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THE ROLES OF STAKEHOLDERS IN DISASTER RISK REDUCTION IN LOCAL GOVERNMENT: THE CASE OF ALFRED NZO DISTRICT MUNICIPALITY

BY

Sinothando Lawrence Mtshengu

215000267

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Supervisor: Dr F. Ruffin

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DECLARATION

I, Sinothando Lawrence Mtshengu solemnly declare that;

(i) This research dissertation except where indicated is my original research study.

(ii) This dissertation has not been submitted for any degree or examination at any other university.

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Date:……..

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DEDICATION

This dissertation is dedicated to:

My mother Nodumo Mtshengu, my late grandparents Mabhala E. Mtshengu and Thozamile Mtshengu, for raising me with such love and teaching me to fear and honour God Almighty.

My lovely wife, Busisiwe Mtshengu, for such an astounding backing. And my children, for just being there for me.

ABSTRACT

The increasing loss of human life and materials by natural and man-made conditions call for the need for disaster risk reduction (DRR). The concept of DRR emphasises the need to understand early warning signs and therefore mitigating efforts. Considering the array of challenges encountered in implementing DRR efforts, this study investigated the role of advisory forum stakeholders in DRR using the case of Alfred Nzo District Municipality (ANDM). This qualitative study engaged 10 participants from the Disaster Risk Management Advisory (DRMA) forum members of the municipality. Data for this qualitative research design were collected through individual in-depth interviews of the range of stakeholders who serve on the DRMA forum. Documentary evidence was a source of secondary data. Stakeholder engagement theory guided the study underpinned by the constructivist philosophical worldviews. The results of the study indicate that the residents of ANDM are prone to the risk of many disasters which include fire, floods, lightning, drought, accidents and tornadoes, to mention a few. Amongst the challenges faced in efforts to mitigate the risk of disasters include the growing community population, the limited institutional capacity to combat disaster risk, as well as seemingly undefined risk behaviour of communities. Given these situations, it has been recommended that physical measures should be put in place to increase DRR strategies and improve management. The institution should be capacitated in terms of the necessary equipment and financial means to combat disaster risk. This means that the DRMA forum should fulfil its mandate for public awareness efforts to educate the community on the ways of reducing the chances of hazards and disasters, for instance, by implementing safe agricultural practices to reduce deforestation and soil erosion. Recommendations are made regarding strategies for enhancement of the roles played by the various stakeholders who serve on the DRMA forum. This includes shifting the DRR discourse from a focus on response and recovery to one on DRR.

LIST OF ACRONYMS

ANDM	Alfred Nzo District Municipality
CRED	Centre for Research on the Epidemiology of Disasters
DFID	Department for International Development
DM	Disaster Management
DMA	Disaster Management Act
DMF	Disaster Management Framework
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DRR-M	Disaster Risk Reduction and Management
DRMA	Disaster Risk Management Advisory
EWS	Early Warning System(s)
FFA	Fiscal and Finance Commission
HFA	Hyogo Framework for Action
HFA2	Hyogo Framework for Action 2
IATF/DR	Inter-Agency Task Force for Disaster Reduction
IDP	Integrated Development Plan
IK	Indigenous Knowledge
ISDR	International Strategy for Disaster Reduction
IT	Information Technology
KPAs	Key Performance Areas
MDMC	Municipal Disaster Management Centre
NDMF	National Disaster Management Framework
NDMAF	National Disaster Management Advisory Forum
NDMC	National Disaster Management Centre
NDMIS	National Disaster Management Information System
NGOs	Non-Governmental Organisation
PAR	Pressure and Release Model
PDMC	Provincial Disaster Management Centre
SADM	South African Disaster Management
SAWS	South African Weather Services
SFDRR	Sendai Framework for Disaster Risk Reduction
UN	United Nations
UNISDR	United Nations/International Strategy for Disaster Reduction
WCDR	World Conference on Disaster Reduction
WMO	World Meteorological Organisation
WSSD	World Summit on Sustainable Development

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF MATRICES

LIST OF TABLES

CHAPTER 1-INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

This study investigates the roles of stakeholders in disaster risk reduction in local government focusing on the municipal advisory forum of Alfred Nzo District Municipality (ANDM). Municipal advisory forums are legally mandated and consist of multi-departmental and multi-sector collectives of individuals representing designated organisations. The disaster risk reduction (DRR) foremost intention is to limit or eradicate damages from natural hazards such as hydrological and meteorological conditions using principles of disaster prevention. In many cases disasters follow natural hazards. The harshness of disaster is determined by its consequences and disruption of way of life to the affected communities or society and environment. To study the roles of stakeholders in disaster risk reduction in local government focusing on ANDM disaster management advisory forum, this chapter presents the following key milestones:

- Dissertation overview,
- Contextual perspective of the study,
- Problem statement
- Research objectives as questions,
- An overview of the methodology,
- Ethical considerations,
- Definition of key concepts,
- Study limitations and the chapter ends with a presentation of the dissertation outline.

1.2 Broader research problem

Natural disasters are a world-wide phenomenon. However, the impact of this natural occurrence is more destructive in developing countries where they frequently occur. Two main factors have been pointed to be the major causes of disasters in the African region: the first one is the Geomorphologic settings (most developing countries are situated in zones that are most prone to flooding, volcano, fires and seismicity). Secondly, disasters in developing countries are associated with the socio-political, cultural and economic factors (the countries are struggling with effects of political transformation or instability, poverty and underdevelopment) which make societies more vulnerable and at high risk of disasters. Dissertation

As to South Africa, the Centre for Research on the Epidemiology of Disasters International database (CRED, 2012) notes that South Africa experienced 77 natural disasters between 1980 and 2010, leaving close to 2000 people dead while affecting more than 18 000 000 people. The disaster cost the country more than US$3 trillion (CRED, 2012). Since 2016 South Africa has been experiencing the most serious drought period in a long time. This phenomenon has left some poorer communities suffering. Therefore, as part of the transformation from the apartheid to a democratic government in 1994, in 2002 Republic of South Africa enacted the Disaster Management Act 57 of 2002(DMA). By and through the DMA and the Disaster Risk Management Policy Framework (RSA, 2005) the country seeks to change its disaster management (DM) policy from a reactive to one that is proactive as well as precautionary. This signals the need for DRR.

DRR is described as a methodical tactic of recognizing or classifying, evaluating and minimising or eliminating the risks of disaster. The important factor is addressing the question of socio-economic vulnerability and taking into account community vulnerability by also lessening ecological and supplementary hazards as contributory factors of disaster (Kusumasari, Quamrul and Siddiqui 2010, p.450). It is pointed out that since the 1970's; there has been an increasing amount of research on vulnerability which has been reflected on print media space and otherwise (Kusumasari, et al.2010, p.439). It is understood to be everybody's business inclusive of developers and agencies alike. It supposed to be a way of life for such institutions, and not be undertaken as a once off event. DRR is perceived as being across-the-board, such that its content is much wider and profounder than conservative crisis supervision. Each segment of humanitarian and development work has a latent or active role to play in DRR. DRR is also understood to be fundamentally measured through taking actions that advance likelihoods of reducing exposures and disaster threats to society at large. This is expected to prevent or to limit the adversarial effects of disaster and hazard exposures, in relation to developmental perspective (United Nations International Strategy for Disaster Reduction (UNISDR, 2004, p.7).

Moreover, DRR is intended at reducing local disaster exposure/risk through planning and participatory assessment. Therefore a linking approach is to incorporate the municipal sphere of government into development efforts for the impact of disaster risks to be curbed. This entails the assessment of disaster risks to be able to reduce communities' vulnerabilities while at the same time enhancing their potential for socio-economic development. This shows that communities should be part of DRR processes which include identifying, analysing, implementing, monitoring and evaluating disaster risk in their areas. This is called societal based disaster hazard /risk controlling. It is however not the subject of this study, since this

study aims to assess the roles of stakeholders in DRR and disaster risk management (DRM); with specific reference to ANDM advisory forum stakeholders.

DRR practitioners have commonly admitted that up to now, precipitation or big brother approaches in realisation of the Hyogo Framework for Action 2005-2015 (HFA1), thus predominantly focused on the highest sphere of government and not the local level where the actual operations occur (Becker, 2012; UNISDR, 2012, p.226-233). This indicates some problematic shortfalls on a broad scale as DRR efforts should also be realised at local level. Ruffin and Reddy (2015, p.222) argue that "DRR is a global phenomenon and municipalities have significant role in localisation of DRR". On that note, Kusumasari, *et al.* (2010, p.451) articulate that disaster attentiveness will never occur without the inclusion of all relevant local participants or local stakeholders, particularly the communities. Gaillard (2010, p.224) thus urges DRR stakeholders to capacitate themselves on the approaches of community development: "enhancing capacities, reducing vulnerability and building resilience requires increasing participation of local communities, as has long been encouraged in development research, policy and practice" (Gaillard, 2010, p.224). Therefore, it is of utmost importance to include all relevant primary players and stakeholders so as to ensure proper mitigation and preparedness activities at local space. In light of this broader research problem of insufficient attention to stakeholder involvement in DRR at local governance level, the narrow research problem for this study focuses on the role of ANDM advisory forum stakeholders in DRR as more fully discussed in the next section.

The stakeholders are anticipated to participate in all NDMF key performance areas which are institutional capacity, disaster risk assessment, and DRR and also post disaster response and recovery. Section 51 of the DMA clarify that the stakeholders in this regard should represent and come from all spheres of the government. From the researcher's personal experience, the roles of the relevant stakeholders in DRR are not clearly defined, a situation which creates a gap when it comes to the allocation of tasks. This is therefore the reason why the endeavour/ study aim at filling the gaps regarding in the subject matter.

1.3 Research problem to the study

In South Africa, According to DMA (RSA, 2002) National Disaster Management Centre (NDMC) is mandated with encouraging a co-ordinated and integrated national DRM policy. The NDMF, (RSA, 2005) highlights DMA (RSA, 2002) prioritisation in relation to the aspects of co-operative governance with regards to DRR. Intergovernmental relations are central to DRR (Ruffin and Reddy, 2015, p. 228). For example, the NDMC oversees nine Provincial

Disaster Management Centres (PDMC) in each of the provinces of the country. Similarly, each PDMC oversees and collaborates with municipalities within the respective provinces through Municipal Disaster Management Centres (MDMC). In that view, there is a legally mandated requirement of advisory forums associated with DM centres. These advisory forums are multi-sectoral and multi-disciplinary. These forums are in-line with the Section 44(1) (b) of the DMA (RSA 2002) calling for cohesive and harmonised tactics to DRM in municipal areas. The DMA (Section 51) (RSA 2002) synchronisation of DRM and therefore envisages these advisory forums as a body for stakeholder meetings to ensure law and policy compliance. Hence, this entails the involvement of all relevant participants in reducing likelihood and severity of disasters. The idea is to move the emphasis of DM from a reactive approach to a pro-active attitude, DMA (RSA 2002; 2015) also articulates that entire municipalities within the country must deliver cohesive synchronised management of disasters in line with the NDMF (RSA, 2005) that is aimed at averting disasters by focusing on reduction of hazard rather than reacting to consequences of disasters.

South African provinces experience natural disasters and hazards. For example, KwaZulu-Natal province is amongst the most affected by water shortage, a situation which is forcing the metropolitan eThekwini Municipality to implement water shedding as of March 2016. Relevant DM stakeholders have also launched a programme in which members of the public are asked to donate 5 litre containers of sealed water in the retail shops for distribution in the most affected areas. The Western Cape also experiences water shortages. The Eastern Cape is not spared by disasters. This province suffers from floods and fires which often sweep away the more vulnerable informal settlements and leave the community members devastated. These communities lack the capacity and resources to cope with the effect of disasters. It is therefore the obligation of the DM discipline to combat disaster risk and hence reduce the vulnerability of communities. Vulnerability in this case refers to “the ability a person or community has to predict, cope with, or avoid and recover from, the consequences of a hazard or disaster” (NDMC, 2013, p. 23).

This therefore points to the importance of examining the role of the relevant stakeholders in risk reduction. That is the purpose of this study. In addition, several studies show that that in spite of the importance of community involvement in DRR, there is severe lack of stakeholders participation such as the Local Government and other competent authorities like NDMC, non-governmental organisations (NGO) networks, volunteer groups; the financing institutions; private businesses; the media; Red Cross society; hospitals and firefighting and other service providers; the academic community; and United Nations bodies (Mainardes, Alves and Raposo, 2012, p.1861; Baroudi and Rapp 2014, p.182). Timeliness is the essence in DRR and how

quickly these stakeholders act and work together is important ultimately. This is because each stakeholder has a responsibility in different phases of disasters such as prevention, preparedness, response, relief and mitigation (Mainardes, *et al.* (2012, p.1866). South African stakeholders engaging in DRR process are not well known to each other, nor are the roles they play, and the extent of effectiveness of their respective roles.

As indicated earlier, the DMA (RSA 2002; 2015) prioritises cooperative governance in disaster hazard reduction that entails cooperation of stakeholders to ensure less risk and to predict the likelihood of disasters. In response to this, ANDM launched the district disaster advisory forum, in respect of section 51 of the DMA (RSA 200, 2015). This study is therefore aimed at investigating the role of this forum (herein mentioned to as the stakeholders) in relation to DRR within ANDM.

Despite having developed a disaster reduction policy (this will be further discussed in chapter 4), the researcher noted some inconsistencies regarding stakeholder participation in DRR at ANDM where the researcher once served as the Disaster Manager. This is a cause for concern, since it becomes difficult in terms of tracking progress. It also makes it impossible to appreciate the roles of other stakeholders in DRR. As a member of the provincial disaster advisory forum, and as the former Disaster Manager for ANDM, the researcher also observed that, at provincial level, the relevant stakeholders tend to respond to disasters on a crisis management level in lieu of the systematic multidisciplinary preventative and mitigation approach. Skinner (2014) argues that many times, the inappropriate or lack of proper coordination as well as low stakeholder participation has also resulted in ineffective participation in DM within the province. This causes problems in conducting post-disaster impact assessments which is an essential aspect that helps communities as beneficiaries of service delivery.

The problems highlighted above clearly make this study worth undertaking. The problems also entail the need for a proper DRR model which could provide a complete and flexible approach for disaster risk management by advisory forums. The model would also encourage the process by improving disaster planning, a process which involves multi-disciplinary as well as multi-sectoral groups. Therefore the study aims to appraise and evaluate the roles of advisory forum stakeholders in accelerating and enhancing an effective DRR process. There is a paradigm shift as to how South African government has been observing and implementing DRM as governmental mandate. This paradigm shift revolves around a focus on DRR. It is hoped that the findings from this study will contribute to shifting the focus of advisory forum stakeholders from response and recovery mode to DRR principles and practises.

1.4 Objectives of the study

Given the problem statement highlighted above, the study has the following objectives:

- To identify the advisory forum stakeholders and their roles in disaster risk reduction.
- To establish how advisory forum stakeholders participate in DRR activities.
- To assess the institutional capacity of advisory forum stakeholders.
- To identify the challenges and opportunities advisory forum stakeholders encounter in their efforts towards DRR

1.5 Research questions

The questions that need to be answered are as follows.

- What is the responsibility of advisory forum stakeholders in disaster risk reduction?
- How do advisory forum stakeholders participate in DRR activities?
- What is the institutional capacity of advisory forum stakeholders?
- What are the challenges and opportunities encountered by advisory forum stakeholders in their efforts towards DRR?

1.6 Motivation for and significance of the study

The need to investigate the roles of stakeholders in DRR is partially motivated by some personal experiences of the researcher. As a professional in DM in local government, the researcher notes that South Africa does not have a well-structured and appropriate DRR model at a domestic, regional or national sphere. The researcher has several times noticed how municipalities are struggling with DRR issues due to institutional arrangements or the lack thereof. Moreover, addressing the Portfolio Committee on Cooperative Governance and Traditional Affairs in 2009, George Killian, the then Acting Executive Manager: Disaster Management in the NDMC said “We are struggling to lift the awareness of Disaster Management in the department, provinces and municipalities” (Killian,2009,p.45). This statement is another underlying motivation for conducting this study, so that that struggle can be alleviated and the awareness of DRM and DRR lifted throughout the country and beyond. Finally, the motivation or rationale for the study is to solicit solutions for outlining the actual role of DRR stakeholders. The advisory forum seems to be challenged when it comes to fulfilling their legal mandate. The advisory forum, not unlike the governmental and non-governmental organisations that they represent seems to focus their resources only on post disaster response and recovery with little or no strides on DRR. Should the study not be conducted then the research problem will remain unaddressed; that includes shifting from a focus on post-disaster response and recovery to DRR.

Turning to significance of the study, the research is viewed to be of vital importance in numerous ways. Looking at the objectives outlined above, the study would benefit the relevant stakeholders by enhancing participation in DRR. For the particular organisation and other related organisations, the study helps in making the organisation realise the importance of being proactive about DRR. Findings from the study could encourage improvement of aspects of planning, reviewing and assessing DRR strategies for relevant organisations to lead to a more holistic approach to DRR. For the policy makers, the study is of great importance, as it would serve as a guide in how best to ensure policies that are aimed at improving stakeholder performance NDMF (RSA 2005) key performance areas (KPAs) are implemented. The need for a study of this nature is important as it contributes to the academic field of disaster risk management and risk reduction. The study aims to enhance the participation of stakeholders in DRR. The study therefore highlights the importance of taking proactive measures about DRR reduction to ensure community safety against disasters, particularly in light of the roles of advisory forum stakeholders.

1.7 **Research design and methods**

The methodology for this study is detailed in Chapter 3. This segment therefore offers a synopsis of it. In order to achieve study objectives, the research adopted the qualitative methodology. Questions posed by this study enquire about how and why a situation exists and this therefore calls for a qualitative research design.

1.7.1 Philosophical worldview and research design

So as to realize the goals including objectives of this study, the researcher has adopted constructivism as the philosophical worldview. These worldviews are useful in qualitative research since the researcher seeks to understand experiences of respondents and how respondents construct and interpret their own world (Lincoln *et al*., 2011; Mertens, 2010). The dominant edifice of an experience is its intentionality; it's being directed toward something, as it is an experience of or about some objective (Parnas, Sass, and Zahavi 2013, p.277). The research objectives will be achieved using qualitative research methodology to get an understanding and an appreciation of the roles of stakeholders in DRR, including the nature of those roles and how advisory forum stakeholders participate in DRR (Creswell, 2014, p.154).

1.7.2 Research strategy

The decision on which research strategy to choose depends upon three things which are (1) the research interrogation, (2) magnitude of control that the investigator or researcher has over authentic behaviour of proceedings, as well as (3) the extent of attention on current rather than previous sequence of happenings (Yin 2014, p.14). This study is located as a multi-disciplinary matter which provides a critical-constructive examination of stakeholder participation in DRR

with specific reference to the advisory forum of ANDM. This provided the opportunity to conduct a case study, which is regarded as technique of concentrating and appreciating real-life phenomena. A case in this regard is defined as an organization, a community, an event or entity other than a single individual. Yin (2009, p.130) highlights the case study approach as the preferred strategy when answering 'how' and 'why' types of questions, as well as when seeking to understand genuine lifetime perspective in a modern phenomenon .Yin (2009, p.18) further articulates that case study provides the unique advantage of including "a full variety of evidence including documents, artefacts, interviews and observations". The case context of ANDM was used in conducting the study and ANDM advisory forum stakeholders were units of analysis as detailed in Chapter 3.

1.7.3 Data collection and analysis

For this particular study, and in alignment with case study strategy, multiple sources of evidence included in-depth semi-structured interviews and documentary evidence such as policies and municipal reports and literature review. In-depth interviews with DRR stakeholders on the advisory forum were employed in the study. These included ANDM DM practitioners, ANDM councillors, national or provincial government department representatives and NGO representatives. Creswell (2014, p.154) articulate that in-depth interviews is a way of conducting comprehensive personal interviews with a limited number of participants to see their perspective or idea. These are the stakeholder segments that sit on the advisory forum under study. As to data analysis, Robson (2011, p.468) points that the analysis of qualitative data calls for a "clear thinking on the part of the analyst" so as to afford a useful presentation of the collected data. Qualitative data is about making sense out of words from the respondents in narrative form. Therefore, data from the interviews were analysed using content analysis, matrix analysis and thematic analysis by arranging according to categories and themes generated by identification of similar patterns, phrases and sequences (Braun and Clarke, 2013, p.122).

1.7.4 Ethical considerations

No data were collected until full ethical clearance was been granted by the University (UKZN). The approval letter is attached as appendix 3. Participation in or withdrawal from the study was voluntarily and participants were informed accordingly. The respondents were made aware that their identity would not be revealed in the study such that there anonymity and confidentiality were protected.

