) Preparedness /response (Ipaakanyo kgotsa tsibogelo dibetso)
- (d) Hazards (Kotsi)
- (e) Disaster Risks (diphatsa tsa dibetso)

4. Do you consider yourself threatened by any disasters? A o bona o ka amega thata ha dibetso tsa tlhologo di ka nna teng? (a) Yes (Ee) (b) No (Nnya)

5. Which disasters are more threatening to your life and livelihood most? Ke dife dibetso tse di baying botshelo jwa gago mo diphatseng thata?

- Drought (leuba)
- Floods (merwalela)
- Rains (Dipula)
- Windstorms (Diphefo)
- Wild land fires (melelo ya naga)

6. In the event of any disaster do you consider yourself vulnerable? Ao bona o sireletsegile mo dibetsong tsa tlholego? (a) Yes (Ee) (b) No (Nnya)
7. What would be the risks of these impending disasters for you? O ka amega jang ha dibetso di ka nna teng?
- Loss of shelter (Go latlhegelwa ke bonno)
 - Injuries / death (dikgobalo / lesa)
 - Drowning (go nwela)
 - loss of livelihoods (go latlhegelwa ke itsшетso)
 - Poverty (lehuma)
8. If No, why is it like that? Explain (tlhalosa gore ke eng o sa tshosediwе ke dibetso?)

9. Have you ever suffered from disasters directly (personally)? A o kile wa amiwa ke dibetso tsa tlholego (a) Yes (Ee) (b) No (Nnya)
10. If yes? When was the year that it happened? Ke ka ngwaga ofe?
- 1. 1990 -1995
 - 2. 1996-2000
 - 3. 2001- 2005
 - 4. 2006-2010
11. What was it about? E ne ele sebetso sefe?
- (a) Drought (leuba)
 - (b) Floods (merwalela)
 - (c) Rains (Dipula)
 - (d) Wild land fires (melelo ya naga)
 - (e) Domestic fires (melelo ya matlo)
12. How did you respond to the disasters? O ne wa ithusa jang?
- a) Ask help from relatives (thuso mo masikeng)
 - b) Ask help from Friends (thuso mo ditsaleng)
 - c) Report to Police (ikuela ko mapodising)
 - d) Report to Social Workers (ikuela ko Social worker)
 - e) Report to kgosi (ikuela ko kgosi)
13. Do you know the difference between a hazard and disaster? A o itse parologanyo ha gare ga diemo tse di diphatsa le dibetso (a) Yes (Ee) (b) No (Nnya)
14. Are you able to explain what it is to your neighbor or children? A o kgona go tlaolose tsa yo mongwe gore dibetso tsa tlholego ke eng (a) Yes (Ee) (b) No (Nnya)
15. Do you know what to do in the event of the following incidents? A o itse se o tshwanetseng go sedira mo diemong tse di latelang?

- | | | |
|--|--------------|---------------|
| (a) Floods or flash floods (morwalela) | (a) Yes (Ee) | (b) No(Nnya) |
| (b) Heavy windstorms (Di phefo) | (a) Yes (Ee) | (b) No (Nnya) |
| (c) Torrential rains (Dipula) | (a) Yes (Ee) | (b) No (Nnya) |
| (d) Overflowing rivers or dams (dinoka tse di tlhatsang) | (a)Yes (Ee) | (b) No (Nnya) |
| (e) Wildland fires (Melelo ya naga) | (a) Yes (Ee) | (b) No (Nnya) |
| (f) Droughts (leuba) | (a) Yes (Ee) | (b) No (Nnya) |
| (g) Climate Change (Phetogo ya lwaapi) | (a) Yes (Ee) | (b) No (Nnya) |
| (h) Earthquake (thoromo ya lefatshe) | (a) Yes (Ee) | (b) No (Nnya) |

16. If you ticked 'Yes' on any of the above, how did you acquire the knowledge? Fa o kgwarile ee mo ngwe ya tse di ko godimo, tlhalosa gore kitso e o e amogetse jang?

- (a) Workshop (training) (Thuto seka dipuisano)
- (b) Self Reading (Go bala)
- (c) TV/ Radio
- (d) Print media (Pampiri tsa dikgang)
- (e) none of these (eseng sepe sa tse di kwadilweng)

17. If you ticked 'NO' on any of the above hazards, what do you think should be done? Fa o kgwarile nnyaa mo ngwe ya tse di ko godimo, tlhalosa gore go ka dirwa eng go anamisa kitso mo bathong?

- a) Disaster training workshop (ithutuntsho ka dibetso)
- b) Education & Awareness raising (Go anamisa kitso)
- c) Public meetings / kgotla meeting (Diphuthego mo kgotleng)
- d) Distribute pamphlets on disasters (Go anmisa molaetsa ka dibetso)
- e) Nothing (Ga gona sepe se se ka dirwang)

18. Who do you think should be held responsible for doing what you suggested above? Ke mang yoo tshwanetseng go tseya boikarabelo jwa go diragatsa se o se kwadileng?

- (a) Government (Goromente)
- (b) Tribal leaders (Magosi)
- (c) District Commissioner (Molaodi)
- (d) Council Secretary (Mokwaledi wa Khansele)
- (e) Communities (Morafhe)

District / Community related disaster policies, legislation, and programmes/ Ditsamaiso go lebagana le dibetso mo kgaolong

19. Do you know anything about Disaster Risk Reduction? A o itse sengwe ka DRR? (a) Yes (Ee)
(b) No (Nnyaa)

20. If No, explain why you do not know / tlhalosa gore ke eng o sena kitso eo?
.....
.....
.....

21. If Yes! How did you get the information? Kitso eo o e kwatabolotse kae?

- (a) Self Reading (Go Bala)

- (b) Workshop (Thuto Seka Puisano)
- (c) Media (print, TV, and/ radio) (Kanamiso ya dikgang)
- (d) Primary / Secondary School (Sekolo)
- (e) District Disaster Committee (Komiti ya dibetso)

22. Do you know what the United Nation Hyogo Framework for Action represents? A o itse gore HFA e emetse eng? (a) Yes (Ee) (b) No (Nnyaa)

23. Have you applied the United Nations Hyogo Framework for Action in your work? A o kile wa dirisa HFA mo tirong ya gago? (a) Yes (Ee) (b) No (Nnyaa)

24. Explain your answer (tlhalosa karabo ya gago)

Community preparedness systems, measures, and disasters risk reduction

25. Do you have District disaster action teams / a le na le ditlhopa tse di tsibogelang dibetso (a) Yes (Ee) (b) No (Nnyaa)

26. Do you disaster action teams protocols / A le na le melawana e e dirisiwang ke ditlhopana go itebaganya le dibetso (a) Yes (Ee) (b) No (Nnyaa).

