Community response to annual flooding and Community Based Disaster Risk Reduction (CBDRR): The case of Oshakati Town, Namibia.

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Summary

Disaster risk Reduction (DRR) is well known and practiced in many nations. Community Based Disaster Risk Reduction (CBDRR) is a sub-component of DRR which is slowly being practiced in most at risk communities. However, there are still gaps regarding the principles and guidelines that guide the process of CBDRR. This study stipulates numerous guiding principles that govern the processes of CBDRR activities. These are: traditional knowledge, understanding of community members, capacity of community members, community participation, political will and training of community members. Furthermore the study used the guidelines to evaluate which activities by the Oshakati community members relate to the principles and guidelines of CBDRR as a way of reducing the risk of recurring floods in the community. Through focus group discussions and semi-structured individual interviews, it was found that the community members in Oshakati adhere to most principles of CBDRR such as the use of traditional knowledge, community members having the capacity to work together to solve common societal problems and to understand community structures. However, guidelines such as community participation, political will and training of community members were not adhered to due to various challenges such as the lack of institutional capacity and limited resources. The findings further stipulate that those guidelines were not adhered to due to inadequate knowledge on DRR and lack of support from the local government due to limited availability of resources. The study recommends that in order for the local government to reduce the risk of recurring floods in the community, the local government need to build capacity of its personnel working directly with DRR aspects. These can be achieved through a shift in the approach of responding to flooding to being proactive, creating awareness regarding the hazard and ensuring genuine participation of community members into local government CBDRR activities.

Key Words: *Disaster Risk Reduction, Community Based Disaster Risk Reduction, Community Members, Hazards, Floods, Oshakati, Development.*

Opsomming

Ramprisiko-bestuur is welbekend en word wereldwyd uitgevoer. Gemeenskapgebaseerde ramprisiko-bestuur is ’n onderafdeling van ramprisiko-bestuur en word al meer in hoe-risiko gemeenskappe implementeer. Gapings betreffende die beginsels en riglyne vir die prosesse van gemeenskapgebaseerde ramprisiko-bestuur is egter steeds sigbaar. Hierdie studie stipuleer die verskeie rigtinggewende beginsels wat die prosesse van gemeenskapgebaseerde ramprisiko-bestuursaktiwiteite beheer. Hierdie beginsels en riglyne is tradisionele kennis, insig en begrip van gemeenskapslede, kapasiteit van gemeenskapslede, gemeenskapsdeelname, politieke wil en die opleiding van gemeenskapslede. Die studie het ook die riglyne toegepas om te bepaal watter aktiwiteite wat deur die Oshakati gemeenskapslede uitgevoer word om die risiko van vloede in die gemeenskap te verminder, wel verband hou met die beginsels en riglyne van gemeenskapgebaseerde ramprisiko-bestuur. Fokusgroep besprekings en semi-gestruktureerde individuele onderhoude onthul dat tradisionele kennis en die kapasiteit om saam te werk ten einde ’n gemeenskaplike sosiale probleem op te los en gemeenskapstrukture beter te verstaan, die twee beginsels is wat deur die Oshakati-gemeenskap toegepas word in die uitoefening van gemeenskap gebaseerde ramprisiko-bestuursaktiwiteite. Die riglyne van gemeenskapsdeelname, politieke wil en opleiding van gemeenskapslede word egter nie toegepas nie as gevolg van die gebrek aan institusionele kapasiteit en beperkte hulpbronne. Die studie bevindings toon verder dat hierdie riglyne ook nie toegepas is nie omrede daar onvoldoende kennis oor ramrisikobestuur is asook ’n gebrek aan ondersteuning vanaf die plaaslike regering as gevolg van die beperkte beskikbaarheid van hulpbronne binne die plaaslike regering. Die studie beveel aan dat die plaaslike regering fokus op die uitbou van die kapasiteit van hul personeel wat direk in ramprisikobestuur betrokke is, ten einde die risiko van terugkerende vloede in die gemeenskap te verminder. Dit kan bereik word deur die benadering om te reageer op vloede te vervang met ’n proaktiewe benadering van bewusmaking ten opsigte van die vloede en so te verseker dat werklike deelname deur gemeenskapslede in die plaaslike regering se gemeenskapgebaseerde ramprisiko-bestuursaktiwiteite plaasvind.

Sleutelwoorde: *Ramprisiko-vermindering, Gemeenskapgebaseerde ramprisiko-bestuur, Gemeenskapslede, gevaar, Vloede, Oshakati, Ontwikkeling.*

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CHAPTER 1: ORIENTATION AND PROBLEM STATEMENT

1.1 Introduction

Today, the world is facing increases in natural hazards at an exceptional rate (Guha-Sapir *et al.,* 2004:13). Natural hazards are defined as natural processes or phenomenon that may cause loss of life, injury or other health related impacts (UNISDR, 2009:20). Between 1994 and 2003, natural hazards affected about 68 million to 618 million people throughout the world (Guha-Sapir *et al.,* 2004:13).

Floods are one of the main types of natural hazards experienced in developing countries (Jonkman, 2005:152). Floods are known to have great impact in urban areas, where development changes the natural environments (Rebele, 1994:173). For example in 2006 and 2007 in Luanda, the capital city of Angola, cholera outbreaks peaked due to floods and about 83 520 people were affected and almost 3 140 died (Schmuck, 2012:243). Another example is the floods of Mozambique through the Zambezi River which affected about 20% of the country's population and when around 800 people lost their lives in 2000 (Schmuck, 2012: 252).

The increased occurrence of natural hazards in urban areas, coupled with higher urbanisation in cities as a result of rapid and unplanned growth, can lead to increased risk in some instances (Arku, 2009:254). Potential consequences of floods in urban areas include overwhelming economic losses, large affected populations and serious environmental damage (Galindo & Batta, 2013:1). Cities are becoming high producers of new risks due to failed infrastructure and services, environmental degradation and increased informal settlements (Fatti & Patel, 2013:13). While urban settlements are known to serve a nations' economic needs and living evidence of a nations' ethnical traditions; cities are becoming high producers of new risks due to failed infrastructure, environmental degradation and increased informal settlements (Fatti & Patel, 2013:13). Additionally, urban areas are believed to be growing as a result of natural population growth, rural-urban migration and reclassification of rural or peri-urban areas (Fatti & Patel, 2013:13).

At the same time, natural hazards and the impact of climate change pose the greatest threats to urban residents (Williams & Jacobs, 2011:187). Urbanisation has been taking place even though people recognise and understand the increasing risk of natural hazards in urban areas (Douglas *et al.,* 2008:200). This is observed in cities in the developing world where marginal areas, with poor service provision are mostly inhabited by the poorest people in cities (Fatti & Patel, 2013:13). As a result, a huge number of poor people are hard hit by the impact of hazards in cities in terms of losing their homes, food becoming scarce and going through emotional aftershocks (Fatti & Patel, 2013:13). This corroborates with the view that in developing countries, natural hazards tend to result in a greater number of people affected than in global developed countries (El-Masri & Tipple, 2002:158).

As a way of reducing the diverse impacts of such hazards, studies have indicated that specific Disaster Risk Reduction (DRR) initiatives should pay particular attention to people directly affected (Eiser *et al.,* 2012:5). Since communities constitute the first people to react to hazards, they should be placed at the centre of any risk reduction initiatives at large (Ferdinand *et al.,* 2012:85). According to Delica-Willison & Gaillard (2012:711) community refers to a small aggregate of people, often located away from centres of power but sharing a common and continuous way of life, similar beliefs, close ties, trust and frequent interactions.

Over the past years, countries have implemented Community Based Disaster Risk Reduction (CBDRR) programmes as a means of enhancing people's capacity to cope with natural hazards (Gaillard *et al.,* 2008:383). The CBDRR concept suggests that ordinary people are capable of finding collective solutions to situations that they face (Delica-Willison & Gaillard, 2012:711). This concurs with development scholars' views that stress the importance of cultural identity of local communities and participation at all levels (Servaes, 1995:45). Development therefore aims to build capacity and allows people to be involved in their own developmental processes. At the same time CBDRR programmes also aim to build capacity among local people so that they are able to assess the risk beforehand, identify, prioritise, plan and implement risk reduction measures at the community level (Gaillard *et al.,* 2008:384). In that regard, emphasis should be placed on how communities understand and interpret risks and choose actions based on their interpretation and should be seen as vital to any strategy for disaster reduction (Eiser *et al.,* 2012:5). While it is the

community members' own experiences, personal feelings, values, cultural beliefs, interpersonal and societal dynamics that usually shape community responses to hazards, local communities analyse their hazardous conditions, vulnerabilities and capacities just on the basis as they see them (Shaw, 2012:3).

CBDRR has been successfully implemented worldwide (Shaw, 2012:3). The Philippines provides a prime example of great success achieved in increasing community participation in risk reduction programmes, notably in flood-prone areas (Gaillard *et al.,* 2008:393). This was achieved by training flood affected people to adjust their everyday lifestyles and not merely rely on extraordinary measures to face the hazards. While the community livelihood depended heavily on selling fish, crabs and prawns, which were threatened; the CBDRR concept encouraged changes in lifestyle, food and diet behaviours. Such changes included a shift from unproductive subsistence farming to cash aquaculture (Gaillard *et al.,* 2008:393).

Today, CBDRR programmes coupled with development objectives have been recognised as some of the most sustainable ways to enhance people's capacity to cope with natural hazards (Gaillard *et al.,* 2008:392). In view of this, the study aims to draw on the CBDRR concept to explore how members of the community in Oshakati reduce the risk of flooding.

Oshakati is a town of about 37,000 inhabitants in the Oshana Region of Namibia. It is the regional capital town of the northern part of the country known as Ovamboland. Oshakati is one of Namibia's largest cities and it is located near the Namibia's main highway, which stretches from South Africa through Namibia's capital, Windhoek, on to the Angolan border.

Oshakati is situated in the Cuvelai-Etosha Basin and cut by the Okatana River. Both of these geographic features make the town prone to flooding and heavy floods hit it since 2008.

1.2 Problem Statement

Flooding is not a new phenomenon in the Oshakati community and annual flooding takes place since 2008 (Angula, 2010:2). During the annual floods, water swamps

nearby roads, homes and schools causing major property damage (Angula, 2010:2). Many people have been temporarily relocated to higher grounds because water has reached waist-height in some properties (Red Cross Society, 2009:3). The Office of the Prime Minister (OPM) and private organisations has regularly provided temporary housing (such as tents) to flood victims. This solution has been the general response to appeals for help to flood victims and those who become homeless (Republic of Namibia, 2009:24). The floods are believed to be a result of two contributing factors: the Cuvelai system, which is water flowing from Angola on its way to the Etosha Pan and downpours that cause excessive amount of water (Republic of Namibia, 2009:52).

To that end, most of the studies about floods in Namibia document statistics about losses in educational facilities and agriculture, focusing on farmers mainly from the rural areas (Ministry of Education, 2011:16). However other impacts such as an average of about 246 schools that closed down completely because learners were at risk of drowning, increased number of snake bites, crop fields that submerged under water and the increased occurrence of water borne diseases are not always documented (Ministry of Education, 2011:20). However, recent floods have shown greater impact on urban centres probably because of the high population concentration resulting in more disruption of sewage facilities, higher rates in theft and house break-ins and a number of urban markets closing down due to high levels of water (Nakanyala ***et al.,*** 2012).

As a way of responding to the situation, communities react differently in terms of living with the floods. The problem under investigation is thus using the CBDRR principles to study how members of the community in Oshakati reduce the risk of flooding and hence find effective recommendations for managing the floods.

1.3 Research Questions

The study has the following research questions:

- What relevant literature is available on the principles and guidelines for CBDRR?
- Which activities by the Oshakati community members relate to the principles and guidelines of CBDRR?

- How does the literature on CBDRR compare with the activities undertaken by the Oshakati community members in support of CBDRR?
- What recommendations can the study offer for disaster risk measures based on CBDRR that can reduce future flooding impacts in Oshakati town?

1.4 Research Objectives

The study has the following objectives:

- To establish from relevant literature the principles and guidelines for Community Based Disaster Risk Reduction;
- To explore activities undertaken by Oshakati community members relevant to the principles and guidelines of CBDRR;
- Compare the literature on CBDRR and the activities undertaken by community members in Oshakati Town; and
- To offer recommendations for disaster risk measures based on CBDRR that can reduce future flooding impacts in Oshakati town.

1.5 Central Theoretical Statements

Since the local people are the ones affected when hazards occur, they become the first responders at household and community levels (Delica-Willison & Gaillard, 2012:712). Shortly after a hazard, victims engage quickly by gathering fallen materials, starting over and building shelters for their families and neighbours. Studies show that local communities are usually in a better position and have better insight to plan for initiatives concerning their own safety than external aid (Delica-Willison & Gaillard, 2012:714).

CBDRR consists of self-developed, culturally and socially acceptable, economically and politically feasible ways of coping with and avoiding crises that relate to natural hazards (Delica-Willison & Gaillard, 2012:714). This implies that local communities

analyse their hazardous conditions, vulnerabilities and capacities as they perceive them (Shaw, 2012:3).

Studies have shown that CBDRR activities are deeply rooted in the society and culture of an area. Therefore, community-based activities enable people to express their real needs and priorities (Gaillard *et al.,* 2008:384). This allows for problems to be defined correctly and for appropriate responsive measures to be designed and implemented (Shaw, 2012:4). Furthermore, Benson *et al.,* (2001:205) argue that the existence of community-based organisations allows people to respond to emergencies rapidly, efficiently and fairly. Therefore, available community resources (even if scarce) can be used economically. CBDRR encourages the formation of grassroots hazard response organisations and emphasises that the communities at risk should execute detailed analysis of hazardous situations (Shaw, 2012:3).

The concept of CBDRR is widely encouraged worldwide as one of the strategies that can be used at local levels to reduce underlying risks and hence reduce the impact of hazards (Izumi & Shaw, 2012:36). However, other scholars have indicated that communities may not always respond to risk warnings (Eiser *et al.,* 2012:13). They argue that it is not because these communities are 'irrational', but because they feel constrained in terms of the options open to them to respond (Eiser *et al.,* 2012:13).

Whilst it has been implemented in many development programmes and other UN agencies, the concept of CBDRR has been criticised for being located in communities (area-based), without the process and outcomes being owned by communities (Izumi & Shaw, 2012:36). Lastly, despite the effort that people normally make to take part in any undertaking that will advance their interests, they need to understand the hazards issues entirely in order to participate fully. Delica-Willison & Gaillard (2012:721) argue that the CBDRR concept does not necessarily consider this.

1.6 Literature Review

The literature review entails a systematic and structured process of identifying relevant literature to be used in writing a research proposal and eventually a thesis

(Majam & Theron, 2006:25). In the literature review, the author engages in a specific process of knowledge generation.

Literature on CBDRR encourages a bottom up strategy of disaster risk reduction practice worldwide (Delica-Willison & Gaillard, 2012:713). Though CBDRR emerged in the 1970s, it was only formalised and widely promoted in the 1980s. This was achieved through the creation of national and international networks by non-governmental organisations (NGOs) and civil society organisations involved in grassroots activities (Izumi & Shaw, 2012:36). Since then, many governments have been implementing it in regions such as South Asia and Africa (Fernandez *et al.,* 2012:220). CBDRR programmes aim to build capacity among local people so that they are able to assess the risk beforehand, identify, prioritise, plan and implement risk reduction measures at the community level (Gaillard *et al.,* 2008:384).

While the CBDRR concept aims to reduce local communities' exposure to vulnerability by promoting alternative perspectives of dealing with the hazard, the practice of the CBDRR concept was criticised of being diverse due to a number of host factors. These include socio and cultural context of vulnerable communities and their level of economic development (ADPC, 2006:11). The CBDRR concept was also criticised of not having direct guidelines on how CBDRR projects should be implemented (ADPC, 2006:11).

To summarise, literature on CBDRR indicates CBDRR to be a well applied and successful concept. However, the researcher observes that little has been said on how it should be implemented. Recent reports highlight the need for a better understanding of communities' immediate and adaptive capacity to respond to natural hazards (Innocent & Albrito, 2011:730). These offer some 'food for thought' on the underlying opportunities in enhancing the resilience of our communities towards the risks posed by weather-related hazards (Innocent & Albrito, 2011:730).

1.7 Research Methodology

This section focuses on the research methodology that was applied to execute the study. These include the research design, sampling and the instruments used in the

study. The study fulfilled its research objectives as outlined above by collecting information from primary sources. This was done through a qualitative approach.

1.7.1 Research Design

Research design comprises of a clear statement of the research problem, as well as plans for collecting, processing, and interpreting the observations/data that provide answers to the research question (Mouton *et al.,* 2006:580). Quantitative research seeks explanations of few narrowly defined variables that have an impact on a scenario. Qualitative research seeks an in-depth description and interaction of multiple variables sometimes over a period of time (Neuman, 2006:672).

For this study, a qualitative research approach was necessary. Qualitative research approaches allow the researcher to have an understanding with a neutralist observation and with subjective exploration of reality from the perspective of an insider (De Vos *et al.,* 2011:308). The study therefore needed to collect data on activities that the Oshakati community members undertake as ways of reducing the risk of flooding based on the CBDRR concept and allow the researcher to understand the views of the community members. Based on this need, it was more appropriate for the study to make use of a qualitative research design.

1.7.2 Sampling

A sample is derived from a population. Population refers to the study objects and consists of individuals, groups, organisations, human products and events and the conditions to which they are exposed (Patton, 2002:229).

Qualitative and quantitative research processes have similarities with regard to sampling and the pilot study (De Vos *et al.,* 2011:391). However, it has been stipulated that there is no strict rules or guidelines on the exactness of a sample size for qualitative research (Patton, 2002:244).

In this study, a non-probability sampling method was used through a *snowball* sampling procedure for the local community members group. Whereas the local community members group consist of heads of households, a snowball sampling procedure was selected for this study based on one of the advantages it poses. The *snowball* sampling procedure gives a preference to key informants who, on account of their position or experience, have more information than regular group members and/or are better able to express such information (Welman *et al.,* 2012:204). The study used this sampling method by first approaching a few heads of households from the relevant population (Welman *et al.,* 2012:69). Whereas these individuals were both male and female of affected communities within Oshakati, these individuals then acted as informants who also identified other heads of households who may have the experience or information of interest. These participants were then included in the sample. As one participant leads to the other in identifying further sets of relevant individuals, the sample obtained was regarded as being representative of the relevant population (Welman *et al.,* 2012:69). 60 respondents participated in the focus group discussions.

The second group of respondents consisted of respondents from the local government, school principals and chief nursing officers. Respondents from the local government were sampled using a *purposive sampling* method. Purposive sampling is described as a random selection of sampling units within the segment of the population with the most information on the characteristic of interest (Welman *et al.,* 2012:207). This sampling method was used for these groups of respondents because they are directly involved and hence they were key informants in this area of interest. For this group, 10 respondents participated in the semi-structured individual interviews.

1.7.3 Data Collection Methods

The study made use of focus group discussions and semi-structured individual interviews. This was necessary as it enables the researcher to gather more information from the participants in a flexible manner (Patton, 2002:243). The structured interviews normally limit the information strictly to what is stated in the question outline.

Focus groups discussions sometimes described as group in-depth interviews, consist of a number of individuals that are drawn together for the purpose of expressing their opinions on a specific set of open questions (Welman *et al.,* 2012:201). Focus groups discussions were selected for this study as it would allow the researcher to gather information that can perhaps not be collected easily through individual interviews (Welman *et al.,* 2012:201). The study conducted nine different focus group discussions consisting of seven respondents per group. A total of 60 respondents participated in the focus group discussions.

The questions used during the focus group discussions were guided by the themes identified in literature. Whereby the literature consist of six guidelines of CBDRR, questions were constructed purposively to assess each of the CBDRR guidelines.

Semi-structured interviews consist of themes and questions to be analysed during the interviews. The researcher also has the flexibility of exploring other themes that come up during the interview (Welman *et al.,* 2012:166). Semi-structured interviews were selected for this study based on its flexibility. Another advantage of using semi-structured interviews was that it allows the researcher to probe more with a view of clearing up vague responses as well as asking for further elaborations (De Vos *et al.,* 2011:391). The study ensured reliability and validity of data obtained by making use of a digital recorder to capture every conversation with the permission of the respondents. For the local government group which consist of the officials within the Oshakati Town Council that directly work with disaster related aspects, chief nursing officers and school principals, ten semi-structured interviews were conducted.

The themes that were identified in literature, guided the questions to be used during the focus group discussions. As the literature consists of six guidelines of CBDRR, questions were constructed purposively to assess each of the CBDRR guidelines. The questions used on the local government group were designed differently from the questions used on the local community group. This is because each group have different information regarding each of the themes and also because each group plays a different role in the risk reduction process.

1.8 Data Analysis

Qualitative data analyses were applied to interpret the data derived from the interviews. Data analysis involves examining, sorting, categorising, evaluating, comparing, synthesising and reviewing the raw and recorded data (De Vos *et al.,* 2011:391). The aim of the analysis of data is basically to transform raw data in the form of facts, perceptions and findings into understandable findings.

In order to transform the data into meaningful findings, thematic data analysis procedure was used in the study. Through this process the interviews and responses from the group discussions were reviewed, examined, sorted and categorised according to themes (Attride-Stirling, 2001:385). These themes were then evaluated and compared to describe the Oshakati community activities and answer the study objectives (Mayring, 2000:3).

1.9 Ethical Considerations

Regarding how interviewees were treated, the study undertook some of the ethical consideration measures deployed by (De Vos *et al.,* 2011:115). This included how the information gathering was utilised without exposing the interviewees in any possible way. The study placed emphasis on two important elements of ethical consideration (De Vos *et al.,* 2011:115). These were:

- Voluntary participation, by ensuring that all participants were informed accordingly by giving a thorough description of the study; and
- Informed consent, by providing honest and thorough details about the purpose of the interview and the investigation.

Only then, willing participants were requested to participate in the interview otherwise those who were not willing where excused to leave the interview venue. In addition, anonymity and confidentiality regarding the responses of the participants were maintained. Regarding potential harm to participants, the researcher gave assurance of no physical and or emotional harm to be experienced by or caused to the participants (Welman *et al.,* 2012:201).

1.10 Significance of the study

The study is part of a global as well as national strategic effort to enhance communities' capacity to cope with natural and human induced hazards. Furthermore, the study aims to support national efforts to minimise the loss of human lives and property due to floods. At the same time, the study aims to promote the use of Community Based Disaster Risk Reduction programmes at community level. Lastly, the study will generally contribute to the body of knowledge on Disaster Risk Reduction.