1.7.5 Limitations to the study

This study is limited to ANDM. As such the findings are limited to the research area and may not be generalised and may not be applicable in other district or any other municipal area, in

terms of the roles of advisory forum stakeholders. This is because qualitative research generally presents information on a particular a case study. However, as explained in Chapter Three, a reader could determine whether the findings are transferable to another advisory forum. Some of the participants of the study were co –workers of the researcher and therefore, there was a possibility of prior-knowledge and biasness since the researcher is familiar with the environment. Techniques to curb such are discussed under sections 3.7 and 3.11 in Chapter Three.

1.7.6 Delimitations to the study

The delimitations are regarded as specific physiognomies that bound the scope and define the borders of the study (Simon, M. K. (2011, p.36). The delimitations sections of the dissertation are articulated on the gauges used to enrol participants to the study. Prior knowledge of the participants will not detour the objectives of the study and covered on the ethical section of the study and participants were made aware of their rights and voluntary participation.

The next section highlights key terms and the definitions of those terms as used in this study.

1.8 Definition of key concepts

This section highlights main concepts underpinning this study.

1.8.1 Disaster

A disaster has been defined as “a sudden event, such as an accident or natural catastrophe that causes great damage or loss of life” (The Oxford Dictionary, 1998).

1.8.2 Disaster management / disaster management cycle

Disaster risk management is continuous cohesive process or cycle inclusive of all sectors and disciplines. It includes progression forecasting, execution of procedures intended at thwarting or avoiding disasters, vindicating harshness of disasters and significances of disasters. It further entails emergency vigilance, swift and active reaction to disaster and post catastrophe recovery and restoration (DMA, RSA 2002).

1.8.3 Disaster risk reduction (DRR)

DRR is referred to as the methodical expansion including presentation of approaches and polices including approaches and observes /practices to lessen disclosures of community vulnerability so as to avoid or to mitigate disaster exposure (Becker, 2012). DRR and DRM involve all the activities aimed at preventing or limiting (mitigation and preparedness) the damaging effects of hazards.

1.8.4 Early warning system

This refers to the efforts to produce and publicise timely and evocative threatening signals to notify individuals, community members, including organisations about the hazard/ risk exposure in order to mitigate or prevent severity of disaster that may result to mortality (Alexander, 2013, p. 2715).

1.8.5 Hazard

A hazard is a potentially damaging activity or phenomenon and it often results in damage, injury or loss of life (Alexander, 2013, p. 2707). It can be ordinary/natural or man-made occurrence which adversely leads to damage to livelihoods, life or property. A hazard is thus a likely hazard to the society and the atmosphere, which often triggers a disaster.

1.8.6 Vulnerability

Vulnerability has been perceived as the extent to which communities, households or individuals might be negatively affected by disasters (Disaster Management Act, RSA, 2002). It thus entails established processes including conditions consequential from the societal, economic, corporeal and conservational circumstances which increase the likelihood of the society to suffer the effects of a disaster as a result of their pre-existing conditions (Kusumasari *et al*, 2010, p.439).

1.9 Dissertation outline

This section provides an outline of what each chapter is about:

Chapter	**Content**
Chapter 1	Provides the background and introduction to the study. This includes identification of the research problem, research objectives and questions as well as the research methodology and definition of key terms.
Chapter 2	Presents literature on DRR. It further details law and policy related to DRM and DRR, roles of stakeholders and challenges of and possible solutions to DRR experiences of local government. The theoretical framework underpinning the study is also described in this chapter.
Chapter 3	Presents the methodology, that is the detailed discussion of how data were collected and analysed, which research tools were employed and why.
Chapter 4	Outlines the presentation and analysis of data including discussion of the research discoveries.
Chapter 5	Settles the study in terms of a summary of findings and conclusions and affords recommendations founded on the outcomes of the study.

1.10 Chapter conclusion

The chapter reflected on the study's contextual information, also deliberated on the research problem statement and the rationale for the study. It briefly explored DRR in the context of the research problem. Hence, the main purposes were to indicate why the subject matter is important and to introduce the research objectives and questions, based on the research problem. It has been observed by the researcher that roles of stakeholders in DRR are often misunderstood which detracts from implementation of DRR practices and principles. The qualitative research design is regarded as suitable for this kind of the study; it entails collection of primary and secondary data through use of interviews and documentary evidence. This chapter reflected on all upcoming chapters in this dissertation. Definitions of key concepts were presented. The first chapter therefore is concluded.

CHAPTER 2: UNDERSTANDING DISASTER RISK REDUCTION

2.1 Introduction

This chapter illustrates aspects of the subject matter, that is, DRR. The chapter thus discusses the global governance of DRR as well as the national, provincial and local governance of DRM and DRR in South Africa. Both global policies and national laws and policy frameworks are highlighted. The roles of the different stakeholders in DRR are discussed, with a focus on the South African governmental spheres (national, provincial and local government). Then local government challenges in relation to DRR including possible solutions are considered after which several theories are discussed, before the theoretical framework is pinpointed as a guide to this study.

2.2 Disaster risk reduction

DRR "the systematic development and application of policies, strategies and practices to avoid (prevention) or limit (mitigation and preparedness) the adverse effects of hazards" (ISDR, 2010). White (2004) notes that DRR cannot be a stand-alone activity (except in preparedness planning and advocacy), but is usually an essential part of other programmes like micro-finance, capacity building and food security. However, DRR calls for the vigorous implementation of a DRR standpoint in the circumstantial examination and agenda design. Therefore this entails undertaking a risk valuation that classifies the possibility of hazards arising and their possible impact in a particular community or populace. And it also implies the need for knowledge about certain measures which has the possibility of being incorporated in programmes so as to diminish the possible risk in particular communities. In other words, DRR should always receive priority and the attention that it deserves. The World Conference on Disaster Reduction in Kobe highlighted that "States have the primary responsibility to protect the people and property on their territory from hazards and… to give high priority to DRR in national policy, consistent with their capacities and resources available to them" (Hyogo Framework for Action (HFA), 2005, p.13).

The definition given above implies the need for proper DRR processes to avert or mitigate the effect of adversities/disasters. Members of the society are vulnerable to hazards, and are therefore equally capacitated to reduce the vulnerability. However, efforts towards reducing vulnerability are determined by several factors, especially in poor communities where the resources are scarce. Table 2.1 is a presentation of the differences in terms of capacities to tackle disasters, in relation to underdeveloped and developed countries

Table 2.1: DRR abilities (developed and developing nations)

Developed nations/countries	**Developing countries**
DRR prescribes guiding frameworks	Weak or absent regulatory frameworks and enforcement program
Operational and prompt cautioning and information through contemporary instruments which enable safety of households	Lack of comprehensive early warning systems which would enable proactive to disasters and mitigation processes
Advanced disaster response mechanism including high emergency medical disaster response capability	Funds are prioritized for development and only diverted when major incidents or disasters occur in order to perform disaster response and recovery
Insurance schemes ensure that communities do not lose their properties.	Affected communities are actually liable for post disaster impact ramification including their belongings,

Source: White (2009, p.12)

For both developed and developing countries, a DM cycle is observed. Such management of disaster/catastrophe hazard indicates addressing underlying socio-economic including environmental vulnerabilities so as to reduce disasters. This means DM attempts to reduce hazards and risks as vital part of development processes (UN-ISDR, 2002). In other words, the discourse on DM has shifted to DRR. Figure 2.1 recapitulates the DM cycle that includes elements of risk reduction.

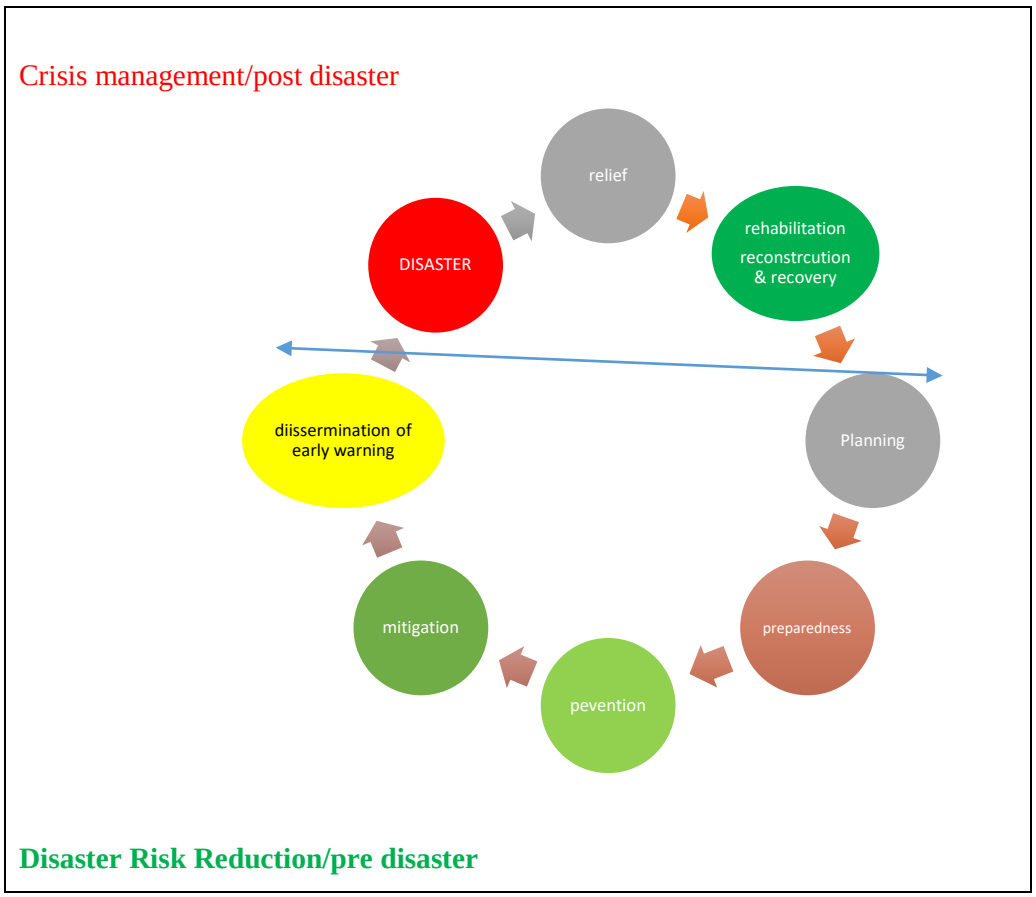

Figure 2.1: Disaster management continuum
Source: Mitchell and Wilkinson (2012)

As shown in Figure 2.1 elements of DRR allows for knowledge and insights to be drawn from existing DM best practices to reduce future disaster risks.

The next two sections discuss global policy frameworks and South African national legal and policy frameworks for DRM and DRR which have evolved over decades.

2.3 Global governance of Disaster Risk Reduction

This section provides brief information on the evolution of DRR from a global perspective.

2.3.1 A synopsis of the world understandings which moulded global disaster management

As from early 1990s, concepts and common understandings of DM have been redefined and underwent a major evolution on global or international stage/arena. In the intercontinental public, the involvement of multi-sectoral and multi-disciplinary including involvement of global institutions moving away from reactive or crisis management approach to proactive approach with special emphasis on DRR and mitigation (Henstra and McBean, 2015). Succeeding to this awareness, a number of series of pronouncements and affirmations positing eagerness to focus

on risk reduction at a global and international context/stage became the main focus (Balamir, 2012). A number of these global governance frameworks are depicted in Table 2.2

Table 2.2: Global governance frameworks for disaster risk reduction

Global Frameworks	**Purpose**
International Decade for Natural Disaster Reduction of 1989 (UN, 1989)	Main objective was the diminution of the transience rate, obliteration of property and socioeconomic disorder triggered by disasters.
Yokohama Strategy for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation and its Plan of Action (UN, 1994)	The strategy posits procedures pertaining to prevention of natural disasters, preparedness and mitigation thereof.
UN International Strategy for Disaster Reduction (UN, 1999)	Accentuates the adoption of a community-based method to DRR.
Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters (UN, 2005)	Its goals are to lessen the risk and effect of disasters. The HFA offers actual strategies for shielding lives, restrictive impairment and confirming that societies can improve speedily.
Post-2015 Framework for Disaster Risk Reduction (HFA2) Report from 2013 Global Platform Consultations (UN, 2013)	The framework offers abridgment among the deliberations held during the worldwide stage and the documents agreed upon during those soundings.
Sendai Framework for DRR 2015-2030 (SFDRR) (UN, 2015)	Calls for a whole-of-society approach to DRR. The Framework highlights the importance of engaging communities in order to strengthen disaster governance.
UN Plan of Action on DRR for Resilience (UN 2016)	Executes the Sendai framework by coordinating, strategizing, monitoring and reporting progress and communication, advocacy and partnerships towards DRR worldwide.

A number of these global policy frameworks are discussed next.

2.3.2 International Decade for Natural Disaster Reduction

In December 1987, the United Nations (UN) General Assembly espoused Resolution 42/169 and declared the years 1990–1999 as the International Decade for Natural Disaster Reduction (IDNDR) (1997:1; Smith 2004, p. 348; UNISDR, 2002:17; Lechat, 1990:2; UN, 1987). Throughout the period, the intercontinental efforts were to decrease the loss of life, and avoid the loss of material goods and incomes that resulted from the effect of natural disasters on individuals and communities. The objective of this period was to guarantee a modification from

the responsive initiation regarding natural disasters to that of pre-emptive forecasting (Smith 2004, p.358).

Foremost, five objectives of the period/decade on natural disaster reduction were:

- Improving capacity for each state to deal with the mitigation of disasters with the special focus on reduction of disaster risks, and assisting other countries in conducting disaster risk assessments to obtain responsive early warnings to disasters;
- Developing procedures and stratagems for obtaining methodological and technical mechanisms for risk avoidance in diverse states;
- Substitute methodical industrial activities in a way that decreases the forfeiture of life and possessions;
- Circulate and publicize current and innovative scientific evidence linked toward processes aimed at valuation, forecast, assessment and avoidance of natural disasters;
- Advance procedures for programs of technological transmission and technical assistance, lesson learning custom-made to address precise disasters and positions and to evaluate the efficiency of those programs" (UN, 1987), (Smith, 2004, p.348)].

Regarding the above purposes, the IDNDR sought to establish goals that would be adopted across the world by the year 2000. The IDNDR envisaged that states would take up method of national hazard valuations and assessments and adopt readiness strategies that realize international, regional, countrywide and local cautioning schemes that reduce or mitigate disasters (UNESCO, 2000).

2.3.3 International Strategy for Disaster Reduction

The IDNDR progressed into the International Strategy for Disaster Reduction (ISDR) through prominence of managing of disaster hazards with the aim of building resilient societies (UNISDR, 2011; 2012). The ISDR encourages an international method to disaster reduction, instilling a philosophy of hazard avoidance through the nurturing of communities to practice risk prevention behaviours. Hence, one of the main aims of ISDR is to upsurge community consciousness in understanding risks, weaknesses and disaster risk management globally. These is a special focus on ensuring political commitment to development of disaster risk strategies that are practical and promote community resilience to disasters and decrease exposure to hazards. As such ISDR motivates for inter-sectoral cooperation and intensification of linkages between sectors and disciplines.

In ensuring that the goals of the ISDR are realized, the Inter-Agency Secretariat for the ISDR (UN/ISDR) was created as the focal point by the United National General Assembly through its

resolutions 54/219 (UN, 2000a) and 56/195 (UN, 2002). UN/ISDR is to advance interaction amongst disaster reduction undertakings and stakeholders, including those stakeholders, global and local and across all fields of endeavour (UNISDR, 2002, p.19).

The IATF/DR is the major frame for the advance of disaster reduction policy. The UN Under-Secretary General for Humanitarian Affairs, along with twenty-five UN, international, regional and civil society organizations, champions this global policy framework of the UNISDR. It does so, in part, through the Inter-Agency Task Force for Disaster Reduction (IATF/DR). The body established four task teams to enable concentration on: microclimate matters including catastrophes; systematic cautionary activities; hazard, susceptibility and impact assessments; and wild land fires (UNISDR, 2012). Over and above these task teams the IATF/DR tracks additional areas like: environmental management; drought; land-use planning; and elevation of the political profile of disaster reduction into development planning.

2.3.4 World Conferences on Disaster Reduction

UN General Assembly enacted resolution 58/214 in December 2003, and this resolution was relied upon to convene the second international conference on DRR. The first World Conference on Disaster Reduction (WCDR) was held in Yokohama (Japan) during in May 1994, during which a plan of action named the Yokohama Strategy was crafted (UN, 1994). The second WCDR was held in Kobe (Japan) in 2005 and resulted in the Hyogo Framework for Action (HFA) 2005-2015 (UN, 2005)

The HFA conference during 2005 had the upcoming major intentions and sought to:

- ”Finalize a report about the analysis and review of Yokohama Strategy including its Plan of Action, aiming at apprising the regulatory structure on disaster reduction for the twenty-first century;
- Pinpoint particular activities aimed at confirming the execution of significant necessities of the Johannesburg Plan of Execution of the World Summit on Sustainable Development (WSSD);
- Promote sharing of best practices including lessons attained to further disaster reduction within the background of accomplishing maintainable expansion, and to detect breaches and encounters/challenges;
- Encourage intensification of the trustworthiness and accessibility of suitable disaster-related material to the community and disaster management agencies in all regions, as stipulated in the pertinent provisions of the Johannesburg Plan of Implementation of the WSSD” (UN, 2005:8).

Hence, the sought after milestones of the Hyogo Framework for Action 2005-2015 highlighted alleviation/mitigation of risks. In four of the HFA governments are requested to:

> "Mainstream disaster risk considerations into planning procedures for major infrastructure projects, including the criteria for design, approval and implementation of such projects and considerations based on social, economic and environmental impact assessments… (To) develop, upgrade and encourage the use of guidelines and monitoring tools for the reduction of disaster risk in the context of land-use policy and planning". HFA (UN 2005, Section 4:12)

Subsequently, a report from 2013 Global Platform Consultations (UN, 2013) led to the Post-2015 Framework for Disaster Risk Reduction which came to be known as HFA2.

2.3.5 Sendai Framework for Disaster Risk Reduction (2015-2030)

The Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030 is the revised version of the Hyogo Framework for Action (HFA) 2005-2015: Building the Resilience of Nations and Communities to Disasters. Adopted in Japan in March 2015, the goals of the SFDRR include the prevention and the reduction of the current risks by implementing mechanisms (e.g. economic, social, educational, technological, cultural, environmental, to mention a few) to limit vulnerability and susceptibility to hazards and disasters, to strengthen resilience and improve response and recovery (SFDRR, 2015: 12). With its main focus being preparedness to "Build Back Better", the SFDRR has the following targets, to:

- "Lower the global disaster mortality by 2030, with the aim of reducing the average per 100,000 global mortality rate in the decade 2020–2030, in comparison to the 2005–2015 period;
- Reduce the number of affected people globally by 2030, while the aim is to reduce the average global figure per 100,000 in the decade 2020–2030, as compared to the 2005–2015 period;
- Lower direct disaster economic loss in relation to global gross domestic product (GDP) by 2030;
- Reduce disaster damage to critical infrastructure and the disruption of basic services like educational facilities, and health, by 2030;
- Increase the number of countries with national and local DRR strategies by 2020;

- Promote international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of the present Framework by 2030;
- Increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to people by 2030" (SFDRR, 2015: 12).

Given the above targets, the SFDRR highlights its main priorities. These include ensuring that all the relevant stakeholders understand the DRR concept and manage catastrophe exposures by solidification of DRM. The SFDRR further advances investment in DRR for resilience purposes and finally, increase in disaster preparedness to facilitate effective response, recovery, rehabilitation and reconstruction. The description above indicates that the SFDRR makes vivid reference to multi-stakeholder involvement and the participation of other relevant but non-state stakeholders like academia, civil society, the media and businesses to accomplish SFDRR goals. With global policy frameworks in mind, the next section considers South African laws and policies for DRR.

2.4 South African Legal and Policy Frameworks for Disaster Risk Reduction

The manifestations of natural disasters are seemingly increasing worldwide, resulting in the disruption to society in various ways (Engelbrecht, Engelbrecht, and Dyson 2013, p.176); Department of Environmental Affairs, 2013). When disasters occur they mostly lead to mortality and negative socio-economic disturbances including environmental degradation. This therefore implies the need for DRR measures so as to increase disaster resilience. However, the resilience calls for the participation of different stakeholders thus; DRR should be a multi-sectoral approach (ISDR, 2010). In many instances, the local government is often the first to respond, to ensure that communities are safe. Municipalities thus have a significant function to administer for societies to achieve disaster resilience (Ruffin and Reddy, 2015, p. 229; ISDR, 2010). This indicates the need to empower the local government as a matter of urgency so as to enable democratic decision making processes toward engaging all the relevant stakeholders, including community members, locally so as to confirm the efficient and active execution of DRR measures (ISDR, 2010).