27. Do you have a District / Community disaster policy / A le na le tsamaiso ya go itebaganya le dibetso mo motseng? (a) Yes (Ee) (b) No (Nnyaa)

28. Do you a District Disaster Preparedness Plan/ A le na le thulaganyo ya go ipaakanyetsa dibetso (a) Yes (Ee) (b) No (Nnyaa)

29. Do you have District / Community disaster strategy / (a) Yes (Ee) (b) No (Nnyaa)

30. Do you have District / Community Disaster response plan / A le na le thulaganyo ya go tsibogela dibetso? (a) Yes (Ee) (b) No (Nnyaa)

31. Do you have a District / Community Disaster zones / A le kgaogantse motse ka mahelo a a amegang thata mo nakong ya dibetso? (a) Yes (Ee) (b) No (Nnyaa)

32. Do you have District Disaster Early Warning Systems / Codes? / A le na le thulaganyo ya go thagisa batho ka seemo sa dibetso / diru? (a) Yes (Ee) (b) No (Nnyaa)

33. Do you have District / Community disaster evacuation plan? / A le na le thulaganyo ya go halotsa batho mo nakong ya dibetso? (a) Yes (Ee) (b) No (Nnyaa)

34. Do you have a disaster profile for your district / community? / a le na le kwadile ka mehuta ya dibetso e e tlwaelesegileng mo motseng? (a) Yes (Ee) (b) No (Nnya)

35. Which committees do you have in your community / district? / le na le dikomiti dife mo motseng?

- Village Development Committee (VDC) / DDC (komiti ya ditlhabololo)
- Village Health Committee (VHC) / DHC (komiti ya botsogo)
- Village Multi Sectorial Aids Committee (VMSAC) / DMSAC (komiti ya maphata)
- Village Disaster Management Committee (VDMC) / DDMC (Komiti ya dibetso)
- None (Ga go epe)

36. Who do you call when there is a disaster in the community? / Ke mang yo o mmitsang fa gona le dibetso tsa tlhologo?

- (a) Police (mapodisi)
- (b) Chief / Headman (Kgosi)
- (c) Relatives / friends (masika / ditsala)
- (d) District Commissioner (Molaodi)
- (e) Social Workers

37. Do you call them because of their ability to help? / O ba bitsa ka mabaka a bokgone jwa bone? (a) Yes (Ee) (b) No (Nnya)

38. Do you call them because of their efficiency to respond? / A o ba bitsa ka mabaka a go itlhaganela ga bone? (a) Yes (Ee) (b) No (Nnya)

39. Any other relevant information that you feel is necessary / kitso ngwe e e ka tswang e le bothokwa gore re e itse

.....
.....
.....
.....

Areas of high / medium and low disaster risks and vulnerabilities (Pharologano ya bodiphatsa jwa mafelo)

40. Do you know areas of high disasters risk? A o itse mafelo a amiwang thata ke dibetso? (a) Yes (Ee) (b) No (Nnya)

41. Which areas are those? Ke afe mafelo ao?

.....
.....

42. Tick the kind of disasters that are prevalent in those areas? Kgwara mofuta /mefuta ya dibetso tse di diragalang teng koo?

- (a) Floods (merwalela)
- (b) Crime (borukutlhi)
- (c) Drought (leuba)
- (d) Fires (melelo)
- (e) Rains (Pula)
- (f) Windstorms (Diphefo)

43. Do you know areas of medium & low disaster risks? A o itse mafelo a amiwang ke dibetso mo seemong se se fa gare kana se se ko tlase? (a) Yes (Ee) (b) No (Nnya)

44. Which areas are those? Ke mafelo a fe one ao?

.....
.....

Role of social workers in disaster risk reduction / Karolo ya social worker mo go fokotseng manokonoko a dibetso

45. Are you a social worker by profession? A o social worker ka thutego? (a) Yes (Ee) (b) No (Nnya)

46. At what educational level did you qualify for social work? A o dirile dithuto dife?

- (a) Certificate
- (b) Diploma
- (c) Degree
- (d) Post Graduate degree

47. At which country university did you qualify for social work? O ithutetse social work kwa unibesiting ya lefatshe lefe?

- (a) Botswana
- (b) South Africa
- (c) Namibia
- (d) Overseas (Mafatshe a sele)

48. Do you deal with disasters in your day to day work? A tiro ya gago e akaretse dibetso tsa tlhologo /diru letsatsi le letsatsi?

- a) Sometimes (nako ngwe)
- (b) Regularly (nako tsoitlhe)
- (c) Sporadic (ka sewelo)
- (d) None (ga e akaretse)

49. Which disasters have you responded to? Ke dife dibetso / diru tse o setseng o di tsibogetse?

- a. Drought (leuba)
- b. Floods (merwalela)
- c. Windstorms (ditsuatsuwe)
- d. Heavy rains (Pula)
- e. Domestic fires (Melelo ya matlo)
- f. Wildland fires (Melelo ya naga)

50. What was your role? O ne o tsaya karolo efe?

- (a) Damage assessment (tsheka tshenko ya tshenyo)

- (b) Shelter (Bonno)
- (c) Search & rescue (Go batla ba ba sa bonweng)
- (d) Evacuation (Go falotsa batho)
- (e) Provide relief (Go thusa ka ditlamelo)
- (f) Counseling (Go sidila maikutlo)

51. What should be the role of social workers in Disaster Risk Reduction in the community? Social Worker o ka tsaya karolo efe ha gona le dibetso?

- (a) Assessment (tsheka tsheko)
- (b) Relief / Response (Go namola batho)
- (c) Education / Awareness raising (Go ruta / Go tlhaba pudi matseba)
- (d) Early Warning (Go tlhagisa)
- (e) None (Ga gona)

52. Do you think social work knowledge equipped you to address disaster related challenges? A thuto ya social work e go thusitse go tshibogela dibetso? (a) Yes (Ee) (b) No (Nnyaa)

53. How would you rate the knowledge following the scale below? O ka kala kitso ya eo jang?

- (a) Excellent (Maemo a ntlha)
- (b) Best (Maemo a bobedi)
- (c) Good (Maemo a boraro)
- (d) Fair (Maemo aa botokanyana)
- (e) Poor (Maemo aa ko tlase)

Community based disaster programmes necessary for the district / Mananeo a a ka siamelang motse

54. What role does the community play in preparing for disasters? Batho ba motse ba tsaya karolo efe go ipaakanyetsa dibetso / diru tse di ka ba welang?

- (a) Form Disaster action teams (tlhoma ditlhophu)
- (b) Train others on disasters (Go Katisa ba bangwe)
- (c) Stock piling resources (phutha ditlamelo)
- (d) Conduct community education & awareness (Go rutuntsha)
- (f) None (Ga gona)

55. What role does the community play in responding to disasters? Batho mo motseng ba tsaya karolo efe go tsibogela dibetso / diru tse di ba wetseng?

- (a) None (Ga gona)
- (b) Search & Rescue (Go halotsa)
- (c) Obstructors (Go kgoreletsa)
- (d) Victims (Ba ba amilweng ke dibetso)

56. What should the community do to prepare for disasters? Batho ba tshwanetse go dira eng go ipaakanyetsa dibetso / diru?

- 1.1. Develop a preparedness plan (Go dira thulaganyo ya ipaakanyo)
- 1.2. Organize into action teams (Go thoma di tlhopa)
- 1.3. Early warning (Go tlhagisa ka dibetso)
- 1.4. Nothing (ga gona se ba ka sidirang)

57. Before any disaster strike what should the community do? Pele ga dibetso di nna teng morafe o tshwanetse go dira eng?