1.11 Chapter layout

The study follows a structure as described below:

Chapter one introduces the topic of the study; it introduces the focus as well as the overview of the study. This chapter highlights the problem statement and it also briefly gave an overview on the research methodology.

Chapter two discusses the literature regarding CBDRR as well as the principles and guidelines of CBDRR.

Chapter three provides a detailed discussion on the methodology used in the study. This includes the use of focus groups discussions, semi-structured individual interviews, sampling methods and recognised limitations in the study.

Chapter four gives a description of the findings of the study.

Chapter five introduces the conclusions and recommendations of the study.

CHAPTER 2: PRINCIPLES AND GUIDELINES OF COMMUNITY BASED DISASTER RISK REDUCTION (CBDRR)

2.1 Introduction

This chapter presents literature on Disaster Risk Reduction (DRR) and more specifically Community Based Disaster Risk Reduction (CBDRR). Over the past years, scholars both internationally and in Africa have joined hands in emphasising the importance of DRR and later shifting the approach into making community members part of disaster risk reduction initiatives (UNISDR, 2005:175). This chapter will mainly focus on the history by considering the origin and development of CBDRR, the importance of CBDRR and explore the principles and guidelines that govern the CBDRR processes.

2.2. Origin of CBDRR

Over the past years, the world has witnessed an increase in economic losses and impacts due to natural hazards (Pandey & Okazaki, 2005:1). A combination of factors such as climatic events, high population densities and substandard housing conditions were found to contribute to cities in Africa becoming increasingly vulnerable to hazards (Parnell *et al.,* 2007:357). The physical, social and economic losses caused by natural hazards are more severe in developing countries. The impacts of natural hazards also influence socio-economic conditions, tradition, culture and environment of the affected communities (Pandey & Okazaki, 2005:1).

As a way to deal with the impacts that natural hazards cause, there has been a progressive shift in the approach to these impacts (Innocenti & Albrito, 2011:730). One of the ways in which natural hazards and their impacts were approached is in the context of Disaster Management (DM). In the 1980 – 1989, Disaster Management approaches still only focused on preparedness to respond to hazards instead of focusing on the underlying risks that make people vulnerable (Van Niekerk, 2011:38; Shaw, 2012:5). The UNDP (1992:21) defines Disaster Management as “the body of policy and administrative decisions, and operational activities, which pertain to the various stages of hazards at all levels”. It has cycles

which involve prevention, mitigation, early warning and recovery (Gratwa & Bollin, 2002:19). During this time of DM, institutional hazard management practice worldwide has been predominantly employing a top-down strategy based on the assumption that exposure to natural hazards constitutes risk (Delica-Willison & Gaillard, 2012:713). The thinking and practices of this approach were more geared towards responding to emergencies, managing emergencies and aftershock recovery (Innocenti & Albrito, 2011:730; Pandey & Okazaki, 2005:1).

However, the process of DM encountered some challenges as all its activities and resources were geared towards catastrophic events (Arnold, 2012:610). The focus on the underlying causes of hazards (e.g. risks and vulnerability) in most cases was not considered (Van Niekerk, 2011:38). DM was perceived as the effective way to respond to hazards. However, it then excluded any involvement of communities at risk and most importantly did not pay attention to the underlying risk (Gratwa & Bollin, 2002:19).

The International Decade for Natural Disaster Reduction (IDNDR) declared by the United Nations for the decade 1990-1999 provoked the recognition that disaster risk reduction was a social and economic imperative aspect (ISDR, 2000:4). Through international action especially in the developing countries, the IDNDR intended to reduce loss of lives, poverty damage, social and economic disruption caused by natural hazards (ISDR, 2000:4). The IDNDR addresses major concerns in disaster risk management related to education, capacity development, social impact and vulnerability, civil society and public-private partnership, economic and health aspects, land use planning and environmental protection (IDNDR, 1999:7).

Through the IDNDR, a world conference on Disaster Reduction held in Yokohama, Japan was adopted in 1994. At the conference, the Yokohama Strategy and Plan for a safer world was adopted due to the realization that impact of natural hazards in terms of human and economic losses continue to rise and societies are becoming more vulnerable to such hazards (ISDR, 2000: 10). The Yokohama strategy played a major role in the development of a global culture of prevention and thereby led to the developing of the United Nations International Strategy for Reduction in the year 2000. The ISDR succeeded the IDNDR which highlights the integration of disaster risk reduction into the broader context of sustainable development and related

environmental considerations (UNISDR, 2009:20). Humanitarian groups and those NGOs that were directly involved in communities affected by hazards prioritised, through the UNISDR multiple efforts to address the limitations in DM (Gaillard *et al.,* 2008:391). Only then the importance of focusing on what makes people vulnerable was realised (Gratwa & Bollin, 2002:20). This realisation was also motivated by observing that apart from the occurrence of hazards and people's proximity and exposure to hazards, people also suffered because of prevailing socio-economic and political conditions that make them vulnerable to these natural hazards (Delica-Willison & Gaillard, 2012:713; Shaw, 2012:4; Allen, 2006:85). Based on this realisation the approach that had been used to deal with natural hazards then shifted to proactive approaches as ways to deal with the impacts caused by natural hazards.

Proactive approaches seek to understand why hazards happen by applying integrated holistic approaches to reduce the impacts of hazards as well as focusing on underlying risks (Bankoff, 2012:37). . The use of more proactive approaches to deal with the impacts of hazards led to what is referred to as Disaster Risk Reduction (DRR) (Bankoff, 2012:37). DRR has replaced the previously utilised top down approach, which mostly did not reached community members who are most affected by hazards (Maskrey, 1989). DRR now pays specific attention to these people, putting the most affected at the centre of initiatives (Eiser *et al*., 2012:5; Ferdinand *et al*., 2012:85). Disaster Risk Reduction acknowledges people at grassroots level through community based organisations, which allow people to respond to emergencies rapidly, efficiently and fairly (Gratwa & Bollin, 2002:19). Moreover, DRR serves as a platform where people can be involved from the initial development of the programme until its implementation (Patterson *et al.,* 2008:127). Through DRR, an emphasis on affected communities' was discerned which slowly led to the official development of an approach now known as Community Based Disaster Risk Reduction (CBDRR) (Shaw, 2012:6).

The practice of CBDRR was achieved through the creation of national and international networks of non-governmental organisations (NGOs) and civil society organisations involved in grassroots activities (Delica-Willison & Gaillard, 2012:713).

The application of the CBDRR process became more and more apparent after the realisation that DRR could be more effective if it applies ideas of local people who

hazards directly affect (Patterson *et al.,* 2008:127). CBDRR, which is a sub-component of DRR, is a fundamental form of participant empowerment and a compelling mechanism for enforcing the transmission of ideas from the members of communities that hazards directly affect, into long term risk reduction programmes (Allen, 2006:83). CBDRR emphasises a major role that communities that hazards directly affect can play in DRR (Habiba & Shaw, 2012:109). People in affected communities are capable of finding collective solutions to situations that they face (Shaw, 2012:4). This is done through utilising their experiences and cultural beliefs in CBDRR process to find long term risks reduction measures. CBDRR addresses vulnerability by engaging both local communities in conjunction with government and other external actors in capacity-building (Allen, 2006:82).

In order to promote further use of proactive approaches, the Hyogo Framework for action was adopted. In 2005, the World Conference on Disaster Reduction held in Kobe, adopted the Hyogo Declaration referred to as the Hyogo Framework for action (HFA) (UNISDR, 2005). The HFA is an internationally agreed framework for DRR to increase the resilience of nations and communities (Arnold, 2012:608). According to UNISDR (2013:1) the framework has been well received among many nations and well adopted in achieving resilience of communities at risk. However, there has been a key challenge in finding the resources to ensure that frameworks and principles become operational (UNISDR, 2013:1). The framework aims to reduce the risk of natural hazards through logical efforts to evaluate and manage their causal factors, including reduced exposure to hazards, lessened vulnerability of people and property and improved preparedness for adverse events (Djalante *et al.*, 2012:778).

The UN's framework for reducing disaster risk by 2015 calls on governments, among other stakeholder's to do five things. These five priorities can be viewed in the figure below and are referred to as the five 'priority areas' (PAs) of the Hyogo Framework of Action (HFA).

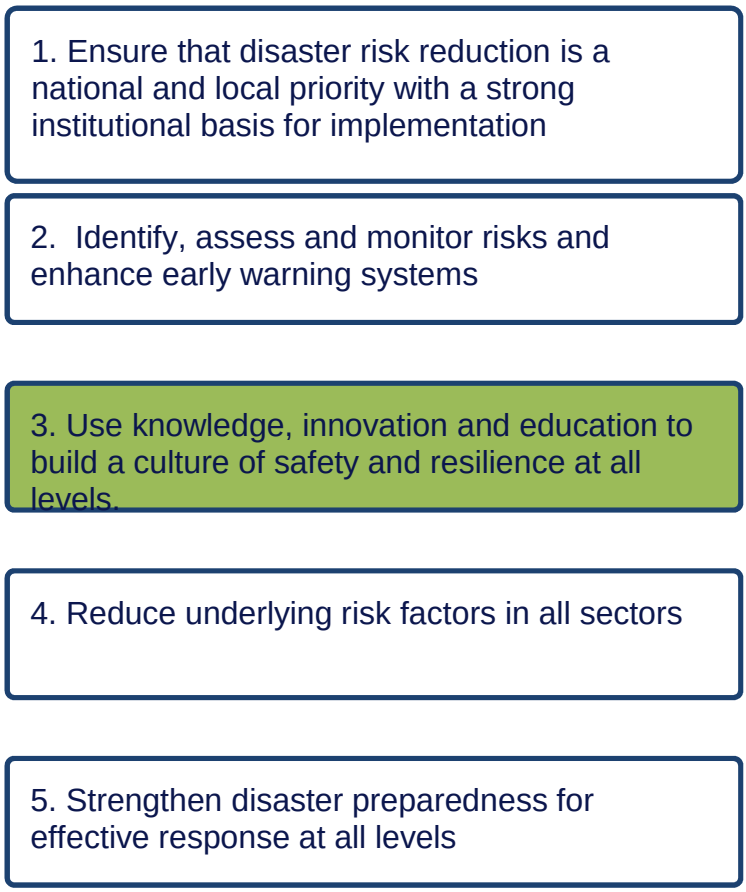

Figure 1: The Key five priority areas of the Hyogo Framework for Action (HFA): *(Adopted from Arnold 2012:610).*

The third priority area emphasises the use of knowledge and innovation to strengthen culture of safety and resilience at all levels including communities (Arnold, 2012:610). This priority area relates well to CBDRR as it embraces the strengthening of community level capacities to become resilient and be able to resist further risks (UNSIDR, 2005). In addition, it is an important area as it addresses the root causes of vulnerabilities by involving the local people and utilises their knowledge and resources to introduce long term responsive strategies. Delica-Willsion and Gaillard (2012:701) further support the idea of incorporating local people and using their knowledge stating that communities' responses are normally shaped from personal feelings, values, own experiences, cultural beliefs, social and societal dynamics.

Moreover, the use of local people's knowledge relates well with the definition of Douglas *et al.,* (2007:150) on CBDRR that CBDRR is a specific form of local-level capacity building and it represents the increasing important element of vulnerability reduction through community members themselves. CBDRR strategies are

indigenous and develop from the local people's own personal experiences and traditional knowledge. The HFA (2005:35) stipulated that traditional knowledge and experiences are essential for long-term and sustainable strategies in dealing with hazards.

One case study that illustrates the importance of using experiences and traditional knowledge in CBDRR is the use of traditional knowledge in community-based DRR in Zimbabwe (Murwira, 2012:106). After a serious drought in 1992 in the south-east part of the country, the Chivi community undertook a CBDRR process to develop local plans in order to overcome the food insecurity in the community. Through the CBDRR process, community members created a platform to share their past experiences of droughts and other hazards (Murwira, 2012:106). Moreover, through the CBDRR platform the community could revive its traditional knowledge and shared skills on how each member survived droughts in previous years. Out of the CBDRR initiative, the community also built upon the shared skills and knowledge with assistance of modern methods such as pest control, to come up with strategies that could allow them to sustainably survive the droughts in the long-term (Murwira, 2012:106). These strategies included livestock and crop breeding, vegetable irrigation and fencing, selectively bred and shared seeds and livestock fairs with other communities. This case study illustrates how the rural Chivi community could reduce their vulnerability and strengthen their capacity in facing droughts by sharing previous experiences and exchanging traditional knowledge.

It was through using the principles of CBDRR that food security in the Chivi community was enhanced and that subsequent droughts did not cause hunger. The community not only used their knowledge and experiences but combined these with new technologies such as pest control to build strategies they were able to sustain over time. The community now has a broad crop and livestock diversity that enables them to counter the effects of droughts (Murwira, 2012:101).

A second example explores a Japanese Community Based Disaster Risk Reduction initiative implemented through 'town-watching' (Tsunozaki, 2012:719). On the western part of Japan, the Ehime Prefecture coastal community in Saijo had experienced frequent flooding and escalating impacts almost every year. Through a local implementation of a CBDRR programme, the community members highlighted

the importance of monitoring the sea level as early warning to evacuate their houses (Tsunozaki, 2012:719). The community would walk through their neighbourhood and get to know the local issues and understand different environmental characteristics around the community, which were linked to the hazard (Tsunozaki, 2012:718). This also included sharing experiences of past events as well as knowing exactly the sea point at which floods could occur. The community therefore used their knowledge and past experiences to prepare evacuation routes, and prepare their shelters. Since then the impacts of the hazard were severely reduced and the community could restore their livelihoods (Tsunozaki, 2012:718).

This local initiative was not only used for DRR purposes, but these practices were also integrated into environmental management and town planning (Tsunozaki, 2012:719). This case study emphasises both the participation of local people in solving community problems and the importance of empowering community members to convert local knowledge into activities that benefits the whole community.

These case studies illustrate that CBDRR activities allow communities to take responsibility of their own situation. It also demonstrates that communities can use their knowledge, manpower and resources to successfully undertake Community Based Disaster Risk Reduction initiatives. The case studies also provide an insight into the application of traditional knowledge in attaining solutions to hazards. Moreover, past experiences and cultural beliefs can be part of information sharing that can be utilised to find solutions to hazards.

Hence, local initiatives driven by the local people using traditional knowledge and experiences can be regarded as sustainable (Delica-Willison & Gaillard, 2012:719). These types of local initiatives are also referred to as local CBDRR activities and are considered to be one of the sustainable approaches to risk reduction in affected areas (Delica-Willison & Gaillard, 2012:719). The local CBDRR initiatives are referred to as sustainable approaches to risk reduction since such approaches use local resources and traditional knowledge to develop strategies to deal with the hazard. These strategies then become community members' norm of dealing with the hazard and eventually their way of living (Delica-Willison & Gaillard, 2012:719). Communities were found to easily apply and understand strategies they have

developed themselves compared to when they had to understand and apply strategies that were adopted outside their community (Patterson *et al.,* 2008:127). Arnold (2012:611) also supports the argument by stating that Community Based Disaster Risk Reduction initiatives are one of the most sustainable ways to reduce the risk to hazards at local levels. The UNISDR (1998) also supports this and stipulates that disaster risk reduction is most effective at the community level because it is at the local level that the specific needs of the community can be met. Community Based Disaster Risk Reduction practitioners responsible for implementing initiatives need to consider the potential of local capacities and resources. Today the CBDRR concept is widely encouraged to be one of the strategies that can be used at local levels to reduce underlying risks, and enhance people's capacity to cope with natural hazards and in turn, reducing the impact of hazards (Izumi & Shaw, 2012:36).

In order to make CBDRR clear, the following section discusses the concept of CBDRR in more depth. The section looks at various definitions of CBDRR, how it evolved over time and the importance of Community Based Disaster Risk Reduction.

2.3 Definition of CBDRR and its importance

Douglas *et al.,* (2007:150) describes CBDRR as a specific form of local-level capacity building and the representation of increasing important elements of vulnerability reduction and risk reduction strategies. The ADPC (2006:12) defines CBDRR as a process within a community and for the community where solutions for dealing with risks progresses from the community itself and not from higher authorities.

Previously disaster management functioned mainly in a top down manner, which was highly criticised of being very bureaucratic and often operating under obvious political constraints that impose ineffectiveness of emergency service delivery (Benson *et al.,* 2001:205). Because of this, actions of the communities under such systems were characterised by the following: (i) reduced participation that results in failure to meet the vital needs of societies, (ii) a redundant increase in the

requirement for external resources, and (iii) overall dissatisfaction over performance despite the use of outstanding management measures (Shaw, 2012:5).

In recognising these limitations, CBDRR promotes a bottom-up approach to address the above-mentioned challenges and difficulties (Christie & Hanlon, 2000:201). It corrects the defects of the top-down approach in disaster risk reduction which failed to address the local needs and ignored the potential of traditional knowledge of the people at risk (Habiba & Shaw, 2012:109). CBDRR focuses on pre-hazards actions in reducing risks within vulnerable communities (Shaw, 2012:5).

At the centre of CBDRR is the principle of participation of community members that hazards affect directly. Through involvement of people at risk, their ability to respond to emergencies is increased in the process through providing them with more access and control over resources and basic societal services (Shaw, 2012:4).

CBDRR speaks highly of communities and therefore it is important to define what community refers to in this context. According to Vincent (2009:58) community involves interaction among people with common interests who live in a particular area. Delica-Willison and Gaillard (2012:711) refers to community as a small aggregate of people, often located away from centres of power but sharing a common and continuous way of life, similar beliefs, close ties, trust and frequent interactions. In terms of CBDRR, a community may be defined as the delineated population living within the territorial bounds of a town or village administrative unit which is considered to be exposed to the risk of an environmental hazard (Allen, 2006:84). This may be the preferred definition of community in this context because it considers the shared environmental hazards people are exposed to and that each element of the community has a contribution to CBDRR initiatives.

Shaw (2006:69) supports the definition which argues that “community includes not only the people living in a certain location, but also the local government, local business sectors, local academic bodies, and non-government organisations (NGOs) living in the same areas as the people in that location”. Such collective membership is an important element in risk reduction specifically at community level. Therefore, more effort has been made to incorporate all the above mentioned groups of peoples’ ideas into the development of holistic risk reduction initiatives (Shaw & Okazaki, 2003). In addition, Quarantelli (1989:248) also supports the above

definition and argues that past research have indicated that disaster risk reduction have become more community based. Quarantelli (1989:248) further explains that such a practice benefits the local people. Each local person has a contribution towards the community's long term responsive strategy. That way the CBDRR initiative's outcome reaches the targeted population, fulfilling the ultimate goal of CBDRR, which is to bring about long term risk reduction strategies to those at risk of hazards (Chen *et al.,* 2006:206).

According to Paul (1987:3), ordinary people are capable of finding collective solutions to situations that they face. Supporting this view Delica-Willison and Gaillard, (2012:711) add that communities' reactions toward hazards are usually formed from past familiarities, personal feelings and collective dynamics. Local communities analyse their hazardous conditions, vulnerabilities and capacities as they see them. Vital to any strategy for any disaster risk reduction initiative is the significance of understanding how communities interpret risk and choose actions based on their understandings (Eiser *et al.,* 2012:5). CBDRR strategies, if implemented in a participatory manner, enables the local people to express their real necessities and priorities, allowing hazards to be well-defined and risk reduction procedures to be designed and implemented correctly (Mercer *et al.,* 2007:250).

To conclude, CBDRR aims to strengthen coping and adaptive abilities at the local level where the initial effects of hazard events are experienced (Skertchly & Skertchly, 2001:30). It builds on available traditional knowledge and experiences as well as resources to enable local people to cope with hazardous conditions and become increasingly self-reliant (Rocha & Christoplos, 2001:245; Christie & Hanlon, 2000:201).

For CBDRR to be successful, it needs to achieve participation of community members. This way their knowledge and experiences are utilised in the CBDRR process. To do this, there are various principles and guidelines found in literature that governs the approach of Community Based Disaster Risk Reduction (CBDRR). The following section discusses the guidelines and principles of Community Based Disaster Risk Reduction.

2.4. Principles and Guidelines of CBDRR

It is important to note that relevant guidelines of development theory can in many cases, inform these CBDRR guidelines and principles. This is because both the development theory and CBDRR share some similar principles and guidelines in literature and both of these approaches aim to build capacity for people to manage their own processes in terms of a development process or the CBDRR process (Servaes, 2007:497; Habiba & Shaw, 2012:107; Shaw, 2012:5). A detailed description of the close link between development and Community Based Disaster Risk Reduction follow.

2.4.1. The relationship between CBDRR and Development Theory

It is widely debated that international development practices rest on the assumption that community based programmes are essential components to foster sustainable livelihoods and alleviate poverty in many developing countries (World Bank, 2002). This is because of the way in which community based programmes have revealed quite extensive achievements in improving conditions of many poor communities (World Bank, 2002). These achievements include the empowerment of many marginalised groups, an increased capacity towards collective action and the strengthened capabilities for community members to undertake self-initiated development activities (Mansuri & Rao, 2004:15). Moreover the potential gains of developmental community based programmes are undoubtedly large (Mansuri & Rao, 2004:15). Developmental community based programmes enabled the reversal of existing power relations in many communities to create an opportunity to voice the situation of the poor and at the same time, to give them more control over developmental programmes (Mansuri & Rao, 2004:15). Owing to developmental programmes, many governments of the developing world could have been enhanced to be more responsive and able to deliver better public goods and services (Mansuri

& Rao, 2004:15). It also enabled governments to better maintain community assets and enhance community members to be more informed and involved in community affairs (Mansuri & Rao, 2004:15).

Overall it has been established that development activities became a means of empowering people to initiate actions on their own and thus influence the processes and outcomes of the development process (Paul, 1987:46). This indicates the potential that lies within community-based programmes. It is important to argue that some of the development theory guidelines are indeed important for successful implementation of CBDRR processes. In the context of CBDRR it is expected that community based programmes may become the gateways to nations that are free of disaster victims (Shaw, 2012:10). This is because of the way Community Based Disaster Risk Reduction has hoped to reduce risks through community-based programmes (Pandey & Okazaki, 2005:1). Therefore, relevant guidelines in development theory might greatly assist with the process of reducing risk successfully.