Toward addressing issues related to DRR, the South African government has enacted laws and promulgated policies. A number of these frameworks are set forth in Table 2.3

Table 2.3: South African legislative and policy frameworks for disaster risk reduction

South African Law and Policy Frameworks	Relevant Purpose
The Constitution of the Republic of South Africa (RSA, 1996)	Section 153 specifies the mandate of the local sphere of government/municipalities and also provides that municipalities have to be developmental in nature, and for the benefit of entire populace under jurisdiction. Thus community members are major stakeholders in matters of their governance unlike the previous apartheid era where the majority of South African citizenry were just mere spectators.
Green Paper on Disaster Management (RSA, 1998)	Outlines a conceptual framework for disaster management.
White Paper on Disaster Management (RSA,1999)	The document deliberates policy on DRM in South Africa. It evaluates the country's measures for funding DRM and presents national institutional and legal frameworks for DRR. It outlines the importance of the reasoning and values for the establishing the NDMC, and describes its construction and purposes as main arranger of DRM and as conduit to identified stakeholders and the entire populace.
Disaster Management Act, No 57 of 2002 (RSA, 2002)	Section 44(1) (b) highlights an incorporated and synchronized (multi-sectoral) approach to DRM with a focus on intergovernmental yet municipal areas of jurisdiction. Section 51 of the DMA makes provision for the formation of management DM advisory forum where all diverse stakeholders make meaningful contributions to DRR activities.
Policy Framework for Disaster Risk Management in South Africa(NDMF) (RSA,2005)	This national disaster management framework launched cohesive institutional capability in the parameters of the national sphere. It enables the effective execution of DRM policy and legislation and also serves as a guide on how risk reduction endeavours by different stakeholders are supposed to materialise, including key performance areas.
Disaster Management Amendment Act No. 16 of 2015 (RSA, 2015)	Its chief purpose is to modify and amend DMA of 2002, by delineating firm definitions to eliminate grey areas and gaps identified by different stakeholders as hindering implementation of DRR in the country. It delivers clear policy directions to ensure DRM and DRR activities. The major part of the amended DMA is shifting the policy focus from disaster response and rehabilitation to stakeholder engagement in DRR.

Source: The source for each law and policy is written next to the name of each instrument in the first column of Table 2.3.

A number of the laws and policies presented in Table 2.3 are discussed next.

2.4.1 The Constitution of the Republic of South Africa (RSA, 1996)

The South African Constitution (RSA, 1996) emphasises that the Government should ensure the safety and health of its citizens. Section 41(1) (b) of the Constitution indicates that it is the responsibility of all realms of government to "secure the well-being of the people of the Republic"; while Section 152(1) (d) stipulates that local government "ensures a safe and healthy environment". The description above thus shows the roles and responsibility of all spheres of

government in DM. If they have the capacity, local governments are thus assigned the responsibility to effectively administer DM and any other matters identified in Part A, Schedule 4 of the Constitution (RSA 1996). Municipalities are also expected to provide other functions related to DM, for instance, fire-fighting services, air pollution, water and sanitation, municipal healthcare, to mention a few.

2.4.2 The White Paper on Disaster Management (RSA, 1999)

The White Paper on Disaster Management (RSA, 1999) stipulates that, "in South Africa, the capacity for managing disasters varies from on-going service and infrastructure provision, as part of longer-term development initiatives, to that of emergency preparedness and response (usually triggered by a rapid-onset event)" (RSA, 1999). Several inadequacies were noted to impede the effective management of disasters and these include:

- Nonexistence of an operative and comprehensive disaster management approach;
- Poor synchronization and deficiency of flawless guidelines concerning the responsibilities of those involved in disaster management;
- Lack of institutional capability to execute disaster management, especially at local government level including in pastoral areas;
- Lack of incorporation of entire populace into operative disaster management initiatives, especially folks involved in risk reduction (RSA, 1999).

2.4.3 Disaster Management Act (Act 57 of 2002)

The Disaster Management Act (DMA-RSA, 2002) highlights the need for a coordinated and integrated DM policy which focuses on mitigating and preventing the risks and severity of disasters. It also calls for emergency preparedness, as well as the swift, efficient and operative responding to disaster and post disaster salvage/recovery. The DMA also reinforces the formation of DM centres at all government levels. It further emphasises the need for volunteers in disaster risk reduction and management (DRR-M).

This DMA (RSA, 2002) mandates the requirement for DM structures at all spheres of government, indicating that DM is thus a function of all the sectors of government. In this view, many provinces and municipalities implemented the DM centres. With reference to local government, the DMA (RSA 2002) however poses the responsibility on the region/district (in collaboration and consultation with municipalities) and cosmopolitan or metropolitan areas to create the DM arrangements or platforms within their respective jurisdictions. The DM centres assume the same responsibility as that of the national level, but in this case, the functions and powers are applicable to the provincial or local government level. Therefore, the major concern is that the DMA (RSA 2002) seems to be reflecting that the actual assignment of this function is

attributed to local government administration. The lack of clear guidelines in this regard has resulted in some misinterpretations. As a result, in some cases, the functions and powers of would be disaster management officials at local government level have been delegated to some already existing incumbents within the various municipalities. Yet, according to the DMA (RSA 2002), it appears that there were supposed to have been dedicated new appointments for some DM functions.

2.4.4 National Disaster Management Framework (RSA, 2005)

This NDMF provides "a coherent, transparent and inclusive policy on DM appropriate for the Republic as a whole" NDMF (RSA, 2005). The NDMF (RSA 2005) is thus structured around the following KPAs:

- Institutional capacity for DRR
- Disaster risk assessment
- Disaster Risk Reduction
- Post disaster response and recovery

In order to implement the KPAs, the NDMF highlights these enablers: communication and information management, funding structures for DRR-M, as well as education, training, research and public awareness (RSA, 2005). To try and reduce challenges, the overarching DM structure was established at the national level so as to accelerate the DM function in South Africa. However, each sphere of South African government as well as community members have a responsibility to partake in implementation of DRR laws and policies as next discussed.

2.5. The roles of stakeholders in disaster risk reduction and management

Stakeholders' approaches to disasters refer to activities which are planned and conducted in advance of, pre and post disaster involve alleviation, vigilance, response and recovery (Moe and Pathranarakul, 2006). These activities involve multi sectoral/ multi-disciplinary involvement which includes amalgamation of diverse skills in order to ensure DRR and DRM (Hunt and Watkiss, 2010). However, sometimes stakeholders are unaware of disasters, whether before, during or after (Bosher, Dainty, Carrillo, Glass and Price (2009, p.9-22). In this view, Bosher et al. (2009, p. 22) point out that there is still inadequate evidence to argue that key stakeholders are being proactive role in mitigating disasters, implying that hazard awareness is not part of their decision making process. To overcome this, there is the need to increase stakeholders' interest and ability in disaster management efforts (Maarif, 2010).

In South Africa, as aforementioned, DRR is governed by the DMA (RSA 2002) which emphasises the crux of disaster reduction, prevention and mitigation. The DMA further

highlights that DM should be incorporated through multi-disciplinary and multi-sectoral efforts toward reducing risks associated with vulnerability and hazards (Visser and Van Niekerk, 2009). In that view, it is important to analyse the role of different stakeholders in disaster reduction for South African laws and policies to have full force and effect. Again, it is also essential to discuss the institutional arrangements for DRR-M since institutional arrangements are central to implementation of laws and policies.

The DMA stipulates the decentralisation of DRR activities (Van Riet and Diedericks, 2010, p.155). This means that the three tiers of government all assume different roles in the management of disaster risk. The DMA (RSA) "provides for the inclusion of 'at risk' communities, as well as the private sector, parastatal entities such as the utilities companies, research and academic institutions, as well as NGOs and traditional leadership" (van Niekerk, 2011). Regarding the decentralisation of DRR activities, the DMA (RSA 2002) reflects essential guidelines on the formation of DRM centres as well as inter-governmental structures. Emphasis is placed on the establishment of proper institutional structures of DRR-M which should promote the diverse actions needed for DRR. DRM is thus instituted as a societal role in collaboration with the spheres of government. This requires stakeholder engagement in DRR-M.

2.5.1 National government sphere

Operating at the national government level, the NDMC guides and develops structures for government's DRM legislation and policy. The role of the NDMC is to facilitate and monitor the implementation of the policies and legislation, while at the same time accelerating and guiding multi-disciplinary and cross-functional DRM activities amongst the different organs of the state (NDMC, 2006). The National Disaster Management Information System (NDMIS) was created to assist in this regard. The NDMIS is an IT solution relating to different aspects of hazard analysis, contingency planning, vulnerability assessment, reporting systems and EWS (NDMC, 2011). The NDMIS thus prioritises the institution and improvement of EWS and their subsequent dissemination, to ensure that risk and vulnerability profiling is established. The establishment of a GIS portal aimed at disseminating pertinent information to significant stakeholders as stipulated by the DMA (RSA, 2002).

The NDMC is thus mandated to:

- "Form the expected institutional activities for an integrated and coordinated DM;
- Focus on disaster prevention and mitigation at all government levels, with the other stakeholders involved;
- Build and promote capacity and accountability of regional and local municipalities as they discharge their disaster management duties;

- Promote the general bounciness of infrastructure and communities to disaster risk;
- Toughen ability and capacity of the provincial and local government in disaster response;
- Ensure information and knowledge management within the disaster management centres;
- Information distribution to communities which are at risk of an identified disaster" (NDMC, 2011,p.22)

Also operating at the national government level is the National Disaster Management Advisory Forum (NDMAF), a technical forum which was formed in 2007. NDMAF encompasses all the role players involved in DRM and these include organs of state, and communities. The forum has been active in the formation of the Technical Task Teams (TTTs) which operate at provincial level, in addition to being active in disaster reduction as a whole (NDMC, 2006).

2.5.2 Provincial government sphere

Every province is anticipated to have a Disaster Management Framework which should incorporate and coordinate the provincial organs of state, legislative representatives, the private sector and NGOs. In addition, every province is expected to have the Provincial Disaster Management Centre (PDMC), the main functional unit for DRR-M in the provinces. The centres are responsible for enhancing disaster related research and to build and enhance capacity of the local role players to be prepared for and react to disasters. When it comes to disaster, or looming disaster, it is the role of the PDMC to give the necessary guidance and support to the relevant MDMC (van Niekerk and Visser, 2010).

2.5.3 Local government sphere

Local governments have the most significant role in disaster reduction since they are responsible for the critical development functions which involve public works, construction safety and licensing, urban development and land use planning, among other things (UNISDR, 2010; Botha et al., 2011; Botha and Van Niekerk, 2013, p.1). There is a global/local nexus of DRR "through local community/stakeholder participation, public policy action, a culture of prevention and local risk assessment" (Ruffin and Reddy, 2015, p.229). Just like at the provincial level, municipalities are also expected to establish disaster risk management centres which have a DRM policy framework, a DRM committee and an advisory forum, which all integrate the relevant stakeholders (Visser and Van Niekerk, 2009). The DRM plan should thus be incorporated into the municipal IDP to encourage the mainstreaming of DRR-M into local governance (Botha *et al*. 2011).

The reason why local governments are mandated with the significant roles in DRR is because they are the closest to the communities, in which disasters often occur. This means that local knowledge and strategies which are specifically tailored for local vulnerabilities and hazards are needed. Local government is often quicker and more effective in providing disaster relief, especially to the rural populations.

Local governments can effectively contribute to DRR: executing mitigating strategies and encouraging community participation and involving all other relevant stakeholders. Figure 2.2 is a diagrammatic representation of the structures and responsibilities of DRM in government (all three spheres).

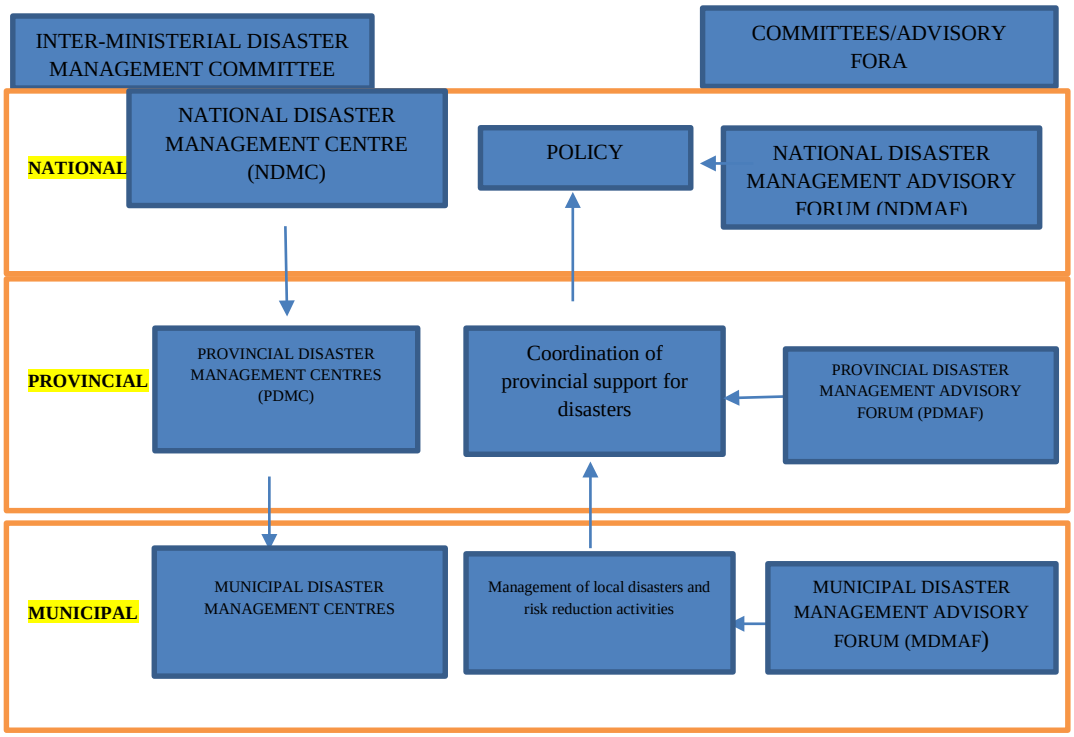

Figure 2.2: Structures and responsibilities of disaster risk management across all spheres of governance in South Africa.
Adapted from: South African Weather Services (2013).

Thinking about the DRR-M structure in South Africa and particularly the role of local governance, in conjunction with the UNISDR global policy framework, the global/local nexus of DRR becomes evident (Ruffin and Reddy 2015:229). This is because; globally the UNISDR (2010, p.12) identifies three major roles of local governments in the implementation of DRR:

1. Synchronizing and satisfying a multi-level, multi-stakeholder stage to boost DRR in the area or exact threat: Governments at a local sphere are better positioned to involve and coordinate all stakeholders in DRR initiatives. They therefore facilitate and provide the

necessary support and guidance needed so as to meaningfully engage in the implementation of DRR activities. Being the closest political authority to the communities, local governments can also effectively engage local communities in DRR initiatives and therefore relate their concerns with government priorities

2. Strengthening local government's particular established abilities and implementing practical DRR activities exclusively: It is important for local governments to effectively involve themselves in DRR activities so as to avert or mitigate the impact of catastrophes to the resident populations. Local governments thus ought to prioritise disaster risk by establishing the disaster risk management centre. This also implies the need to enhance citizen participation in DRR, as well as assigning adequate budgets for DRR activities. It is also their responsibility to uphold modernized data on exposures and hazards, to concoct risk valuation and utilise them as a foundation for urban development strategies including decision making processes. These should also be made accessible to the general public. Local government roles also entail investing in risk reducing infrastructure, as well evaluating the safety of educational and health facilities by upgrading them where necessary

3. Devising and implementing inventive tools and methods for DRR, which can be simulated elsewhere or scaled up nationwide: Local governments are better placed to advance, organise and test fresh technologies; also tools for DRR and thus prioritise them in terms of policy, for instance, technologies for EWS (UNISDR, 2010, p.12).

2.5.4 Community members and indigenous knowledge in DRR

Community participation entails the engagement of community members in various community projects to help solve certain problems and improve livelihoods of citizens. It is therefore the collective action by interest groups which contribute and exchange information in issues that affect them. In DRR, community members can become "voices" and share information and ideas in addressing DRR issues. This means that community members are important stakeholders in DRR. It therefore implies that the local government has the role of encouraging community participation through raising awareness, education, training and preparedness planning (NDMC, 2011). In this regard, the media play a significant role in DRR, especially in EWS. The mass media disseminates information to warn about impending climate changes and drought, while at the same time the media should to educate communities on how to respond to the risks and hazards. Government departments at all levels should thus ensure that they equip the communities with the skills and knowledge for DRR. For instance, rural farmers need to be knowledgeable about the possible risks in their areas. Hence, they need to be prepared and be aware of the response strategies when they see the early warnings. Community members need to

be knowledgeable about the possible risks associated with the weather and climate in their areas. Thus, government departments need to ensure that they engage the communities on how to adapt, while the communities combine the required information with their indigenous knowledge so as to encourage resilience and thereby improving their livelihoods.

The role of indigenous knowledge (IK) in DRR cannot be underestimated, since it has proven to help communities put DM plans in place. For instance, traditional knowledge of winds and rain patterns have made communities erect wind breaks and shelters in preparation for storms. Similarly, the knowledge of drought periods make communities prepare for disasters. In other words, traditional communities have used IK to interpret natural signals. Mulenga (2010, p.22) notes how Ugandans use their IK in preparing for disasters. For instance, the communities believe that the plenty fullness of rats and tree flowers in dry seasons indicates drought years are impending, the cluster relationship between the moon and the stars is a sign of bad years, while the patterns of birds' movements signify that the rain season is at hand. In Tanzania, the communities also consider the birds' movement patterns as predicting certain climate conditions, while the presence of swarms of ants around the months of September and November signify that the rainy season has arrived (Chang, Yanda and Ngana, 2010, p.70). In South Africa, IK is also used to observe changing climates and seasons. For instance, the location and shape of the moon can be used to detect early signs of drought, while the stars and the lunar cycle have been used to determine a change of seasons. The examples highlighted above are evident of the essence of IK in DRR.

In addition to the above, the role of women in DRR has to be acknowledged, as women and girls also have the capacity and skills in managing risks, building resilience, preparing for and responding to disasters. Their knowledge and capacity in this regard is very important, since these groups have previously been viewed as passive and vulnerable and only in need of humanitarian help. Contrary to this belief, women and girls should be encouraged to participate and assume leadership roles in DRR, which would in turn enable community resilience and hence, sustainable development. This therefore calls for the need to ensure that women also have access to information, education, training and capacity building, in order to help them implement gender responsive information (UNISDR, 2010, p.8).

The last two sections of this chapter considered global policy and national law and policy frameworks pertaining to DRR-M as well as the roles of various stakeholders in DRR-M. Since local government has a significant role to play in DRR, the next two sections discusses challenges that local government face followed by possible solutions to those problems, according to the literature.

2.6 Challenges faced by local government in implementation of disaster risk reduction

Despite efforts towards advancing DRR, challenges still remain. These challenges require interlinking concurrent changes in different aspects of governance, social and economic systems. When disasters occur, local government is expected to provide disaster relief to the affected communities. In the process, there are many impediments which thwart local government's efforts to effectively provide disaster relief to the victims of disasters. Some of the challenges are highlighted in Table 2.4 and discussed thereafter in terms of capacity, political stability, and stakeholder participation.

Table 2.4: Challenges in Implementing DRR

Grand challenges	**Change elements needed**	**Obstacles**
Risks associated with built environment ensuring that new buildings / settlements are safe and appropriate for the existing communities	□ Effective enforcing of building codes □ Generating urban redevelopment plans □ Establishing incentives to ensure safe building □ Incorporation of DRM into household and private sector decision-making	□ Lack of prioritisation □ Short -term goals □ Lack of incentives for prevention from current response assistance systems
Anticipating new risk patterns to advance scenario and intervention planning	□ Identifying potential hazard scenarios □ Extrapolation of secondary effects and needs □ Replication of process	□ Continuing organisation and understanding of the research work taking place □ Propensity to filter planning through lens of last disaster
Sustaining change by being attentive, maintaining capacity and continuous action towards resilience	□ Maintaining effective incentives to influence household and private sector decision-making □ Allocating funds for DRM through development budgets □ Maintaining DRM capacities within relevant stakeholder organizations	□ Competing priorities □ Long lag times in realising some DRM goals □ Lack of serious monitoring and evaluation to ensure lessons learnt and replicate good practices

Source: O'Donnell (2010, p .2)

Whilst Table 2.4 captures quite of number of challenges, change management needed and hindrances to change, literature has a number of limitations. For example, it does not provide a

very detailed description of the challenges in implementing DRR; nor does it touch upon the challenges and possibilities related to changing strategies during a time span in a detailed manner in a way that is people-centred as some scholars suggest (Scolobig, Prior, Schröter, Jörin and Patt 2015, p. 203; Littau, Jujagiri & Adlbrecht, 2010).