- (a) None (ga gona)
- (b) Monitor hazards / risks (sekaseke diphatsa)
- (c) Educate / create awareness (Go ruta / go tlhaba batho gona pudi matseba)
- (d) Stockpiling (Go putha di dirisiwa / dijo)
- (e) Conduct disaster drills (Go ikatisa)

58. Do you have a community preparedness plan? A le na thulaganyo ya ipaakanyetso dibetso / diru?
(a) Yes (Ee) (b) No (Nnya)

59. During disaster what should be the role of the community? Mo nakong ya dibetso / diru morafe o tseye karolo efe?

- (a) None (ga gona)
- (b) Evacuation (Phaloso)
- (c) Search & rescue (Go batla ba bas a bonweng)
- (d) Warn others of danger (go tlhagisa ka dikotsi)
- (e) Passive recipients (ba ba thusiwang fela)
- (f) First Responders (Ba ba tshibogang la ntlha)

60. After disasters what should be the role of the community? Morago ga dibetso /diru karolo ya morafe ke efe?

- (a) None (Ga gona sepe)
- (b) Rehabilitation/ reconstruction (go aga sesha)
- (c) Passive survivors (Gona fela bas a dire sepe)
- (d) No idea (ga ke itse)

61. Do you have a recovery strategy? A le na le thulaganyo ya go ikaga sesha morago ga tshenyo ya dibetso?
(a) Yes (Ee) (b) No (Nnya)

62. What is the role of the chief in disaster risk reduction? Karolo ya ga kgosi ke efe mo go fokotseng bodiphatsa jwa dibetso / diru?

- (a) None (Ga eo)
- (b) Coordination (Go lomaganya di tsamaiso)
- (c) Counseling (Go sidila maikutlo)
- (d) Passive actor (Yo o sa tseyeng karolo)
- (e) Irrelevant (Ga e botlhokwa)

APPENDIX '5 A'

INFORMED CONSENT FORM

My name is **Mr. Kgosietsile Maripe**, a PhD Student at the North West University and a Lecturer of the Department of Social Work, at the University of Botswana. I am conducting a study on community resilience to disasters in Botswana in three communities of the South East Administrative District. The three areas covered in the district are Ramotswa, Mogobane, and Otse. The Purpose of the study is to assess the resilience and adaptability to disasters of communities in the district, the perception of hazards, and to identify factors that hinder or promote resilience to disasters.

I therefore, ask for your voluntary participation in this study conducted in fulfilment of the requirements of the PhD in Social Work. If you agree to participate, you will be asked to complete the questionnaire or answer some interview questions mainly on disaster risk reduction and resilience.

Time required for participation: 45 – 60 minutes

Potential Risks of Study: participants may recall memories of loss suffered from past disasters in terms deaths, damage to property or livestock, and injuries, hence emotional risks are anticipated.

Benefits: the findings will be central to disaster preparedness, disaster risk reduction, and setting up systems that may mediate the impacts in the future. They may lead to the design of relevant community based disaster programmes, protocols, and early warning systems. These will benefit the residents of the communities as a whole and provide a platform for community dialogue on disasters.

How confidentiality will be maintained

You are not obliged to share your name or write it on any form you are to complete and your name will not be recorded anywhere for confidentiality purposes. The information provided in the questionnaires will be kept in safe cabinets and that which is shared in the interviews will be between the interviewee and the interviewer. Your name will not be disclosed to anybody and during the dissemination of findings. Your consent is also sought to record the interview proceedings for verification purposes and the tapes will also be kept in appropriate files until the data analysis is completed, then they will be destroyed.

If you have any queries about this study, feel free to contact the **University of Botswana, Office of Research Development / Head of Social Work Dept. (3552682)**.

Voluntary Participation

Participation in this study is completely voluntary and there are no monetary gains for participation. You are free to withdraw participation at any point of the study or during the interviews. There are no negative consequences for declining to participate. If you are willing to participate in this study, you are requested then to sign this form.

By signing this form you are affirming that you have read and understood the information above and freely give your consent.

Printed Name of Research Participants / Respondent: _____

Signature: _____

Date: _____

Witness: _____

Date: _____

APPENDIX '5B'

FOMO YA TUMALANO

Leina la me ke **Kgosietsile Maripe (Mr.)**, moithuti wa dithuto tse dikgolwane (PhD) kwa North West University le motlhatlhelela dithuto mo lephateng la Social Work, kwa University of Botswana. Ke diragatsa dipatlisiso ka dibetso tsa tlhologo mo Botswana mo mafelong a mararo e bong Ramotswa, Mogobane le Otse mo kgaolong ya Borwa Botlhaba. Maikaelelo a dipatlisiso ke go sekaseka bokgoni le go itshetlela ga sechaba ka nako e dibetso ditlhagogang. Le go batlisisa itemogelo ya morafe ka bodiphatsa jwa tsone le mabaka a ka kgoreletsang tshireletsego ya morafe wa mafelo ao. Ka jalo re kopa gore o itlhaopele go tsaya karolo mo dipatlisising tse di dirwang. Fa o dumelana le go tsaya karolo, o kopiwa go tlatsa fomo e o tla e newang kgotsa go araba dipotso tse o tla di botswang ka ga metlhale ya go ka dibela bodiphatsa jwa dibetso.

Nako ya go tsaya karolo: 45 – 60 minutes

Bodiphatsa jwa dipatlisiso: Dipatlisiso di ka gakolola batsaya karolo ka manokonoko a dibetso tse di ba diragaletseng, dintsho kgotsa dikgobalo tsa masika, kana go latlhegelwa ke dithoto kgotsa leruo. Ka jalo go gogomoga maikutlo go ka nna teng. Mme fa go lemogiwa gore motsaya karolo o amegile mo maikutlong, potsolotso e tla emisiwa go mo fa sebaka sa go wela mme e bo e tsweledisiwa letsatsi le le latelang. Gape o tla golaganngwa le ba ba sidilang maikutlo mo motseng / kgaolong eo, go dirisiwa kitso le boitsanape jwa motsamaisa dipatlisiso. Modira dipatlisiso ke moitsanaape le morutuntshi wa tsa tshidilo maikutlo, o tla thusa ba ba tsayang karolo go wela maikutlo le go tlhomamisa gore ba tswelela ba bona thuso eo mo motseng le morago ga dipatlisiso. Kopo e supang maina le di aterese tsa mmatlisisi e tla isiwa kwa go ba Boipelego (Social & Community Development) ko Ramotswa mo tshimologong ya dipatlisiso.

Dipoelo: Maduo a dipatlisiso a tla bo a remeletse mo go ipaakanyetseng le go fokotsa manokonoko a dibetso gape di tla a thusa go tla ka metlhale ya go itshireletsa le ya go tlhagisa ka ga dibetso tse di ka diragalang.

Sephiri sa dipatlisiso

Mongwe le mongwe yo o tsayang karolo ga a tlamege go kwala leina la gagwe fa a tlatsa fomo. Ka mabaka a itshireletso leina la gago ga le kake la bolelelwa ope. Kitso yotlhe e o tla e kgaoganang le rona ka mokwalo e tla bolokiwa mo mabolokelong a lotlelwang kwa diofising. Gape se o se buang se tla a felela fa gare ga mmotsi le yo o botswang. Leina la gago ga le na go bolelelwa ope mabapi le se se ithutilweng mo dipatlisising. Sa bobedi ke kopa go gatisa lentswe la gago e le go tlhomamisa gore se

se kwadilweng le se se builweng se a tshwana. Mme dithaepe tsa mantšwe di tla senngwa fa dipatlisiso di sena go wediwa.

Fa o na le dipotso kgotsa dingongorego mabapi le dipatlisiso tse, o amogelesegile go ka ikgolaganya le ba ofisi ya **Dipatlisiso kwa University of Botswana, kgotsa mogolwane wa lephata la Social Work Dept (UB. mogala ke 3552682).**

Go tsaya karolo

Mongwe le mongwe yo o tsayang karolo mo dipatlisisong tse, o dira jalo ka boithaopo a sa solofele dituelo dipe tse a ka difiwang. O gololesegile go ka ikgogela morago nako nngwe le nngwe dipatlisiso di ntse di tswelletse. Ga o kake wa otlhaelwa go ikgogela morago ka mabaka a gago.