Furthermore, arguing the relation between CBDRR and development theory in terms of literature, Thomalla *et al.,* (2006:40) explain that linking development to disaster risk reduction is a crucial aspect within a broad view of Disaster Risk Reduction. Implementation of the development theory has achieved quite high rates of improved living standards of many people through community-based projects (Mansuri & Rao, 2004:15). DRR on the other hand aims to reduce the risks and minimise hazards' impacts through Community Based Disaster Risk Reduction (CBDRR) projects. CBDRR practitioners are also aiming at reducing risks of hazards through community-based projects, but it is advisable that CBDRR practitioners learn lessons from development theory and avoid gaps established in development literature to increase their success rates (Shaw, 2012:6). Moreover development theory has stressed the importance of participation of people in processes aiming to improve their living standards (Cohen & Uphoff, 1980:220). This can be applied to the CBDRR context namely that people at risk need to participate in the CBDRR process so that the outcomes reach everyone at risk (Gaillard & Mercer, 2013:99). This is also an important aspect that the CBDRR process can rely on. Though development initiatives do not necessarily aim to reduce the risk of hazards, development

initiatives also seek to empower people to manage their own development process (Mohan & Stokke, 2000:264). This implies that peoples' capacities are enhanced and in the context of CBDRR people have the capacity and are empowered to address various forms of vulnerabilities (Delica-Willison & Gaillard, 2012:716). Community Based Disaster Risk Reduction (CBDRR) and developmental agencies share a common inspiration of promoting and maintaining sustainable community based projects (Shaw, 2012:5). It is therefore important that should CBDRR initiatives aim for sustainable outcomes through community-based programmes, then CBDRR processes should consider the guidelines which development theory applies to achieve successful outcomes through community projects (Thomalla *et al.,* 2006:38).

Important guidelines from development theory relevant to this study include the use of traditional knowledge and community participation. Guidelines and principles found in CBDRR literature include the understanding of community structures, the capacity of community members, political will and the training of community members. In this study, guidelines from development theory and from CBDRR will be considered and inform guidelines for implementing CBDRR activities (Shaw, 2012:6).

2.4.2 Traditional knowledge

One of the important guidelines of CBDRR is that of traditional knowledge (Shaw, 2012:6). In an effort to survive, local communities used traditional knowledge and skills they have acquired over years of trial and error (Mosimane, 1998:26). This knowledge is bound up in the social structures and culture of the community. Rural communities in many countries have stores of traditional knowledge that were undervalued and underutilised in Disaster Risk Reduction activities (Brokensha *et al.,* 1980:25). Shaw *et al.,* (2009:209) consider traditional knowledge as the crucial guide to insight into effective solutions of hazards.

It has been established in development theory that the use of traditional knowledge in community based programmes has led to quite high rates of success in developmental community-based projects (Briggs, 2005:99). For authors like

Gorjestani (2004:6), traditional knowledge represents a possible alternative in progress among the world's rural poor communities. Gorjestani (2004:6) explains that traditional knowledge could bring about change that comes from within communities themselves by applying traditional expertise to ensure economic and social progress. There has been a central debate about sustainability of traditional knowledge because of ways in which traditional knowledge has allowed local people to live in peace with the environment for centuries (Briggs, 2005:100).

Therefore, in the CBDRR context indigenous people have strategies that allow them to survive in hazardous environmental conditions. Furthermore, if the local people's strategies as they utilise it are applied through the CBDRR processes within the CBDRR plans, long-term and effective solutions to hazards could be achieved. Huntington (2000:1270) argues that traditional knowledge, as first-hand foundation was utilised as a tool in understanding and forecasting possible environmental events upon which many livelihoods and even survival of such local people depend. Similarly, in the context of CBDRR, the same can be said for traditional knowledge. Therefore, traditional knowledge can be used as a way in which communities can prepare themselves to respond to hazards as well as to find long term solutions for the hazard in their environments.

Traditional knowledge is the origin of traditional surviving techniques suitable for specific environmental events and has been established from previous experiences in dealing with hazards (Shaw, 2012:6). When the local people are exposed to a certain hazardous condition, the local people are always the first to respond to the situation before any external assistance arrives (Shaw, 2012:6). This is done using resources that are already available to the local population and thus allows for a timely response (Shaw, 2012:7). A study on local capacity-building in the Philippines found that many local populations have a huge extent of traditional knowledge related to their vulnerabilities and potential capacities on how to respond to a certain hazard (Allen, 2006:83). This emphasises the strength in the knowledge and resources of the local populations.

Literature around development theory has also indicated various factors that were perceived to have altered the success of many developmental projects (Mansuri & Rao, 2004:20). This includes the notion of external organisations that implemented

many developmental projects in rural communities with promises of impacting the lives of those rural community members but who have never included the community members in the projects' implementation (Nyong *et al.,* 2007:792). Many development projects did not necessarily consider the culture of the people affected and therefore resulted in reduced participation and success rates (Allen, 2006:83). Following these failures, a growing interest was evident in absorbing indigenous knowledge and traditions to enhance the project participation rate (Pandey & Okazaki, 2005:1). This interest has indeed provided environmental sound approaches to development theory (Pandey & Okazaki, 2005:1). Since then traditional knowledge has been defined to have value for benefiting communities as well to benefit planners that aim to improve conditions of vulnerable rural communities (Nyong *et al.,* 2007:792). White (1996:20) explains that low success rates in many developmental programmes are due to populations that are concerned but excluded from all the processes relating to project design, formulation and implementation.

It is therefore realised that, much like in the process of development, a major requirement for sustainability in the CBDRR process is to include participation of the local population as well as them having equal ownership in the project (Pandey & Okazaki, 2005:1). This is best achieved when the local communities commendably participate in the implementation of the CBDRR process (Shaw, 2012:6). Like any other community based project, a CBDRR initiative is set out to be effective when it involves traditional knowledge, perceptions, needs and potential value of local resources of the community of interest (Walia, 2008:68). Traditional knowledge needs to be prioritised into any initiatives regarding risk reduction (Gaillard & Mercer, 2013:98). This implies using knowledge and wisdom of local people in developing, designing and implementing CBDRR activities, thereby achieving long term effective risk reduction strategies that affected communities could use to cope with their conditions over time (Gaillard *et al.,* 2008:392).

However, while traditional knowledge has proven to be an effective way in designing and implementing sustainable development projects, studies have indicated that various challenges are experienced when integrating traditional knowledge into the processes of CBDRR (Shaw, 2012:6). Little has been done to integrate traditional knowledge into formal disaster adaptation strategies (Robinson & Herbert 2001:23).

Incorporating traditional knowledge into disaster risk reduction activities can lead to the development of effective risk reduction strategies that are cost effective, practical and maintainable (Nyong *et al.,* 2007:788). Therefore, it is encouraged to facilitate communication between scientific experts and local people on an assumption that science may have something to offer to local people as a way to find solutions to deal with the impacts of hazards (Nyong *et al.,* 2007:788). Furthermore, it is likely that if science and traditional knowledge are equivalent, new research practices may be developed as a result of scientists being able to access traditional knowledge (Shaw, 2012:6).

2.4.3 Understanding of the community structures

In order to successfully implement a CBDRR programme, there needs to be an understanding of the community's structure involved in terms of the socio, cultural, formal and informal political sphere of the community (Allen, 2006:83). Community may be defined as "the delineated population living within the territorial bounds of a town or village administrative unit which is considered to be exposed to the risk of an environmental hazard" (Allen, 2006:84). This definition is very relevant to structures of communities. In this regard it is the social connection that matters to people who are sharing a certain kind of bond and a similar way of doing things, including responding to hazards (Allen, 2006:83).

Even though a community shares similar ways of doing things as well as similar beliefs and culture, there still might be a high degree of heterogeneity (Dynes, 1998:113). Heterogeneity can be viewed in terms of ethnicity and employment status of which both can affect the decision-making power of every community member. This heterogeneity is important as it may influence the effectiveness of the CBDRR process (Allen, 2006:84). It is therefore important to consider all sorts of differences within the community so that the CBDRR process includes all sorts of different groups and people in the community. There are many differences among communities which disaster risk reduction practitioners implementing a CBDRR process need to consider. Such differences that may exist include community subgroups like the landless, labourers, the unemployed and women (Mohan &

Stokke, 2000:264). Other differences may also exist when community members experience different stages in accessing resources depending on their social status (Allen, 2006:84). According to Shaw (2012:4) the aspect of access to resources plays a crucial role regarding social status in the community. For example, employed members of the community may respond to hazards slightly different compared to those that are unemployed. For a better understanding of communities' structure, communities are best viewed as fluid circles of societal interaction rather than as fixed units (Mohan & Stokke, 2000:264). Therefore, all these differences are important to be considered in the CBDRR process as they may cause a variation in strategies that community members would utilise to reduce risks and respond to hazards which would influence the outcomes of CBDRR (Allen, 2006:83).

According to Chavis and Wandersman (1990:61) understanding community structures are crucial for effective programme implementations. Similarly, in the context of the CBDRR process, understanding community structures serves as an advantage to disaster risk reduction practitioners implementing a CBDRR process. This is because should there be any kind of heterogeneity then the disaster risk reduction practitioners implementing a CBDRR process would consider to conduct separate interviews for these groups as a way of gathering information from the different groups (Mansuri & Rao, 2004:18). Separate interviews may be necessary so that it gives an opportunity to those implementing a CBDRR process to understand how different groups of society utilise different strategies to respond to hazards.

If disaster risk reduction practitioners responsible for implementing the CBDRR process understand the structure of the community then such differences are also incorporated into the design of the CBDRR programme (Thomalla *et al.,* 2006:40). Therefore it is important for those who implement any CBDDR process to consider all the different forms of heterogeneity within the community to have strategies in place to overcome such challenges and incorporate the differences in their planning (Thomalla *et al.,* 2006:40). According to Tobin (1999:19), it is doubtful that anticipated recipients would accept CBDRR activities that ignore social heterogeneity.

Another crucial aspect relating to the understanding of community structures is the concept of 'local power structure'. In his analysis of CBDRR, Shaw (2006:IV) has indicated that local power, structures both formal and informal community initiatives as well as play a critical role in sustaining it. Reed (1997:570) argues that in addition to formal community power structures, community power structures are viewed as a more informal political structure also plays a significant role within the aspects of community development. Formal power structures consist of the constitution, statutes, common law and other governmental regulations (Pejovich, 1999:167). According to Reed (1997:570) community power structures has powerful influence on individuals of an entire community as in many cases the community power structures are the decision making bodies of those communities (Milton ***et al.,*** 1980:84). Therefore, the successful completion of a CBDRR process depends on understanding the informal power structures of the community of interest. Additionally, these informal community power structures do not only influence community participation of the local political leader to the programme, but it also helps the community members to understand the purpose of the programme (Reed, 1997:572).

2.4.4 Capacity of community members

Mattessich and Monsey (2004:61) describe capacity of the community members as the ability of residents to organise and mobilise their resources for the accomplishment of consensual defined goals. Goodman *et al.,* (1988:267) explain capacity of community members to be resources that originate from within the community and the ability of the community members to access those resources. Capacity of the community members can also be described as the extent to which members of a community access various forms of resources and cooperate effectively to develop and sustain strong social relationships (Phillips & Pittman, 2009:6). The strong social relationships in communities enable collaborative decision making, planning, coping and recovering from hazards and shocks they might experience (Phillips & Pittman, 2009:6). Resources expressed in Phillips and Pittman's (2009:6) definition can include traditional wealth like properties and money.

Examples for social capital include knowledge and skills of people and their ability to work with others.

In terms of CBDRR, communities need both kinds of resources and therefore the appropriate definition in this context would include social capital (Gaillard, 2010:220). Social capital is defined as the tendency of local people to associate frequently, trusting each other and participate together in community affairs (Hall, 1999:417). The community affairs in terms of social capital include roles, guidelines and procedures as well as social networks that sustain patterns of societal interaction (Hall, 1999:417). In particular, roles such as decision-making, resource mobilisation, communication, and conflict resolution are supportive characteristics of capacity that a particular community may have (Uphoff & Wijayaratna, 2000:1876). Supporting this view, Green and Haines (2011:144) add that aspects of social capital can also be trust, social links and standards that enable cooperative action among community members. Such characteristics make it easier for community members to engage in mutually beneficial collective activities such as CBDRR (Uphoff & Wijayaratna, 2000:1877). Capacity can also include physical, institutional, social or economic resources as well as skilled collective or personal attributes like leadership and management (Shaw, 2012:7). Green and Haines (2011:145) describe the most frequently used indicators of social capital to be community members' participation in voluntary organisations and attendance at public meetings in local organisations. The participation of community members is one of the most important indicators in addressing common problems that are not easily resolved by individual actions (Moyer *et al.,* 2009:209).

A differentiation can be made between two different types of social capital (Beard & Dasgupta, 2006:1461). These are bonding and bridging social capital. Bonding capital refers to bringing people and groups together who are already known to each other (Woolcock & Narayan, 2000:230). Bridging capital brings people together and groups who did not previously know each other (Daniere *et al.,* 2002:455). These two different forms of social capital are crucial to CBDRR initiatives because the two types of social capital can strengthen the relationships that already exist as well as establish new social ties and therefore provide a medium where information is exchanged between different groups. This is an important aspect to the CBDRR process as it creates an environment where different members of the community get

a chance to exchange different strategies they undertake to reduce the risk of flooding. Furthermore, these forms of social capital benefit CBDRR activities as they increase the level of interaction, raise the level of reciprocity, generate greater trust among individuals and thus improve information flow (Moyer *et al.,* 2009:209). Additionally, these forms of social capital create more dialogue among community members enabling them to learn how to deal with the hazard using different strategies from different cultures (Beard & Dasgupta, 2006:1461).

Community capacity is a central concern to organisational development experts, funding agencies, disaster managers and implementing institutions (Goodman *et al.,* 1988:259). In the same way it is a necessary aspect for the development and maintenance of operational community based initiatives (Goodman *et al.,* 1988:259). In this regard, it also implies that capacity is important for CBDRR as it include the resources and the social bonds that the community rely on for the survival of the CBDRR programme. If the community does not own resources and lack social bonds despite their effort in part taking in DRR activities, their participation will not necessarily be efficient (Allen, 2006:84).

Another essential aspect relating to capacity of community members that is important to the CBDRR programme is access to resources. According to Goodman *et al.,* (1988:272) the ability of the community members to access resources play a crucial role in sustaining the CBDRR programme. The resources that are discussed here include personnel skills in leadership and management skills essential for a CBDRR programme to continue (Goodman *et al.,* 1988:272). According to Green and Haines (2011:148) there need to be a leader from the community who can lead, mobilise resources, plan and evaluate the programme in order to sustain it after those who have implemented the CBDRR process leave. Phahlamohlaka (2008:20) adds that resources like the availability of another leader who could potentially lead the CBDRR programme allows for a change in leadership. Thus, it allows a different leader, rather than the same headman, to offer guidance in all aspects pertaining to the entire community. A new leader would bring new information and ideas, as well as additional contacts and resources that may not have been accessed before (Green & Haines, 2011:148). Leadership and management are essential in the community to ensure that the programme does not end soon after those who have

been implemented the CBDRR process have left (Goodman *et al.,* 1988:267). All these may be possible with a different leader for the community.

However, a community that is rich in resources as well as social capital may lack access to technological expertise, such as computers, photocopiers and cameras (Goodman *et al.,* 1988:267). Technology can provide a community access to imperative innovative ideas, designs and strategies. To maximise the use of such innovative ideas, communities require access to communication channels within and outside a community (Goodman *et al.,* 1988:267; Mansuri & Rao, 2004:18). This may be possible with a different leader leading the process of CBDRR.

2.4.5 Community Participation

Toker (2007:309) defines community participation as the association of local people in the societal and physical development of the environmental setting in which they live. Hamdi (1991:75) claims that community participation is a term referring to all the scales and techniques, which refers to the process of involving all families, community groups and government officials in improving the living standard of the local people. In this context community participation means that a given community takes part in the CBDRR process and takes responsibility at all stages of a programme including planning and implementation (ACDP, 2006:26). Mefalopolus (2008:50) supports this view and explains that participation requires a change in the way poor populations are considered, from inactive receivers to active agents of the development process. Applying development literature to CBDRR, this definition encapsulates CBDRR as it encourages local people to take responsibility of the CBDRR process and involves people at all stages of the CBDRR process. Roodt (1996:312) also supports the above view and adds that in development projects, participation means that people are involved directly or indirectly in community organisations and this involvement gives them decision-making power that relates to the implementation of programmes. Similarly in the process of CBDRR, people's participation in community organisations may offer them decision-making power regarding how the CBDRR initiatives are implemented. This may be the preferred

definition for participation in the context of CBDRR as it allows community members to have inputs throughout the CBDRR process

In order to make a community more resilient to hazards, more emphasis should be given to community level disaster risk reduction (Shaw, 2012:6). Community level disaster risk reduction can be achieved through participation in Community Based Disaster Risk Reduction (Shaw, 2012:6). White (1996:17) differentiates between *pseudo-participation* and *genuine participation.* According to White (1999:17) pseudo-participation refers to a level of participation of the local people whereby they are present to listen to what is being planned for them and what would be done in their community, but do not interact or take part. Genuine participation on the other hand refers to the level of participation whereby the local people are in control of the programme and has the decision-making power related to the programme activities (White, 1999:17). The differentiation between the different levels of participation is very important to the process of CBDRR. Thus, this importance points to the necessity of the in-depth analysis of the way in which participation can be transformed into action within CBDRR processes (Shaw, 2012:4). The level of local community participation plays a crucial role in the implementation of CBDRR programmes. The differentiation of levels of participation is important to the CBDRR process as it allows those implementing CBDRR initiatives to take note of different stages of participation. This then gives them the opportunity to select the level of participation that would benefit their programmes in the long term (White, 1999:20).

In the context of CBDRR, genuine participation allows the local people to become the subjects of their own risk reduction process and not simply objects of CBDRR processes (Thomas, 1996:49). Applying the different levels of participation to CBDRR, it is important that CBDRR initiatives consider genuine participation as the ideal level of participation since it facilitates mutual understanding among community members (Mefalopulos, 2008:89). In the context of CBDRR, genuine participation would encourage the correct assessment of the hazard, hence leading to wider consensus (Roodt, 1999: 318).

According to Mefalopulos (2008:89) this can be due to community members frequently interacting with each other during the process. Genuine participation is part of a world-wide movement against centralised state control over community-

based projects (Thomas, 1996:49). Genuine participation of local communities in community based projects, benefits both the communities and the disaster risk reduction practitioners in two ways. Firstly, it values participation of community members therefore alleviating feelings of alienation and powerlessness of community members in programmes implemented in their regions (Cornwall, 2008:278). Secondly, genuine participation leads to a sense of responsibility for the programme and it ensures the use of traditional knowledge and expertise of the local population (Phillipis & Pittman, 2009:51). Mefalopulos (2008:50) adds that genuine participation is a good way for community members to be in control of activities that occurs in their surroundings. Supporting this view, Ascroft and Masilela (1994:282) add that if people do not control or share control of their own CBDRR process, no guarantee exists that their best interest is being served. This statement emphasises the importance of the local communities being part of the CBDRR process. In addition, another advantage of genuine level participation is that the local people is allowed to express themselves without fear or the tendencies of not being listened to or taken seriously (Cornwall, 2008:278). Genuine community participation is also found to build confidence among many vulnerable groups like women, elderly and children (Shaw, 2012:5). It is therefore crucial that any CBDRR programme genuinely involve community members so that they feel they are in control of the programme and hence such programmes' outcomes reach targeted receivers (Mefalopulos, 2008:50).

In the context of CBDRR, genuine community participation would allow disaster reduction activities to be effective as it meets the needs of local communities (Habiba & Shaw, 2012:109). Though communities are central in disaster risk reduction activities, they however need more awareness regarding the risk they are facing during disaster events (Shaw, 2012:8). It is believed that when community members is provided with the necessary information and when the importance of genuine community participation is stressed at all stages of the CBDRR activities, the community's relationships within the community itself will also be strengthened (Shaw, 2012:3). Furthermore, Shaw (2012:5) adds that CBDRR strengthens social interconnection and cooperation between community members. Through CBDRR it is hoped that communities would be strengthened to enable them to undertake any similar programmes relating to disaster risk reduction measures (Shaw, 2012:5).

Allowing the community members the opportunity to participate in the CBDRR process helps create a culture of coping with crisis within the community. Thus, any risk assessment process should strongly encourage genuine participation of local people and therefore incorporate their perception of vulnerability into the development of a CBDRR initiative (Shaw, 2012:15).

From the above discussion it is clear that genuine participation is crucial in order to have a sufficient pool of ideas to address hazardous situations from the people at risk (White, 1996:20). This implies that outcomes of such a programme may reach all the necessary intended groups, hence the risk and vulnerability may not persist (Izumi & Shaw, 2012:17). Additionally, if communities are not genuinely involved they will not necessarily know their roles in the CBDRR programme and possibly their abilities to deal with the hazards may be compromised. Such a tendency explains the reason for the tendency that so many CBDRR programmes comes to a complete stop when CBDRR practitioners leave and for so many initiatives that fail to acknowledge this setback (Habiba & Shaw, 2012:109).

2.4.6 Political Will

Many natural hazard management programmes have failed to be sustainable due to its failure to involve government, NGOs and other relevant stakeholders as part of the process and activities (Pandey & Okazaki, 2005:1). Usually, hazards happen at a local level, and the local governments are primary actors in promoting the implementation of local hazard action plans (Green & Haines, 2011:241). Community and developmental agencies such as NGOs share a common motivation in promoting and maintaining sustainable Community Based Disaster Risk Reduction activities (Shaw, 2012:5). Consequently, both the communities and NGOs share a common goal of minimising the devastating impacts of hazards (Pandey & Okazaki, 2005:1). Parashar & Shaw (2012:109) explain that involvement of the local government and other relevant stakeholders are essential as it would help in meeting various challenges of CBDRR implementation, such as a lack of funding and institutionalising CBDRR into national development plans. Successful practice from CBDRR can be used to advocate the development and implementation of policies at

national level (Parashar & Shaw, 2012:110). In order to sustain continual community activities, a policy is needed at local level as well as a local institutional level to ensure that these activities continue (Shaw, 2012:9). Even though initiatives were started with the support of NGO interventions, it is imperative to connect them to the local government activities and integrate them into policies to ensure their continuous sustainability and their reproduction to other parts of hazard-prone areas (Shaw, 2012:9). Another important aspect of political motivation is regarding government officials who are normally tasked to work in communities during hazards. According to Rossi (1960:401) it is very essential that these government officials working within the communities understand the purpose of CBDRR. This is because when they understand the aim of CBDRR they would also positively influence the entire community to take part in the programme (Rossi, 1960:402). This is crucial as it does not only give the opportunity for community members to get involved in the programme, but also enables community members to know their roles and functions in the programme (White *et al.,*1994:138).