Even though understanding challenges in implementing DRR are considered to be a key to project success (Vaagaasar, 2011), DRR-M research also suffers from a number of weaknesses as mentioned above (Jepsen & Eskerod, 2009). In addition, empirical research exploring in-depth how stakeholders are actually dealt with during a project course appears to be quite limited, even though exceptions exist (Aaltonen & Sivonen, 2009; Vaagaasar, 2011). The purpose of this study is to contribute to the understanding of engagement of stakeholder management strategies and practices with specific reference to advisory forum stakeholders at ANDM. Toward that end it is worth understanding challenges faced by local government in global South countries such as lack of capacity, lack of knowledge, unstable political systems and poor stakeholder engagement. Each is discussed in turn.

2.6.1 Lack of capacity

When disasters occur, several basic needs arise. There is a need to ensure life activity and continuity so it is paramount that disaster responding agencies, inclusive of government and non-governmental organisations, are equipped adequately to ensure disaster resilience. Adequate funding is also needed for the payment of emergency response operations (Twigg, 2015, p. 307). With their limited resources, local governments experience competing priorities, which often result in them being allocated inadequate financial budgets for DRR-M activities. The limited financial resources affect local governments' pre-emptive decision making processes related to preparedness and mitigation activities. For instance, the Fiscal & Finance Commission's (FFC) (2012, p.11) study about alternative financing instruments for the management of disaster in South Africa found that from 2005, the DM centres disproportionately allocated more funding on post-disaster in lieu of incorporating the funding into DRR activities.

Another study indicated that there was no specific funding intended for DRR-M at local government level, while where such funds are available; they are rather earmarked for disaster recovery (FFC, 2012). In the same way, van Niekerk and Visser (2011) note that funding for DRR-M remains a critical challenge for many municipalities. Even though there are various funding mechanisms for the different levels of government and the many DRR-M activities as envisioned in the NDMF (RSA 2005), it has remained difficult to access the funds, a situation

which calls for investigation (FFC, 2012). Therefore, limited funding is also one of the main constrictions affecting the application of DRR-M at both the local and provincial level.

2.6.2 Lack of knowledge

Vulnerabilities and disaster risks are special areas that often demand adequate knowledge to deal with the situations. The DM practitioner is often reported to be insufficiently knowledgeable in terms of the implementation of DRR activities (UNISDR, 2013a). In some cases, policy makers lack the capacity to translate risk information, which would have been gathered through assessments, into policy. The reason is that they are not aware of how to utilise the risk information. In some cases, where the DM team establishes public awareness campaigns, the campaigns might not be so effective in changing the communities' actions or behaviour because the campaigns are often one-time events. The issue is that the DM team should be knowledgeable on how best to actually ensure that the campaigns lead to behaviour change and thus, improving the management of disasters and risks.

Another challenge entails nonexistence of understanding how to incorporate climate change issues into DRR-M (for instance risk valuation, land use design and research), considering that climate change results in the shifting of risk patterns. The DRR staff often lack the knowledge of combining DRR-M and climate change adaptation policies, a scenario, which calls for a platform, whereby stakeholders discuss how DRR-M and climate change can be mainstreamed into local and national level policies. Despite some efforts, more has to be done to establish the most effective ways to coordinate policy and climate change into DRR-M (van Niekerk & Visser, 2011, p.24).

2.6.3 Unstable political systems

The competing needs and priorities of many African countries, South Africa included, make it impossible for stakeholders to effectively commit to DRR-M initiatives. Poverty reduction, education and social welfare, are amongst other issues that require broader funding and attention, thereby leading to insufficient financing resources for DRR-M policies (Twigg, 2015, p.3). Those responsible for land use planning have the challenge of balancing DRR-M needs with those of economic ones. In this view, DRR-M policy makers find it very difficult to convince politicians and the public that DRM needs as much commitment as any other priorities (Vaagaasar, 2011, p.29).

2.6.4 Poor stakeholder participation

Providing solutions for disaster related issues has proven difficult on the part of local governments because they often exclude other stakeholders in decision making processes. This

poor coordination therefore implies the absence of proper dissemination of information, which is a prerequisite in resolution making processes. Effective disaster preparedness utilises the capacities of local authorities and community (Vaagaasar, 2011; Twigg, 2015, p.307).

2.7 Possible solutions to the challenges

Given the above challenges, the implication is that the solutions should identify and address the interrelationship among DRR, sustainability and economic development. Specifically related to the implementation of DRR activities, local governments need to adopt a holistic way to ensure effective DRR. This also entails the need to empower local governments so that they assume the important role in DRR as a means of dealing with the identified challenges. Vaagaasar (2011) argues that proper advance planning and preventative measures are required. Twigg (2015 p. 307) contends that information and communication mechanisms assist in establishing and maintain supply chain management systems that do not falter in the face of disasters. Some possible solutions include good governance, improved institutional capacity and empowerment of local communities, as next discussed.

2.7.1 Good governance

UNISDR (2012) indicates the need for local governments to improve and be committed to the governance of DRR institutions. Effective governance is thus the principal factor for successful DRR activities (WMO, 2010)

In the same way, accountability, transparency, participation and predictability are the key characteristics of a governance structure which promotes development and provides for risk reduction.

2.7.2 Improved institutional capacity

Making funds available for DRR-M would enable and capacitate local governments to build resilience to the effects of risks and disasters (Scorgie & Cumming, 2014). In this way, financial measures should be developed to fund and incentivise DRR-M activities which enhance resilience (Scorgie & Cumming, 2014).

Mercer (2012, p. 248) contends that an effective DRR requires EWS and risk reduction to be mainstreamed into policy processes. This means that governmental agencies should be sufficiently capacitated to design and execute effective policies. Importantly, disaster resilience can only be established if the local authorities are capacitated in terms of planning and managing the DRR development initiatives (Manyena, O'Brien, O'Keefe, and Rose (2011). This implies that institutional capacity at all government levels, complemented by effective

knowledge and information sharing mechanisms amongst all the stakeholders, are the main drivers of effective DRR.

2.7.3 Empowering local communities

Just like the local government, local communities need to be empowered so as to enable them to effectively manage and mitigate disaster risk. This can be achieved by allowing them access to the necessary resources and information, while at the same time giving them the authority to implement DRR actions where necessary (UNISDR, 2010). Doing so would reduce vulnerability. Empowering them with the necessary resources and knowledge would make them effectively contribute to disaster resilience, especially in terms of decision making processes. Local governments should thus encourage community participation so as to establish partnerships with the "at risk" communities (NDMC, 2011). Community participation can be enhanced through preparedness planning, training and awareness programmes. Section 58 of the DMA (RSA, 2002) stipulates that qualifying community members can apply to be accepted as volunteers in the DM unit of their relevant municipality.

Skilled personnel are required and these include health professionals, the police, fire-fighters, engineers, architects and scientists. These should be regularly trained so that they are ready to respond to disasters (Twigg, 2015, p.307). Again, the effectiveness of these people is also determined by elements such as their levels of commitment, skills, as well as the resources available. This implies the need for continuing engagement and support from external stakeholders (Twigg, 2015, p.308).

Weather and climate information can also be made accessible to community members so that they engage in proper community adaptation projects when they combine the climate information with their indigenous knowledge, thereby increasing disaster resilience and diversity to their livelihoods.

In concluding this part, it is important to indicate that DRR is not the sole responsibility of the government. Despite the three spheres of government taking the main responsibility in DRR, it has to be emphasised that non-governmental state stakeholders also have a duty in DRR including the entire populace. This means that these stakeholders can and should provide forms of support in DRR (Ruffin and Reddy 2015, p. 226). The civil society, other community based organisations and commercial enterprises could work in collaboration to provide guidance and knowledge about DRR. They could also engage in the execution of plans and strategies, raise public awareness and educate the general communities on DRR (SFDR, P.23). Hence, communities can be educated on becoming resilient to disasters.

In particular, women, children, the youth and the aged can all effectively participate in managing disasters. These are agents of change who can contribute to DRR through their skills, wisdom and knowledge, especially during EWS. This implies that they ought to be included in the planning and implementation of DRR policies and mechanisms (SFDR, P.23).

Essentially, it is the role of the media to actively contribute in raising awareness through disseminating relevant information regarding DRR. The media should carefully select and disseminate non sensitive information which has to be accessible to everyone and should also be understandable. This implies that relevant stakeholders should partner with the media in engaging communities through campaigns and consultations, in accordance with communications policies and national practices (SFDR, P.23).

Table 2.5 is a diagrammatic representation of disaster preparedness measures at different levels, including individual and household levels, to the community levels to spheres of government.

Table 2.5 Disaster preparedness measures at different levels

Individual and household level • Know what to do in the case of a warning given • Have emergency contacts at hand. • Keep first aid kits and life jackets. • Watch out for flood forecasts. • Be ready for evacuation.
Community level • Inform the public of the evacuation plan, and safe locations, like temporary shelters and indicate the shortest routes leading to the location. •Have important emergency contacts at hand • Set up teams, including volunteers responsible for assessing situations and taking necessary action • Keep open communication channels to disseminate warnings.
Municipality, district, provincial or regional and national levels • Increase public education and awareness programmes. • Keep resource inventories • Plan resource mobilisation. • Set up emergency teams • Ensure open communication channels • Always provide early warning systems. • Specify what needs to be done immediately after receiving warnings.

Source: Adapted from Jha, Bloch and Lamond (2012) and www.goodpracticereview.com

Thus, as Table 2.5 shows, all stakeholders in different communities across all levels of governance have the responsibility to participate in DRR. This means that they should commit themselves in such initiatives which should be time –bound and specific so as to support partnerships at all levels.

With the roles of stakeholders in DRR in mind, together with an understanding of the possible solutions to challenges faced by local government, it is important to turn to theoretical considerations. Theoretical considerations can help determine how to approach practical solutions to solve problems such as those related to DRR.

2.8 Theoretical perspectives on disaster risk reduction and stakeholder involvement

Different governments have realised the importance of DRR, as a way of improving community resilience and reducing community vulnerability levels. The UN (2010) notes that previously,

governments did not pay much attention to disasters as they regarded them as once off occurrences. In most cases, it was non-governmental agencies which provided relief to disaster victims. Both government and NGOs often used a top-down approach when responding to natural disasters. Such interventions were not effective as they only provided relief and failed to focus on societal dynamics, community needs as well as perceptions. Simultaneously the top-down approach ignores the capacity of the local people and their resources in DRR (UN, 2010). As a result, governments considered alternative approaches and in particular, the community based approach to DRR. This approach emphasised the idea of communities to participate in DRR in their disaster prone areas. The notion behind this paradigm shift was the conception that DRR is more effective when it is done at grassroots level, through mobilizing and organising people, thereby circumventing the top-down approach to DRR (Shamano, 2010, p. 21). The argument here is that since communities are the primary victims of disasters, they can as well be the most effective responders to disasters hence, what needs to be done is to empower these communities with the necessary skills, knowledge and training to help mitigate disasters (Alexander, 2013, p. 2711). This description echoes the important role of other stakeholders in DRR, because, despite being able to mitigate disasters, community members are faced with several challenges because they lack the necessary resources to combat disasters. The theory considered relevant to this study includes the concept of engaging stakeholders in DRR. These are discussed next.

2.8.1 Disaster theory: the pressure and release model

According to Marcus (2005) a coherent pressure and release model is useful as it indicates how the risk of disasters can be reduced by applying preventive and mitigation measures. According to Shamano (2010, p.19), risk is articulated as the likelihood of disasters to occur as illustrated by the equation hereunder.

$$R = \frac{H \times V}{C \times M}$$

R= Risk=H (Hazard) times V (Vulnerability); C (Capacity) times M (Manageability)

Figure: 2.3 Equation for risk assessment
Source: Shamano, 2010, p.19

Figure 2.3 suggests the importance of assessing disaster hazards and vulnerability to facilitate efficient and effective capacity for managing disaster. This is connected to the pressure and release (PAR) model. Hence, the PAR model initially addresses the underlying causes and analyses the nature of hazards or risks, leading to safer conditions which benefit by preparing the community to deal with disasters (Blaikie, Cannon, Davis, and Wisner, 2005). This disaster

risk theory is founded on three key areas: the origin of susceptibility, the vigorous processes and the dangerous surroundings. Proposed by Blaikie, Cannon, Davis, and Wisner in 1994 and further modified in 2004, the theory proposes that catastrophes are a consequence of the interaction between two opposing forces: vulnerability and a hazard. From this description, a disaster is therefore "crunched" between a hazard and processes generating vulnerability (Blaikie *et al.*, 1994).

The three components of this theory are highlighted below.

- *Underlying / Root causes:* these include the deep seated factors which create and maintain vulnerability within a society. The factors echo the application and sharing of power in a society, for instance, the political systems.
- *Dynamic processes:* these are the transforming social macro-forces which direct the impact of a negative cause into risky conditions. These processes are often a result of poor or lack of basic services or other major forces like population growth and urbanisation.
- *Unsafe conditions:* these indicate the vulnerability of communities to hazards, which are a risk of disasters. Examples of such things which expose communities to some hazards include unstable economies and low income levels (Blaikie *et al*. 2005).

This model is known as both the PAR model and the crunch model. It could be appropriate for this study for many reasons. Initially, this model takes into consideration the cumulative effect that the ultimate causes, the dynamic pressures and unsafe conditions have on poor communities (Smyth & Vu Minh, 2012). Given the many informal settlements in South African communities, the vulnerability of these communities is accelerated by the lack of resources, population growth and urbanisation (Small, 2008). In addition, the risk of fire is evident in the unsafe conditions like the use of paraffin stoves in the informal shack dwellings (van Riet and Diedericks, 2010, p.155).

In the context of the above mentioned components, this theory suggests that these factors can be reversed by paying attention to the root causes, since disasters are often indirectly occurring from the power systems of societies (Blaikie *et al.*, 2005). Figures 2.4 on the next page and 2.5 thereafter indicate the circumstances leading to vulnerability and those leading to progression of safety.

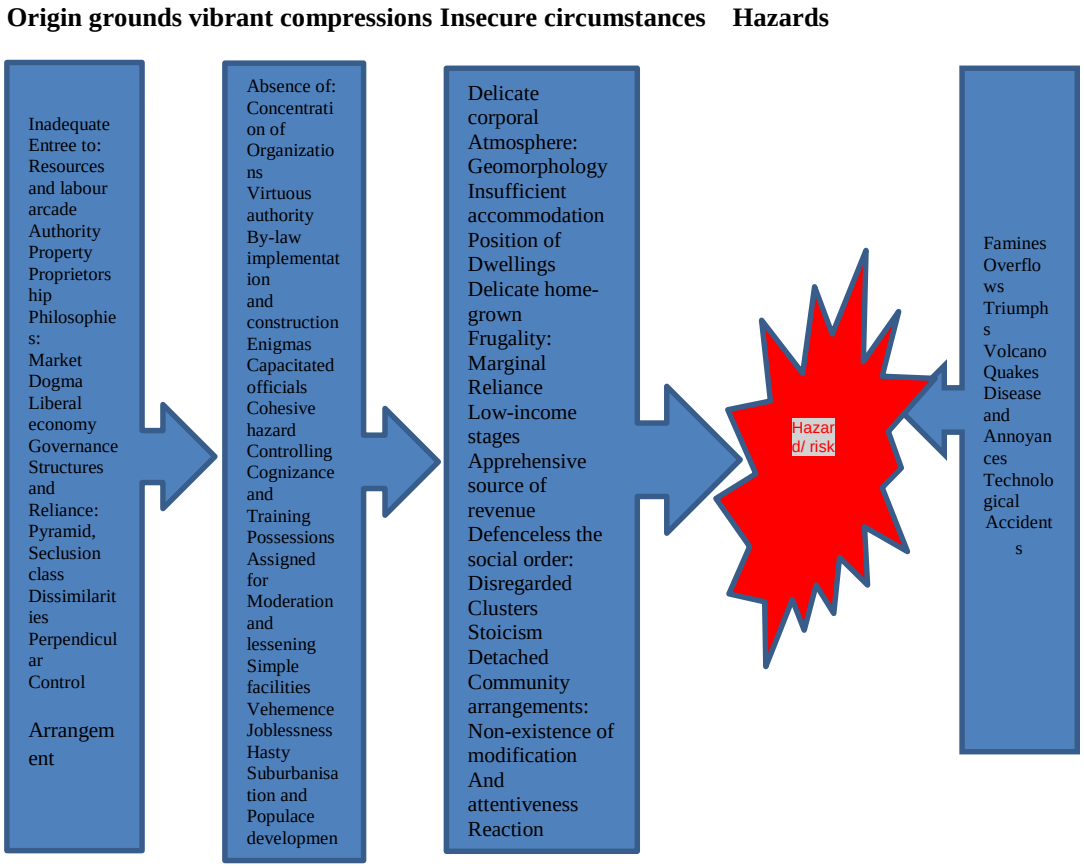

Figure 2.4: Pitfalls of vulnerability
Source: Blaikie *et al* (2005, p. 51)

A distinguished characteristic of the model depicted in Figure 2.4 is how it focuses on the various issues and the forces that push people to unsafe conditions and hence, exposes them to greater risk. On the one hand, the progression of vulnerability seeks to answer why, for instance, why are the communities' agricultural activities prone to the effects of drought? Why are communities living in risky and hazardous places? On the other hand, the progression of safety highlights possible measures of reversing unsafe conditions into safe conditions by dealing with the root causes and the dynamic pressures. The point is that despite the possible intervention strategies to reduce the effect of hazards, it is equally essential to control the primary governance systems which are often a major part of the root causes and pressures that intensify people's vulnerability (Blaikie *et al*., 2004). This is represented in Figure 2.5.

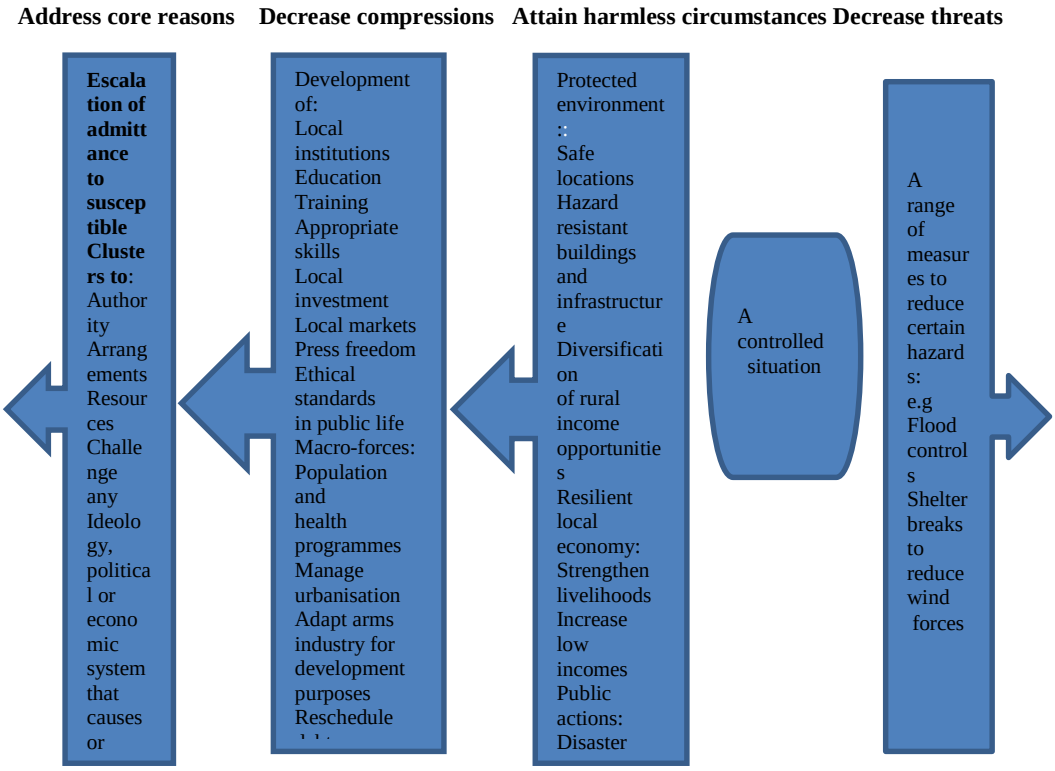

Figure 2.5: Progression of Safety
Source: Blaikie *et al.* (2005, p, 54)

Figure 2.5 indicates how community members can eliminate the unsafe conditions so as to mitigate the risk of disasters. Preparedness measures, including EWS are practical components central to the PAR model of disaster risk theory. These are discussed next.

2.8.1.1 Preparedness measures, generally

Preparedness entails the ability to predict, respond to and cope with the effects of a disaster (UNISDR, 2013a). Disaster preparedness is aimed at helping communities avoid future disaster threats and to put plans, resources and mechanisms in place for the provision of adequate assistance (Twigg, 2015). The main elements of disaster preparedness entail predicting events and issuing warning, being pro-active and improving response through timely and effective rescue, relief and assistance. Table 2.6 shows the key constituents of the framework for disaster preparedness (Kent, 2014, p.19-26).