Fa o dumelana le go tsaya karolo o kopiwa go kwala maina a gago ka botlalo le go rurifatsa ka go saena leina.

Leina la motsaya karolo: _____

Setlanyo: _____

Kgwedi ka botlalo: _____

Mosupi: _____

Kwedi ka botlalo: _____

Appendix 6: Research grant letter

Office of the Deputy Vice Chancellor
Academic Affairs

P/Box 6022 Gaborone, Botswana
Corner of Notwane and Maputo Road
Gaborone, Botswana

Tel: (+267) 355 2033
Fax: (+267) 390 4243
E-mail: dvcna@meopip.ubw

UNIVERSITY OF BOTSWANA

MEMORANDUM

Ref : UBR/RES 3/2
To : Mr Kgosietsile Maripe
From : Acting Deputy Vice Chancellor – Academic Affairs
Date : 6th June 2013
Subject : Outcome of the Round 25 Research Grant Application

I am pleased to advise you that the University of Botswana Research Committee (URC) Sub-Committee on Funding at its meeting held 14th May 2013, awarded you a grant of P 50,000.00 (Fifty Thousand Pula) to enable you to carry out your research project titled “Community safety and resilience to disasters: A social work study of Botswana,” for a period of 1 year on the following terms and conditions:

- i) The proposal should be revised (if applicable) according to the comments of the review committee (attached) and resubmitted to ORD for your file.
- ii) A detailed budget based on the overall amount awarded as well as your work plan showing your proposed activities and expenditure over the project period must be provided to the ORD prior to disbursement of funds. This will be approved and submitted to the Special Projects Office as part of your file.
- iii) A Government research permit is required for all research conducted in Botswana prior to implementation of the project. Please select the relevant Ministry to review your proposal and provide a copy of the permit to ORD for our records. The permit must be received before funds are disbursed to you. The application forms and guidelines for the Government approval process are at ORD at Ext 2911 / 2900.
- iv) If your research involves human subjects (interviews, clinical trials etc), it must also be reviewed by the UB Institutional Review Board (IRB) to ensure that it complies with ethical guidelines. The application forms and guidelines for the UB IRB approval process at ORD at Ext 2911 / 2900.
- v) You are required to attend the post-award project planning workshop so that you are fully aware of the financial, reporting and ethical compliance issues for research grants funded by UB.

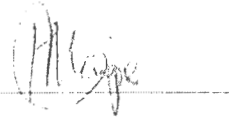
- vi) Any deviations to the approved budget line items require prior approval from the ORD before expending.
- vii) Should your research activities differ from those approved, the cost incurred will not be reimbursed, unless the variations have been considered and approved by the ORD before they are undertaken.
- viii) A short one page report including your progress, financial expenditure and challenges in implementing your project is to be submitted to the committee on a six monthly basis. A detailed technical and financial report should be submitted at the conclusion of the study.
- ix) All research funded by the University must be published in internationally refereed journals and must acknowledge the university for its financial support. Further funding from UB will be provided only if manuscripts from a previous grant are published.
- x) A copy of any publication arising from your research must be deposited in the UB Institutional Repository as well as at the Botswana National Library Service, and the National Archives.
- xi) Where research or a publication may result in the receipt of royalties or other revenue, the grantee shall repay the University Research Fund revenue received up to maximum of the grant awarded.
- xii) Unless otherwise agreed by the Research and Publications Committee in writing, all equipment, books photographs, records and tapes etc., purchased with funds made available by the University, shall remain in the Department at the end of the project, and the grantee will be liable for their security and maintenance while in his/her possession or use.

Best regards



Prof. C.R. Sathyamoorthi
Acting Deputy Vice Chancellor – Academic Affairs

Signature of Recipient



Date 13/01/12

cc: Chairperson, Faculty Research and Publication Committee Member
Mr Tele. Manager Special Projects Office

APPENDIX 7: Support letter for research permit



Office of the Deputy Vice Chancellor (Academic Affairs)

Office of Research and Development

Corner of Notwane and Mobuto Road, Gaborone, Botswana
Pvt Bag 00708, Gaborone, Botswana
Tel: (267) 355 2900
Fax: (267) 395 7573
E-mail: research@moppi.ub.bw

Ref: UBR/RES/IRB/1379

30th November 2012

The Permanent Secretary
Office of the President
Private Bag 001
Gaborone, Botswana

RE: APPLICATION FOR RESEARCH PERMIT – KGOSIETSILE MARIPE

Since it is a requirement that everyone undertaking research in Botswana should obtain a Research Permit from the relevant arm of Government, The Office of Research and Development at the University of Botswana has been tasked with the responsibility of overseeing research at UB including facilitating the issuance of Research permits for all UB Researchers inclusive of students and staff.

I am writing this letter in support of an application for a research permit by Mr Kgosietsile Maripe, an academic staff member at the Department of Social Work, University of Botswana. The title of the proposed study is "**Community Resilience to Disaster in Botswana**". The overall objective of the proposed study is to investigate resilience and adaptability to disasters of three communities in the South East District, Botswana. The findings of the study will be used to design and establish community based disaster programmes, to augment the role of social workers in community disaster risk reduction, and assist in the establishment of community early warning systems.

The Office of Research and Development is satisfied with the process for data collection, analysis and the intended utilisation of findings from this research and is confident that the project will be conducted effectively and in accordance with local and international ethical norms and guidelines.

We will appreciate your kind and timely consideration of this application. We thank you for your cooperation and support.

Regards



Prof Isaac N Mazonde
Director, Office of Research & Development

Encls: Completed Application for Research Permit
Research Proposal
Data collection tools

APPENDIX 8: Letter to District Commissioner

UNIVERSITY OF BOTSWANA
FACULTY OF SOCIAL SCIENCES

Department of Social Work

Corner of Natwane and Mubuto Road, Tel [267] 355 2682
Pvt Bag UB 00/05 Gaborone, Fax [267] 395 1661 / 318 5099
Botswana E-mail: socialwork@mopipi.ub.bw

1st March, 2013

The District Commissioner
South East District,
P.O Box 137
Ramotswa

Dear Sir / Madam,

RE: REQUEST FOR PERMISSION TO UNDERTAKE RESEARCH IN THE DISTRICT

I write, to request to interview social workers, tribal leaders, village development committees, community members, and district disaster committees in a study entitled "Community Resilience to Disasters in Botswana." taking place in the South East District. The focus of the study is to assess the resilience and adaptability of communities (Otse, Mogobane, and Ramotswa) in the South East Administrative District to disasters. It will assess perceptions of hazards, knowledge, skills and competencies in disaster risk reduction. The resilience study is intended to provide critical empirical evidence for the review of community disaster programmes and inclusion in the curriculum of the Department of Social Work, University of Botswana.

This is a two-phased study (both quantitative and qualitative) and will be conducted simultaneously. The intention is to visit your district on the week of 11-15th March, 2013 to meet with the stakeholders and begin the data collection process. The researcher has already been cleared and granted permission to carry out the study by the Office of the President as per letter attached. The findings of the study will be shared with the District Administration, Councils and other stakeholders in the country through workshops, seminars and publications.