Additionally, Gaillard & Mercer (2013:99) add that through these community–based activities, community's members are able to partake alongside government officials and expert groups as the direct patrons of these activities. This is also regarded as a good opportunity for interaction between community members and government officials (Gaillard & Mercer, 2013:99). While community members normally own problems, consequences and challenges of any mitigation initiatives it is necessary to take such people's ideas further into policy and strategy formulation (Chen *et al.*, 2006:209). Formulating policies and strategies can only be achieved if the local government is part of the initiative.

Another important aspect related to political motivation is the community power structure. According to Swanepoel and De Beer (1997:48) the local power structure plays a crucial role in CBDRR initiatives. The power structure of local communities which are normally the community leaders, were found to have a major influence over the entire community (Swanepoel & De Beer, 1997:48). This is for the reason that the structures normally make up the decision making body of a community. The roles of local political leaders were found to greatly affect the success of Community Based Disaster Risk Reduction initiatives (Milton *et al.*, 1980:82). Rossi (1960:390) explain that local leaders are in general an important factor in achieving local

participation. According to Green and Haines (2011:240) a local community leader is the one who influences decisions relating to the entire community. Therefore, it implies that the community leader needs to understand and accept the purpose of the CBDRR programme in order to positively influence the community members (Swanepoel & De Beer, 1997:48). If the community leader does not fully understand the purposes of the programme, then the programme may be rejected (Rossi, 1960:390). Should this happen, as the community members usually view their leader as their role model, members of the community are likely to follow suits (Swanepoel & De Beer, 1997:48). It therefore becomes vital to gain the support of community leaders who have considerable influences in the entire community. If the local leaders are supportive of the CBDRR programme, its possibilities for success are strongly enhanced (Milton *et al.*, 1980:84).

Coetzee and Graaf (1996:48) add a related important concept namely information dissemination. Each group of the society, either the community or the local government, has its own resources, knowledge base and information to contribute to CBDRR initiatives (Coetzee & Graaf, 1996:49). Local communities have traditional knowledge to share, whereas government and disaster risk reduction practitioners have the expertise and resources to share (Shaw, 2009:2). According to Shaw (2009:xi) the key point in the role of local government's political will is collaboration with all the relevant stakeholders to enhance the sharing of knowledge and expertise. Government officials, policy makers, local disaster managers, community members, community leaders as well as external development practitioners have important roles in the process of Community Based Disaster Risk Reduction initiatives (Shaw, 2012:9). These roles include the sharing of information and resources as well as expertise. Information sharing in the context of political will is also important as this is the time when community members can express their real needs as well as all the services they view need to be introduced into their local government (Cohen & Uphoff, 2011:49). When community needs are expressed, the public servants at the local government are able to transform those needs into achievable deliverables (Cohen & Uphoff, 2011:50). This is also a good way to strengthen accountability and responsiveness from the local government side in terms of meeting the public needs (Servaes, 2008:202). Therefore, the sharing of

information is extremely important as it does not only benefit the local people through the CBDRR process but also in terms of general public service delivery.

2.4.7 Training of Community Members

The concept of CBDRR is practiced under various names. Some countries refer to it as Community Based Disaster Preparedness Programmes and others may call it Community Based Flood Mitigation Programmes (Walia, 2008:70). Despite the difference in naming, all these programmes can be classified as Community Based Disaster Risk Reduction initiatives with the common goal to reduce the devastating impact of hazards at community level. The successful implementation of these initiatives relies on the important aspect of training community members. The main understanding behind this training is to train community members to enable them to practice their roles within the CBDRR process (Walia, 2008:71). When the local people are trained on their specific roles they will be able to mitigate and reduce the impact and risks of disasters. Walia (2008:72) stresses that the training of community members forms a vital component of all activities to take place as part of the implementation of a CBDRR programme. According to Milton *et al.,* (1998:61) community members need training in their new tasks and responsibilities which they acquired through the CBDRR process. The training serves as a platform whereby disaster risk reduction practitioners can incorporate the knowledge and skills that community members have into the design of the programme (Milton *et al.,* 1998:61). Additionally, the training is needed to use the knowledge of community members to craft long-term risk reduction strategies with the potential of becoming a way of living in terms of responding to hazards (Milton *et al.,* 1998:61). According to Gooneratne and Mbilinyi (1992:194) training is also perceived to facilitate capacity development among community members by further strengthening existing skills and knowledge in communities to result in successful CBDRR (Gooneratne & Mbilinyi, 1992:191). Knowledge and skills can be strengthened because, in general, communities have a great deal of knowledge, but they do not necessarily make use of such knowledge during times of hazards or as a way of living (Walia, 2008:72). Training is also found to be a platform where the disaster risk reduction practitioners together with the

community members agree on establishing performance assessment of the CBDRR process (Rahnema, 1992:122). This takes place whereby both the disaster risk reduction practitioners together with the community members evaluate their roles in the CBDRR process and extrapolate the way forward of the CBDRR process in terms of its functions (Milton *et al.,* 1980:82). At this time, it increases the local community's accountability of the CBDRR process.

2.5 Conclusion

It is important that any CBDRR initiative consider the principles as discussed in this chapter. Should CBDRR initiatives ignore these principles, outcomes of such initiatives are likely not to benefit the intended beneficiaries and hence vulnerabilities may still continue (Shaw, 2012:8). Furthermore it is urged that communities should also be prepared to apply risk reduction strategies as a way of life, that way Community Based Disaster Risk Reduction would reach its main goal of reducing the impacts of hazards. When communities utilise the risk reduction measures it is also believed to help them accept the hazards and explore further measures that would assist them in living together with the hazard (Shaw, 2012:7). To summarise, the discussed principles and guidelines influence the outcomes of any CBDRR process. Communities are the central role players in the implementation of the CBDRR processes. Thus, their knowledge, capacity and their structures should be considered in CBDRR processes. Moreover, for successful implementation of CBDRR processes, community members need to be genuinely involved in the process, they should be trained in their respective roles, and the CBDRR process as a whole also need political motivation from the local government.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The aim of this study is to explore the risk reduction strategies that the Oshakati community members undertake to reduce the risk to annual flooding as well as the way in which these activities correspond with the relevant principles and guidelines of Community Based Disaster Risk Reduction as indicated in the literature review (Chapter 2, section 2.4.2 to 2.4.7). In order to reach the objectives of the study, focus group interviews and semi-structured individual interviews were used to collect the data from various respondents' groups in the Oshakati community. This chapter explains the research design and the methods used in the study.

3.2. Research Design

Sarantakos (2013:120) indicates that research designs explain details on how the researcher intends to conduct the study. In the discussion of the research design each research step is discussed respectively. The purpose of the research design is to offer a guide that directs the research actions, and assist in the rationalisation of time and resources (Friedman, 2003:510). It explains a systematic approach to the research operation, therefore guaranteeing that all aspects of the study will be addressed (Friedman, 2003:515).

There are two kinds of research designs, quantitative and qualitative research. According to Sarantakos (2013:150) quantitative research designs are a formal, objective and a systematic process for obtaining information about a specific phenomenon. Quantitative research methods attempt to maximise objectivity and has the capability to replicate and generalise findings. Also, quantitative methods are typically interested in prediction (Harwell, 2011:149). In a quantitative research design, the researcher needs to be objective and set aside his or her experiences, perceptions and biases to ensure objectivity in the study. Quantitative research methods are frequently described as deductive in nature, in the sense that interpretations from tests of statistical hypotheses lead to general interpretations

about characteristics of a population (Harwell, 2011:149). The main characteristics of quantitative studies include the use of experiments, surveys or tests to collect data. It relies on statistical theories to test assumptions that match the research questions of interest (Bryman, 2006:103).

Quantitative research designs differ from qualitative research designs in that they are either more descriptive or experimental (Sarantakos, 2013:127). Quantitative research designs generally use quantitative questionnaires which are considered to be more rigid in structure, since they cannot be changed later in the research process and only allow a specific set of answers (Creswell, 2007:20).

The second type of research design is qualitative research. Qualitative research designs are more concerned with non-statistical methods of inquiry and analysis of the social phenomenon (McRoy, 2008:21). Qualitative research designs draw on inductive reasoning in which themes and categories emerge through data analysis (Babbie, 2011:25). Qualitative research designs are considered as more flexible since their methods can be adjusted accordingly throughout the research process and participants have a wider parameter in which they can answer the questions (Padgett, 2008:101). A qualitative research approach gives an opportunity for a detailed description from the participants' point of view when examining a specific situation (Maxfield & Babbie, 2008:20). Qualitative research methods also have the advantages of comprehensive analysis and the ability to observe diverse aspects of a particular social scenario (Babbie, 2011:20).

In this study, a qualitative research design was adopted, because it is well suited for understanding the phenomenon in its own context, discovering links and generating perspectives (Bradley *et al.,* 2007:1759; Patton, 2002:199). Considering the aim of the study, which is to explore risk reduction strategies used in the Oshakati community, a qualitative research approach was more appropriate compared to a quantitative research approach. This was based on the features discussed below.

One motivation for choosing a qualitative research design was its type of enquiring being naturalistic, subjective, exploratory and its inductive reasoning (Fink, 2000:8). Naturalistic inquiries refer to researchers observing the participant's behaviours in their natural setting (Marshall & Rossman, 2010:22). This enables the researcher to have direct contact with respondents, which allow them an opportunity to give more

in-depth explanations, and at the same time permitting the researcher's personal experience and insights to be an important part of the inquiry and critical to the understanding of the phenomenon (Creswell, 2007:17; Fink, 2000:10; Bernard & Ryan, 2010:105). In the case of the Oshakati community it was necessary for the researcher to understand how community members are taking up activities to reduce the risk and how they viewed the local government activities aimed to reduce the risk of flooding. Also, since the study is concerned with CBDRR activities that the Oshakati community undertakes, the researcher further considered the use of qualitative research design as appropriate.

Furthermore, qualitative research was selected for this study as it allows the use of open-ended questionnaires as a method of data collection, which yield in detailed descriptions and capture direct quotations about people's personal perspectives and experiences (Patton, 2002:40). The use of open-ended questionnaires was also found to allow the researcher to gain more in-depth understanding of the participants' situation (Padgett, 2008:100; Patton, 2002:41).

Moreover, qualitative research methods through face-to-face interviews give an opportunity to the researcher to change the interview plan if the interviewee's responses suggest the need for extra probing (Maxfield & Babbie, 2008:20). Additionally, researchers are able to note changes in bodily expression, temperament, interviewee's tone and other environmental factors that might influence the interviewee's responses (McRoy, 2008:22).

Lastly, a qualitative research approach was preferred for this study as it allows what is referred to as, emergent design flexibility (Patton, 2002:40). Emergent design flexibility means that there is openness to adapting inquiry as understanding deepens and situations change (McRoy, 2008:20). This allows the researcher to avoid being sealed into an inflexible research design that may rule out new discoveries that may develop during the research process (McRoy, 2008:21).

Therefore, based on the above discussed features, the researcher decided to use a qualitative design as an approach that would be most suitable for the study opposed to a quantitative research design.

3.3. Research Methods

In this study, the method used to collect the data consists of different techniques for different groups. Using different techniques for the various groups were appropriate as the population for study consisted of different groups. The population is discussed below.

3.3.1. Study population and Sampling

According to Patton (2002:229) population refers to a number of individuals living in the same geographical area and may be exposed to a similar condition. Populations are dependent on the number of subjects, objects and organisations exposed to the circumstances of interest (Welman, 2012:245).

For this study, the population comprised of two groups, namely the local community members which consist of heads of households from the general public that are affected by the annual floods and the local government which consist of the local government (Oshakati Town Council), school principals and the chief nursing officers at hospitals that were affected by floods in Oshakati. The study population was selected, because floods directly affect the identified population. The population was also selected based on the members' roles during flooding in the community. The identified population was the most affected people of the population and therefore they were the important people to talk to in order to gather the necessary information to achieve the study's objectives.

The heads of households were selected because of the roles they play in individual families as well as in the community at large. A head of a household is likely to be the one to make decisions at household level on what should be done as a way to respond to flooding. Mufune (2012:89) supports this view and states that individual heads of households holds the power relating to all decisions at household level as well as at the community level. In this case heads of households may also have some knowledge on various risk reduction strategies in their household and within their community at large. In general, heads of households are the elders, both in the

household and in the community at large (Mufune, 2012:89). This implies that these groups of people have some degree of wisdom in terms of collective community risk reduction strategies. Heads of households would have most of the information about how the community and households reduce risk of flooding since they are also part of the community (Mufune, 2012:89).

Including heads of households in the population enabled the researcher to determine whether the activities that community members undertake, correspond to relevant principles and guidelines of Community Based Disaster Risk Reduction as indicated in literature (Chapter 2, sections 2.4.2 to 2.4.7). Considering the number of households affected by flooding, the study included 60 heads of households and thereby conducting nine focus group discussions with this group of the research population. On average, in each focus group discussion about seven respondents participated.

Regarding the sampling of this study, a non-probability sampling method for heads of households was used through the use of the snowball sampling method. A snowball sampling method was selected for this study based on one of its advantages. The sampling method gives preference to individuals who on justification of their positions or knowledge in society may have more information than normal community members, and are better able to express such information (Welman *et al.,* 2012:204).

This study used this sampling method by first approaching a few heads of households within the community from the relevant population to be included in the group discussion (Welman *et al.,* 2012:69). These heads of households then act as informants whom also identified other members of the community who may have the knowledge and experience of interest. These participants were then included in the sample. As one group of participants lead to the other in identifying further sets of relevant individuals, the sample obtained may be regarded as being representative of the relevant population (Welman *et al.,* 2012:69).

The local government which is the Oshakati Town Council, has the mandate to protect its citizens in terms of disaster risk, therefore it was necessary to understand how this local government promotes and part takes in CBDRR activities. The local government plays a crucial role within the community during flooding, which includes

the provision of temporal housing as well as financial assistance in ensuring that the relocated people have proper sanitation, electricity and food. The local government is crucial to be included in the study, since political motivation is one of the guidelines for Community Based Disaster Risk Reduction. Another main insight regarding government inclusion in the study is that it enables the researcher to establish how the local government includes the community members in their risk reduction activities relating to floods. Six local government officials participated in the study and they were interviewed using a semi-structured individual interview guide.

The school principals were also targeted because of the role they play in the school environment during the annual flooding, which were assumed to be related to risk reduction activities. The different roles they play were crucial to this study as they should be linked to Community Based Disaster Risk Reduction activities. Since schools also form part of the community at large, it was crucial to know how the roles they play fit within the wider Oshakati community structure. Two school principals were interviewed using a semi-structured individual interview guide.

Lastly, the chief nursing officers were targeted because of their important role in the community hospital, specifically in terms of the disaster risk reduction process. Apart from this group's responding role during flooding, the hospital is also part of the community and hence its strategies for reducing the risk of flooding are also crucial to the study. It was therefore crucial to talk to the chief nursing officers in the community as such information was necessary in achieving the study objectives. Two chief nursing officers were interviewed using a semi-structured individual interview guide.

The local government group which consisted of the local government, chief nursing officers and school principals was sampled using the purposive sampling method. Purposive sampling is described as a random selection of sampling units within the part of the population with more information on the features of interest (Welman *et al.,* 2012:207). This sampling method was used for these groups of participants as they are directly involved and hence essential informants in the areas of interest. The study carried out a total of ten semi-structured individual interviews with members from the local government group.

Households, local government, schools and hospitals all are crucial role players in the Oshakati community during flooding events. As ways to mitigate the impacts of flooding in their community, these groups may have strategies that they use to ensure that they carry on with their daily activities. It is these activities that the study aims to explore.

3.3.2 Research instruments

In order to accommodate the tight schedules of unavailable key informants, the study used different methods for different key informants. It enabled the researcher to gather more information from the participants in a flexible manner (Patton, 2002:243). Focus group interviews were used for the head of household group and the semi-structured individual interviews were applied for representatives from the local government, school principals and chief nursing officers. The two techniques are explained below.

3.3.2.1 Focus Group Interviews

Focus group interviews, sometimes described as in-depth group interviews, consist of a number of people that are placed together for the purpose of giving their opinions on a particular topic of interest (Welman *et al.,* 2012:201). The aim of selecting focus group discussions for the study was not to replace individual interviews, but to allow an opportunity to gather information that perhaps could not be collected easily by means of individual interviews (Welman *et al.,* 2012:201). The focus group interviews consisted of themes and questions that needed to be explored. It also allowed the researcher the flexibility to explore other themes that surfaced during the interview (Welman *et al.,* 2012:166). Another advantage of using the focus group interviews was that it allowed the researcher to further probe in order to clarify vague responses and to ask for further elaborations (De Vos *et al.,* 2011:391). To ensure reliability and validity of data obtained through this technique, this study made use of a digital recorder to capture every conversation. Permission of the respondents was obtained before any recordings were made.

Group discussions were preferred as they allowed the researcher to get an understanding of collective risk reduction strategies of the community. Moreover, the method allowed for discussion and participants were able to share their stories. According to Sarantakos (2013:279) describing the situation at community level provides very rich data to a study. The themes identified in literature guided the questions used during the focus group discussions (Chapter 2). As the literature consists of six guidelines for CBDRR, questions were constructed purposively to assess each of the CBDRR guidelines.

Therefore ten focus group interviews were conducted, consisting of seven respondents on average. Respondents who took part in the focus group discussions were selected through the snowball sampling method.

3.3.2.2 Semi-structured interviews

Information from the participants from the local government group, were obtained through semi-structured individual interviews. This method was used since it was difficult to get respondents from these groups together at one time due to their strained schedules (Mosimane, 1998:20). An advantage of semi-structured interviews includes that the researcher has some freedom to explore discussions of interest that surface from initial questioning. It also gives an opportunity to retrieve further explanations from initial responses to questions and to correct misunderstandings by respondents (De Vos *et al.,* 2011:500). The questions used during the semi-structured individual interviews were guided by the themes identified in the literature review (Chapter 2, section 2.4.2 to 2.4.7). The literature explained six guidelines of CBDRR and therefore the questions were constructed purposively to assess each of those CBDRR guidelines. The questions directed to the local government group were designed differently than the questions directed to the local community group. This was because each group has different information regarding each theme and also because each group plays a different role in the risk reduction process. Both of the instruments that were used are included in the appendixes at the end of this study.

3.4. Data Analysis

Literature explains that qualitative data analysis is used to interpret the data derived from different methods of data collection such as interviews, questionnaires and others. Data analysis involves the examining, sorting, categorising, evaluation, comparing, synthesising and reviewing of raw and recorded data (De Vos *et al.,* 2011:391). The aim of the analysis of data is to transform raw data in the form of facts, perceptions and findings into understandable findings (Onwuegbuzie & Leench, 2004:772).

3.4.1 Thematic Data Analysis

In this study, data was analysed through a thematic data analysis method (Ryan & Bernard, 2003:100). Thematic data analyses comprise six phases, which are described through the following sections.

3.4.1.1. Familiarisation of data and coding

The initial step in thematic analysis is to be familiar with the data and then be able to code them (Mayring, 2000:3). Familiarisation of the data assists with coding as well as the searching of meanings and patterns in the data set (Bradley *et al.,* 2006:1765). Coding can be done by dissecting the text into manageable and meaningful text segments (Attride-Stirling, 2001:390). Coding is also found to be a systematic way of organising and gaining meaningful parts of data as it relates to the research questions (Ryan & Bernard, 2003:90). Codes serve as a way to relate data to an individual's conception of that concept (Ryan & Bernard, 2003:100).

3.4.1.2. Identifying initial themes

In the second phase, a list of initial items from the data set that has a recurring pattern is identified (Ayres *et al.,* 2003:875). These are referred to as themes in the data. A theme represents a level of patterned responses from the data that is related

to the research question at hand (Bradley *et al.,* 2007:1759). Identifying themes can be done by scrutinising text segments in each code and extracting common significant texts (Attride-Stirling, 2001:390).

3.4.1.3. Constructing the themes network

In phase three the themes network are constructed. The themes' networks are crucial because they would take the researcher deeper into the meaning of the texts (Bradley *et al.,* 2006:1769). When the themes are identified, they become the categories of analysis (Fereday & Muir-Cochrane, 2008:8). These themes get assembled into similar coherent groupings to be applied as the basic themes (Attride-Stirling, 2001:391). These groupings will then become the thematic networks. Within these thematic networks the researcher searches for connection between overlapping themes and focus on interesting aspects and the reason they are connected (Bradley *et al.,* 2006:1765).

3.4.1.4 Describe and explore the thematic networks

In phase four themes are examined, reviewed, evaluated and compared so that the researcher could identify which themes are important and how they connect to each other (Bradley *et al*., 2007:1764). In this phase, themes are defined and explained and a full description is given on what each theme reveals to the researcher (Bradley *et al*., 2006:1765). The researcher then returns to the original text and interprets its contents and identifies the underlying patterns (Ryan & Bernard, 2003:90). When descriptions are completed, the researcher then explores and notes the underlying patterns that have occurred (McRoy, 2008:25). In the description and exploration of the text it is useful to present text segments from the original data to support the analysis (Fereday & Muir-Cochrane, 2008:8). Phase four is crucial as it links the data and the interpretation and then elaborates the analysis for an audience (Ryan and Bernard, 2003:90).

3.4.1.5. Summarise the thematic network

Once a network has been described and explored in full, the researcher presents a summary of the main themes and patterns that are characteristic of the themes (Bradley *et al.,* 2007:1763). This is phase five and important as it summarises the principal themes that emerged in the description of the network and it also gives clear patterns that emerged from the exploration (Attride-Stirling, 2001:394).

3.4.1.6. Interpret patterns

Phase six brings together deductions in the summaries of all networks and it also explores the significant themes, concepts, patterns and structures that surfaced in the text (Fereday & Muir-Cochrane, 2008:8). This last phase is important as it allows the researcher to return to the original research questions of the study and, addresses the research questions with arguments based on the patterns that emerged in the exploration of the texts.

3.5. Limitations

For this study, there were two main limitations identified through the stage of data collection within the studied population. Firstly, the study was conducted at the beginning of the year 2014. This time was the national Presidential and Local authority elections registration time, thereby leading to national and local authorities elections (2014). Due to this, some local government staff were not available to express their views regarding the topic of the study. The researcher could not control this issue. Moreover, due to the national elections registration period, some community members could not avail themselves for the interviews and thereby the study participation was slightly compromised.