Table 2.6 Disaster preparedness framework

1**. Vulnerability, hazard and risk assessment** Initial phase entails planning and preparation, related to longer-term mitigation and development involvements as well as disaster preparedness	**2. Planning** Disaster preparedness Plan should be in place, should be achievable and resource should be available, includes agreements between role players for plan execution	**3. Institutional framework** Disaster preparedness and response system is well-coordinated at all levels, relevant stakeholders are committed, while roles and responsibilities are clearly defined
4**. Information systems** Should be efficient and reliable between stakeholders (e.g. forecasts and warnings, information on relevant capacities, role allocation and resources)	5. **Resource base** Goods (e.g. food, emergency shelter), services (e.g. search and rescue, medical, engineering, nutrition specialists) and disaster relief funding should be available and accessible	6. **Warning systems** Strong communications systems (technologies, infrastructure, people) which are able to effectively transmit warnings
7. Response mechanisms e.g. evacuation procedures and shelters, search and rescue teams, are essential	**8. Education and training** For the at-risk groups and disaster responders. Knowledge of risk and proper response should be shared amongst stakeholders	**9. Rehearsals** Evacuation and response processes should be practised, evaluated and improved

Source: Adopted from Kent (2014, p. 19-26) and www.goodpracticereview.com

As can be seen from Table 2.6 there are governmental, intergovernmental and other stakeholder roles that must be performed in disaster preparedness.

In addition to the above mentioned preparedness components shown in Table 2.6, the process of DRR should thus be cohesively in all matters of growth, policies, methods/strategies, investments and programmes at both the national and local government levels. If so, governments and communities would practice a culture of prevention with a sense of preparedness. The DRR measures should therefore be integrated into development planning to advance prevention and preparedness as strategies and principles of DRR. For example, DFID

(2005, p. 38) contend that policy and development actions can be applied at the subnational or national level to help integrate DRR into the policy agenda in at least three ways. First, physical preventive actions can help alleviate the exposure of structures to natural threats and hazards. Secondly, physical coping and/or adaptive methods can be used to handle and adapt rudiments which are capable of enduring disasters. Finally, Public capacity building processes should be aimed at and executed for strengthening communities so that they can effectively respond to and cope with disaster events through training and capacity building (DFID, 2005, p. 39). Early warning systems are a particularly valuable and essential component of disaster preparedness and are fundamentally concerned with the PAR model as a disaster risk theory. Early warning systems are further discussed next.

2.8.1.2 Early warning system (EWS) as a preparedness measure

EWS has been defined in various methods or ways. And for the aim of this research, the concept would be considered as the system of data collection meant to detect and monitor possible hazards to assume the appropriate actions to mitigate the effects of hazards. In other words, EWS entail the evaluation of communities' access to resources and protection so as to give timely warnings in the case of any crisis threats and therefore, calling for the appropriate responses. Hence, once again the involvement of stakeholders is signalled. The descriptions provided above indicate that EWS are relevant proactive procedures adopted in advance to curb any impending hazards. EWS are therefore a preparedness strategy, which is an aspect of the DRR framework.

The DRR framework presented in Figure 2.6. It shows where EWS is located and Table 27 presents key components of an early warning system.

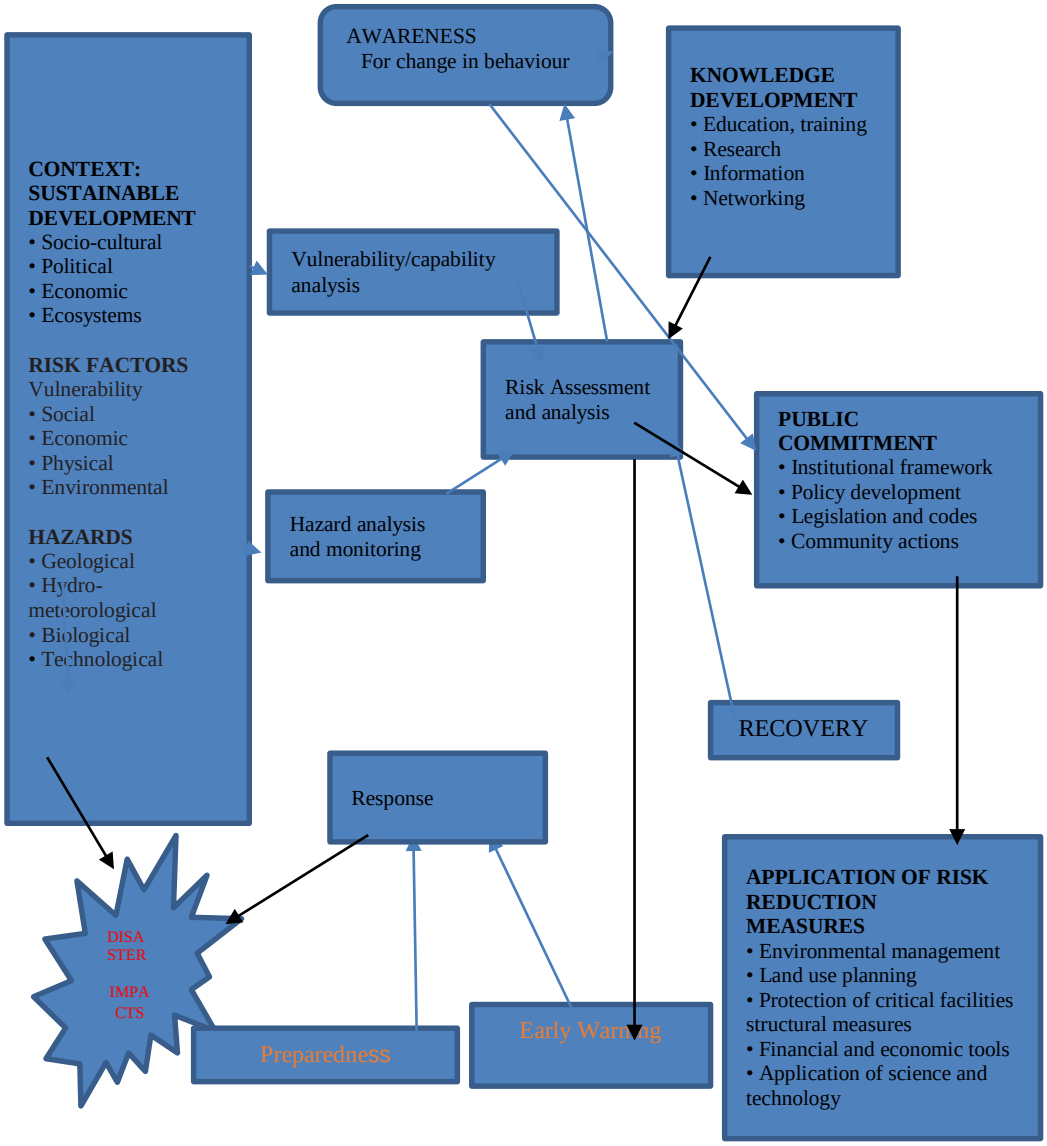

Figure 2.6: Disaster risk reduction framework
Source: Adapted from: UN/ISDR (2002, p. 23).

This system depicted in Figure 2.6 can allow for preparedness in a way that lessens adverse consequences of nature disasters.

The four quadrants in Table 2.7 reveal key components of EWS.

Table 2.7 Early warning system key components

Risk knowledge Systematic collection of data and undertaking of risk assessments. Key issues: ▪ Ensure that the disaster risks including exposers are recognized by communities ▪ Know the forms and leanings in these aspects ▪ Disaster risk mapping and disaster information must be accessible to all	**Disaster monitoring/observing and cautioning provision** Advance disaster risk monitoring and prompt caution capability (early warning systems). Key issues: ▪ Ensure that the correct considerations are constant scrutinised ▪ Facilitate comprehensive systematic source forecasting model ▪ Generate correct and appropriate forewarnings
Information & communication management ▪ Ensure that warnings reach everyone who is at risk and that they understand the warnings ▪ This means using a language that is understood be those affected. ▪	**Post disaster response and recovery capacity** ▪ Update expectations of what is involved ▪ Advantage indigenous knowledge systems as necessary ▪

Source: UNISDR (2012, p. 2)

Once again, Table 2.7 highlights the fact that DRR is a multi-sector, multi-disciplinary effort. The components of EWS are at the heart of disaster risk theory. In addition to disaster theory, systems theory and stakeholder management theory could be useful for informing stakeholder participation in DRR. These are next discussed in turn.

2.8.2 Systems theory

A system entails the combination of different aspects (economic, social, environmental, technological) working together for a common cause. In the same way, the systems theory explains how different parts of a whole contribute to the functioning of the system (Ludwig von Bertalanffy, 1950, p.142, cited by Neuman, 2011, p.23). Systems theory describes the relations between the different parts, rather than considering the entity as parts or elements (Chikere and Nwoka, 2015, p.1). Organizations are systems with related parts which must be coordinated for efficiency and effectiveness. Chikere *et al* (2015, p.2) further noted that a system is a multifaceted and vastly interwoven network of parts, which display synergistic properties: the whole is greater than the sum of its parts. The implication is that systems are assemblages of intertwined parts which act together for the accomplishment of certain goals. This is where synergism occurs. In the case of organisations, they comprise different departments, sections and units which are autonomous, but working in harmony for the attainment of organizational

goals. In other words, the theory highlights that organisations do not exist in a vacuum, but rather rely on the external environment, which is a part of a larger system (Gaillard, 2013, p.12).

In DRR, the theory thus explains that DRR activities are systems comprising interdependent and interrelated elements which contribute to make the whole. The different stakeholders engaged in DRR perform their different but overlapping functions. These elements: the government spheres, local government management, political leadership, communities, the academia, the business, the civil society, to mention a few, are relevant stakeholders which are expected to play their diverse but overlapping roles in DRR.

According to this theory, if one element (stakeholder) fails to play its part, it affects the functionality of the entire system. The situation even gets worse if the most important element (local government) is malfunctioning; it means all the other stakeholders would not be able to effectively perform their functions. The theory is most applicable in DRR, whereby if the government fails to take the initiative in DRR, it compromises the roles of the other stakeholders. The theory therefore highlights the integration of diverse elements (stakeholders) from their different functions for communication, development of mutual understanding, decision making and the collective use of the available resources for the attainment of common objectives. In this view, the success of DDR initiatives heavily depends on the level of coordination of the different stakeholders.

However, the systems approach also calls for a different type of intervention – one that consciously targets a combination of leverage points to overcome challenges related to intricacy and kindle broader change within the system. In the case of DRR, the systems approach aims to identify and develop interventions and answers that are entrenched within prevailing development spheres and that are executed through the course of daily decision-making within these spheres. These spheres are at different levels, but the most important for DRR are those at the national, local, private sector and individual/household levels. What is required by the systems approach is a set of intercessions targeting action in all of the spheres and ranged in order to change the dynamics of the system towards reduced risk and greater resilience.

2.8.3 Stakeholder management theory

The stakeholder theory is a theory of organizational management and business ethics. However, it can also be applied to the public sector. The origin of stakeholder theory is unclear. It could be Mitroff (1983) or Freeman (1983) who began to articulate the concept (Miles, 2012, p.23). Freeman (2008) identifies and models the groups which are stakeholders of a corporation, and both describes and recommends methods by which management can give due regard to the

interests of those groups. (Freeman, 2008; Freeman, Jeffrey, Harrison and Parmar, 2010). In short, the literature on stakeholder management attempts to address the "principle of who or what really counts" (Miles, 2012, p.23).

In other words, stakeholder theory describes the relationships between individuals and organizations and their internal and external environment. The theory highlights how these connections influence the way in which an organisation sets out to achieve its vision and goals. The central idea behind the stakeholder theory is that organizations that effectively manage their stakeholder relationships will survive longer and perform better than those that do not (Freeman, 2008; Freeman, Harrison, Wicks, Parmar and Colle, 2010). Freeman further suggests that organizations ought to have certain stakeholder competencies which include being committed to monitor stakeholder interests, developing strategies in order to effectively deal with stakeholder issues, as well as ensuring that they meet the needs of the stakeholders. This is likewise true of DRR stakeholders. Reed (1999, p. 453) articulates that insights organisational participants/stakeholders depend on their respective contribution on the sustainability of the organisation. For example, it may be utilised on the basis of optimistic including norms and standards of management theory. DRR has established norms and standards that require collective action. Scolobig, et al., (2015, p. 203) contend that, if DRR-M is going to become more 'people-centred', responsibilities must be undertaken by citizens as stakeholders and institutional arrangements should be questioned so that government, civil society and other stakeholders share responsibility for implementing DRR principles and practices.

Figure 2.7 identifies certain stakeholders in DRR.

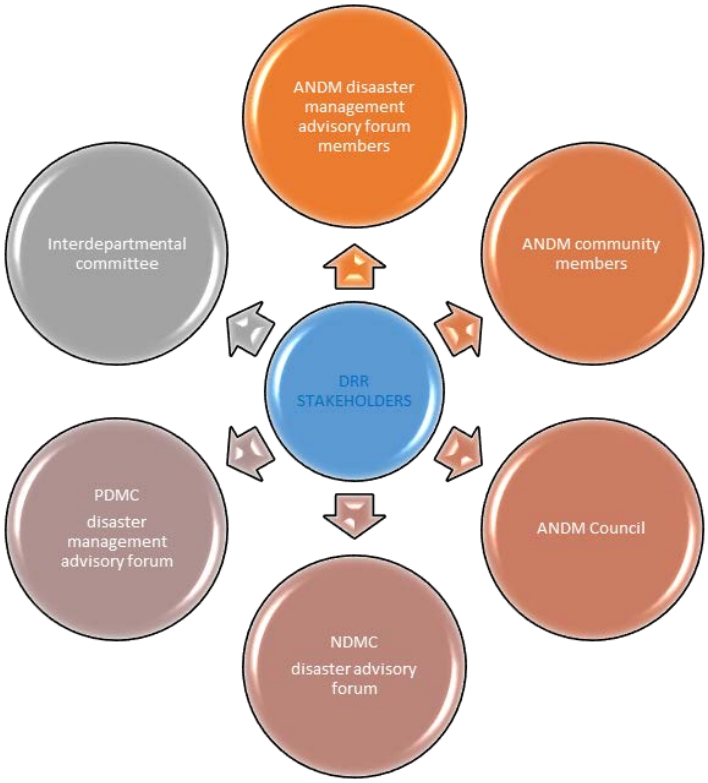

Figure 2.7: DRR stakeholders involved at ANDM
Source: ANDM Disaster management plan (2016:33)

Figure 2.7 emphasises not just stakeholder identification but also who is involved in stakeholder analysis. Roles of stakeholders were previously discussed in section 2.5 of this chapter. With regard to DRR in particular, there is a certain amount of planning that should be done from the outset to implement DRR strategies and of this, stakeholders should be made aware. Table 2.6 depicts components of stakeholder management theory, according to Reed (2009, p. 43)

Table 2.8: Stakeholder management theory components

Normative bases of stakeholder rights pertinent comforts	**Normative right /claim**	**Stake or Interest**	**Normative jurisdiction of the prize or stake**
Persuading standards and strategies of community interface	Community interface ought to be synchronized based on authentic or legitimate law	Party-political equivalence	Legality
Safeguarding substantial needs, trailing financial spinoffs	Financial systems including practices must replicate a generalizable attentiveness	Reasonable financial or economic prospect	Ethics /Morality
Emergent and nourishing personal including and shared uniqueness	Public associates ought to live in harmony per the standards and morals of their preferred communities	Genuineness	Integrities

Source: Reed, 2009, p. 43

The most important charge of stakeholder management theory is to establish the prize or stake (Leisyte and Westerheijden, 2014). “Stakeholders” are persons, clusters or associations who have stakes or safeties, straight or ramblingly, in the possessions or glitches at hand (World Bank, 2007). In articulating what constitutes a stake it is of paramount importance to first reflect and establish the real stake of stakeholders with a clear description of the term. Notions of both (stake and stakeholder) can be utilised to give diverse undertones or meanings in different ways Furthermore, public organisations, respective NGOs, commercial enterprises and experts including administration bureaucrats as stakeholder segments have shared yet distinct stakes in the normative bases of stakeholder rights and claims as well as the jurisdiction of such stakes (Mercer, 2012, p. 247; Reed, 2009:43).

The theories described above all emphasise one thing: the collaboration of different elements for the purpose of achieving a common goal. This therefore entails the need for the different stakeholders to concentrate on their collective capacity in order to enhance DRR and increase resilience in communities. Applications of the theories that encourage stakeholder or organisational collaboration indicate that DRR initiatives might not succeed due to poor communication and coordination of the relevant stakeholders.

Stakeholder management theory has been selected as the theory that underpins this study as the researcher finds it useful as it has all the elements that assist in conducting the study. The theoretical framework is depicted in Figure 2.8.

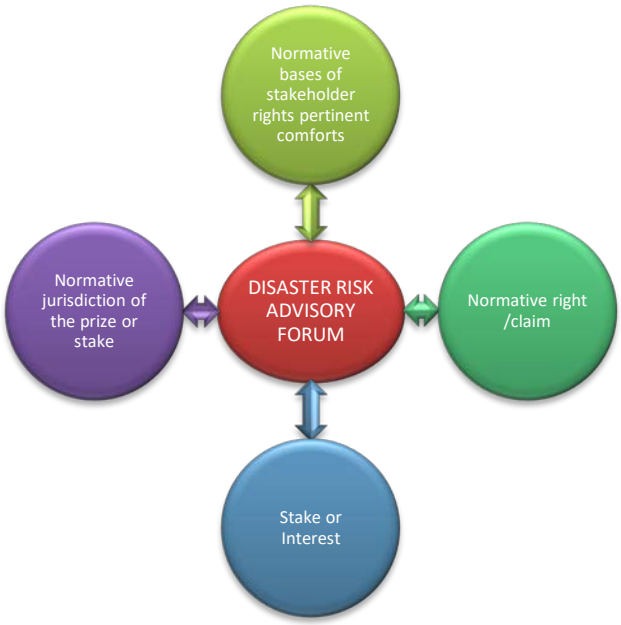

Figure: 2.8 Disaster advisory forum stakeholder management theoretical frameworks
Source: Adapted from Reed (2009, p.43)

In this study, the main stakeholders that are the subject of this study are those on the advisory forum. However, the researcher does discuss the broader range of DRR stakeholders from time to time. The advisory forum is at the centre of Figure 2.8 and the components of stakeholder management theory surround the advisory forum stakeholders. ANDM is the case context intended for the study. The units of analysis, individual members of the advisory forum, are embedded in the case. These individuals represent an array of governmental and non-governmental organisations. As earlier mentioned, *inter alia*, the study seeks to identify the roles of disaster advisory stakeholders' roles in DRR and to understand the activities performed by the advisory forum stakeholders.

2.9 Chapter conclusion

This chapter has provided an intensive discussion on DRR, from identifying the main concepts, describing the disaster theory, highlighting the roles of the three spheres of government in DRR-M. The role of local government in DRR-M has been highlighted. It has been revealed that local government has the most significant part to perform in DRR-M, as it is the level of government closest to the citizens and is entrenched at the local level as it is where most disasters often happen. Despite their important role, the challenges encountered by local governments in their efforts towards DRR-M were also identified. Possible solutions to the challenges have thus been pointed out as well. Overall, the discussion in the chapter detailed the need for a proactive and multi-sectoral approach in DRR-M. This implies the need for

combined efforts from all the relevant stakeholders and interest groups. In this view, successful DRR can only be implemented when the identified challenges have been addressed. This entails empowering local governments with the necessary human, financial and other resources needed for the effective management of disasters, including stakeholder engagement. The next chapter is concerned with the research methodology employed in this study.

CHAPTER 3: RESEARCH DESIGN AND METHODS

3.1 **Introduction**

This chapter discusses the research design and methods applied in this study. The purpose of the chapter is to identify the philosophical worldview underpinning this study as well as the research design. This chapter then goes on to indicate the methodological processes undertaken to collect and analyse data. Thus, the research design, the target population and sampling, the data collection tools, are discussed in turn. Also presented in the chapter are the following items: data quality control, data analysis, ethical considerations, limitations of the study, and then the chapter conclusion.

3.2 Philosophical worldview

Creswell (2013, p.6) articulates that there are four extensively deliberated philosophical worldviews which are post-positivism, constructivism, transformative as well as pragmatism. As illustrated by Lincoln, Lyneham & Guba (2011) worldviews are also known as paradigms, epistemologies and ontologies or broadly conceived underlying elements of research methodologies. Worldviews are the basic set of beliefs that guide action as presented in table 3.1.