I shall therefore be most grateful for your favourable consideration of our request.

Thanking you in anticipation

Sincerely,


Mr. Kgosietsile Maripe (MSW)
Principal Researcher
Department of Social Work
University of Botswana
Tele: 355 2686
E-mail: maripek@mopipi.ub.bw

APPENDIX 9: letter to Council Secretary

UNIVERSITY OF BOTSWANA
FACULTY OF SOCIAL SCIENCES

Department of Social Work

Corner of Notwane and Mbotso Road, Tel: [267] 355 2682
Pvt Bag UB 00705 Gaborone, Fax:[267] 3951661 / 318 5090
Botswana E-mail: socialwork@mopipi.ub.bw

1st March, 2013

The Council Secretary
South East District,
Private Bag 002
Ramotswa

Dear Sir / Madam,

RE: REQUEST FOR PERMISSION TO UNDERTAKE RESEARCH IN THE DISTRICT

I write, to request to interview social workers, tribal leaders, village development committees, community members, and district disaster committees in a study entitled "**Community Resilience to Disasters in Botswana**," taking place in the South East District. The focus of the study is to assess the resilience and adaptability of communities (Otse, Mogobane, and Ramotswa) in the South East Administrative District to disasters. It will assess perceptions of hazards, knowledge, skills and competencies in disaster risk reduction. The resilience study is intended to provide critical empirical evidence for the review of community disaster programmes and inclusion in the curriculum of the Department of Social Work, University of Botswana

This is a two-phased study (both quantitative and qualitative) and will be conducted simultaneously. The intention is to visit your district on the week of 11-15th March, 2013 to meet with the stakeholders and begin the data collection process. The researcher has already been cleared and granted permission to carry out the study by the Office of the President as per letter attached. The findings of the study will be shared with the District Administration, Councils and other stakeholders in the country through workshops, seminars and publications.

I shall therefore be most grateful for your favourable consideration of our request

Thanking you in anticipation

Sincerely,


Mr. Kgosietsile Maripe (MSW)
Principal Researcher
Department of Social Work
University of Botswana
Tele: 355 2686
E-mail: maripek@mopipi.ub.bw

APPENDIX 10: Letter to Kgosi Kgolo ya Balete

UNIVERSITY OF BOTSWANA
FACULTY OF SOCIAL SCIENCES

Department of Social Work

Corner of Notwane and Mahulo Road, Tel: (+267) 355 2602
Pvt Bag UB 00705 Gaborone, Fax: (+267) 3951601 / 318 5069
Botswana E-mail: socialwork@mopipi.ub.bw

1st March, 2013

Kgosi Mosadi Seboko

Kgosi Kgolo ya Balete
Balete Tribal Authority
P.O Box 001
Ramotswa

Kgosi Kgolo

RE: REQUEST FOR PERMISSION TO UNDERTAKE RESEARCH IN THE DISTRICT


I write, to request to interview social workers, tribal leaders, village development committees, community members and district disaster committees in a study entitled "Community Resilience to Disasters in Botswana." taking place in the South East District. The focus of the study is to assess the resilience and adaptability of communities (Otse, Mogobane, and Ramotswa) in the South East Administrative District to disasters. It will assess perceptions of hazards, knowledge, skills and competencies in disaster risk reduction. The resilience study is intended to provide critical empirical evidence for the review of community disaster programmes and inclusion in the curriculum of the Department of Social Work, University of Botswana.

This is a two-phased study (both quantitative and qualitative) and will be conducted simultaneously. The intention is to visit your district on the week of 11-15th March, 2013 to meet with the stakeholders and begin the data collection process. The researcher has already been cleared and granted permission to carry out the study by the Office of the President as per letter attached. The findings of the study will be shared with the District Administration, Councils and other stakeholders in the country through workshops, seminars and publications.

I shall therefore be most grateful for your favourable consideration of our request.

Thanking you in anticipation

Sincerely,


Mr. Kgosietsile Maripe (MSW)
Principal Researcher
Department of Social Work

www.ub.ac.bw

APPENDIX 11: Letter to Kgosi Mogobane

UNIVERSITY OF BOTSWANA
FACULTY OF SOCIAL SCIENCES

Department of Social Work

Corner of Ntswane and Muboto Road, Tel: [267] 355 2682
Pvt Bag LB 00705 Gaborone, Fax [267] 3951661 / 318 5659
Botswana E-mail: socialwork@mopipi.ub.bw

1st March, 2013

Kgosi
Mogobane Tribal Authority
South East District,
Private Bag V1
Ramotswa

Dear Sir/Madam,

RE: REQUEST FOR PERMISSION TO UNDERTAKE RESEARCH IN THE DISTRICT

I write, to request to interview social workers, tribal leaders, village development committees, and district disaster committees in a study entitled "Community Resilience to Disasters in Botswana," taking place in the South East District. The focus of the study is to assess the resilience and adaptability of communities (Otse, Mogobane, and Ramotswa) in the South East Administrative District to disasters. It will assess perceptions of hazards, knowledge, skills and competencies in disaster risk reduction. The resilience study is intended to provide critical empirical evidence for the review of community disaster programmes and inclusion in the curriculum of the Department of Social Work, University of Botswana.

This is a two-phased study (both quantitative and qualitative) and will be conducted simultaneously. The intention is to visit your district on the week of 11-15th March, 2013 to meet with the stakeholders and begin the data collection process. The researcher has already been cleared and granted permission to carry out the study by the Office of the President as per letter attached. The findings of the study will be shared with the District Administration, Councils and other stakeholders in the country through workshops, seminars and publications.

I shall therefore be most grateful for your favourable consideration of our request.

Thanking you in anticipation

Sincerely,


Mr. Kgosietsile Maripe (MSW)
Principal Researcher
Department of Social Work
University of Botswana
Tele: 355 2686
E-mail: maripek@mopipi.ub.bw

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APPENDIX 12: Letter to Chief CDO

UNIVERSITY OF BOTSWANA
FACULTY OF SOCIAL SCIENCES

Department of Social Work

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Pvt Bag UB 00705 Gaborone Fax:[267] 3951661 / 318 5099
Botswana E-mail: socialwork@mopipi.ub.bw

1st March, 2013

The Chief Community Development Officer
South East District,
Private Bag 002
Ramotswa

Dear Sir/Madam,

RE: REQUEST FOR PERMISSION TO UNDERTAKE RESEARCH IN THE DISTRICT

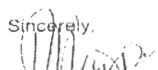
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I shall therefore be most grateful for your favourable consideration of our request.

Thanking you in anticipation

Sincerely,



Mr. Kgosietsile Maripic (MSW)
Principal Researcher
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University of Botswana
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APPENDIX 13": Letter to Kgosi Otse

UNIVERSITY OF BOTSWANA
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Department of Social Work

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University of Botswana
Tele: 355 2686
E-mail: maripek@mopipi.ub.bw

1st March, 2013

Kgosi Tsetse

Otse Tribal Authority
P.O Box 3
Otse

Sir,

RE: REQUEST FOR PERMISSION TO UNDERTAKE RESEARCH IN THE DISTRICT

I write, to request to interview social workers, tribal leaders, village development committees, and district disaster committees in a study entitled "Community Resilience to Disasters in Botswana," taking place in the South East District. The focus of the study is to assess the resilience and adaptability of communities (Otse, Mogobane, and Ramotswa) in the South East Administrative District to disasters. It will assess perceptions of hazards, knowledge, skills and competencies in disaster risk reduction. The resilience study is intended to provide critical empirical evidence for the review of community disaster programmes and inclusion in the curriculum of the Department of Social Work, University of Botswana.