A second limitation for the study was the fact that the preceding year (2013) was a drought year. This was another factor that influenced the response as well as participation from community members. It appears that community members expected research to then focus on the latest hazard, which was the drought and not

floods. Again this was an issue that could not be controlled and the researcher could not mitigate it in any way.

3.6 Conclusion

This chapter discussed the research design as well as the reasons for choosing the specific design. The study used a qualitative research design opposed to the quantitative research design as it allowed a flexible process to explore the activities that the Oshakati community undertakes during flooding and how those activities relate to CBDRR guidelines and principles. Through this design, the study made use of semi-structured interviews and focus group discussions as data collection techniques. Lastly, the data collected were analysed through a thematic data analysis method.

CHAPTER 4: RESEARCH FINDINGS

4.1 Introduction

This chapter discusses the findings based on the data that was collected in order to answer the research objective developed for this study and relating to the principles and guidelines of CBDRR discussed in Chapter 2. The study aims to determine what activities the Oshakati community undertake to reduce the risk of flooding and how those activities relate to CBDRR principles and guidelines. Themes identified from the focus group interviews and individual interviews will be discussed in terms of how they relate to the established guidelines and principles. Each theme is discussed in relation to a specific guideline and a relationship, if any, is thereby established.

4.2 Research findings

Data from the focus groups discussions and individual interviews were gathered together, recorded and transcribed and the key concepts were underlined in the transcripts. This involved reading the transcripts and underlining the key terms believed to be relevant and important to the research questions. The transcripts were reduced to phrases and eventually grouped by placing phrases with the same focus together in a group referred to as a theme. The themes identified are discussed based on guidelines presented in table 4.1 below.

Table 1: Guidelines and Identified Themes (Source: Researcher's Own contribution)

Guidelines	Identified themes
4.2.1. Traditional knowledge	• Use of Traditional knowledge
4.2.2. Understanding of community structures	• Dynamics of socio-economic status • The role of local or religious leaders

4.2.3. Capacity of Community Members	• Capacity of community members to take part in community affairs • How are community members participating in mutual benefiting activities in the Oshakati Community • Construction of community crossing points • Building of community bridges Incapability of community members to cope with the floods impacts
4.2.4. Community Participation	• Interaction between communities and the local government
4.2.5. Political Will	• Oshakati Master Plan • Focus of Local Government activities • Institutional capacity to reduce risks • Local government supporting local initiatives • Relocation camps • Free relocating transports • Involvement of other relevant stakeholders in risk reduction activities • Information dissemination (Training workshop)
4.2.6. Training	• No Training

4.2.1 Traditional Knowledge

The use of traditional knowledge is considered to be one of the most important aspects in Community Based Disaster Risk Reduction (CBDRR) literature (See section 2.4.2). It is widely understood that local communities use traditional knowledge and skills they have acquired over the years to deal with challenges they encounter (See section 2.4.2). It is therefore recommended that any CBDRR

programme to be implemented towards mitigating the risks in affected communities should make use of traditional knowledge in its plans (See section 2.4.2). Literature has indicated that if traditional knowledge is part of CBDRR plans, it is likely that such CBDRR activities will yield long term solutions to hazards as traditional knowledge uses strategies that communities have used successfully overtime. In situations where traditional knowledge is utilised in a CBDRR programme, it is used to design the CBDRR plan that will enable CBDRR strategies that are long term and effective over time (Shaw, 2012:6).

4.2.1.1 Use of Traditional knowledge

From discussions with the local community members, it appears that there are no formal recognised CBDRR programmes as projects implemented by the local government in the Oshakati community. However, community members both in rural and urban areas of Oshakati are involved in activities that can be regarded as CBDRR activities. These activities include the building of sand walls around residential areas; households' temporary relocation to non-affected areas; the construction of crossing points around the communities, the avoidance of settling in low lying areas; rainfall predictions and the movement of livestock to higher grounds during the rainy season. All these activities are community initiatives and participants revealed that most of those initiatives are ideas that are utilised from traditional practices. Therefore, it can be said that traditional knowledge is utilised in CBDRR activities taking place in the Oshakati community. According to the participants, the average annual rainfall from many years ago was much higher than the current rainfall trends, sometimes even leading to the flooding of homesteads. To avoid water entering into traditional houses, participants revealed that "our grandparents would always ensure that they collect heaps of sand and surround each traditional house in the homestead with heaps of sand". This method was used to prevent water from flooding the houses. Based on this tradition, participants attribute the idea of collecting heaps of sand and building sand walls as being adopted from traditional practices.

Participants also indicated that they made use of traditional knowledge in avoiding settling in low lying areas. Although the tradition of avoiding the low lying areas is no longer widely practised, participants expressed the importance of avoiding settling in these areas. They attributed the practices to traditional measures of avoiding the floods and stated that their grandparents always emphasised the importance of avoiding settling in low laying areas as they were prone to flooding. This strategy is one of the traditional strategies that communities have applied over time, limiting their exposure to floods for centuries. Participants strongly believe that the local government could utilise the same strategy and avoid developments in flood-prone low lying areas. This confirms the importance of considering all potential risk factors during settlement planning. Participants revealed that many locations around the Oshakati community are now affected by floods due to the fact that new developments are taking place in low laying areas which are traditionally considered as natural flood plains. As a result, these settlements tend to block the natural flow of water, causing water to divert in different directions. Based on the responses, it can be said that the local people may have information that perhaps town planners do not seem to have and the area may be more at risk of flooding because of this lack of information local people possess. It is therefore safe to conclude that the local people have an enormous amount of traditional knowledge, which may be useful in planning processes.

Literature established that annually, water flows from Angola on its way to the Etosha Pan during the rainy season (Mendelsohn ***et al.***, 2000). From the data gathered, it is clear that the local people always know which areas fall within the Cuvelai basin, a natural flood plain which must be avoided as a settlement area. However, participants highlighted that the available land is not enough to cater for the fast growing population, forcing people to settle in the risky low lying areas. The local government has also allowed developments in flood plains due to limited availability of land. As a result, parts of the community of Oshakati that settle in the flood plains are naturally vulnerable to floods.

Participants in rural areas revealed that they had a traditional way of forecasting the rainfall, which they used as an early warning system. This research, found that community members look at the presence of certain birds as an indication of a good year to come with good rain. From this prediction, they would move livestock to

higher grounds if necessary. The movement of livestock can also be regarded as a risk reduction strategy which is also a traditional practice.

Though there were no formal acknowledged CBDRR programmes in the Oshakati community, most of the activities undertaken by the Oshakati community can be regarded as CBDRR activities. These activities are aimed at reducing the risks of flooding and also aim to minimise the impact of flooding. The traditional solutions that the community is using relates well to the guidelines in literature. Therefore, it is clear from the responses of the participants that CBDRR activities taking place in the Oshakati community are making use of traditional knowledge.

From the discussions on activities undertaken by the Oshakati community, it can be said that traditional knowledge can be used by the community members to prepare themselves to adequately respond to the challenges brought on by flooding and further reduce the risk of flooding. This deduction also relates well with literature, which indicates that traditional knowledge as first-hand foundation is normally utilised as a tool in understanding and forecasting possible environmental events upon which many livelihoods depend on for survival (See Section 2.4.1). The same can be said of the Oshakati community as they too use traditional knowledge to predict the rain and other environmental conditions and thereby reduce their risk experiencing flooded.

A successful CBDRR process requires more than just the use of traditional knowledge. The next section discusses the need for CBDRR practitioners responsible for implementing CBDRR processes to understand community structures.

4.2.2. Understanding of community structures

Understanding community structures is another important aspect that determines the success of CBDRR processes. If officials responsible for implementing CBDRR activities' in the community understand the local structures of the community such as local leaders (e.g. headman), Community Development Committee (CDC) structures and their roles, then CBDRR officials have a better chance of reaching all community

members, especially the worst affected by the floods. The knowledge of community structures will also encourage community members to learn and understand the purpose of CBDRR activities in order to participate actively. Indicators of understanding community structures encompass the dynamics of socio-economic status of community members and the organisations of local or religious leaders. These indicators are crucial because they have an impact on the outcomes of CBDRR processes if not adhered to (See section 2.4.3). Therefore, Community Based Disaster Risk Reduction practitioners responsible for implementing CBDRR processes need to have an understanding of the structures in communities and determine the relevant roles of local leaders and religious leaders in order to carry out CBDRR activities appropriately.

Literature suggests that when those implementing CBDRR activities understand the differences in socio-economic status and the roles of the local or religious leader within a community, then they would ensure that the local leaders understand the importance of the CBDRR process (See section 2.4.3). If the local or religious leaders understand the importance of these processes, then they are in a better position to promote the supporting activities and encourage community members to actively participate in the process (See section 2.4.3). Using that knowledge, CBDRR leaders are able to structure a plan in which the entire community can be involved in the CBDRR process (See section 2.4.3). In this section, the study explored the socio-economic status of residents in the Oshakati community, structures and the role of the local or religious leaders in responding to floods as well as reducing the risk of flooding.

4.2.2.1 Dynamics of socio-economic status

Understanding the socio-economic status of community members who are at risk is an important aspect in attaining success in CBDRR processes. This is based on the foundation that socio-economic indicators such as employment status and land ownership highlight the different groups of people in communities. Differences in these status indicators may imply that people use different strategies in CBDRR

processes in order to reduce risks, prepare themselves or their livestock for evacuation and react to the floods. Differences in employment status or land ownership in the Oshakati community imply that people responsible for implementing CBDRR activities also need to have strategies in place to capture the views of the different socio-economic groups. This will ensure that the different views and strategies are included in the design and implementation of the CBDRR plans. The inclusion of people with different views is crucial as it ensures that town planners have access to all the knowledge that local people possess regarding the risk-prone areas for town planning purposes. Since people of different socio-economic status may not relate to each other comfortably, it may be necessary to hold separate discussions where each group is able to express themselves freely and give their strategies they undertake to reduce the risk of floods. It has been established from participants that the people responsible for implementing CBDRR activities need to factor in all these differences and allow each group an opportunity to give their views and have these included in the design and implementation of a CBDRR process.

From the data gathered, many participants revealed that the communities do not necessarily have a similar way of doing things, such as reducing risks and responding to the floods. The socio-economic status in the Oshakati community indicates a high level of unemployment resulting in differences of individual or family economic positions and a number of homeless people. Consequently, the unemployed and the homeless seem to deviate a bit from the rest of the community in how they reduce their risks as well as respond to the floods.

Participants revealed that the population residing in locations that are severely affected by the floods is an indication of low individual or family economic positions in comparison to those in less affected locations. Such a difference could be associated with the idea that people in low economic positions could settle on any piece of land available even though it may be perceived as a flood plain area. Participants have also added that it is much cheaper to acquire land in flood prone areas. However, despite the differences in how the floods impact different locations, it is clear that the overall economic positions of residents keep reducing. This is because communities lose their assets and most of their household belongings are damaged, lost or stolen due to frequent relocation.

Participants gave their opinions on how the different groups of people in the Oshakati community may reduce the risk of floods differently. They used the employed residents to illustrate how different groups of people in the community could reduce the risk of flooding, explaining that the employed residents would use different strategies to avoid floods for the purpose of illustrating this; the participants assumed that employed residents owned vehicles. This would allow them to move most of their assets such as furniture to friends and families who stay on high lands. On the contrary, residents who are unemployed may not necessarily have the means to transport their belongings to higher grounds on time. Instead, they wait for the local government to provide transport for relocation when the floods start.

The data indicated that in selected cases, the unemployed residents would normally hang their belongings on the roofs of their houses. These residents are considered as the privileged as they own concrete houses with actual strong ceilings that allow them to tie their belongings to the roofs. Those with informal houses such as houses out of corrugated iron are left with no option but to rely on the local government support whenever it avails.

Furthermore, the homeless group of people within the Oshakati community is another group of community members within this community that can be used as an example of how different groups of people may require different needs. Discussions with participants have revealed that in many cases, the homeless are less likely to turn up for social gatherings and when they turn up, they hardly make any contributions. The absence of the homeless group in such gatherings implies that their opinions and perceptions may not be included in CBDRR plans and strategies even though their contributions are important. The homeless populations may also have valuable information that can benefit CBDRR plans in reducing future risks of floods.

This discussion highlights the need to understand all the difference scenarios that exist in communities as these potentially influence how community members deal with the floods. Therefore, it can be argued that the dynamic differences that exist within the Oshakati community are known and that it is important that they are considered by the people responsible for implementing CBDRR activities so that their views and opinions are also included in the CBDRR plans. These kinds of

differences need to be taken into account by the people responsible for CBDRR implementation and enables CBDRR leaders to incorporate all the views, opinions and strategies of all the people from different walks of life into the CBDRR plans. This is important as it is believed that the CBDRR process outcomes need to reach everyone in the society and that all people should benefit from the CBDRR process.

4.2.2.2 The role of Local or Religious Leaders

From the data analysed, it has been established that communities believe that local and religious leaders have a major influence in ensuring the success of a community's involvement in solving common community problems. Local and religious leaders act as mediators between those that are responsible for implementing CBDRR activities and community members. From literature, it is clear that in the case of formal recognised CBDRR programmes, the local or religious leaders facilitate communication between the community members and those implementing CBDRR (See section 2.4.3). From the data, it was found that the local or religious leaders have earned their leadership status based on their social ranking (age and religious status), level of respect and the vested traditional and religious powers. The data indicated that the roles of local or religious leaders also include support in the start-up stage of community projects and encouraging the young people to take part in community risk reduction activities. Participants revealed that local leaders also help whoever has interest in the community's wellbeing to identify the needs of the community and to stimulate community participation and ensure that the community's needs are taken into account.

Furthermore, participants indicated that in most locations, there is what is referred to as Community Development Committees (CDC). These are agreed local committees that consist of local representatives such as opinion leaders, teachers, leading politicians, headman and others who act as mediums of communication within communities. All communication first goes through these committees and thereafter, it is disseminated to the rest of the community. Although CDC members clearly play a major role in communities, it is reported that some locations do not have CDC members and participants feel that it has an impact on their community

activities. Participants confirmed that members of the CDC are also the people in the community that are involved in development or any other initiatives at a more managerial level. They reported that the committees have a certain degree of influence on activities that take place within their respective communities. Should the CDC committee not be satisfied with the aims of the initiative, it is likely that the information may not get communicated to the rest of the community. The CDC would help to initiate projects, setting-up committees and clean-up campaigns should there be any related project. Literature has indicated that community power structures have a powerful influence on individuals in the entire community. This is because in many cases, the community power structures are the decision making bodies of communities (Milton *et al.,* 1980:84). Literature indicates that local power structures do not only serve as decision making bodies and influence community members to participate in CBDRR activities, but also help community members understand the purpose of CBDRR activities (See section 2.4.3). This emphasises the important role CDC committees' play in the overall community activities and potentially determine the success of CBDRR activities.

The role of the CDC in the Oshakati community relates well with the concept of local power structures established in literature which states that CBDRR leaders need to have an understanding of community structures in terms of formal and informal political spheres of the community (Allen, 2006:83). The role of local or religious leaders and the role of established committees are essential for the smooth facilitation of CBDRR activities in communities. The roles of local or religious leaders are just as crucial as they have been found to enhance the CBDRR process' outcomes and in reaching every individual of the community (See section 2.4.3).

The role of community leadership is a key element in enhancing successful Community Based Disaster Risk Reduction processes. This is one reason that CBDRR literature emphasises fostering local leadership acceptance first before reaching out to the rest of the community. Leadership responsibilities may be vested in a single individual or in a small core membership that work together closely with the rest of the community (See section 2.4.3). It has been established from participants that it's important to acknowledge these roles and leadership abilities as a way of reaching out to every individual in the community and this supports what

has been said in literature (See section 2.4.3). It is critical that CBDRR leaders know all these structures as these may be the gateway to successful CBDRR processes.

Despite the role of local or religious leaders in Community Based Disaster Risk Reduction processes and the differences in socio-economic status of societies, other factors such as the ability of community members to work together also play a role. The next section explores the capacity of community members to sustain Community Based Disaster Risk Reduction activities.

4.2.3. Capacity of Community Members

The third guideline discussed in Chapter 2 (See section 2.4.4) is the need to understand the capacity of community members. Literature has indicated that the capacity of community members is one critical aspect in building resilient communities (See section, 2.4.4). Collectively, individual capacities represent the capacity of the entire community, an important asset for CBDRR to be successful (See section, 2.4.4). The capacity of community members is a powerful tool that can be used to address social problems such as reducing the risk of flooding in the case of Oshakati. Literature has found that the more a community is willing to work together to solve social problems, the more it becomes clear that the challenges the community face can be addressed effectively by using the capacities that already exist within the community (See section, 2.4.4).

From the literature, it is clear that for the CBDRR process to be successful, people responsible for implementing CBDRR activities need to determine the level of the local people's capacity. It's important to determine if community members are able to work together in solving social problems. This ability of community members to work together is considered a good determinant of whether community members will be able to participate in activities aimed at reducing risks. Communities that are able to work together in this way are referred to as having a strong social capacity. Such communities are also capable of sustaining strong social relationships, possess the ability to plan together, engagement in community affairs and have knowledgeable and skilled personnel (See section 2.4.4). Literature has indicated that these

characteristics are crucial in the process of CBDRR as they can be directed towards organising community-based activities.

The above-mentioned characteristics are what a community needs to maintain a successful CBDRR process. Such characteristics make it easier for community members to engage in mutually beneficial activities such as the CBDRR processes. The next section discusses the capacity of community members in the Oshakati community as gathered from the discussions with participants.

4.2.3.1. Capacity of community members to take part in community affairs

The ability of community members to take part in community affairs serves as an important indication of the capacity of community members in the Oshakati community. From the literature, it is clear that in cases where community members have a strong social capacity, community members are able to cope with threats (See section 2.4.4). Such communities normally have various activities planned to counter the effects of hazards. It is from these activities that those who implement CBDRR initiatives are able to determine the strength of the abilities of the communities.

4.2.3.1.1 Oshakati community member's participation in mutually beneficial activities

Data gathered from discussions with community members revealed that communities are willing to take part in mutually beneficial activities in their communities. Data revealed that in many locations, community members initiated and participated in activities aimed at reducing the risk of flooding. One such example is when community members collectively agreed to collect heaps of sand and built sand walls surrounding their communities (See Figure 2 below). The objective of the initiative was to re-direct the excess water away from the community. Data also revealed that other community members in different locations also applied

the same initiative of collecting sand, but made use of sand bags. People in different areas of Oshakati that used sand bags made sure that the sand bags were properly filled with sand and placed them on top of each other, making a wall surrounding the community in the direction where water normally enters the community. The wall acts as a water barrier and also diverts the flow of water away from the community.

Figure 2: Some of the local initiatives to block water from entering the residential areas (Shaamhula, 2014)

Even though the wall could not last long due to the strong waves of water, which washed it away, this initiative illustrates the ability of community members to work together to find solutions that benefit them all. The sand bags initiative idea came from community members and not from any authority such as the local government. Furthermore, it was found that many communities in the Oshakati town showed an interest in activities that were aimed at reducing the impacts of flooding. In addition

to the activities that community members were initiating to reduce the risk, data revealed that in different areas of Oshakati, community members were also involved in other activities aimed at reducing the risk of flooding such as construction of community crossing points and building of community bridges.

Figure 3: Some of the local initiatives to block water from entering the residential areas (Shaamhula, 2014)

4.2.3.1.2. Construction of community crossing points

The discussions with participants indicated that communities were initiating different activities to help them cope better with the impacts of flooding. This was based on various strategies that communities came up with in order to reduce the risk. Some of the activities that community members initiated include the building of crossing points to get to the other side of their community (See figure 3 above). Participants indicated that different areas in Oshakati participated in the construction of community crossing points. These activities involved collecting sand and properly filling the bags to create a firm structure, which was used as a crossing point. This initiative was also repeated in many other parts of Oshakati including schools and hospitals as it made it easier for learners to access schools and patients to access the hospital. As a matter of fact, the staffs from the schools and the hospital were involved in the construction of crossing points and bridges. The hospital management urged the estate department to construct a small bridge to enable the patients to access the facility while the construction of the crossing points for the learners was collaboratively done by the general community members, especially parents and older learners. Apart from these, both the schools and the hospital did not participate in any other activities nor did they do anything else to reduce the risk.

4.2.3.1.3. Building of community bridges

In other parts of the Oshakati community, water was stagnant and unable to flow to the other side as it was blocked by a recently constructed road. As a way to deal with this problem in the community, community members collectively agreed to pave a way so that the water could flow out to the other side of the community. The construction of a community bridge was also done using sand bags.

Participants confirmed that community members collectively initiated activities such as the building of bridges and crossing points and in the process, redirected water away from their houses. Both women and men worked on collecting the sand required to build the sand walls and fill up the sand bags, with some making use of baskets while others used vehicles. In some cases, the local government (Oshakati Town council) also assisted communities' initiative by providing tractors to collect sand, thereby participating in the local initiative. This also demonstrated political enthusiasm in support of local community initiatives (See section 2.4.4).

All these activities showed that community members have the will to engage in community affairs that benefit them all. This also indicates the capacity of the Oshakati community and their ability to organise activities aimed at accomplishing collective community defined goals. Based on the literature regarding capacity of community members, the activities described above indicate a high degree of social capacity in the Oshakati community (See section 2.4.4). Therefore, community members in the Oshakati community can be considered as having a strong social capital based on the following features; their tendency to frequently associate with each other, trusting each other, participating in community affairs and in voluntary activities, and public meetings. In literature, strong social capacity in communities is found to enable collaborative decision making, the ability to plan together, cope and recover from hazards and shocks the community member's experience (Phillips & Pittman, 2009:6).

Data also reveals that whenever there is a CBDRR activity taking place, there is always someone who leads the group participating. The presence of leaders reveals another important indicator of capacity of community members as stipulated in literature (See section 2.4.4). Participants also revealed that there are quite a

number of people within the Oshakati community that have the knowledge and skills to lead the CBDRR activities. They gave an example of a leader who was prominent in the CBDRR activities such as the building of sand walls, the construction of community crossing points and building of community bridges. Participants indicated that in all the three different activities, there was always an individual who led the group. Participants expressed that the Oshakati community has quite a number of people with leadership qualities who are capable of leading. They confirmed that the leader takes responsibility for many things, including mobilising resources, planning and evaluating performance of CBDRR activities taking place and how their performance can be improved.