Table 3.1: Four worldviews

Post positivism	**Constructivism**
Fortitude or determination ✓ Reductionism ✓ Empirical ✓ Reflection and ✓ element theory confirmation	✓ Understanding ✓ Multiple participant meanings ✓ Social and historical construction Theory generation ✓ Interpretivist
Transformative	**Pragmatism**
Party-political Power and righteousness leaning co-operative change-oriented	Significances of engagements Problem-centred Diverse Real-world preparation oriented

Source: Creswell (2013, p.6)

For this particular study, the researcher adopted constructivism to understand how the advisory forum stakeholders construct their roles and how they manage DRR in ANDM. This selection of constructivism is motivated by a number of factors as next discussed:

- It is a useful approach to qualitative research (Lincoln et al., 2011; Martens, 2010).
- The researcher seeks understanding of the world in which respondents live and work (DRR stakeholders in this case).
- Researcher develops idiosyncratic connotations of respondents' familiarities—meanings focused towards definite substances or things. The focus is on complexity of views rather than narrowing meanings into a few categories or ideas.
- Main objective of the study is to trust as greatly as probable on the respondents' opinions of the condition being studied (DRR). The questions become broad and general so that the participants can construct the meanings of conditions related to DRR and the role of stakeholders in DRR
- The subjective meanings produced are negotiated socially and historically, i.e. they are formed through interaction with others (hence social constructivism) and through historical and cultural norms that operate in individuals' lives.
- Thus, constructivist's researchers often address the processes of interaction among individuals.
- Researcher's own backgrounds shape his/her own interpretation, and the researcher should acknowledge how their interpretation flows from their personal, cultural, and historical experiences whilst demonstrating that this does not overtake the way in which constructions of respondents are interpreted by the researcher.

The researcher's intent in constructivism is to make sense of (interpret) the meanings others have about the world, i.e. Instead of starting with a theory (as in post positivism); researcher generates or inductively develops a theory or pattern of meanings. The researcher chose constructivism because there is a tight connection between the constructivist paradigm and qualitative methodology. In addition, constructivists avoid rigid structural frameworks such as in positivist research and adopt a more personal and flexible research structures (Carson *et al.,* 2011) which are receptive to capturing meanings in human interaction (Black, 2006) and make sense of what is perceived as reality (Carson *et al.,* 2011). The researcher and his informants are interdependent and mutually interactive (Hudson and Ozanne, 2008).

3.3 Research design

Research design entails the overall plan of the research methodology, which also depends on the research questions to be answered (Cresswell, 2014). Therefore, it is of paramount importance to warrant that the research design is appropriate for the particular study (Kumar, 2011, p 41). In that view, this study adopted the qualitative research design to understand the roles of the different stakeholders involved in DRR.

There are a number of reasons for selecting a qualitative research design. First, a qualitative research design seeks to value and find out the importance of individuals or collectives concerned with a social or human problem (Creswell, 2014). Questions posed by this study enquire about how and why a situation exists. Secondly, qualitative research designs have been used to answer the why, where and how aspects of a research problem (Creswell, 2014). Third, another advantage of using the qualitative approach is the possibility of capturing direct quotations from the respondents' lived experiences, thereby enabling the researcher to have insights into the respondents' actual perceptions of certain phenomena. Finally, qualitative research is constructivist and interpretive in nature. Accordingly, Trauth (2000, p. 6) notes that "Interpretive studies assume that people create and associate their own subjective and inter-subjective meanings as they interact with the world around them... The intent is to understand the deeper structure of a phenomenon ... to increase understanding of the phenomenon within cultural and contextual situations...." DRR stakeholders carry out their roles in cultural and contextual ways which this study sought to discover.

Therefore, to achieve the goals and objectives of this study, the researcher adopted the qualitative methodology. In other words, the qualitative research design was deemed necessary as the study sought to establish the stakeholders' perceptions and experiences in the DRR activities connected to the advisory forum. The researcher identified a qualitative research design as appropriate for this study; next step is to outline the research strategy.

3.4 Research strategy

The study was carried out through case study strategy. A case study strategy, which is often referred to as a design as well, is an empirical enquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the borders between phenomenon and context are not clearly evident (Yin, 2009, p.18). The case study inquiry:

- "Copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result
- Relies on multiple sources of evidence, with the need to converge data in a triangulating fashion, and as another result

- Benefits from the prior development of theoretical propositions to guide data collection and analysis" (Yin, 2014, p.24).

It is also important to motivate why a case study was chosen and to identify the case and the unit of analysis under study. The case study approach is applicable here since the researcher has minimal or no influence on what is happening in the context of the study, whilst at the same time being interested in appreciating the phenomenon under study (Bossen, Cannon, Davis and Udsen, 2013, p. 940). The use of a case study aims to explore the in-depth program, occurrence, motion progression or one or more approach personalities (Creswell, 2014) which here is the ANDM DRR advisory forum. The case context is the ANDM and the case, the DRR advisory forum. The unit of analysis is explained in the next subsection.

3.4.1 Unit of analysis

Prior to deciding on data collection and analysis, it is important to define the unit of analysis, which entails the "who" or "what" is going to be analysed for the study (Yin, 2013; Trochim, 2006). Qualitative research does not essentially seek to provide generalizable results. This study seeks to answer research questions within an important segment of society, DRR. However, the sector is not homogenous in terms of institutional arrangements. Thus, the researcher used the case of ANDM in conducting the study and focused on selected members of the advisory forum as units of analysis. The DRR advisory forum consists of numerous representations from various organizations as demonstrated in table 3.2.

Table 3.2 Advisory forum stakeholder classifications

ANDM disaster advisory forum	Clustered representatives	Total
ANMD disaster management centre officials	Fire services : 5	14
	Disaster management knowledge management section x 3	
	Disaster management post disaster response & recovery x 6	
ANDM Councillors	Councillors clustered in the following standing committees: • Community Services • Corporate Services • Budget and Treasury • Communication, Intergovernmental & special programs • Infrastructure development and municipal services • Council Speaker	32
Government departments	1x Department of Health (EMRS, Primary health and Health education unit)	12
	1x Department of Agriculture	
	1 x SAPS	
	1 x Social development department	
	1 x SASSA	
	1 x Department of public works	
	1 x Department of human settlement	
	1 x Department of education	
	1 x Department of home affairs	
	1 x Department of environmental affairs	
	1 X Department of transport : • Roads maintenance unit • Road transport inspectorate	2
Non-governmental organisation	1 x Alim Daad Foundation	5
	1x World vision	
	1x Fire wise	
	1x SA Red cross society	
	1x Working on fire	

Source: Researcher's fieldwork

As table 3.2 shows, there are sixty-three individuals on the DRR advisory forum at ANDM. The unit of analysis was selected on the basis of its role in DRR. The unit also provides an example of how government institutions are responsive to disasters. The sample size is subsequently depicted in table 3.3. The next section describes the research site that provided the case context.

3.4.2 Research site

The study was conducted at ANDM area of jurisdiction is part of Eastern Cape Province. It shares boundary with OR Tambo in the Eastern Cape, Harry Gwala District Municipality, Ugu District Municipality in Kwazulu Natal Province (Statistics South Africa, 2014).

The local municipalities that comprise ANDM are presented in the figure 3.1 below.

Figure 3.1: Towns/municipalities that form ANDM.
Source: ANDM IDP (2016, p. 4)

Figure 3.1 also shows the geographical area of the ANDM on which the farms used in conducting this study are located. The municipalities are shown in yellow print while the towns are shown in black print. The ANDM has a total of 102 wards. The study site was chosen because ANDM, like many other municipalities, faces increasing levels of disaster risks as it is exposed to a wide range of environmental and climate hazards, especially drought, veld fires, floods and severe thunderstorms that often trigger widespread hardship and devastation (Statistics South Africa, 2014).

Using the case of ANDM, the sections that follow provide the details regarding the population sampling and the data collection tools employed, which include in-depth interviews and documentary evidence.

3.5 Target population and sampling population

A target population can be seen as all of those individuals or groups who have knowledge of the phenomenon under study. Sampling can be defined as "the process of choosing suitable individuals, entities or events as representatives of the complete population chosen for the study" (Sekaran & Bougie, 2010b). Battaglia (2008, p.23) argues that sampling entails selecting a part of the entire population under study. He further notes that: "The principal assortment benchmark narrates to the ease of locating a sample, ease of obtaining the sample relates to the

cost of locating elements of the populace, the geographic distribution of the sample, and obtaining the interview data from the selected elements".

Sampling strategies can be probability or non-probability. The former is also known as random sampling, whereby a sample is chosen based on the idea that it represents the entire population being studied. In the latter case, which is non-probability sampling, the researcher has to be careful in choosing the participants to make up the sample, as the chosen participants have to be knowledgeable about the phenomenon under study. This study adopted the latter (non-probability) strategy, in which case the researcher ensured that representatives who were knowledgeable about DRR and form part of the stakeholders on the advisory forum were included. In particular, the purposive sampling technique (Saunders, Lewis & Thornhill, 2012, p.7) was thus applied. "Purposive sampling is a non-probability technique that involves the conscious selection by the researcher of certain people to include in a study. Participants are selected because they have particular characteristics that are of interest to the researcher" (Saunders, Lewis & Thornhill, 2012, p.8). Besides, purposive sampling was used because it is one of the most cost-effective and time-effective sampling methods available. Purposive sampling was also used because there were limited numbers of stakeholder sources able to contribute to the study, as being part of the advisory forum was a requirement of study participation.

This means that subsets of the population were represented by the groups of respondents (which are part of District Disaster Advisory form), which in this case included the Municipal Disaster Management Centre officials, the government departments' officials involved in disaster risk assessment, ward councillors and non-governmental organisations. The designation of respondents who made up the target population and the sampling size appear in Table 3.3.

Table 3.3: Sampling size

Stakeholder Segments	Target Population	Sampling Population
ANDM Disaster Risk Management Centre	14 DMC officials	3
Government Departments • Department of Health – Emergency Medical Services. • South African Social Security Agency	12 from government department but chose two government	2
Nongovernmental organisations • World Vision • Alim Daad Foundation	5 NGOs	2
ANDM Councillors • Portfolio Head – Special Programs • Portfolio Head-Community Development Services • Member of Community Services Standing Committee	32 Councillors	3
Total number of study participants		10

Source: Researcher's fieldwork

Thus, the researcher selected respondents from the four stakeholder segments shown in the first column of table 3.3 because they were appropriate individual units of analysis who helped to answer research questions or achieve research objectives underpinning the study. The second column shows the number of people from each stakeholder segment of the advisory forum that make up the target population. The third column depicts the sampling population or sampling frame for the study.

3.5.1 Sampling frame

Bhattacherjee (2012, p.66) stipulates that the sampling frame is where the actual manageable section of the target population is identified so that the actual sample can be drawn.

Hereunder is the process taken by the researcher in deciding the sampling size:

• The ANDM Disaster Management Centre is comprised of three sections. First is the Fire and Rescue Services is also regarded as an emergency responding unit. Second is the Knowledge/Information Management unit, which focuses on DRR. Finally, the third unit is integrated post disaster response and recovery, which focuses on post disaster intervention. The sampling frame includes representatives from each section or unit of the ANDM DRR advisory forum.

- Government Departments are subdivided into two groups within the advisory forum, which are the emergency responding group and the post disaster relief group. For example, the Department of Health and the medical rescue services represent the emergency responding group and the South African Social Security Agency represent the post disaster responding agencies. This is aspect figured into the sampling size – ensuring that each of the subdivided group is represented in the sampling size.

- Non-Governmental Organisations are also subdivided into two groups on the advisory forum, DRR and post disaster intervention. Each of these subdivided groups is represented in the selection of respondents.

- ANDM is represented by three councillors in the DRR advisory forum. These are Portfolio Head – Special Programs, Portfolio Heard – Community Development Services and member of the Community Development Portfolio Committee. So all three councillors became part of the sampling size.

3.6 Data collection tools

In light of research objectives, research questions and given the research design and strategy, data collection tools were deployed and these are described hereunder. These included semi-structured interviews and documentary evidence.

3.6.1 The semi-structured interviews

Interviews are essential sources of case study information. This is so because they are a source of insights into intricate issues and they also present the opportunity for respondents to give feedback in a way that catches their experiences (Creswell, 2014). In that view, a semi-structured interview guide was prepared for advisory forum members at ANDM. The researcher sought to obtain information from the advisory forum stakeholders about their respective roles in DRR. Stakeholder perceptions conveyed the meanings that attach to DRR and their service on the advisory forum. In this study, semi-structured interviews comprised the open-ended as well as closed ended questions. The open-ended questions allowed the respondents to be flexible in terms of giving their opinions. The researcher had a list of questions on specific topics, often referred to as an interview guide, but the interviewee had a great deal of leeway in how to respond. Questions did not follow the interview schedule exactly. The researcher probed underlying meanings in light of the responses of the interviewees. But, by and large, all of the questions were asked and the wording of responses was very similar. In-depth semi-structured interviews were used for several reasons; they allowed broad topics to be discussed, participants are allowed to develop ideas and interviewer used prompts to probes and kept the conversation

covering the broad areas (Anderson & Braud, 2011). The interview questions are attached as Appendix 1.

A total of 10 separate interviews were held with DRR stakeholders connected to the advisory forum. The location, date and duration of interviews is shown in table 3.4. The duration of the interviews ranged from 45-60 minutes, depending on how the respondents shared their views with the researcher.

Table 3.4: Schedule of respondent interviews

Stakeholder segments		**Location of interview**	**Date of interview**	**Duration of interview**
ANDM Disaster Risk Management Centre	Chief Fire Officer	ANDM Fire Station Mount Ayliff	10 August 2016	51 Minutes
	Chief Disaster Officer	ANDM Disaster Management Centre	10 August 2016	48 Minutes
	Assistant Manager: Response & Recovery	ANDM Disaster Management Centre	11 August 2016	55 Minutes
Government Departments	South African Social Security Agency- Office Manager	SASSA Offices – Mount Ayliff	03 August 2016	59 Minutes
	Department of Health/Emergency Medical Services	Emergency Medical Services – Mount Ayliff Base	05 August 2016	47 Minutes
Nongovernmental organisations	World Vision Regional Manager	Matatiele Office	18 August 2016	53 Minutes
	Alim Daad Foundation – Provincial Coordinator	ANDM Disaster Management Centre	23 August 2016	48 Minutes
ANDM Councillors	Portfolio Heard – Special Programs	ANDM Council Chambers – Mount Ayliff	15 August 2016	45 Minutes
	Portfolio Heard – Community Development Services	ANDM Council Chambers – Mount Ayliff	15 August 2016	52 Minutes
	Member of Community Development Services	ANDM Council Chambers – Mount Ayliff	15 August 2016	43 Minutes

Source: Researcher's fieldwork

As table 3.4 shows, the researcher conducted interviews at locations convenient to respondents, such as their private offices or ANDM Council Chambers. In addition to conducting semi-

structured interviews, the researcher also used documentary evidence as a source of data collection, which is discussed next.

3.6.2 Documentary evidence

Yin (2014) argues that the use of documentary evidence refers to the analysis of documents that contain information about the phenomenon intended to be studied.

Secondary sources of data in this study were consulted so as to attain more thoughtful and understanding of the concept of DRR, especially in the context of municipalities. In that view, relevant literature from journals and newsletters was consulted in order to identify the most recent debates on the phenomenon. Legislative documents on DRR were perused in order to appreciate the legislation governing DRR in the country. The documents consulted were related to the following: Disaster Management, DMA (RSA, 2002) and NDMPF (RSA, 2005) as well as disaster studies reports on the assessments and status of South African municipalities and policies pertaining to ANDM. These include the ANDM Disaster Management Plan and Policy Framework, ANDM Disaster Management Volunteer Policy and ANDM Disaster Management Financial Intervention Policy. These are analysed in Chapter Four, section 4.2 regarding the case context of ANDM. During data collection and data analysis, the researcher tried to exercise data quality control as explained in the next section before turning to data analysis.

3.7 Data quality control

According to Edward (2000, p.70) data quality control is regarded as a condition of a set of values in quantitative or qualitative variables. Certain steps should be observed to advance qualitative data quality control. Trustworthiness of the findings is important in qualitative research. These steps toward trustworthiness include credibility, conformability, dependability and transferability. Each of these subtopics is articulated in subsections 3.7.1 to 3.7.4.

3.7.1 Credibility

Credibility means taking steps to ensure that the findings flow from the data collected and that interpretation of data contributes to believability of the findings (Anney 2014:276). Toward this end, the semi-structured data collection tool was constructed to generate valuable first-hand information from the context of participants' experiences about the phenomenon under study. Then the researcher was careful to link the meanings held by the participants to themes and findings sourced from interviews. Triangulation also adds to credibility of findings. Therefore the researcher compared analysis of documents such as laws, policies and literature with the outcomes of respondent interviews. This is further discussed in section 3.9 and shown in Chapter Four, section 4.5.

3.7.2 Conformability

Conformability means that the results of the research must be consistent with the data provided by the respondents and not overtaken by the perceptions of the researcher. To help achieve conformability, the researcher used audio recordings for the interview sessions to ensure that findings emerging from the interviews were not biased toward the researcher's own belief or interests, but a true reflection of the views of the participants. The researcher ensured conformability by taking full responsibility as per the principles of the qualitative research methods which teaches researchers, to ensure that the study is not conformed to the researchers' views but to the views of participants during the interpretation of data by the researcher (Yin, 2009).

3.7.3 Dependability

Dependability means that the researcher should be able to show consistent steps taken during the research design phase as well as during sampling, data collection and analysis supported by data quality control. The researcher did so by first studying and then employing qualitative research methods that had been applied in previous similar studies. The researcher ensured that dependability was upheld by ensuring that research questions and research objectives were designed in a manner that will permit future studies to produce similar results when applied more than once (Creswell, 2014). As to interview questions, the researcher used pre-determined questions. This provided consistency between the interviews which is critical in understanding a research problem and showing a trail of how research was conducted. Open-ended questions were employed in the in-depth interviews and the researcher documented occurrences during the interview to trace the origin of data (Maxwell, 2012).

3.7.4 Transferability

Transferability in data quality control questions whether the results from a research study can be transferred to another locale or situation that has similar circumstances or contexts to the original research project (Anney 2014, p.277; Sheila, 2017). It is up to the person wanting to transfer the findings and recommendations to determine if the findings are transferable. The researcher should provide a rich description to enable a reader to determine whether findings are transferable. In this dissertation, the researcher described documentary evidence that applies to the role of stakeholders on the ANDM DRR advisory forum. The researcher tried to ensure the option of transferability by making sure that the study was guided by clear research objectives. The researcher used the theoretical framework as a guide to construct the interview guide to develop consistent interview questions to gather data about the stakeholder roles. In Chapter Four, the researcher analyses and interprets the data in relation to the literature and relevant policies for a reader to determine whether the findings are transferable.

The next section discusses data analysis.

3.8 Data analysis

Biggam (2011, p.236) argues that the analysis of qualitative data is "not a linear activity and requires an iterative approach to capturing and understanding themes and patterns". Robson (2011, p. 468) also points out that the analysis of qualitative data calls for a "clear thinking on the part of the analyst" so as to provide a meaningful and valuable presentation of the gathered data. This is so because analysing qualitative data is about making sense out of words from the respondents in narrative form – in this case through the worldview of constructivism in conjunction with stakeholder management theory.

For this dissertation, the researcher specifically used thematic content analysis. According to Babbie (2010, p.42), content analysis helps a researcher draw from texts or audio tapes to begin to reduce data in a meaningful way. Hence, it examines words or phrases within a wide range of texts but in an organised manner. Specifically, Anderson (2007, p.2) views thematic content analysis to be a descriptive presentation of qualitative data. Qualitative data may take the form of interview transcripts or notes from interviews or other identified texts that reflect experientially on the topic of study. It is the most fundamental of qualitative analytic procedures and in some way informs all qualitative methods. In conducting a thematic content analysis, the researcher's epistemological stance was constructivism and undertaken in a way to preserve the perceptions of the respondents while reflecting on how to use their perceptions to construct a useful model for advisory forum stakeholders to utilise.

Documents collected and notes scribed during interviews were analysed using thematic content analysis guided by the following steps:

- The researcher carefully reviewed notes taken during the interview and began to separate them, first by responses to the same answer;
- Then the researcher determined whether certain responses were similar or dissimilar, thereby creating categories of response;
- Once the documents and interview notes were categorised into minor and major categories, the researcher reviewed the categories to ensure that the information was categorised in a correct manner;
- Then the researcher began to group the categories together under broader headings';

The researcher then created matrices, as shown in Chapter Four showing how statements from respondents led to emergence of certain categories.

- All categories were reviewed to ascertain whether some categories could be merged or if some need to them be sub-categorised.
- From the categories and subcategories emerged themes as discussed in Chapter Four, section 4.4. (Anderson, 2007, p.2).