This is a two-phased study (both quantitative and qualitative) and will be conducted simultaneously. The intention is to visit your district on the week of 11-15th March, 2013 to meet with the stakeholders and begin the data collection process. The researcher has already been cleared and granted permission to carry out the study by the Office of the President as per letter attached. The findings of the study will be shared with the District Administration, Councils and other stakeholders in the country through workshops, seminars and publications.

I shall therefore be most grateful for your favourable consideration of our request

Thanking you in anticipation

Sincerely,


Mr. Kgosisile Maripe (MSW)
Principal Researcher
Department of Social Work
University of Botswana
Tele: 355 2686
E-mail: maripek@mopipi.ub.bw

APPENDIX “14”

COMMUNITY BASED DISASTER PROGRAMME / STRATEGY FOR THE SOUTH EAST DISTRICT

BACKGROUND

The community based programme / strategy was developed after a study on community resilience to disaster in the South East District Council was conducted in three communities. It is based on the background that Botswana is prone to persistent droughts, wild fires, floods, windstorms, HIV and AIDS, and animal diseases which the Government has combated for the past four decades. The National Policy on Disaster Management (1996:1) states that, from 1981 to 1987 and 1991- 1992, the country experienced inveterate and severe droughts. These episodes greatly affected communities dependent on subsistence agriculture particularly rain-fed agriculture and livestock. These are common experiences in Botswana (as in other southern African countries) during the dry period (Botswana Government, 2010:17). In periods of excessive rainfall, there has been massive destruction to the physical environment and houses, crops, and plants, as well as the rapid development of gullies (Botswana Press Agency (BOPA), 2009: 4). Disasters, therefore, threaten the socio-economic and political progress of nations and communities and claim hundreds of lives of poor people. It is argued that natural disasters are one strand in a complex web of factors affecting economic development, community livelihoods, and conservation management strategies (UNISDR, 2005:1).

Community and individual resilience is not only a necessary characteristic but an important attribute for survival during disasters or catastrophes. Rock and Corbin (2007:383) argue that major disasters cause multiplicity of social and economic problems and wreak havoc in the lives of individuals, families, and communities. As such, communities must take a deliberate action to prepare themselves for such eventualities for survival and sustenance. The challenge is that, developing countries lack adequate public health infrastructure and structural emergency planning, efficient communication and transportation system, and the human and material

resources to mitigate against major disasters and / or ensure quick recovery (Tobin & Whiteford, 2002:28).

The radical social work perspective and professional emphasis on community development, accommodates community safety and resilience towards disaster as a well situated subject of study in the social work profession. It is indispensable for social workers to study factors that promote community safety and resilience, strengthen community preparedness capacity to bounce back, establish early warning systems, and monitor locally related hazards. It is also important for social workers to conduct on-going research in their communities to ascertain levels of resilience, safety and mitigation, and preparedness to respond to local disaster hazards.

Botswana communities' knowledge on how to systematically deal with hazards prevalent in their area is worrisome. Sometimes, communities are unwilling to cooperate with responders, relocate to places of safety, or change habits that make them vulnerable to disasters (Maripe & Maundeni, 2010: 5). This complicates the generation of appropriate disaster strategies that would protect the key development sectors like agriculture, water, energy, transport, social services, and health (Hellmuth, Moorhead, Thomson & Williams, 2007: 3). These communities which comprise predominantly of subsistence farmers have lost crops and livestock which are the very basis of their livelihood (NDMO, 2009). The loss of cattle and crops predisposes these subsistence farmers to poverty because many do not have alternative means of economic support (Maripe & Maundeni, 2010: 5; Harding, 2007: 295).

AIM

The aim of the study was to investigate resilience and adaptability to disasters of communities in the South East Administrative District, Botswana.

RE-STATEMENT OF THE OBJECTIVES

The objectives of this study were as follows:

- To investigate community perception of hazards, vulnerability, and disaster risks in the South East District

- To determine community preparedness systems, measures and disaster risk reduction strategies
- To identify community related disaster policies, legislation, and programmes in the district
- To determine hazards and risks that are prevalent and pose high risk for communities in the South East District
- To identify areas of high disaster risks and vulnerabilities in the three communities of the South East District.
- To identify the role of social workers in enhancing community resilience to disasters?
- To design community based disaster resilience strategies for the South East District disaster committee.

SITUATIONAL CONTEXT ANALYSIS

The participants identified the following places in Ramotswa as high disaster risk zones that are seriously affected: Taung, Ramotswa station, Goo-Dimpe, Goo-Moeng, Siga, Magope, and Morokologadi. These includes areas below the hills and mountains and streams as well as those nearer to bridges which are also affected by floods like Nkaikela, Goo-Siko, while drought seriously affect the fields (masimo) and grazing areas. The identified hazards in the community are floods, drought, heavy rains, and high temperatures.

In addition, the participants in Otse identified locusts, poverty, and hailstones, windstorms, veldt fire and earthquake. The participants identified Tswapong, Rankoromane, Botshabelo (which lack a drainage system), and Bokaa wards which are nearer to the hills and in particularly, the homesteads affected seriously by water flowing from the hills. Drought and high temperature affects the entire community, while windstorms affect Ikageleng ward mostly because there are no wind breakers.

In Mogobane, the participants identified floods, drought, wild land fires, high temperatures, windstorms, torrential rains, and lightning. They identified floods at the top, followed by drought, and lastly fires are the three most troubling hazards. The participants identified the wards that are affected mostly by disasters as Rabadukane, Borotsi, Lenganeng which is near the

dam, Mogobane, Thabantsho, Segorong, fields and / or lands (*masimo*) where floods have wash away the top soils, and Mojadife.

In terms of disaster policy, 78% indicated that they do not have a community / district disaster policy that derives from the national policy on disasters. A disaster policy is an important document that states the intentions of the district about disasters and the related setbacks and what should be expected by community members from the district (UNISDR, 2005: 7). A policy serves several purposes one of which is to avoid duplication of efforts and facilitates the coordination of risk reduction related efforts. The district disaster policy will define the roles and responsibilities of the community, volunteers, and delegate authority and resources.

It was established that the south east district has not profiled prevalent disasters besides the national hazard and risks analysis conducted in 2008 by the national disaster management office. 82% of the respondents confirmed the non-existence of district and / community disaster profiling. Disaster profiling serves several purposes in the district /or community, particularly guides the design of appropriate strategies and contingency plans. The district or communities does not have a disaster strategy to deal with the impending hazard and related risks. It was confirmed further by 83% of the respondents that the district has not zoned high, medium, and low risk areas. The profiling of hazard is useful in designing evacuation plans, identifying routes, and safe sites for the district.

CAPACITIES IN THE COMMUNITY

There are structures in the community that are critical in the building of community resilience to disasters. The governing structure that constitute the local authority in the district, that is, the tribal administration under the Chief and Deputy Chief, and ward headsmen as well as regiment, the Council, District Administration, and Landboard. The key informants reported that the councilor, the chief, the leaders, the police, disaster committee, neighbours, district commissioner office, social workers, and heads of wards and villagers responds to disasters. In addition, there are houses, water and boreholes, hospital, prayer by Churches, bridges, tarred road, and the Fire Department that serve as capacities to respond to disasters. The participants also identified hills, culverts for water drainage, and supplementary feeds for cattle provided by

the government, school buildings, and church buildings, a clinic, and water catchment tanks in the community.