Data indicates that collective community activities that aim to benefit everyone such as building of bridges are found to strengthen the bonds between community members. Projects such as the building of bridges are also used for sharing of information such as exchanging strategies on how the other parts of the Oshakati community were doing to cope with the floods. Community members also used these platforms as a way of announcing upcoming events and gatherings. As a result, community members are able to engage in activities such as building bridges and others in large numbers. Such characteristics make it easier for community members to engage in mutually beneficial collective activities such as CBDRR activities. It is safe to say that the Oshakati community members benefited socially from these activities through strengthened relationships amongst community members. In addition, they were also able to initiate extra CBDRR activities.

Besides the indicators of capacity described above, literature on CBDRR also promotes other indicators that can be used to estimate the status of the capacity of community members in a particular society. The indicators discussed in literature include the availability of physical infrastructures to assist in the CBDRR process (See section 2.4.4). Analysing the data in the study according to this indicator, participants revealed that there is enough infrastructure that can be used to support CBDRR activities, for example, using a building as venue to host meetings. Participants also added that the local people are willing to offer their private buildings, even houses for the use of CBDRR activities. In addition to private infrastructures offered by individuals, data indicates that the local government always frees its venues for community activities. Therefore, it can be said that physical

infrastructure such as buildings that can be utilised as venues are readily available for community activities in Oshakati.

Despite the participation of community members and the availability of infrastructure to support CBDRR activities, some individuals in the community are still unable to cope with the floods. Participants revealed that in some locations water levels can reach waist level, rendering many of community members to be unable to handle the high levels of water. In some instances, community members went through various stages of shock while others completely refused to be temporarily relocated even though the level of water kept rising. This indicates the incapability of community members to cope with the floods, highlighting a gap in terms of capacity of community members. The next section discusses the inability of community members to cope with the flood.

4.2.3.2. Incapability of community members to cope with the flood impacts

From the literature, community capacity is a necessary aspect for the development and maintenance of operational community based initiatives (Goodman *et al.,*, 1988:259). Besides the ability of community members in Oshakati to maintain and work together in community activities, a number of community members are still unable to deal with the floods on their own. This section discusses the inability of community members to cope with flooding. This section is important as it gives an indication of the gaps in terms of individual capacity to deal with the floods, despite the strong social community capacities. Participants indicated that some of the community members are unable to cope with the floods, due to a number of reported incidences of shock and people refusing to move.

Participants from the local hospital and local government revealed that most community members go through stages of shock and some refuse to temporarily move to the relocation camps, even when the water levels inside their houses are dangerously high. In situations where community members go through stages of shock and refusing to move, the hospital normally intervenes by sending nurses to counsel the victims. The hospital sending nurses out to counsel members of the

community can also be seen as an effort to build the capacity of community members to cope with the effects of flooding. The tendency for community members to not want to move, highlights the need to create awareness around the environment in which they live in, specifically the aspects of climate change. The need to create awareness is crucial as participants revealed that some community members who refuse to move explain that they have lived in their homes for centuries, and have never experienced floods. Hence, one could infer that perhaps information sharing such as information on climate change would help people understand the environment better.

Linking these findings to the study objectives in terms of CBDRR, capacity of community members is very crucial in sustaining CBDRR activities (See 2.4.4). It is clear from the above discussions that many activities undertaken by the Oshakati community members relate well to CBDRR literature. This also means that community members of the Oshakati community have strong capacity that can successfully accomplish the objectives of CBDRR programmes. It can be concluded that community members in Oshakati are able to participate in community affairs that aim to benefit the entire community. This ability implies that these communities are capable of being successful in CBDRR activities. Additionally, should there be any formal acknowledged CBDRR programme to be implemented in the community are likely to take part in that programme and hence the CBDRR process objectives can be achieved successfully. However, even though the community members have strong social capacity; for example, being able to participate in mutual benefiting activities such as the building of sand walls, there are still gaps in terms of capacity of community members. The gap relates to community members who can't cope with the floods because they refuse to move, and as a result some go through stages of shock. This needs to be addressed urgently and more capacity needs to be built to enable members to cope.

4.2.4. Community Participation

Another important aspect mentioned in the literature in the description of CBDRR process is community participation (see section 2.4.5). Community participation is

crucial to the CBDRR process as it ensures that communities are involved from the beginning of the process, giving them ownership of the CBDRR processes and outcomes thereof. Participation of community members is understood to create an environment that allows affected communities to participate in their own risk reduction processes (see section 2.4.5). This enables the community members the opportunity to give input; be part of the decision making process of their own risk reduction process and own the CBDRR process, activities and outcomes. It is also perceived to be a good way to turn affected communities from being passive recipients to active agents of risk reduction efforts.

The next section discusses the arising themes from some of the activities taking place in Oshakati concerning the participation of community members.

4.2.4.1 Interaction between communities and the Local Government

The preceding sections indicated that there are no formal acknowledged CBDRR projects taking place in Oshakati, but communities are taking part in activities that can be regarded as CBDRR activities such as building of sand walls and crossing points. Other than the activities that can be regarded as CBDRR activities, participants have indicated that there are also general developments taking place in the communities. General developments include the building of a commercial complex for example. Participants indicated that most of these kinds of development projects teams or companies do consult affected community members by inviting a few community representatives for consultation.

Participants have indicated that the current approach of inviting only the community representatives and the traditional leaders is not sufficient in representing the entire community. From the data, it appears that participants feel that those that are invited for public and stakeholders consultation meetings perhaps do not explicitly express the envisioned challenges. Participants have expressed that the envisioned challenges are major and need to be appropriately addressed during public and consultation meetings.

Participants expressed the need for the local government, together with the developers to separately call for meetings specifically for community members. This would be a great opportunity for every member of the community to be invited and not just the representatives as it have been done before.

Participants believe that the local government have very little interaction with community members during government activities within the flood-affected areas. An example given was when the local government once held a meeting in their community to inform them about early warning systems that were to be implemented only when it starts flooding. The local government promised to return with more information on how exactly the early warning systems were going to work and what should be done, however no feedback regarding this was received and all issues and enquiries raised during that meeting were never answered. It appears that in most cases, the local government does not follow up on the opinions or requests made by community members. One respondent stated that: “They came here to tell us about the Yellow and Red flags they were going to raise all around the affected communities so that we prepare ourselves, but they never got back to us regarding that and we never saw any of those flags anywhere”

Besides the failure to follow up with the community, it was found that the local government does not consult affected community members with regard to risk reduction activities. To illustrate this, the participants explained a situation where a canal was to be built in the community to enable water to move from one location to the other. The local government went ahead and built the canal without consulting the community members. Unfortunately, after a few days, the canal got washed away because it could not sustain the water flow. Situations like this could have been avoided if the local people were involved in the process of deciding where to place such a canal and identifying its clear-cut path. To quote a respondent: “The town council does not talk to us; they (Local government) just come here and do their things without saying a word to us”.

Participants feel that because they have lived through many floods for years, they now know or have better ideas on what the best measures for dealing with floods are. Should the town council have a regular and continuous interaction with community members, then community members could also find an opportunity to

share this information and their experiences. Sharing of information can offer various benefits such as planning for commercial developments where the levels of water are minimal, reducing the risk of floods to these developments as is the case currently.

Participants singled out the homeless group as one that does not always commit to participation in CBDRR activities. Discussions with participants have revealed that on many occasions, the homeless do not turn up at social gatherings, and should they be present, they do not necessarily make contributions. The fact that the homeless group do not always participate in social gatherings also mean that their strategies, opinions and perceptions may not be included in CBDRR plans. Consequently, it can be said that their ideas are not part of the decision-making process in the risk reduction process and hence, the outcomes of CBDRR activities do not necessarily reach them.

Community members' participation in CBDRR activities that affect them is crucial. This is because it enables the people responsible for implementing CBDRR activities to maximise the benefits to the community while minimising the threats. In the Oshakati community, participation of community members in community activities, that can be regarded as CBDRR activities, is well adhered to. This can be explained by the fact that communities are participating in quite a number of activities and applying traditional knowledge that they already know. However, participation in terms of community members being part of the local government activities is not so well complied with. This can be because the local government does not have regular and continuous interaction with community members. The insufficient participation of community members into local government activities can also be explained by the lack of institutional capacity and the fact that the local government activities are more focused on emergencies than proactive measures that can be carried out well before the floods.

4.2.5. Political Will

Political will is a significant aspect mentioned in the description of CBDRR (see section 2.4.6). It emphasises the need for local government determination in

community social affairs as well as Community Based Disaster Risk Reduction processes within communities. Literature indicates that most community-based activities require policy mediation to ensure the continual progression of such activities over time. Literature also adds that even though initiatives can be started with commitment from NGOs, it is important to link them to the local government activities (see section 2.4.6). This also allows for an opportunity to institutionalise the CBDRR processes into national development plans that aim for long term strategies (see section 2.4.6). It is therefore important to analyse the data gathered to establish in what way the local government is supporting activities that are considered to be CBDRR activities in the Oshakati community.

Interviews with participants of the local government revealed that currently, apart from the local CBDRR activities, there are no formal recognised CBDRR processes that warrant the local government's in-depth involvement. However, the local government generally supports a number of community activities, including those activities that aim to reduce risk such as building of sand walls. Participants from the local government have indicated that they made a recommendation to community members to come up with strategies aimed at reducing the risk of flooding so that such plans can be funded. The local government is able to offer community members limited support in terms of finance, provision of transport facilities and other tools essential to implement community plans. However, this support is not always guaranteed and not all community activities warrant this support.

Besides government's support of local initiatives, the local government also runs various activities aimed at reducing the risk of flooding. These are discussed below.

4.2.5.1 Oshakati Master Plan

Participants from the local government gave a description of how the floods started off in the Oshakati community. They explained that in 2008, Namibia was hard hit by the floods, especially the Oshakati community. Thousands of people were displaced and many lost their assets during that rainy season. Many government and private institutions were unable to continue with their daily activities, affecting the Oshakati community's economic growth and service delivery. It also slowed down the

progress on development as resources had to be redirected towards the reconstruction of roads, and private and public buildings that had been damaged by water. Since then, floods in the region have become a recurring hazard, leading to the declaration of dealing with floods as a national priority. The Ministry of Regional and Local Government, Housing and Rural Development (MRLGHRD) contracted for an Environmental Impact Assessment (EIA) to be done. It also drafted an environmental plan that would aim to reduce or eliminate the risk of floods in the Oshakati community (Enviro Dynamics, 2012:6). It also produced a plan known as the "Master Plan" aimed at allowing a defined minimum level of water into the Oshakati community and redirecting the remaining water away from the community (Enviro Dynamics, 2012:6).

Participants are concerned that it's likely that the master plan will take time before it is fully implemented and that the local government is too depended on the master plan without taking any other precautions to minimise the risk of flooding. Data also revealed that there might be various challenges associated with the master plan. The challenges include the lack of financial resources necessary to fully implement the plan and the time constraints. Despite the effort to source funding's from all relevant stakeholders in the country, participants revealed that the master plan might still not have sufficient funds to enable the full implementation process. As a result, the local people feel that the town council is not giving the matter the urgency it requires because while they wait for the plan to materialise, the floods' impact still persists.

Apart from the master plan, which is clearly a good risk reduction initiative to be implemented, there are also other activities that the local government is involved in as a way to minimise the impacts of flooding in the Oshakati community. These include activities such as the local government supporting local initiatives and offering training to community members.

4.2.5.2 Local government supporting local initiatives

Other than the master plan, the local government is also keen to initiate various other activities as well as give support to local initiatives aimed at reducing the risks of flooding and enable communities to cope better with the impacts of flooding in their respective areas. Discussion with the local government officials also revealed that the local government supported the local people who initiated the building of sand walls surrounding their communities. They assisted in these initiatives by providing a few necessary tools like renting tractors to collect sand and motivating community members in different areas of Oshakati to do the same in their locations. It is important to note that the support from the local government was not always guaranteed as it is available only to a limited extent due to lack of funds in the local government. Additionally, participants indicated that the local government also encouraged food for work projects where food parcels were given to participating community members.

Figure 4: Local Government assisting in some local initiatives (Oshakati Town Council, 2013).

In addition, the local government also provided relocation camps and free transport to those who were willing to be relocated. The local government responding efforts are summarised below.

The local government revealed that, they do not have adequate institutional capacity to completely reduce the risk of flooding (see section 2.4.6). Therefore, they really just assist in ways they can with their limited resources. Apart from the master plan, the local government does not have sufficient resources to carry out proactive measures to reduce the risk of floods. Therefore, they only respond with limited resources and institutional capacity by only reacting to the floods rather than being proactive. For example, the local government would react to the floods by providing tents for people to move in. To quote one of them,

“we as the local government have the obligation to protect our people, and if we can see that people need help, then we will react, it does not matter whether its sustainable or not, we have to help them in any way that we can, even if it means putting up tents where they can live while the water level in their house subsides”.

After recognising the need for temporal relocation of residents who were heavily affected by floods, the local government came up with an idea to create an area with erected tents to accommodate those who may need temporal shelter (See Figure 5 below). The option enabled residents to stay in relocation camps, while the level of water in houses subsidised. However, the offer did not guarantee full uptake from the affected residents as some residents still refused to move.

Figure 5: Provided Relocation Camps (Oshakati Town Council, 2013)

Another way in which the local government is reacting to the floods is by providing transport to community members who are willing to be relocated. It was found that there is a high percentage of the local people that refuse to move to the relocation camps even though the water level may be dangerously high in their houses. In light of this challenge, the town council came up with an initiative to provide free transport to the relocation tents or anywhere else for those who were willing to be relocated. The initiative was established to motivate people to move temporarily to the relocation camps because it was not safe to live in flooded houses. Cases of snakes and water-borne diseases were also reported.

These activities indicate the local governments' determination to support local activities that are aimed at easing the living conditions of the affected residents. Other than supporting community-initiated activities, the local government itself also embarked on other activities that can be seen as reducing the risk of flooding in the Oshakati community. The next section discusses training as one of the activities that the local government initiated to promote awareness about floods as well as reduce the risk of floods.

4.2.5.3 Information Dissemination (Training workshop)

Besides the master plan discussed in section 2.4.6 which many participants believe that the local government is too depended on, the local government has additionally undertaken another proactive measure towards reducing the exposure of the local people to flooding. They organised a training workshop targeted at all traditional leaders and stakeholders in the areas directly or indirectly affected by floods. The training also targeted regional councillors, head of constituencies and traditional authorities, especially targeting those with the responsibility of allocating land.

The training was implemented in collaboration with the International Humanitarian Assistance group and it was aimed at educating the selected group to be aware of the environment in which they live and the associated impacts of a changing climate. The training workshop content covered topics like identifying hazards, risk assessments and most importantly, how community members can reduce the risk of the flooding in their communities.

The training was necessary, because participants revealed that there was an increasing tendency of residents building their houses in forbidden low laying areas which are vulnerable to flooding. It was also important because it gave the headmen an opportunity to understand the basic aspects of hazards, since headmen have the power to ensure that no community members settle in forbidden areas. The local government learnt that educating those with the responsibility of issuing land would be beneficial in helping them handle the risk of flooding proactively and reduce the exposure of the local people.

From the training workshop, two important deductions can be made. These are the importance of local power structures and information dissemination. From a local power structure perspective, it is clear that the headman have a powerful influence over the entire community, demonstrating the significant role local leaders can play in risk reduction initiatives. At the same time, the sharing of information allows the local leaders to express their challenges and have such challenges transformed into effective risk reduction strategies. These are crucial aspects (see section 2.4.6) of political will with regards to CBDRR implementation. Therefore, should a CBDRR initiative be implemented in the area, it is clear that it will receive support from the local leaders, local government and therefore, likely to reach its objectives successfully. These deductions are crucial to the study as they demonstrate that CBDRR activities need to be as collaborative as possible. CBDRR activities need to take into account a wide-range of indicators and allow opportunities for all community members to give their opinions and learn from each other and use these to find solutions.

The participants from the local government revealed that the local government has limited capacity to carry out proactive measures to reduce the risk of flooding. One of the capacities which participants strongly pointed out was the institutional capacity to reduce the risk of flooding. The next section discusses the lack of institutional capacity in the Oshakati local government in order to reduce the risk of flooding.

4.2.5.4. Institutional capacity to reduce risks

In discussion with one of the disaster operational officers, it appears that the local government does not have a distinct department dealing with disaster. The department that is currently dealing with floods and all disasters related issues is the fire department, which is now responsible for both fire and disaster related issues. The participants expressed that the absence of a distinct disaster department could be attributed to the idea that fire was perceived to be the only form of a hazard that was commonly experienced in the area. Hence by then having a fire department was more relevant rather than a disaster department. Participants further revealed that it seems that throughout the country, many town councils do not have disaster units except the municipality of the City of Windhoek. The absences of disaster units in local authorities indicate that disasters were perhaps not a priority at a national level. Participants also expressed that this could be because there were no major flood events that impacted the country until the year 2008 when the major flood in Oshakati occurred. According to participants, before 2008, the only major hazard that the country experienced was the 1996 drought, which was handled through the Office of the Prime Minister (OPM).

However, participants explained that after the 2008 floods, when the flood were declared to be a national priority, it led to the establishment of a number of legislations to regulate the operations of disasters. It was soon after the year 2008 incidence that a national policy was established in 2009 aimed to “provide a framework for the development of sectorial disaster risk management plans at national and regional levels” (OPM, 2009). Following the policy, a national act on disasters was also established towards the end of 2012 to “provide for the establishment of institutions for disaster risk management in Namibia” (OPM, 2012:3). Participants expressed that it is from the major flood incidence that disaster acts, plans and policies were drafted. Many local authorities are still in the process of defining their DRM departments in their respective local governments.

Besides the establishments of policies and acts on DRM, generally, the local government in the Oshakati community, through the fire department, seem to be reacting to the floods with little or no knowledge of disaster risk management and reduction. Participants from the local government stipulated that they only came to

know a little bit about hazards after attending the training organised by the International University of Migration. Before that, according to the participants, staff knew very little about reducing the exposure to floods and mainly focused on responding to emergencies rather than solving the problem for the long term. The local government managed to host training for its staff members after pleading for assistance at international humanitarian groups. If this had not been done, the department would still be pure fire fighters responding only to emergencies.

The fire department shows a lack of capacity to deal with the floods since the fire events still persist. Thus, the department is fully responsible for fire emergencies as well for all aspects relating to floods. From this, it can be said that the local government lack skills, capacity and personnel to reduce the risk of floods in Oshakati, hence reacting to the floods seems to be their only course of action for now.

Consequently, to a large extent, the lack of capacity of the local government has influenced the involvement of community members in activities that take place in their areas. Due to a lack of personnel, skills and knowledge on DRM, participants described the department as being under-staffed with no time to consult community members, especially during the flooding season. The most urgent thing during flooding is to react in a manner that saves peoples' lives, indicating the importance of the department staff to spend more resources on responding than reduction since they are originally trained as firemen and not DRR practitioners. Although the local government wants to involve community members in its activities, in most cases, their activities are reactionary and done last minute only when flooding has occurred and at that stage, does not permit the involvement of community members. This explains why the local government is more concerned about saving peoples' lives through response activities, because they are trained to do so. Thus, the aspect of consulting the communities first, before initiatives such as building canals, is not prioritised and is left to be done after the floods. This indicates that the local government may not have sufficient capacity to reduce the risk since its only committed in addressing the risk when it happens. This is also the case because the local government does not follow up on pending issues such as community consultations and hence resources are redirected towards different purposes that

are pressing at that time. As a result, addressing the challenges of the floods is only considered the following year when the flood starts again.

4.2.5.5. Focus of local government's activities

In general, discussions with the local government have revealed that most activities of the Town council are more focused on reacting to the floods rather than finding long term solutions towards reducing the risk of flooding for the future. The local government activities are fundamentally focused on temporal solutions to the hazard and not long term solutions that can reduce the exposure of the people over a long period of time. The master plan (See section 2.4.6) which was initiated by the Ministry of Local Government and Housing aimed at completely redirecting the flow of water in the opposite direction away from the Oshakati area, seems to be the only long term solution which the local government is counting on. While the master plan is still to be implemented, it appears that there are no other additional risk reduction activities planned. Because of this, data has indicated that community members expressed the need for further initiatives to enable them to cope with the floods while the master plan is implemented. Participants have expressed the need for further initiatives to enable them to cope with the floods, because while community members wait for the master plan to get approved and access all the necessary funds, they are still faced with the floods. The perception is that the master plan will most likely take a long time before it is completely implemented.

It is possible that since the local government lacks the institutional capacity to reduce the risks and take up proactive measures, it may imply that there is very little opportunity for community members to get involved in local government activities. Lack of proactive measures and community participation can be explained by the fact that most local government activities would normally take place during the time when flood start. The local government does not focus on risk reduction activities throughout the year, which can explain why they are faced with the same risk and escalating cost of losses each year. They only start activities when floods start, suggesting that activities are not done in time to consult the communities and incorporate communities' opinions for disaster risk reduction activities. Because the

local government is doing things last minute, this indicates a more reactive approach and highlights the need for the local government to shift to proactive ways of reducing the risk and hence carry out its activities well on time before the water has vented. The community members may have an opportunity to get involved and give their inputs in such measures.

In summary, from the data gathered, it can be concluded that the focus of the local government is only reactionary, limiting the participation of community members. Full participation by community members can only be achieved when the local government is being proactive in its activities.

4.2.5.6 Involvement of other relevant stakeholders

Local government officials reported that there are other stakeholders involved in response activities in the Oshakati community. These stakeholders offer support in terms of finance, equipment and relocation transport during the rainy season. They include institutions such as the Namibian Police, the Ministry of Defence, the Ministry of Health and Social Services and the Red Cross Society.

Involving other stakeholders in response activities in the Oshakati community indicates the important role that the local government is playing in encouraging a collaborative and a multi-stakeholder response strategy. More importantly, the involvement of other stakeholders is quite crucial in disaster risk reduction, because it indicates that the local government has the ability to engage other stakeholders in response activities. In the long term, the involvement of other stakeholders in the response strategy is a positive sign towards DRR in Oshakati, because if the local government can involve other stakeholder in responding activities then they already show a capacity to engage other stakeholders once they start engaging in DRR activities. The involvement of other stakeholders would enable collaborative risk reduction approaches and ensure that each stakeholder has a role to play in the risk reduction process. Participants from the local government explained that all government officials, policy makers, community members, relevant stakeholders such as the Red Cross Society, Ministry of Local government (MLGH), OPM etc. all have important roles to play in process of achieving a flood free community in

Oshakati. The involvement of other stakeholders in the process is important as it allows other stakeholders besides the local governments' to help reduce the risk of flooding. Lastly, it also demonstrates the extent to which the Oshakati local government is determined to reduce risk of flooding. It also implies that future CBDRR processes to be implemented in the area may also receive a similar support.