Therefore, following the above stated procedure, data from the interviews were arranged according to themes generated and coded through identifying similar patterns, phrases and sequence. Most of the questions were open-ended because the research was qualitative. Data were analysed and interpretations were drawn in line with the aim of the study. It became necessary to analyse data using thematic content analysis to cover the depth and breadth of the findings. The researcher grouped and distilled, from the texts, a list of common themes in order to give expression to the communality across participants. Every attempt was made to identify themes from the actual words of participants in a manner that directly reflected the texts as a whole.

The next section briefly explains the process of methodological triangulation.

3.9 Triangulation of data

Data triangulation was used to validate data and research by cross verifying the information generated in this study. In this study, primary and secondary data were triangulated to strengthen the findings because data triangulation increases credibility and validity as reflected in table 4.7 in chapters 4, (Creswell, 2014).Triangulation of data is this study is articulated in section 4.6

3.10 Ethical Considerations

In every research, it is very important to observe ethical issues. In this regard, the researcher applied for ethical clearance from the University of KwaZulu-Natal's relevant office. In addition to that, respondents for the study were furnished with the details of the purpose of the study and how the researcher would go about the data collection phase. The researcher explained to the participants that participating in the study was voluntary and that they were free to shun and stop participating in the study without any negative consequences. Consent forms were signed and kept safely (attached copy as appendix 2). Privacy of participants was respected by ensuring that the project did not collect identifying information of individual subjects such as names, addresses, email addresses, and others and the project did not link individual responses with participants' identities.

3.11 Limitations of the Study

This study was limited to ANDM. Therefore, the results of the study may not be generalised and may not be applicable in other district or any other municipal areas. This is because the

qualitative methods used present information on the particular case study. Therefore, the study and its inferences will only be applicable in the context of the specific case. However, as explained in section 3.7.4, a reader may find that the findings, conclusions and recommendations are transferable to a similar context. As mentioned in Chapter 1 that the researcher is himself a DM manager and guarded against his own biases by carefully respecting and interpreting the data from participants. The biasness by researcher has been avoided by giving participants a chance to review results from their interviews, and by verifying other independent secondary data sources against responses from participants.

During the data collection phase, the researcher was working at ANDM. However, the researcher did not serve in a supervisory capacity for anyone who participated in the study. In addition, to overcome the would-be limitations of participants not being forthcoming with responses, participants were made aware that the research endeavour should bring out their independent thinking and perceptions. Furthermore, participants were advised that their anonymity and confidentiality would be protected and that responses would not be traced back to them or used against them in any manner. This was done to safeguard any limitations of respondents being reluctant to share their perceptions

3.12 Delimitations to study

The delimitations are regarded as specific physiognomies that bound the scope and define the borders of the study (Simon, 2011, p.36). The researcher managed to control the limitation to the study by avoiding prior knowledge to matters and ensuring that the study is controlled by the theoretical framework to the study as the guide.

3.13 Chapter conclusion

The current chapter highlighted the research methodology employed in this particular study. Research design, sampling techniques and research tools were identified. Data quality control, data analysis, triangulation, ethical considerations and limitations of the study, as well as how the researcher sought to overcome those limitations, were discussed. The purpose of doing this was to clearly describe how the researcher endeavoured to achieve the research objectives and answer the research questions. The presentation and further analysis of the data is detailed in the next chapter. A detailed data analysis and interpretation will be dealt with in the subsequent chapter. That chapter will further allude on the themes extracted from the notes taken during interviews.

CHAPTER 4: DATA PRESENTATION AND ANALYSIS

4.1 Introduction

In the previous chapter, the methodology used to address the research objectives and questions were discussed. The purpose of this chapter is to present and analyse the collected data. It is important to reiterate that the purpose of the study was to get stakeholders' perceptions about their roles in the ANDM DRR advisory forum. The chapter begins by describing the case context of the ANDM as it pertains to DRR. It goes on to present data obtained from individual stakeholders on the advisory forum. In that view, the themes that emerged from the analysis of data are explained. A brief cross-case analysis is provided and table showing triangulation of data sources presented before this chapter concludes with a summary.

4.2 Case context of Alfred Nzo District Municipality

Section 153 of the Constitution of the Republic of South Africa (RSA, 1996) explains the main existence of local government/municipalities in developmental context and exists for the benefit of entire populace under jurisdiction. Chapter 3 of the 1996 Constitution mandates the practice of cooperative governance to ensure functionality of all spheres of government, especially municipalities. The upcoming subsections of this chapter include background of Alfred Nzo District Municipality, risk profile of the municipality, documentary evidence of ANDM on relationship between disaster and development, ANDM Disaster Risk Management Advisory Forum information and policies that govern DRR at ANDM. Figure 4.1 shows the ANDM Map.

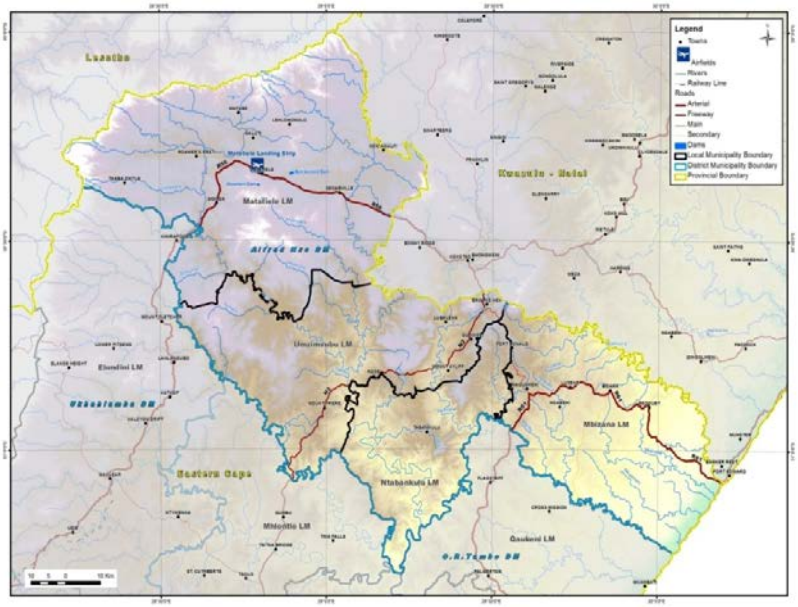

Figure 4.1: Alfred Nzo District Municipality Map.
Source: ANDM Disaster Management Plan (2016, p. 4)

The map has a ledger. It shows the four local municipalities in ANDM. It also demonstrates that ANDM is located in the Eastern Cape but shares borders with KwaZulu-Natal and the country of Lesotho. ANDM is comprised of four municipalities which are Umzimvubu (Mt Ayliff and Mt Frere urban nodes), Mbizana, Ntabankulu and Matatiele (Cerderville semi urban node is part of this municipality).

4.2.1. General background of South African municipalities and background of ANDM

The municipalities are classified into three categories. According to Section 155(1) of the Constitution (RSA, 1996) municipalities are classified into three categories (A, B and C Municipal categories). Therefore district municipalities are category: C municipalities are district municipalities which are having specific powers and functions as per Municipal Structures Act no 117 of 1998 (RSA, 1998) and are formed as per section 10 as follows:

a) With a collective executive system.
b) With a mayoral executive system and
c) Municipality with a plenary executive system.

Alfred Nzo District Municipality is category C (District Municipality) with mayoral executive system as per articulations of Section 84 of the Local Government: Municipal Structures Act 117 of 1998 (RSA, 1998). This municipality is previously known as Wild Coast District Municipality and the municipality was established as Alfred Nzo District Municipality since the year 2000(ANDM IDP, 2016, p.5). ANDM is mostly a rural municipality and comprises four rural towns /municipalities which together form the district municipality. The population of the whole is estimated to be 80 2000, which is about 12% of the provincial population of Eastern Cape Province. Table 4.1 illustrates the square meter area covered by the municipality and Table 4.2 presents ANDM age distribution.

Table 4.1: The KM^2 and % per local LM within ANDM

Percentage of the District Area	Area KM2	Municipality
39 %	4352	Matatiele Local Municipality
25%	2806	Mbizana Local Municipality
23%	2506	Umzimvubu Local Municipality
13%	1455	Ntabankulu Local Municipality
100%	11119	100%

Source: Statistics South Africa (2011)

Table 4.2 of ANDM Age distribution

Area	≤15	15-64	65+
	2001- 2011	2001- 2011	2001- 2011
ANDM (DC44)	40.9	59.2	6.2

Source: Statistics South Africa (2011)

Table 4.2 shows that the majority of the population is between 15 and 64

4.2.2 ANDM race

The majority of the population consists of Africans, nearly 100%. (ANDM IDP, 2016, p.24)

4.2.3 ANDM Socio-economic status

The ANDM IDP (2016, p. 25) reflects that the district municipality is rural in nature with with certain socio-economic sectors. Figure 4.2 highlights the economy pockets of the region.

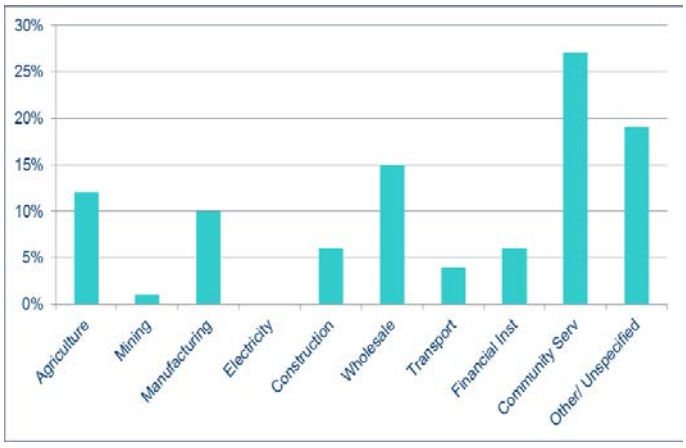

Figure 4.2 Economic pockets within the ANDM (Stats SA, 2011).

4.2.4 Food security / poverty levels

There are high poverty levels within the municipal area of jurisdiction as it is estimated to be above 40% (ANDM IDP, 2016, p. 26).

4.2.5 Risk profile of the municipality

In the Alfred Nzo District Municipality Disaster Risk Management Plan (2016, p.36) there is the risk profile of the municipality as per disaster risk assessment conducted by the municipality. Table 4.3 illustrates the risk profile of the municipality.

Table 4.3 ANDM Risk Profile

Summary of findings of the risk profile		
The hazards classified as high identified across the ANDM:		
	2014	**2016**
1.	Veld/forest fires	Drought
2.	Extreme weather; Hail, high winds etc.	Extreme weather; Hail, high winds etc.
3.	Motor vehicle accidents	Motor vehicle accidents
4.	Stock theft	Stock theft
5.	Human diseases: TB; HIV; cholera	Human diseases: TB; HIV; cholera
Proposed action or changes		
It is recommended that ANDM focuses on the 5 priority hazards, develop risk reduction plans, integrate into IDPs and develop response plans where after ANDM can develop and implement according to available capacity.		

Source: ANDM Disaster Risk Management Plan (2016, p.36)

As Table 4.3 depicts, the same hazards continued to affect the risk profile between 2014 and 2016. It is worth understanding the risk profile of ANDM to explore the role and engagement of the DRR advisory forum in preparing for and mitigating this risk.

4.2.6 Political Leadership structure /Council Structure

The ANDM political structure of council consists of 32 councillors which inclusive of the Executive Mayor, Deputy Executive Mayor, Council Speaker (who is also the chairperson of council), and Mayoral Committee members which are chairpersons of standing committees, 7 traditional leaders and ordinary councillors .The figure 4.3 below elucidates political structure of ANDM.

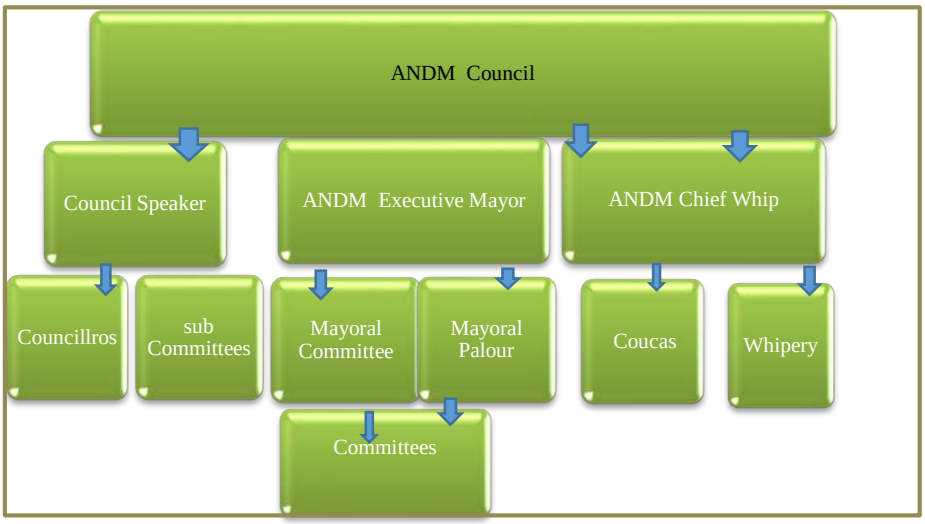

Figure 4.3 ANDM political structures
Source: ANDM IDP (2016, p.30)

Figure 4.3 suggests that for the district system to function effectively, serious attention should be given to its political leadership structure. Currently, practice suggests that there is a disjuncture between stakeholders. Once an appropriate role is given to stakeholders the risk reduction management system will be able to realise its goals.

4.2.7 Structure of ANDM Management and Disaster Management Structure

The figure 4.4 below presents the concise structure of ANDM Management and Disaster Management Structure.

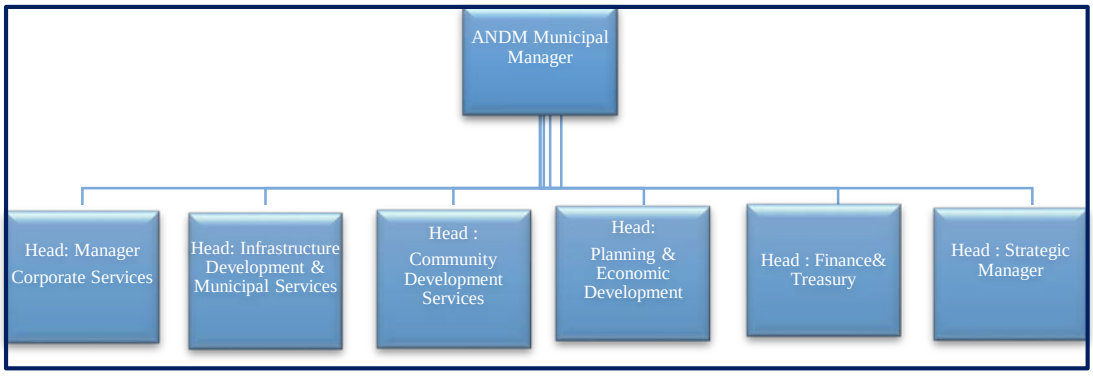

Figure 4.4 ANDM management structure
Source: ANDM IDP (2016)

Figure 4.4 displays various work streams within DM while Figure 4.5 below illustrates ANDM DM centre collaboration in DRR.

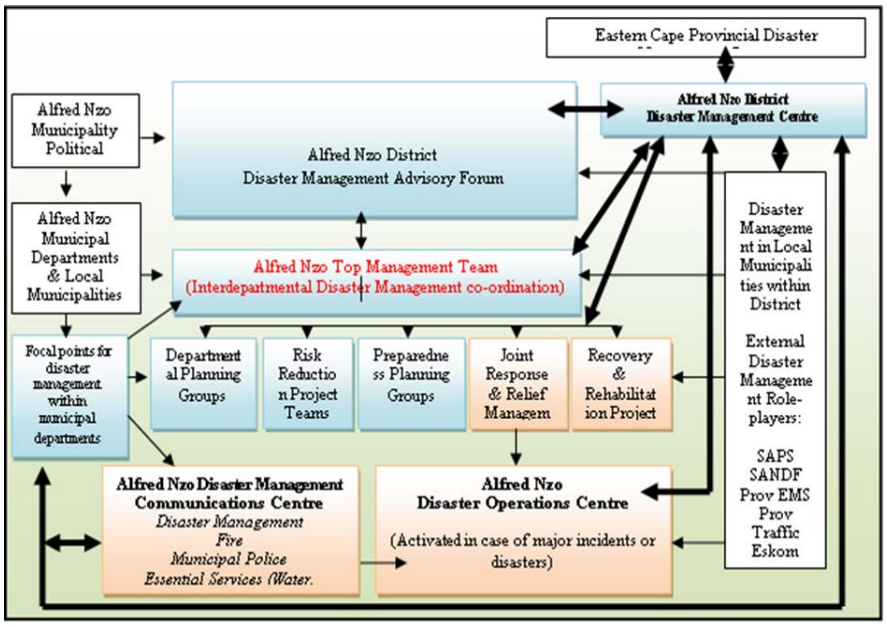

Figure 4.5: ANDM DRM coordination and collaboration
Source: ANDM disaster management plan (2016, p.33)

The diagram in figure 4.5 shows the clusters for collaboration within disaster coordination operations. This is important because understanding the benefits of coordination and collaboration functions and using them for the disaster centres reorganization is a key process for humanitarian logistics.

4.2.8 Documentary evidence of ANDM on the relationship between disaster and development

According to ANDM Disaster Management Plan (2016, p.28) disasters can hamper development and if uncontrolled, improper development can cause disasters. Therefore DRR and development should be integrated for the betterment of communities and the country at large. For example, when fire disasters destroy informal settlements, government, as part of post disaster rehabilitation, can build resilient structures through formal housing and road networks and integrated human settlements. Figure 4.6 illustrates disaster and development relationship.

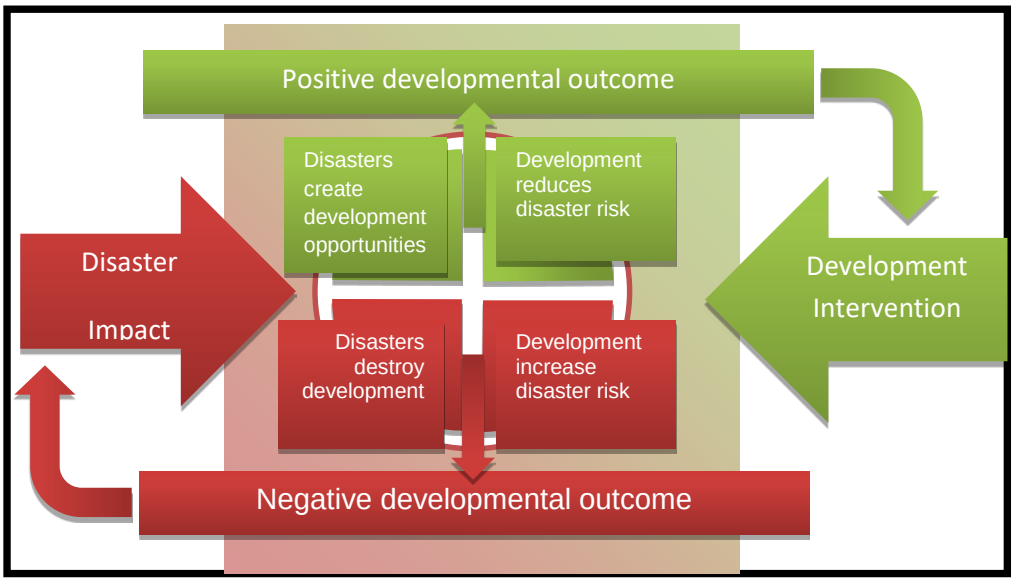

Figure 4.6 Relationship between disasters and development.
Source: ANDM DMP (2016, p.28)

4.2.9 Alfred Nzo District Municipality disaster risk management advisory forum

It is in the spirit of Disaster Management Act No. 57 of 2002 (DMA) Section 44(1) (b) (RSA, 2000) that an integrated and coordinated (multi-sectoral) approach to DRM is sought in municipal settings. Furthermore, Section 51 of the DMA makes provision for the formation of DM advisory forums and ANDM has such kind of the forum which is multi sectoral in nature. All stakeholders of the forum have a role to play in DRR, which is the subject of this dissertation. The researcher used the case of ANDM as presented in figure 2.2 in conducting the study and focused on the members of this forum as units of analysis as illustrated in Chapter Three, section 3.5.

4.2.10 ANDM policies on disaster risk reduction

ANDM policies are discussed hereunder as part of secondary evidence in order to analyse the role of stakeholders in the DRR advisory forum.

4.2.10.1 Alfred Nzo District Municipality Disaster Management Plan

The ANDM as required by DMA (RSA, 2002), to craft a responsive Disaster risk management plan to fulfil the legal requirements. The plan approves the preparations for managing disaster risks and for preparing for and responding to disasters within the ANDM. The intended outcomes of this plan are:

- “Integration of DM into the strategic and operational planning and project application of all line functions and stakeholders within ANDM;

- Formation and maintenance of resilient communities within ANDM area of jurisdiction and
- Integrated and coordinated multi-disciplinary responding to disaster" (ANDM DMP, 2015a).