MAIN OBJECTIVE

To design community based disaster programmes and community resilient strategies for the South East District disaster management committee, social workers, communities, and tribal authorities.

PROPOSED COMMUNITY BASED DISASTER PROGRAMME

1.0. Community based disaster preparedness

A disaster preparedness plan is an important document that defines roles and responsibilities that different stakeholders should perform before, during, and after disaster. It is defined as a framework that outlines activities that are essential to the development of a preparedness strategy (Kent, 1994: 11). The district, social workers, tribal authorities, and communities do not have disaster preparedness plans that would guide actions towards protecting community members against adverse impacts of disasters. It was confirmed by 79% of the respondents that they do not have a disaster preparedness plan for the district and communities. It was supposed to have designed by the national disaster management office working with the district disaster management committee, tribal authorities, and community members.

1.1. Community Disaster Action Teams

Disaster actions teams are critical in community based disaster risk mitigation and they play a major role in education and awareness programmes. Action teams can be established in different set ups to undertake various tasks and assignments. Disaster action teams refer to groups of people assigned to undertake a task in the community (first aid provision, erecting shelter, and early warning) (IFRC, 2010). Lorna (2008) argues that community groups in disaster management are essential in sustaining the risk reduction process for the community to meet aims and targets. They play various roles to keep community members informed and ready to act in the advent of any hazard. 70% of the respondents confirmed that they do not have both the district and community action teams. Action teams are to be comprised of community members

and other volunteers working with tradition leaders in the wards, ward development committees, and interested stakeholders. The action teams should not leave out the police, the councilor, and some village volunteers who sometimes when there were disasters assisted. The intention is to have systematically arranged community based structures to prepare, prevent, and respond to disasters and strengthening the work the police, Botswana Red Cross Society, Councilor, Village Development Committee, and the District Disaster Management Committee.

1.2. Community disaster response

Community members are supposed to be first responders to disasters affecting them and defining specific roles for different actors. These are the district disaster management committee, village development committee, social workers, councilor, and mobilization of donations from the sympathizers in the community. Twigg (2007: 10) argues that DRR requires a co-ordinated and comprehensive approach in which progress in one area needs to be matched by comparative progress in others.

1.3. Community disaster early warning

The district does not have early warning systems that would process and forward disaster related information to community members in a language that they understand. UNISDR (2005: 7) indicates that early warning systems should be people centered, timely and understandable to those at risk, and take into account demographic, gender, cultural and livelihood characteristics of the target audience, and guidance on how to act upon warning. Data designates that 74% of the respondents have attested to the non-existence of early warning systems in the district. Early warning systems are instrumental in alerting the vulnerable members to take appropriate action to mitigate or escape from danger. Hellmuth *et al* (2007:19) states that early warning system provides forecast of risks, detects and monitors hazard, and puts out warnings when necessary, paving the way for a coordinated response.

Community - based early warning systems are important to keep the community members consciously prepared to deal with hazards in their community. Relying on the weather information provided by the Department of Meteorological Services broadcast on television and radio Botswana is not sufficient, because not all community members have a television set, a radio, and are able to read the local newspaper, including the Dailynews. There should a community based initiative to process the information, translate it to symbols understood by the

community, and pass it to the household through volunteers. In addition, the disaster committee could hold workshops in to sensitize community members on what to do during floods. The messages need to be further translated to address the realities of the community and guide the community to take appropriate actions. The design of messages should take seriously the indigenous early warning systems (signs), their interpretations, and systems of sharing information.

Steps:

- 1.3.1. Set up early warning action teams
- 1.3.2. Establish early warning information dissemination systems
- 1.3.3. distribution of early warning leaflets, brochures, and pamphlets
- 1.3.4. ensure continuous public education on threatening hazards and risks
- 1.3.5. Incorporate indigenous early warning signs and symbols

1.4. COMMUNITY EVACUATION

The participants in Ramotswa, Otse, and Mogobane reported that they do not have disaster evacuation plans besides relying on the police, the fire department, and the Botswana Defense Force to evacuate the people with their helicopters and boats during floods. The evacuation routes are not marked, evacuation sites identified, and protocols not developed that community members could rehearse before disaster and apply during, and after disaster.

1.4.1. Before disaster

- Identify and mark evacuation routes / sites
- Develop evacuation protocols
- Establish evacuation action teams
- Training of evacuation action teams
- Preparing people in vulnerable areas for evacuation
- Simulation exercises and rehearsals

1.4.2. During disasters

They rely heavily on the police, the army (Botswana Defence Force), and the Fire Brigade service for evacuation during disasters without community pre and post evacuation planned activities. It is on this basis that the community evacuation teams should work with the army and police to evacuate people during disasters.

- Identify the areas and people to be evacuated
- Activate the evacuation plan
- Prepare the evacuees for the time in the camp
- Evacuate people to marked sites

1.4.3. After disaster

The actions will assess and give information to the evacuees on the possibilities of return to their homes.

- Update information on the disaster situation
- Assist evacuees to return home safely
- Prepare evacuees about the life outside the camp
- Provide support to resettle in their homes
- Link evacuees with District Council physical planners

1.5. Disaster protocol

Community disaster protocols are essential communication and action tools in preparing to respond to disasters. Some affirmed that there are protocols which they could not produce as proof besides stating that they are guided by police officer on how to behave themselves during floods and to support school going children as well as being asked to report any life threatening incident or missing person to the police or Chief. The respondents disclosed that they got information through self-reading (11%), media (10%), primary and secondary schools (4%), workshop (3%), and district disaster committee (1%). It is evident that many respondents got disaster information through self-reading and media than any other sources. These sources pass information to wide category of audiences and can be strengthened for effective and efficient

information sharing. Data indicates that district disaster management committee has not efficiently and effectively disseminated disaster information to the communities. After disaster, the respondents' desire that communities must be involved the rehabilitation and reconstruction work in their locality to strengthen the recovery process. There disaster protocols should draw from the HFA and the DRR frameworks to ensure that there is a strong:

- Public awareness and education on developed protocols
- Reference to international disaster frameworks, national policies, and strategies
- Continuous dialogue between the community, leaders, and actions
- Media coverage of community disaster initiatives

2. THE ROLE OF STAKEHOLDERS

The stakeholders play an important role in disaster risk reduction by providing technical, financial, and material support to community. They comprise Business community, Botswana Power Cooperation, Water Utilities Cooperation, Churches, Botswana Red Cross Society, National Disaster Management Office, Banks, Government agencies, and other community based organizations (NDMO, 2009). These provide essential services to the communities are not supposed to be left out in the pre and post disaster planning because during and after disaster interventions would need their commitment. Twigg (2005: 8) asserts that partnerships between different institutions and the collective application of different kinds of technical expertise are important to the success of DRR.