Figure 6: Various stakeholders assisting during flooding (Oshakati Town Council, 2013)

From the discussion above, besides the master plan and training workshops, other activities of the local government were found to be more focused on reacting to the hazards as opposed to being proactive. Whether the activities undertaken by the

local government were reacting or reducing the risk of flooding, both activities still had the local government support and motivation. In the context of CBDRR processes, such support from the local government is a good indication of how well formally recognised CBDRR processes will be received when implemented in the communities. Another important aspect to note it is that the local government also expects community members to come forward with risk reduction plans and to raise their opinions about risk reduction so the local government can offer its support. This also indicates the local government's motivation to support local initiatives.

To summarise the findings on the political will section, it can be concluded that the local government has the will to reduce the risk of flooding in Oshakati community. This can be concluded from the fact they are able to involve other stakeholders in the process of responding to the floods. This clears shows the ability to involve other stakeholders into the risk reduction process if the local government start to undertake risk reduction activities. However there are various challenges that the local government faces and limits its capacity to reduce the risk of flooding in the community, these include the limited institutional capacity and lack of resources.

4.2.6. Training

The last aspect necessary for a successful CBDRR process is the need to give training to community members. The purpose of the training is to give an opportunity to members of the CBDRR activities to practice their respective roles and responsibilities in the entire CBDRR process (see section 2.4.7). It is therefore important to understand to what extent this aspect is addressed in the context of Oshakati.

Based on the CBDRR activities that communities already engage in, participants revealed that they have taken up these activities without undergoing any form of training. This is because community members have mainly just used their traditional knowledge to take up all the discussed activities and did not require any training as such. Due to limited availability of resources, training is not a priority in activities that the community engage in. Furthermore, it appears that the training was more

applicable in cases of formally acknowledged CBDRR projects. Previously, only acknowledged CBDRR projects would have the resources to host training for members of the project.

The discussions with participants from the local government revealed that the training workshop was only targeting the traditional authorities, specifically the headmen who were responsible for allocating land. The community members were excluded due to financial constraints. However, the local government now appreciates that training community members is a good risk reduction initiative. In view of this, the participants from local government promised to consider training workshops for community members and increasing awareness about the hazard in future.

On the other hand, discussions with participants from the communities identified that they need training on how to use first-aid kits, undertake search and rescue, and walkie-talkie operations. Participants from the communities expressed that this is important, because they often find themselves in situations where they have to rescue their neighbours because assistance from the local government sometimes arrives very late. Therefore, training community members in those areas would benefit them greatly in carrying out these activities effectively.

4.3. Conclusion

Linking these findings to the study objectives, it would appear that community members in the Oshakati community are undertaking CBDRR activities without adequate training. Consequently, it can be concluded that CBDRR activities taking place in Oshakati are non-formal recognised CBDRR programmes and originate from communities applying their traditional knowledge. Despite acknowledging that training is crucial for effective implementation of CBDRR, limited resources and capacity impact on the ability of people heading the CBDRR to provide the appropriate training. Lastly, since community members are so active and motivated to engage in activities aimed at reducing the risk, it will be of great importance if the local government could find out from them what training they would like to have regarding reducing the risk of flooding.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Chapter 5 discusses the conclusion and recommendations resulting from the study findings discussed in the previous chapter. This is done to place the study findings into perspective and produce useful outcomes. The recommendations are discussed according to their relation to the themes identified in the guidelines of CBDRR. Lastly the findings discussed in Chapter 4 are linked to the research objectives outlined in Chapter 1.

5.2 Principles and Guidelines of CBDRR

In the effort to increase resilience of communities and capacity of local communities, the concept of DRR highlights the importance of assimilating disaster risk reduction measures into community based activities. As a contribution to the means of promoting sustainable livelihood, Community Based Disaster Risk Reduction (CBDRR) is now to a greater extent viewed as one of the important approaches to reduce the risks of hazards. The reason for this is that it is in the affected communities that the impacts of hazards are felt most. Also, it is the affected people that can reduce the risks the most. When the risks are reduced through community efforts, community members have been more involved and therefore played a greater part in reducing the risk. Thus, community members also get more involved in all other activities that aim to reduce vulnerability and/or lead to the development of more effective and sustainable risk reduction strategies. This then contributes to the overall goal of reduced risks. Additionally, Community Based Disaster Risk Reduction activities provide a simple platform for the integration of community based activities into a nation's developmental plans to reduce risk and manage hazards. In order to implement successful CBDRR activities, there are various guidelines that have to be considered. Literature on Community Based Disaster Risk Reduction (CBDRR) has stipulated the principles and guidelines that administer effective

processes of CBDRR (see Chapter 4, section 2.4). These principles and guidelines include but are not limited to traditional knowledge, capacity of community members, understanding of community structures, community participation, political will and training of community members.

In this section, an overview of the Oshakati community circumstances is explained and recommendations are made respectively.

5.2.1 Traditional knowledge

The concept of Community Based Disaster Risk Reduction (CBDRR) has specified the use of traditional knowledge in CBDRR processes to be a crucial aspect. Literature has indicated that if traditional knowledge is part of CBDRR plans, it is likely that such CBDRR activities may yield long-term solutions to hazards since traditional knowledge applies strategies that communities have used successfully over a period of time (see section 4.2.1). The use of traditional knowledge allows CBDRR activities to be better planned, implemented and informed with ideas from different perspectives, beliefs and values of community members.

5.2.1.1 Use of Traditional knowledge

In terms of the Oshakati community, it was found that no formal recognised CBDRR programmes are being implemented as projects by the local government of Oshakati town. Nevertheless, community members are involved in activities that can be regarded as CBDRR activities. These CBDRR activities include the building of sand walls around residential areas, households' temporal relocation to non-affected areas, construction of crossing points around the community and the movement of livestock to higher levels. Community members participated in the above mentioned activities and also applied traditional knowledge throughout their participation. In addition to these activities, community members also applied traditional knowledge to predict rainfall and to avoid the settling in low laying areas which are perceived as flood plains. From the above description of activities that apply traditional knowledge

it can be concluded that community members are the grassroots sources of traditional knowledge. Also, it is proved that traditional knowledge is well utilised in most activities that community members engage in. However, such kind of knowledge may be absent to staff members within the local government, specifically in the case of the town planners. Therefore, it can be inferred that the town may be at more risk or vulnerable to floods due to the town planners lacking important traditional knowledge held by heads of households and community members.

Recommendations:

- The ability of the local people to apply traditional knowledge in activities to address flooding in their community indicates that they have a great source of traditional knowledge which needs to be incorporated in the local government's planning processes. The local government needs a strategy or a platform to obtain traditional knowledge from community members to integrate with the formal projects and activities for the community and town. This can be done through frequent interaction such as hosting community meetings every time the local government intends to undertake a particular activity to address risk reduction or the expansion of town. Such a trend would grant the local government an opportunity to make use of traditional knowledge in their planning and implementations of all formal projects and programmes.

5.2.2. Understanding of community structures

Understanding of community structures is a crucial aspect in the process of CBDRR (See section 4.2.2). Literature has indicated that when structures of at risk communities are known, it is easier for the people responsible for CBDRR activity implementation to involve all community members in CBDRR activities, including the worse affected. When all community members that are at risk of the hazard are part of CBDRR activities, then it is guaranteed that the outcomes of CBDRR activities would benefit them all enabling them to find solutions to the hazards they face (See section 4.2.2). Additionally, if people responsible for implementing CBDRR activities

have the knowledge on structures within the community that is at risk, then it is believed that the outcomes of the CBDRR activities would reach all community members. It is important to initiate CBDRR processes with knowledge on community structures as some play quite a major role in influencing community members. In terms of the findings in the Oshakati community, the key themes identified were: Dynamics of socio-economic status and the role of local or religious leaders. To follow is a discussion of these two key themes.

Dynamics of socio-economic status stipulates the different groups of people in the community that may have different opinions, strategies and views about reducing the risk of floods. Regarding the role of local or religious leaders it has been found that the local or religious leaders have a greater influence over community members and their activities. Local or religious leader influence community members due to the fact that they encourage community members and also facilitate communications between community members and local or religious leaders. Usually, local or religious leaders are the decision makers in communities and they encourage community members to learn and understand the purposes of the CBDRR activities in order to participate actively.

5.2.2.1. Dynamics of socio-economic status in Oshakati

In the Oshakati community, it has been established that community members do not necessarily have a similar way of doing things such as reducing the risk of floods and responding to the floods. There are different groups of people such as the unemployed and the homeless, of which each uses different strategies to reduce the risk and prepare to react to the floods.

It has been found that some groups find it difficult to participate in community activities and attend social gatherings. If they do attend gatherings, they do not necessarily contribute in any way.

Recommendations:

- The difference in employment status and land or home ownership recommends that people responsible for implementing CBDRR activities need strategies in place to capture the views of people from all socio-economic statuses in the community. Knowing that people from some of these groups are not to show up at community activities and social gatherings, it will be helpful if people responsible for implementing CBDRR activities host separate meetings specifically for the excluded groups. The separate meetings can be used for discussions where each person feels that they are able to express themselves freely and give their strategies and opinions openly. It is possible that if these groups have their own private opportunity to discuss matters on preparedness for floods and/or hazards, it will provide a safer environment where they are able to open up and express their views. Additionally, the local government can give support to the different groups of people such as the above mentioned groups so that they can participate in social gatherings through meetings. This can be done through the hosting of meetings specifically for these groups of people, where the officials from the local government clearly explain the importance of the views from the unemployed and homeless for activities and projects to be implemented in the community.

5.2.2.2 The role of local or religious leaders in Oshakati

The study findings indicates that the role of local or religious leaders relate well to the concept of community power structures, which have a powerful influence on individuals in the entire community (See section 4.2.2.). In the Oshakati community it is evident that the local and religious leaders play a major role in any kind of activity to be implemented in their communities. In case of a CBDRR initiative to be implemented in the community, the local or religious leaders have a great influence on CBDRR processes as they act as mediators between those implementing the CBDRR activities and the rest of the community. The role of local leaders relate well to the roles of Community Development Committee (CDC) members in Oshakati that facilitate communications between the headman and community members. For any

initiative to be implemented in the community, the local leaders need to be convinced and satisfied with the purpose of the initiative before they allow the initiative to be implemented in the community. The local and religious leaders support initiatives by starting projects and also setting up committees to lead projects.

Recommendations:

- It has been established that not all locations have CDC members, therefore the local government need to motivate to the regional council which manages the community leadership to ensure that each location has CDC members. Those CDC members should be responsible for organising meetings in villages and note all the concerns in the community as raised during the village meetings. These concerns should then be discussed with the town council.
- At the moment, local leaders do not have a recognised role given by the government in support of the risk reduction process. The local leaders also do not have access to resources to support the risk reduction activities. This leaves the local leaders in a difficult place and unequipped to assist risk reduction processes. Also, it even complicates the leaders' position to mobilise community members that need immediate assistance. Since the local leaders are more than willing to support and participate in the risk reduction activities, it is advisable that the local government motivate to the Ministry of Regional and Local Government, Housing and Rural Development (MRLGHRD) that local leaders receive distinctive tasks and roles y in the risk reduction process. The local government can propose that giving local leaders distinctive tasks is considered as a risk reduction measure and it would help reduce people's vulnerability to the floods. If this is achieved it would also help compact the recently recognised growing trend of residents settling in flood prone areas.
- Community members feel land on the flood prone areas is cheaper. Also, in some cases there are no costs involved and the procedures to acquire the land are simple. Recognising this challenge, the local government can

perhaps restrict people from accessing the flood prone land by increasing the price thereby discouraging people to access it.

5.2.3. Capacity of Community Members

The concept of CBDRR argues capacity of community members as another guideline of CBDRR that people responsible for implementing CBDRR activities need to understand more comprehensively. Capacity of community members refers to the ability of community members to work together and solve social problems (See section 4.2.3). This proves to be critical for the success of CBDRR activities. The ability of community members to be able to work together and solve social problems is considered a good way to determine whether community members will be able to take part in activities aimed at reducing risks. If community members are able to work together they would have a strong social capacity, which implies the ability to plan together and engage in community affairs. Such a community may also have knowledge and skilled personnel (see section 4.2.3). If a community have a strong social capacity, then that community would be able to maintain a successful CBDRR process.

However, to ensure that people have capacity and that all of them are taking part in community initiatives, motivation throughout the CBDRR processes is needed. In this study the two main indicators of capacity of community members as a guideline of CBDRR were established and will be discussed in the sections below, namely capacity of community members to take part in community affairs and the incapability of community members to cope with the flood impacts.

5.2.3.1. Capacity of community members to take part in community affairs

Community members in different locations in the Oshakati community are willing to take part in mutual benefiting activities in their respective communities. Most of the community members initiated and participated in activities aiming to reduce the risk

of flooding such as building of sand walls around residential areas, the construction of community crossing points and the building of community bridges. Communities were initiating different activities to equip themselves to cope better with the impacts of flooding. Such activities included both men and women using various methods to collect sand. Some locations went to the extent of writing a letter to the town requesting the town council to build a dam in the location to conserve the flood water which could then be utilised for domestic use during the dry season. Such abilities indicate the strength of capacity of community members in the Oshakati community to mobilise themselves and organise activities that aim to accomplish collective community defined goals.

Despite the community members' strong social capacity, like being able to initiate and organise community activities as described above, many of these activities were not supported by the local government or any NGOs. Therefore, it is recommended that:

- Communities need support in terms of building their capacity. The local government needs to initiate a strategy that rewards the community members who participates in community activities such as providing them with weeding hoe or water storage containers. This will encourage more people to participate and those that are already participating will be motivated to continue. It was found that community members want government representatives to give a motivation for all their activities.
- Some community members want to be permanently relocated since they are tired of being temporarily relocated every year. Some community members want to be relocated because they are now aware that they are living in flood prone areas. However, some community members do not want to be permanently relocated because they claim that their house materials are now old and they cannot be re-used again. Such houses include those structured from corrugated irons. This can perhaps be overcome by requesting to compensate those with such condition to enable them to reconstruct their houses when they are relocated.

5.2.3.2 Incapability of community members to cope with the flood impacts

The above theme discusses the capability of community members to take part in community activities, which is a good indication of community members' capability to work together. It concurrently shows that community members in the Oshakati community have a strong social capacity. However, there are still gaps in terms of capacity of community members. This is specifically illustrated through the tendency of community members to go through a period of shock and depression as a result of the flooding.

Recommendations:

- A number of community members find it difficult to cope because they refuse to move, and as a result some are strained under depression. The trend of community members being depressed because of the floods indicate a gap in the capacity of community members that needs to be addressed. Capacity of community members can be built by increasing awareness of the hazard among communities. The local government should introduce public awareness campaigns through television and/or radio programmes. Capacity can also be built through ways stipulated under recommendations for information dissemination (see section 5.2.5.3).

5.2.4. Community participation

Community participation is perceived to be another crucial aspect to the process of CBDRR (see section 4.2.4). Community participation is crucial as it ensures that communities are involved in the CBDRR process from inception until its end. It is also understood to create an opportunity that allows affected community members to participate in their own risk reduction process and to participate in the development and implementation of these processes. Thus, the participation ensures ownership of the processes which contribute to its sustainability (See section 4.2.4). Participation

of community members in CBDRR activities is believed to grant an opportunity to turn affected communities from passive receivers to active agents of risk reduction processes.

When community members participate in CBDRR activities, they also have the opportunity to benefit from these activities, as they have access to information that can assist with solutions to the risks they face in their situations. Moreover, participation of community members in CBDRR activities also presents an opportunity to community members to be part of the development process countrywide.

Whereas community participation is so crucial, the Oshakati local government does not necessarily ensure that community members participate in its activities. It has been found that the local government rarely interact with members in the Oshakati community. The finding is based on the fact that most local government activities take place without community members' knowledge of them. This can be explained in terms of general development aspects like a commercial development to be constructed in a particular area. It has been established that, usually only one or two representatives are invited to public meetings. Community members heavily criticised this method of participation during the data collection of this study.

The main theme that was identified when considering community participation is the interaction between communities and the local government. This is discussed in the following section.

5.2.4.1. Interaction between communities and the local government

Interaction between communities and the local government is minimal. The interaction that does exist is more in the form of consultation, which community members also criticised. Consultation is considered to be insufficient and the community members requested for full participation in local government activities. Community members have asked to be part of the planning of all the local government activities.

Occasionally, the local government hosts meetings with community members. When the meetings take place, no feedback is ever given on queries and concerns raised during the meetings. Moreover, community members in some constituency have raised the concern that their constituency councillors do not host meetings with them, and should that be done no feedback is given on issues raised.

Recommendations:

- Community members in the Oshakati community are willing to participate in community activities, because they feel they are working towards a common benefit. They feel they have the opportunity to participate in activities that are aiming towards the improvement of their conditions and the development of the town in general. Therefore, for better coordination between community members and the local government, it is important that the local government establish a continuous interaction routine with the community members. The continuous interaction can be achieved by establishing committees where by committee members attend meeting at defined routine to maintain the relationship. This interaction routine will give the opportunity to community members to share ideas with the local government. It will also ensure that community members are consulted at the same time they participate in all local government activities. The local government needs to establish a continuous relationship between themselves and the community members that offers community members to opportunity to receive feedback on issues that have been raised. Such a relationship would also give community members the opportunity to be part of all risk reduction initiatives. Should a continuous relationship not be achieved, then both the community and the local government would continue working in isolation which implies that the risks would still persist.

  Recommendations:

- A continuous relationship between the local government and the community members will establish an opportunity for community members to express

their knowledge on aspects like floods. As some community members feel they have stayed in the Oshakati community for decades and have great knowledge on patterns and frequency of floods, the continuous relationship between local government and community members will inform the local government staff members on such patterns and important information that can contribute to the reduction of risks in the area. In addition, this would also overcome the emerging issue that communities feel that the local government does not know of the exact problems they face. Also, such a relationship implies that community members would be able to express their problems as well as their needs.

- Regarding the issue of CDC members as discussed in Section 4.2.4, the local government needs to select CDC representatives from all areas to represent the rest of community and facilitate all communications between the local government and the community members. These representatives of the communities would attend regular community meetings and be responsible to organise and ensure that community members attend meetings relating to community activities including those focusing on reducing the risk of flooding. During this meetings community members should be allowed to voice their opinions about activities to reduce the risk, covering the type of activities to implement and how to implement the suggested activities. The requests and opinions given during these meetings should be directly communicated to the focus person at the local government. The focus person at the local government will also be responsible to give feedback from the local government to the communities.
- Regarding participation of the local community members in local government CBDRR activities, genuine participation is recommended. This implies that local community members will be in control of the CBDRR activities and also have decision-making power in such activities.
- In terms of participation of the less advantaged groups such as the homeless and those who do not have land, perhaps the local government can consider securing an opportunity where the homeless and the landless can participate in CBDRR activities. This could be done through strategies to get them in one place such as through where they get their daily food.

5.2.5. Political Will

Political will as a guideline of CBDRR emphasises the need for local government to support community social affairs as well as community activities that aim to reduce the risk of flooding (see section 4.2.5). Literature has indicated that community based activities may require the most policy mediation to ensure a continual progress of the activities over time. The political enthusiasm in community activities also gives an opportunity to institutionalise the community activities including the CBDRR activities into national development plans. The integration of community and CBDRR activities into national development goals makes the achieving of long term strategies to reduce the risk of hazards much easier.

It was found that the local government is able to offer community members support in terms of finance, provision of transport facilities and other tools essential to implement community plans. However, such provisions are available to a very limited extent due to lack of resources. Based on the findings, the study concludes that the lack of resources and knowledge prove to be the major obstacle affecting the local government to support community activities and also engage in risk reduction activities.

5.2.5.1. Oshakati Master Plan

The Oshakati master plan aims to allow a defined minimum level of water into the Oshakati community and redirect the remaining water away from the community. The master plan is a result of the Environmental Impact Assessment (EIA) done to create an environmental plan that would reduce or eliminate the risk of floods in the Oshakati community. Besides the master plan, which is an already good risk reduction initiative to be implemented, the study also recommends that community members had should been given the opportunity to share their traditional coping strategies to be integrated into the plan. The community members have expressed sincere concern of having to face the hazard and deal with it, while the master plan is still in the process of being implemented.

Recommendations:

- The local government needs to review its master plan and response strategies. This can be achieved by hosting a workshop and brainstorm session on measures that can be implemented that really address the hazard and consequences thereof in the long-term. Perhaps the local government can consider the implementation of strict measures to force local people to build houses with a raised foundation.

5.2.5.2. Local government supporting local initiatives

Besides the local government responding to the hazard in different ways such as providing relocation camps and free transport to those who are willing to be relocated, it is also keen on supporting local initiatives that aim to reduce the risks of flooding. The local government supported the local people who initiated building of sand walls surrounding their communities. Assistance was given through provision of tractors to collect sand as well as the necessary tools and financial support to implement the initiative. However, the support is never guaranteed to everyone neither at all times. Therefore the local government staff considers the support insufficient. The local government have indicated that the limited support is due to limited availability of resources.

Recommendations:

- The lack of resources has limited the local government's support to the local people's activities to reduce the risks of flooding. In order to overcome this challenge, it is recommended that the local government source more funds from DRR international bodies aiming to reduce risks like the Office of Foreign Disaster Assistance (OFDA) and the Global Humanitarian assistance. Moreover, the local government need to look for sustainable funding options since international donor funding are not always sustainable funding options in the long term.

- The local government should support the community members through different initiatives. Currently the local government is not fully committed to support local initiatives. Therefore it is recommended that the local government fully support local initiatives by taking the lead of all community initiatives. If the local government staff becomes the leaders of all community activities, more community members will be motivated to be involved in activities to reduce risks as they know they have the support of the local government. The involvement of local government staff in community activities can strengthen commitment from community members.
- In case of community based activities that are initiated through non-governmental organisations, the study recommends that such activities should be connected to the local government. This is important to enable integration of such activities in policies to ensure sustainability and also the reproduction of such activities to risk prone areas.
- Apart from the master plan, the local government needs to motivate community members to apply their traditional ways of coping with the floods as it is believed that long term reduction of risks can be achieved through traditional knowledge. The local government can motivate community members to apply traditional knowledge by creating awareness on the importance of traditional knowledge in risk reduction.

5.2.5.3. Information dissemination (Training workshop)

The local government has given training to regional councillors; head of constituencies and traditional authorities targeting those with the responsibility to allocate land. The training was crucial in educating the selected groups to be aware of the environment and the associated impacts of changing climate. The training is believed to be a great initiative as it complements the great traditional knowledge that the local people already have. In addition to the training of the selected group, there is also a need to give training to general community members and raise awareness about the hazard to the local people. The local government has indicated

that the training that was offered could not be offered to general community members due to the lack of funds.

However, if the local government is to start with proactive measures of finding long-term solutions to the hazards, it is highly recommended that they start creating awareness among the local people. The awareness of the local people would be crucial, as it would help local people understand all about what is needed to know regarding the floods. Moreover, creating awareness amongst community members could help them understand the importance of settling in some safer, non-risk prone areas.

Recommendations:

- Raising awareness about risks and creating an understanding of the underlying factors of risk reduction are crucial in reducing local people's vulnerability. Usually, information amongst communities is often inaccurate and incomplete. Therefore, raising flood awareness at community level can be vital as it will particularly eliminate the myths and misunderstandings that people might have about the floods. Making people more aware of the harm the floods can have and that it could happen to anyone, should reduce the potential damage and increase the effectiveness of extemporary measures that are applied in times of flooding. Information should be made available to the general public to assist them in understanding the danger of floods and to prepare themselves for flood events. Therefore, the local government needs to consider creating awareness among community members through projects and information campaigns. This can be done through information leaflets discussing the hazard occurrence and/or things that community members could do when it starts to flood. The awareness can also be made through community meetings and various media platforms such as radio and television programmes. Another way of creating public awareness is through road signs. This could especially maintain flood awareness amongst the population.
- Population pressure has contributed to the increased vulnerability of people in Oshakati. Thus, the local government should consider creating awareness

amongst community members through the explicit explanation of the importance to avoid settling in flood prone areas. Community members should be informed on the increased pressure that the migration to towns in search for better living conditions put on local government in terms of providing for everyone.

5.2.5.4. Institutional capacity to reduce risks

It appeared that the local government do not have a distinct Disaster Reduction department. The department which hosted the staff that deals with disaster related issues constitutes basically the fire department. The local government does not have a Disaster Risk Management (DRM) unit which can mean that there is a huge lack of skills and knowledge on reducing the risk of floods. This also implies that there is no trained DRR staff in the local government. It has been established that the staff that are currently dealing with disasters related issues originates from the fire department. The unavailability of trained staff on DRR means that the department in most cases will react to the floods rather than anticipate risks. The department is mostly reacting to the floods rather than being proactive, because people that are working with disaster related issues are trained to respond and not informed on proactive means to address risks. As a result the department devotes more resources and time in responding activities than in proactive projects as they were trained to do so.

In addition to the above, Disaster Risk Reduction do not seems to be a priority at national level yet. DRR is still considered to be at an infant stage in Namibia despite the establishments of acts, policies and regulations in 2008. This is the result of the many town councils countrywide not having disaster units which implies that disasters may not be a national concern at the moment. The absence of disaster units in local authorities indicates the gap in terms of prioritising disaster risk reduction as a national goal.

Recommendations:

- The local government needs to press harder for the development of a distinct DRR department in the town council. Besides the availability of policies, acts and regulations of DRM at national level, many local authorities still do not have DRM departments. It is up to the local government to ensure the training of their personnel and the other logistical arrangements like offices for those working under the department of DRM.
- In addition to the advanced training of the few existing personnel, as a long term goal the local government needs to consider building capacity at institutional and systematic level. At the institutional level, capacity focuses on the overall performance and management capacity to deal with the hazard. An example in this instance would be a specific internal instruction on flood management. The institutional capacity can also include the capability of the staff, which implies that the local government could allocate some funds towards scholarships for staff to be trained in the field of DRR. Capacity building at systematic level focuses on creating an enabling environment, such as the overall policy, regulatory and accountability frameworks within which the local government individuals, and staff that deal with disaster related issues, operate. If the institutional and systematic capacities are built, it would also solve the issue of the vast need for the local government to focus more on proactive measures which will lead to communities that are easily involved in local government activities.
- In addition to building institutional and systematic capacities, the local government can cooperate closely with the DRR education facilities such as the University of Namibia (UNAM) and the African Centre of Disaster Studies, that offers short courses and workshops on DRR.
- The local government can consider restricting and controlling the development of housing in flood prone areas. This can be done through appropriate implementation of laws to ensure no developments in the flood prone areas. This can also be achieved through the local government availing large numbers of housing plots on the safer areas of the town to all income groups.

- The local government can consider conducting a study on the suitability of currently used coping strategies at the community level, in order to improve the established strategies. After the study, there should be continuous efforts to communicate newly found information and skills to the residents through media platforms that are easily accessible to all community members.
- Lastly, the ministry of Environment and the local government could slowly convert all the existing urban flood-prone areas and valleys to conservation areas to avoid people settling there.

5.2.5.5. Focus of local government activities

The local government has revealed that most of the Town council's focus on reacting to the floods and not on long-term problem solving. It is clear that the local government fundamentally focuses on temporary solutions to the hazard (flooding) and not long term solutions that can reduce the exposure of the people to the hazard over a long period of time. It is possible that since the local government lacks institutional capacity to reduce the risks, they may not consider long-term risk reduction measures. At the moment, it seems that reaction to the hazard is the easy way out of the problem. The local government's reactive approach towards floods explains its inability to undertake activities at the time of flooding. It is evident that the local government do not focus on the activities that are aimed at reducing the risk of flooding throughout the year, which can explain why they are faced with the same risk each year.

Recommendations:

- The above described tendency implies the need for the local government to shift to proactive ways of reducing the risk and hence carry out its activities well on time before it has started flooding. A shift to proactive ways of reducing the risk of floods could mean that the local government spend more time and resources on activities that are carried out well in advance of flooding. Such activities could include the local government building capacity

of community members through trainings and information dissemination such as creating awareness (see recommendation on Information dissemination). The local government can be proactive by fully supporting local initiatives and by taking leadership of all community activities, as indicated in section 5.2.5.2. Moreover, the local government can also be proactive by strengthening its institutional capacity to reduce risks. This can be achieved through giving DRR training to the local government personnel.

5.2.5.6. Involvement of other relevant stakeholders in risk reduction activities

There are other stakeholders that are involved in the flooding response activities in the Oshakati community. The involvement of other stakeholders indicates the important role that the local government of Oshakati is playing by encouraging a collaborative and multi stakeholder response strategy. In terms of DRR, the involvement of other stakeholders could mean the potential of the local government to involve then in disaster risk reduction activities should the local government start to engage in risk reduction activities. Involving other stakeholders indicates that the local government is enhancing a multi-sectoral DRR approach. This shows that floods are not only viewed as a problem for the local government, but also a problem for other stakeholders that can assist in reducing risks. The ability of the local government to involve other stakeholders in response activities also means that it will be easier to involve the stakeholders in DRR activities in the future. Other stakeholders offer support in terms of finance, equipment and relocating transport during the rainy season. These stakeholders are institutions like the Namibian Police, Ministry of Defence, Ministry of Health and Social Services and The Red Cross Society.

Recommendations:

- In order to enable collaborative DRR, it is recommended that each of the above mentioned stakeholders is allocated tasks in the process of risk reduction.
- Recognising the increasing importance of NGOs as global eyes and ears of development, it may be useful that NGOs are also involved in the risk reduction process of the Oshakati community. This can also be done through the allocation of with various tasks within the process of risk reduction.

5.2.6. Training

The last important aspect of CBDRR is the aspect of training of community members. It proven that an opportunity for members of the CBDRR activities to practise their roles and responsibilities are seen as important and necessary (See 4.2.6). The findings in the Oshakati community revealed that the community members were involved in actions that can be regarded as CBDRR activities without undergoing any form of training. The reason for not going through training is that the community members are simply using their traditional knowledge and therefore there is no need for training. However, community members expressed the need for training in activities that may go beyond the use of traditional knowledge.

Recommendations:

- The local people requested training on how to use first-aid kits, search and rescue and walkie-talkie operations facilities as sometimes situations arise where they have to rescue their neighbours or relatives in deep water. Therefore training should be done with community members on the requested topics.
- Besides the training on how to use first-aid kits, search and rescue and walkie-talkie operations facilities, it is recommended that the local government

determines other topics and areas in which training is needed, specifically risk reduction.

5.3. CONCLUSION

The importance of integrating disaster risk reduction measures with activities that are executed at community level is well explained around the concept of DRR. In that respect, it asserted the importance of community participation, the use of traditional knowledge, the understanding of community structures, capacity of affected communities, political will and training as vital aspects in the achievement of effective Community Based Disaster Risk Reduction.

Currently all over the world and in most developing countries most DRR activities are urged to from the affected communities. In applying the literature of CBDRR to the flooding in the Oshakati community, several findings were established.

Comparing the activities of the Oshakati community and the literature of CBDRR it is clear that the two guidelines mostly adhered to involve the use of traditional knowledge and the capacity of community members. Most of the community members' activities applied traditional knowledge. Also, the capacity of community members showed that they were willing to initiate and take part in community activities. The fact that community members could introduce specific problem-solving activities proves the community's cohesion which means that they have a strong social capacity. A strong social capacity is important to enhance the risk reduction process in the Oshakati community and therefore it is possible that people in Oshakati are capable of maintaining community initiatives. If the community members are capable of maintaining community initiatives it also implies that they have a high chance of working together to achieve long-term solutions to the hazard they are facing.

In terms of understanding the community structures as a guideline of CBDRR, the findings have established that community members have different perceptions of the hazards and therefore they develop different efforts to overcome the floods. However, the capacity to cope with the impact of floods differs depending on social groups like unemployed people, the homeless and people with no land. Due to different groups of people in the community, many people develop different coping mechanisms. It is important to note that if the different mechanisms that are used by community members are well understood, it could guide the local government to

develop suitable measures to reduce people's vulnerability and expand their opportunities for managing the floods. Another issue that emerged from this guideline was the importance of the roles of local and religious leaders. The study has established that the local and religious leaders play a major role in all community activities and they influence both the participation and the effectiveness of community activities.

Regarding community participation, political will and training, there is a prime issue facing the local government which clearly reflects in its activities. The lack of institutional capacity to reduce the risk of floods was found to be the key problem identified which is affecting the activities of the local government in all possible ways. In addition to the lack of institutional capacity, lack of knowledge, financial and human resources were also found to contribute to the ineffectiveness of the local government to address the risks in advance. Consequently, the three guidelines of CBDRR are not appropriately adhered to due to these challenges. The lack of resources makes it difficult for the local government to carry out most of its activities and to support the activities of the local people.

Findings on political will revealed that policies and acts were only passed from the 2009 onwards. This implies that many local authorities are still in the process of establishing their disaster departments as well as the staff to coordinate all hazards related events. Clear cut coordination is only available at national level, but for local authorities like the local government of Oshakati community, it seems like the coordination of disaster related aspects are dumped to whoever may be available at that time.

To conclude this study, it is important to indicate that the study objectives were achieved. The study objectives were:

- To establish from relevant literature the principles and guidelines for Community Based Disaster Risk Reduction;
- To explore activities undertaken by Oshakati community members relevant to the principles and guidelines of CBDRR;
- Compare the literature on CBDRR and the activities undertaken by community members in Oshakati Town; and

- To offer recommendations for disaster risk measures based on CBDRR that can reduce future flooding impacts in Oshakati town.

The first objective was achieved through the review of all the relevant literature on the principles and guidelines for Community Based Disaster Risk Reduction (CBDRR). These principles and guidelines were found to be the use of traditional knowledge, understanding of community structures, capacity of community members, ppolitical will and training. The principles and guidelines for Community Based Disaster Risk Reduction (CBDRR) are discussed in Chapter 2.

The second and third objective was achieved through the exploring of the activities of the Oshakati community members and the comparison with the literature of CBDRR to show how the Oshakati community activities relate to the literature of CBDRR. It was found that the activities of the community members relate well with the literature on CBDRR. However, some guidelines such as community participation, political will and training were not well in place due to lack of skills, knowledge and resources at the local government level as discussed in Chapter 4.

The last objective was to offer recommendations for disaster risk measures based on CBDRR that can reduce the risk of future flooding in Oshakati town. It was established that in order for the local government to succeed in reducing the risk of flooding in Oshakati, they need to begin with full support on local CBDRR initiatives and also strengthen its institutional capacity. Institutional capacity could be achieved through ensuring that the local government acquires a distinct DRR department. Furthermore, the personnel to work under the department should be well trained in the field of DRR. Chapter 5 discussed the recommendations and conclusion.

The fact that not all the guidelines and principles of CBDRR are appropriately adhered to has a great influence on the effectiveness of both the local government and community members' effort to reduce the risk of flooding. Even though most of the guidelines and principles are not appropriately adhered to, those that were adhered to, illustrate the potential of a multi-stakeholders effort towards risk reduction in the Oshakati community.

Lastly, this study has established that hazards such as floods can hamper development. Therefore there is the need to build the local people capabilities to reduce and cope with hazards such as floods. This can be done through local

government and community members starting with the application of all the mentioned principles and guidelines of CBDRR. These will benefit the risk reduction process in the Oshakati community mainly because the community members in Oshakati are already initiating and participating in CBDRR activities.

ANNEXURES

ANNEXTURE A: HEADS OF HOUSEHOLDS FOCUS GROUPS DISCUSSION SCHEDULE

NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT
POTCHEFSTROOM CAMPUS

North-West University
Disasters Risk Studies

IDENTIFICATION INFORMATION

LOCATION
NAME……

1. General questions

1.1 How old is the community at this location?

1.2 For how long has this location been flooded since the past 20 years?

1.3 Can you tell us/ describe the floods in your community? When does it happen and in which areas?

1.4 What do you do as a community to reduce the risk of the floods*?* Probes: who are the role players in these initiatives?

1.5 Are there any DRR projects OR community projects being implemented in your community and by whom?

YES

NO

If yes to what degree do you feel that the local government support these DRR projects as well as community projects? (Political will)

If No, in what way do you think that the local government will support these DRR projects OR community projects? (Political will)

2. Understanding Community structures

2.1 In terms of economic and social status, employment and land ownership, how do the households in your community differ from one another?

2.2 Relating to projects done in this community to reduce the risk of flooding, do you thing the differences in the community for instance in terms of economic status; social; employment; political; land ownership are usually taken into consideration? How so?

2.3 Knowing that flooding is an annual event, how do you as the household prepare your household? (Preparatory strategies)

2.4 Who are the traditional authorities in your community? Probing question; what roles do the traditional authority plays in reducing the risks of flooding?

3. Local Knowledge

3.1 How and in what way do you think community members use their local indigenous knowledge to reduce the risks related to flooding?

3.2 In what way do you think the traditional knowledge and wisdom on how local community members handle flooding are utilized in developing, designing and implementation of these disaster risk reduction projects?

3.3 How do you think community member's traditional knowledge and wisdom can be integrated into disaster risk reduction projects?

3.4 Do you think it should be included and why?

4. Capacity of community members

4.1 In this community do you think that the community works as a collective group to reduce the risk of flooding, how? (Social capacity and strength of social relationships)

4.2 Do you think people in this community have the will to take part in risk reduction activities?

4.3 Do you think your community is able to cope with or have the means to cope with the threats of flooding? How and why do you say this?

4.4 Do you think there are people in this community that has management skills capable of managing a disaster risk reduction project?

4.5 How would you say is the communities interaction between different role players – Local organisations, government entities and community members?

5. Community Participation

5.1 To what extent do you feel that the community is involved in the development and implementation of risk reduction projects? Probing question: Please explain how this involvement take place, why do you think it does not take place?

5.2 Why do you think that community participation in risk reduction projects is important?

5.3 Why do you think it is important for risk reduction projects relating to flooding to incorporate the communities' local knowledge?

5.4 In what ways do you think the members of the community should be involved in CBDRR projects?

6. Political will

6.1 How much is reducing risks of flooding a priority to the local government? do you think the local government prioritise reducing risks of flooding?

6.2 In your views how does government political will affect the effectiveness of CBDRR projects?

6.3 In this community how much is the local government doing in reducing impacts of flooding in this community?

6.4 In what way do you think the local government can offer support to local initiatives?

7. Training

7.1 Those that implements the DRR projects, do they give training to community members? Probing questions what benefits do you think training gives to community members? Please explain.

7.2 How do those that implements DRR projects do decides on the priorities for training etc?

ANNEXTURE B: LOCAL GOVERNMENT, SCHOOL PRINCIPALS & CHIEF NURSING OFFICERS INDIVIDUAL INTERVIEWS SCHEDULE

NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT
POTCHEFSTROOM CAMPUS

North-West University
Disasters Risk Studies

IDENTIFICATION INFORMATION

Name of the Local Government/
Hospital/School……

1. *General questions*

1.1 How long has your Institution been at this Location?

1.2 Have your institution ever been flooded in the past 20 years

1.3 What impact has flooding have on your institution and its day to day functioning?

1.4 What disaster risk reduction projects do you do in Oshakati relating to reducing the risk of flooding?

1.5 Within this community are there any community initiatives to reduce the risk of flooding that you support?

FOR SCHOOLS AND HOSPITALS ONLY

1.6 Can you tell us/describe the floods in your community? When does it happens and in which areas?

1.7 What does the hospital/school do to reduce the risk of flooding in general?

- Who are the role players in these activities? Probing question; How are these role players involving community members into their planning and implementations of these activities? Please explain?

2. Local Knowledge

2.1 Are there any disaster risk reduction projects that are implemented in your community?

YES

NO

If yes,

- Who is implementing these projects?

- How do these projects really take place? Please elaborate

- When those who implement the disaster risk reduction projects leave, what happens to the project and the project objectives?

- Probing questions: Do other people take the roles of the project team – which people do take which roles of the team? Why do you think the project ends? (Community Participation)

2.2 Do you think disaster risk reduction projects that are implemented in the community have the full support of YOU as the local government? (Political will)

2.3 Do you think that local knowledge about how to reduce flooding is important to take into consideration? and if it is, in what way?

2.4 In the projects that you implement to what extent do you take the local knowledge of the community into consideration in these projects and how do you do this?

2.5 Do you think the traditional knowledge and wisdom on how local community members handle flooding are utilised in developing, designing and implementation of your disaster risk reduction projects?

2.6 How do you think community members can be involved in disaster risk reduction projects?

FOR SCHOOLS AND HOSPITALS ONLY

2.7 How and in what way do you think community members use their local indigenous knowledge to reduce the risks related to flooding?

2.8 In what way do you think the traditional knowledge and wisdom on how local community members handle flooding are utilized in developing, designing and implementation of these disaster risk reduction projects?

2.9 How do you think community members can be involved in disaster risk reduction projects?

2.10 Do you think it's important for them to be involved and why?

3. Capacity of community members

3.1 Knowing that flooding is an annual event, how does the hospital/school prepare itself to reduce the risk of flooding? (Preparatory strategies)

3.2 How does the school/hospital ensure that its activities continue throughout even during heavy flooding season? / How does the school/hospital ensure that it continue its everyday activities throughout the rainy season?

3.3 How does the role of the school/hospital work within the wider community structure – do you fit in with this or do you function on your own when it comes to reducing the risks related to flooding?

3.4 How does the school/hospital mitigate the impacts of floods, who are your partners/stakeholders in this process?

3.5 Once a CBDRR/DRR project is implemented what happens to the project when the implementation is over??

-Why do you think this is the case?

Probing question: what happens to the DRR project and the project objectives? Do community people take the roles of the project team – which people in the community take what roles of the project? Please explain how this happens (Community participation).

3.6 What would you say is needed for communities to maintain CBDRR/DRR Projects?

3.7 How would you say is the communities interaction between different role players – Local organisations, yourself as government entities and community members?

Probing questions;

* *Do you think there are people in this community that has management skills capable of managing a disaster risk reduction project?*

* *In this community do you think that the community works as a collective group to reduce the risk of flooding, how? (Social capacity and strength of social relationships)*

* *Do you think your community is able to cope with or have the means to cope with the threats of flooding? How and why do you say this?*

FOR SCHOOLS AND HOSPITALS ONLY

3.8 In this community do you think that the community works as a collective group to reduce the risk of flooding, how? (Social capacity and strength of social relationships)

3.9 As the hospital/school do you think that there is frequent and easy interaction between different role players (Local organisations – NGO's, schools, hospitals etc. - , government entities and community members) in the community regarding disaster risk reduction?

4. Community Participation

4.4 If the local government are the implementers of DRR projects, how is the local government allowing community members to be active agents in designing, planning and implementation of DRR projects and not mere receivers of DRR projects outcomes?

Probing questions; Please explain how do community members becomes part of DRR projects?

4.5 Do you think decision making power in designing, planning and implementation in DRR projects are important?

4.6 Do community members have decision making power in the designing, planning and implementation of DRR projects? Please explain

4.7 To what degree do you think that the involvement of community members in risk reduction projects can contribute to risk reduction?

4.8 In which ways do you think the local community members can be better involved in risk reduction projects?

5. Political will

5.1 To what degree is reducing risks of flooding a priority to the local government?

5.2 How is reducing risks of flooding a priority to the central government? For example to the Office of the Prime Minister (OPM) ?

- How do they support YOUR activities as the local government? Please explain how is this taking place?

5.3 To what degree is the local government reducing risk of flooding in Oshakati? How are you doing this?

5.4 Do you know of local community initiatives to reduce the risk of flooding in Oshakati?

YES

NO

If yes to what degree is the local government supporting these local initiatives to reduce the risk of flooding in Oshakati?

If No, in what way do you think that the local government will support local community initiatives to reduce the risk of flooding?

5.5 In your views how does government political will affect the effectiveness of disaster risk reduction projects?

5.6 In this community how much is the local government doing in reducing impacts of flooding?

5.7 What do you think should be done in terms of the local government reducing the risks of flooding and the local government supporting local initiatives?

FOR SCHOOLS AND HOSPITALS ONLY

5.8 What activities does the local government engage in related to flooding in Oshakati town?

5.9 How does the local government involve community members in these initiatives?

5.10 Does the local government have support from the central government in helping the communities that are affected by flooding or at least come up with long term strategies? Probing question; Please explain how is this support taking place?

5.11 To what degree is the local government reducing risk of flooding in Oshakati?

5.12 How much of a priority is reducing risks of flooding to the local government?

5.13 In your views how does government political will affect the effectiveness of disaster risk reduction projects?

5.14 What do you think should be done in terms of the local government reducing the risks of flooding?

6. Training of community members

6.1 In case the local government implements the DRR projects, do you give training to community members? Probing questions; do you see any benefits in offering training to community members?

6.2 As a local government that implements DRR projects, how do decides on the priorities for training etc.?

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