- Mobilize resource for the community / district
- Support education and aware campaigns in the district
- Advocate for policy change and creation of an environment conducive for disaster resilience
- Participate in the development of guidelines, protocol for the pre, during, and post disaster activities

3. ROLE OF SOCIAL WORKERS IN DRR

The finding of the community resilience study (2014) shows the crucial nature of social work intervention in disasters and designing of measures intended to promote community resilience to disasters. The participants and respondents are of the view that social workers should undertake the following roles:

3.1. Activities before disaster

- Guide the development of information dissemination campaigns, leaflets, brochures, and booklets
- Establish action teams in the community
- Assess and monitor potential hazards and risks in the community
- Organize and conduct disaster drills, simulations, and training
- Mobilize resources and promote the stockpiling of relief material in communities
- Keep volunteers data
- Facilitate information dissemination on various hazards
- Hazard mapping and monitoring of the changing patterns of risks and vulnerabilities

3.2. Activities during disaster

- Oversee the education and awareness
- Damage assessment
- Relief provision and beneficiary selection
- Counseling to survivors
- Oversee the evacuation process and the conditions of the evacuees

3.3 Activities after disaster

The respondent social workers attested that they possess adequate disaster related knowledge to effectively discharge their roles and responsibilities.

- Oversee the counseling of survivors
- Debriefing of action teams

- Supporting and facilitating the recovery and reconstruction process
- Compile report on the actions of the community for future reference

4.1. ROLE OF TRIBAL LEADERSHIP / AUTHORITY

The Kgosi kgolo (Chief) and her subordinates at the main kgotla, villages, and wards constituting the community should The respondents have identified three roles that tribal leaders, in particular the Chief (kgosi) must undertake in DRR, these are:

4.1. 1. Activities

- Provide counseling to team and ward leaders
- Coordination of community disaster initiative
- Mobilize community for action before, during, and after disasters Participate in the identification of the affected,
- Monitoring the provision of emergency relief, evacuation, and resettlement

5. 1. ROLE OF THE COMMUNITY

The community members must be involved at all the phases of the disaster cycle and their role must be specific to time before, during, and after disaster:

5.1.1 Activities before disaster

- Conduct community education and awareness
- Form community action teams
- Community disaster trainings administered by volunteers
- Stockpiling resources in the community

5.1.2. Activities during disaster

- search and rescue of victims
- warning others of danger
- evacuating the stranded during disasters

5.1.3. Activities after disaster

- assessing the damage
- mobilizing community to reconstruct
- visit the affected families / individuals
- providing support and information on available assistance

In terms of responding to disaster, the respondents have suggested that communities should be trained and involved in the search and rescue of victims, warning others of danger, and evacuating the stranded during disasters.

5.2. COMMUNITY DISASTER RISK REDUCTION PROPOSED ACTIVITIES

The tribal administration has a disaster committee whose chairperson is a member of the District Disaster Management Committee which is only active during disasters and not inclusive of community members. The leadership suggested that the following should be included in the disaster risk reduction activities:

- Outreach and education
- Kgotla meetings though the attendance is poor unlike in the past where the Chief (kgosi) had to take action against those who do not attend
- Training workshops for the community disaster committees
- Cattle and / or livestock management
- Cover water drainage pits
- Conduct research to guide actions and solutions
- People should refrain from cutting down trees during the day and to follow the culture that prohibits the cutting of mokgalo and mosetlha tree
- Observing the ploughing times, and doing it in the morning rather than in the afternoon
- Roofing of houses should be done in the morning rather than in the afternoon.

CONCLUDING REMARKS

The draft disaster strategy for the South East District details the roles and responsibilities and activities that have to be performed by the named actors. It is a draft because it has not been adopted and approved officially by appropriate structures of government, district, and communities. It serves as a guide towards developing resilient communities to disasters by systematically engaging relevant players and the community to adapt and develop habits and routines that are geared towards enhancing community capacity and reducing vulnerability to disasters. It is crucial to establish active community and district monitoring systems to ensure that there is commitment to achieve desired goals and the framework guides in the regard as well.

Logframe for South East District

Community based disaster strategy

The logframe below details the role and responsibilities of various actors in the community who will play an active role in disaster risk reduction. It is subject to modification by the communities so that it suits their community context. It is assumed that the activities that have been proposed rely much on the initiatives and willingness of the community members and resources within their context.

Main Objective	Activities	stakeholders	Person responsible	Time
Main objective: To design community based disaster strategy for the South East District				
1. To improve community disaster preparedness				
1. 1. Community disaster preparedness	Establish various disaster action team for the district	Council Secretary District Commissioner BRCS	District Disaster Management Committee Social workers Tribal leaders	
	Establish early warning systems for the district	Meteorological Dept NDMO BRCS	DDMC Tribal leaders Community members	
	Establish evacuation sites, routes, and protocols	NDMO District Commissioner	DDMC Tribal leaders Community members	
	Designing disaster protocol for action teams	NDMO BRCS	DDMC Social worker Community members	

	Stockpiling disaster relief material	NDMO Ministry of LG&RD	DDMC Social worker Community members	
	Training disaster various action teams		NDMO Tribal Authority Social worker	
	Designing disaster response protocols for the district		Social Worker Community members / volunteers	
	Identifying and signing MoU's with suppliers of relief goods during disasters	NDMO Business community	DDMC Social worker Tribal leaders VDMC	
2. To strengthen community response to disasters				
2. 1. Community response	Activation of response teams	NDMO	DDMC VDMC Tribal leaders Social worker	
	Assessment of situation and damage	NDMO BRCS	DDMC VDMC Volunteer action team Social worker	
	Identification and selection of beneficiaries	DDMC BRCS	Social worker Action team VDC	
	Evacuating the affected and their property to the camp sites	DDMC BDF	Action team Social worker Police First aiders	
	Provision of relief goods to beneficiaries	NDMO DDMC VDC	Social worker Action team	

		Business community		
	Search and rescue for the victims and survivors	NDMO BDF DDMC	Police Action team First aiders	
	Counseling of the affected and victims	Tribal leaders DDMC	Social workers Counselors Lay counselors	
3. To establish community education and awareness systems				
3. 1. Community disaster education	Providing information on common hazards and climate change	DDMC BRCS	Action teams Tribal leaders	
	Providing information on evacuation and identified sites	Social worker DDMC	Action teams VDMC	
	Providing information during disaster on health, security, and changing conditions	DDMC Community members Tribal leaders	Social workers Action teams VDMC	
	Providing information on impeding disasters and action to be taken	NDMO DDMC Tribal leaders	Action teams Social workers VDMC	
	Providing information on climate change to communities	NDMO DDMC	Action teams Social workers VDMC	
	Translating and	DDMC	Action teams	

	disseminating weather information to communities	Social worker	VDMC	
	Design and disseminating DRR IEC in the form brochures, leaflets, bulletins, and news brief.	NDMO BRCS	Social worker VDMC Tribal leaders DDMC	
4. To enhance community resilience to disasters				
4. 1. Community disaster resilience	Activate the recovery process in the community	NDMO Tribal leaders	DDMC Action teams VDMC	
	Assessment of community reconstruction needs	External supporter Tribal leaders	Action teams DDMC Social worker	
	Identifying external supporter	NDMO	DDMC VDMC	
	Strengthen poverty reduction measures	Min of LG & RD	Social worker VDC Tribal leaders	
	Identify vulnerable groups, areas, and monitoring processes	DDMC	Social workers Action teams VDC	
5. To strengthen the monitoring and evaluation of disaster resilience				
5.1. Monitor ing and evaluating	Meeting monthly to assess progress	NDMO BRCS	Social workers Tribal authorities DDMC	

Disaster risk reduction activities	in various areas of the strategy			
	Submission of monthly reports to the DDMC by VDMC	NDMO	Social workers Team leaders Ward leaders	
	Meet twice a year to assess progress in the various aspects of the strategy	NDMO	DDMC Social workers Team leaders Tribal Authority	

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