4.2.10.2 Alfred Nzo District Municipality Policy Framework

In order to achieve consistency in approach and homogeneousness in the application of the DMA (RSA, 2002) Section 6 of the mandates the Minister of Cooperative Governance and Traditional Affairs to prescribe a national disaster management framework. In accordance with this mandate, the NDMF (RSA, 2005), the ANDM established its Disaster Municipal Policy Framework (ANDM DMPF, 2015b, p .2) to address disasters. This was accomplished in 2015.

4.2.10.3 Disaster Management Financial Intervention Support Policy

The main objectives of this Disaster Management Financial Intervention Support Policy (ANDM, 2015c) are multi-fold. First, this policy aims to guide disaster intervention assistance provided to destitute victims of disaster incidents and/ or to address disasters in cases where mortality was registered or foodstuffs for the family were totally destroyed. Secondly, this policy brings uniformity in terms of disaster intervention within the municipal area of jurisdiction. Third, financial intervention support enhances compliance with Municipal Finance Management Act (RSA, 2003) and Supply Chain Management Policy (RSA 2015) when responding and performing post DM activities. Fourth, this policy advances implementation of ANDM DRMP (ANDM, 2015a) and the ANDM DRMPF (ANDM, 2015b). However, taken as a whole this financial intervention support policy is closely related to Key Performance Areas (KPA 4) of the NDMF (RSA, 2005) which is more concerned with response and recovery and tends to be a bit silent on DRR.

4.2.10.4. Alfred Nzo District Municipality Volunteer Policy

The main purpose of this Municipal Volunteer Policy (ANDM, 2015d). is to normalise and solemnise the recruitment, deployment and utilization of Disaster Risk Management Volunteers managed by the Alfred Nzo District Municipality The policy again is focusing on utilising the volunteers on response and recovery and thus, reactive in nature as it is silent again on DRR.

4.3.10.5 Alfred Nzo District Municipality legislative compliance

This section shows various frameworks of concern for municipalities regarding DRR. Table 4.4 refers to the legislative compliance at ANDM that guides the Municipality. As its mandate is to serve the citizens, ANDM has to comply with some complex procedures and timeframes in order to achieve its service delivery function.

Table 4.4 ANDM Disaster Management Act compliance

District Municipality	Disaster Management Framework (Section 42)		Disaster Management Plan (Section 53)		Advisory Forum (Section 51)		Disaster Management Centre (Section 43)		Head of Disaster Management Centre (Section 45)	
	Priority	Status	Priority	Status	Priority	Status	Priority	Status	Priority	Status
ANDM	Must	Yes	Must	Yes	May	Yes	Must	Yes	Must	Yes

Source: Researcher's fieldwork 2016

ANDM compliance with legislation as shown in Table 4.4 is important to avoid legal action being taken against ANDM. Noncompliance might result in court battles and place the municipality at risk of being put under administration. The ANDM is in compliance across the board of legal mandates.

4.3 Qualitative data presentation, analysis and findings

This section presents answers to research questions through the examination and interpretation of data. The profile of respondents is followed by a recapitulation of the research objectives and questions. The third subsection uses matrices to demonstrate respondents' understanding of DRR. The fourth through the seventh subsections are organised in accordance with the research objectives and questions as shown by each subheading. The basic steps in the data presentation and analytic process consist of identifying research themes, determining the availability of suitable data, and evaluating, summarizing, communicating and confirming and disconfirming the results with literature.

4.3.1 Profile of respondents

In this section, Figure 4.7 shows the gender profile of respondents while Figure 4.8 shows the percentage of each stakeholder segment of the ANDM DRM Advisory Forum involved in the study.

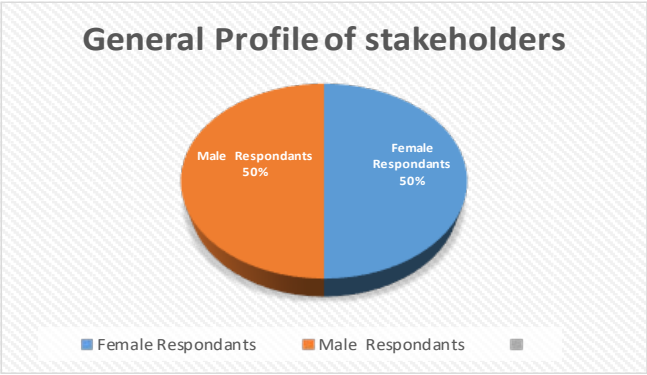

Figure 4.7 Gender profiles of respondents
Source: Researcher's fieldwork 2016

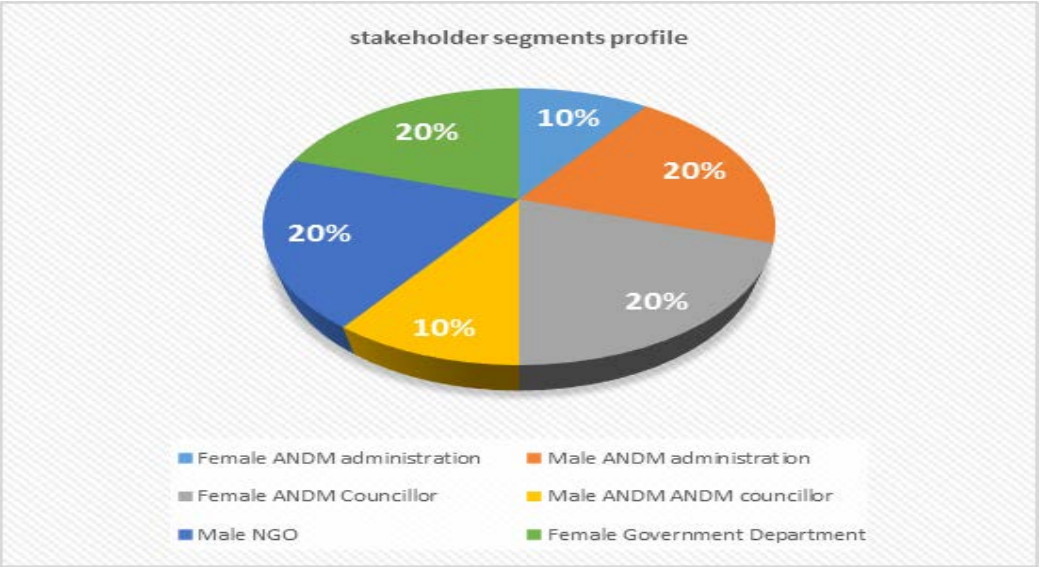

Figure 4.8: Percentage of each stakeholder segment of the ANDM DRM advisory forum participants
Source: Researcher's fieldwork 2016

Figures 4.7 and 4.8 depict that gender among the respondents was balanced and there was a diversity of stakeholder segments in terms of those who represent different stakeholders on the ANDM DRR advisory forum.

Before presenting and analysing data, it is worth revising the research questions and objectives that data are expected to address.

4.3.2 Recapitulation of research objectives and research questions

As delineated in Chapter 1, there are four research objectives and corresponding research questions for this study. These are depicted in Table 4.5 for ease of reference prior to the data presentation and analysis.

Table 4.5 Research objectives and research questions

RESEARCH OBJECTIVES	RESEARCH QUESTIONS
To identify the advisory forum stakeholders and their roles in disaster risk reduction.	What is the role of advisory forum stakeholders in disaster risk reduction?
To establish how advisory forum stakeholders participate in DRR activities.	How do advisory forum stakeholder participation in DRR activities?
To assess the institutional capacity of advisory forum stakeholders.	What is the institutional capacity of advisory forum stakeholders?
To identify the challenges and opportunities advisory forum stakeholders encounter in their efforts towards DRR	What are the challenges and opportunities encountered by the advisory forum stakeholders in DRR?

The upcoming presentation is organised according to the research objectives and questions, which were turned into statements. It was first important to construct and interpret respondents' understanding of DRR. Also, section 4.3.4 presents respondent views on roles of various stakeholders in DRM and DRR generally as opposed to the roles of advisory forum stakeholders. However, section 4.3.5 reveals the role of advisory forum stakeholders along with the activities performed in carrying out their roles.

4.3.3 Respondents' understanding of DRR

This section presents data matrices in which data fields are organised by rows and columns. The point of intersection between a row and column is a cell is to help in achieving the objectives and answering research questions underpinning this study. Codes were used in the place and stead of identifying participants.

Table 4.6 shows the key to the codes.

Table 4.6 participants' codes	
Respondent	Code
Disaster Management municipal officials	MOD1
	MOD2
	MOD3
Government Department stakeholders	GD1
	GD2
ANDM Councillors stakeholders	MC1
	MC2
	MC3
Non-Governmental Organisation stakeholders	SHN1
	SHN2

Source: Researcher's fieldwork 2016

To protect confidentiality and anonymity of respondents, the codes shown in Table 4.6 will be used to attribute responses found in the matrices.

As discussed in Chapter Two, there are some globally projected constructions of DRR. For example, DRR has been referred to as the methodical expansion and application of strategies and polices, approaches and practices to lessen exposures and disaster risks throughout a society, to avoid (prevent) or to limit (mitigate and concoct) adversative bearings of threats, within the wider milieu of bearable expansion (UNISDR, 2012). Disaster risk reduction has been defined as "the systematic development and application of policies, strategies and practices to avoid (prevention) or limit (mitigation and preparedness) the adverse effects of hazards" (ISDR, 2010).

Upon analysing the data, the researcher noted that the stakeholders attached different meanings to the concept of DRR. Some of them clearly indicated a good understanding of the concept, while others tended to define DRR in the context of minor incidences which are more like emergencies. This can be seen in matrix 4.1.

Matrix 4.1 Respondents' Understanding of DRR

Category	**Responses**
Activities and plans aimed at reducing risk and vulnerability	Disaster Risk reduction includes attentive actions aimed at decreasing disaster MOD1
	Implementation of projects and plans that are aimed at minimizing vulnerabilities and disaster risk in society MOD2
	Risk reduction is making identified risk insignificant MOF
	Reducing of vulnerability MC1
	It's a process and activities aimed at reducing risk in the case of medical rescue services GD1
	It means activities aimed at reducing risk at community level GD2
Self-resilient	Things that make community to be self-resilient to disasters and nature conservation SHN1
Risk Mitigation	It simply means to cut down or decrease those factors that cause damage by natural hazards. It also means taking a strong approach to reduce and mitigate those factors that can lead a hazard to becoming a disaster. It is a programme of helping to achieve the above. SHN2

Source: Researcher's fieldwork 2016

However, despite the narrow definition of the concept provided by some respondents, they provided good examples of disasters, for instance, storms, fire and drought. From the above responses, it is clear that out of the ten participants, only a few of them could clearly define DRR. While the majority of them just had an idea of what it is, or, despite knowing the activities and processes involved, they could not effectively define it in their own words. In that way, it was a bit of a concern to realise that the participants could not fully highlight all the important elements of DRR, which has been defined as "the systematic development and

application of policies, strategies and practices to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevent) or to limit (mitigate and prepare) adverse impacts of hazards, within the broader context of sustainable development" (UNISDR, 2013a; UNDP, 2004, p.135).

The reason for emphasising the essence of a good understanding of the concept of DRR is because the successful integration of DRR in projects, especially at the municipal level, should begin with a clear and solid understanding of the concept. For instance, there is a difference between disaster reduction and DRR, of which the former is more commonly used in both instances, yet the latter puts emphasis on reducing the conditions which might lead to disasters. In other words, DRR emphasises reducing vulnerability while disaster reduction entails dealing with the actual disasters. The risk aspect in DRR is linked to the inability to deal with the situation. The responses provided by the participants indicate the need to improve stakeholders' understanding of the DRR principles, because a poor understanding might affect the mainstreaming of the DRR activities at all levels. At the municipal level, the DM sector needs to comprehend the fundamental principles of DRR. This is very crucial; especially considering the multi-sectoral aspect of DRR hence, a poor understanding of the concept might affect the implementation of DRR initiatives.

4.3.3.1 Hazards and risks within ANDM

Hazard is relatively exposure to harmful motion, occurrence or even and it often results in damage, injury or loss of life (UNISDR, 2012). It can be a natural or man-made occurrence which adversely causes damage to livelihoods, life or property. A hazard is thus a likely hazard to the society and the atmosphere, which often triggers a disaster. Furthermore, risk refers to the potential or probability of a negative effect from an occurrence (Delica-Willison & Gaillard, 2012, p.669). Risk is the likelihood of detrimental consequences as a result of the interplay between hazards and vulnerable situations. Furthermore, risk is an anticipated loss resulting from a hazard. In this view, risk is thus taken as hazard multiplied by vulnerabilities. Again, according to Shamano (2010, p.19) risk is articulated as likelihood of disaster to occur. Matrix 4.2 presents the hazards and risks identified by respondents in this study.

Matrix 4.2 Hazards and risks identified within ANDM	
Type of hazard	**Responses on Risks**
Hydro meteorological	Drought MOD1
	Hailstorm MOD1, MC1,
	Snow MOD1, MC1, MC3, SHN1, GD1
	Fire MOD1,MOF , MOD2, MC2, SHN1, GD1
	Floods MC3, GD2,SHN2
	Lightening MOD1
	Violent wind MOD1
Biological	Diseases MOD2,GD1
Social	Stock theft MOD2,GD1
Geological	Steep areas GD2
Technological	Motor vehicle accidents MOF,MC1,GD1
Environmental	Hazardous chemical spillages MOF

Source: Researcher's fieldwork 2016

From the responses highlighted in Matrix 4.2, it is clear that ANDM is in fact prone to a variety of disasters. Among the causes include the increasing population of the area, which often leads community members to settle in high-risk areas, thereby increasing their vulnerability.

Most of the participants managed to identify a list of hazards and risks associated within the study area as listed in Matrix 4.2. However, the researcher noted that some of the participants indicated some elements which cannot really be described as hazards and risks. For example, some mentioned "motor vehicle accidents" and "theft" as hazards. These cannot be categorised as disasters, but perhaps, in the case of accidents, that would be an emergency. Looking at the definition of disaster as given earlier, disasters are severe disruptions of how a community functions by causing or threatening extensive material, environmental and human losses in such a way that the victims might not be able to cope with the situation and with their limited resources (RSA, 2002). One participant also mentioned the risk of hazardous chemical spillage, but did not indicate the source of the hazard. However, the fact is that they indicated that the community members of ANDM are prone to disasters due to a number of reasons.

The “rural nature” aspect noted by one of the participants implies a number of things. Firstly, the rural population density of the communities in ANDM seems to be too concentrated due to issues of shortage of land. Major problems associated with this situation include overcrowding, high rates of unemployment and crimes. Again, the lack of basic services contributes to hazardous conditions like health related problems and fires, especially with the strong winds conditions described by the participants in this study. In that view, health is a major hazard in the area as the people are vulnerable to diseases due to lack of services like water and sanitation, which often forces the community to rely on natural sources of water. The absence of toilets makes the situation worse in the sense that the disposal of human waste is haphazard and therefore risks the contamination of diseases. Munzhelele (2011) supports this finding. This scholar argues that inaccessibility of electricity often leads community members to use fire as their main source of energy. This, in turn poses the high risks of fires, yet the access to emergency vehicles is also limited in the rural areas. The study also found that lack of refuse collection services in the rural areas encourages land pollution, another health hazard for the dwellers of these communities, which is also supported by Mothapo (2008, p.23) and White (2013, p.76).

In other words, the rural nature of the ANDM communities contributes to a number of hazards, which might manifest into disasters if not well managed, due to the twin problems of poor service delivery and overcrowding. The community development workers of the areas admitted that the high population density forces people to build unstructured “houses” in the hillside areas, which are dangerous and very risky, but due to the shortage of land, the community members do not have many options but to risk their lives to landslides and flooding, among other things. In addition, the densities pose high risk of fires and health issues like diarrhoea, cholera, TB, HIV and AIDS, to mention a few. Given the situation described here, it might indicate poor coordination amongst the relevant authorities or shareholders, which are supposed to ensure the safety of the communities through the provision of better basic services like housing, electricity, water and sanitation. The poor service delivery in the communities is the major contributor to all the associated risks.

Another reason implied by the other participants is the lack of resilience by the community. These have also been identified as the main causes of natural hazards, of course in addition to the global climate change (Béné, Wood, Newsham & Davies, 2012). This shows that findings in this study and literature review agree that it is important to practically mitigate the risks associated with natural hazards. One way of ensuring this is to encourage a resilient community that is well-positioned to minimise the effects of hazards and to quickly recover from the

effects. Responding to the question about the reasons why the ANDM community is at risk of disasters is, most of the participants argued that it is because they always experience heavy rains, veld fires and strong winds within the area. Another participant said that because of many disasters declared in the previous years.

4.3.4 The roles of different stakeholders in DRR

In this study, participants described their roles as stakeholders in DRR, generally and specifically with regard to service on the advisory forum. The former is contained in this section and the latter in section 4.3.5. Respondents also noted the importance of stakeholder participation in DRR activities, highlighting the essence of coordination, collaboration and partnership development. The NDMF (RSA, 2005) described earlier indicated that the government is supposed to be the main player in DRR, while other stakeholders are "enablers", meaning that they are there to provide the necessary support through their knowledge, experiences, skills, research and funding, to mention a few. Given this, poor stakeholder participation in this regard implies the ineffectiveness of DRR efforts by whichever stakeholder is involved. Poor participation implies lack of coordination amongst the stakeholders. For instance, van Niekerk and De Visser (2010) indicate poor communication amongst the National Disaster Management Centres, Provincial Disaster Management Centres and Municipal Disaster Management Centres. Another study on the challenges to DRR in the Imizamo Yethu informal settlement by Roth (2011) highlights lack of communication between the fire department in Cape Town and the DRMC, which affected the disaster management plan for the 2010 FIFA World Cup because the fire department was not aware of its roles and responsibilities in this regard. This suggests that stakeholder management, by, through and across the spheres of government is a work in progress.

All the participants argued that DRR is everyone's responsibility, meaning that it is a multi-sectoral approach. It calls for the involvement of all the relevant stakeholders ranging from the community members to the DRR authorities. An official in ANDM noted that DRR entails a lot of activities involving vulnerability and risk assessment, the use of EWs, capacity building, raising awareness, to mention a few, hence the need for every stakeholder to partake in DRR activities. In agreement, Persson and Hanewinkel (2012, p. 34) state that community involvement is the key. Building a resilient society with appropriate coping mechanisms is the basic principle behind any DRR.

Reed. (2009) stipulates that what drives stakeholders mostly is the stake itself. So during interviews it has been notices by the researcher that DRR stakeholders specifically ANDM advisory forum members found to be me more interested to only on issues pertaining to their

organisations and as such not aware or less interested on what other organisations are doing in relation. And stakeholders such as the Local Government and other competent authorities should be harnessed for better DRR operations. It is paramount that the stakeholders rally around common goal (DRR) so as the ensue that the issue of who or what really counts in DRM activities (Miles, 2012, p.23).

Matrix 4.3 presents the roles of different stakeholders in DRR as perceived by participants in this study.

Matrix 4.3 Roles of different stakeholders in DRR	
Role Categories	**Responses**
Community-related activities	Conduct community awareness workshops MOD1
	Community development MC3
Planning and action activities	Knowledge management MOD2
Reactionary activities	Response and recovery manager MOD1
	Response and recovery relief GD2
	Fire and rescue services MOF
	Emergency medical services GD 1

Source: Researcher's fieldwork 2016

Interestingly, Matrix 4.3 reveals that respondents are not just concerned with their roles and activities on the advisory forum but also the roles of other stakeholders. For example, a municipal official and councillor are concerned with community participation. Also, municipal officials and representatives from government departments show their tendency to focus on reactionary activities rather than DRR. Nevertheless, the assertions depicted in Matrix 4.3 highlight the essence of collaboration amongst different stakeholders in DRR. The stakeholders thus include government departments, non-governmental organisations (NGOs), communities, educational institutions and the private sector. These different stakeholders although they are from different backgrounds, to an extent share the same beliefs as desire for a safe and secure environment in a jurisdiction. This is everyone's vision and the DRR stakeholders shared this goal although distinctive as the stakes in the normative bases of stakeholder rights and claims as well as the jurisdiction of such stakes is paramount (Mercer, 2012, p.247) .

This implies the need for the integration of activities to especially ensure and promote information dissemination. In support of such integration the NDMF (RSA, 2005) emphasises the four key performance areas (KPA) for DRR and these include the following: Integrated Institutional Capacity for Disaster Risk Management (KPA 1); Disaster Risk Assessment (KPA

2); Disaster Risk Reduction (KPA 3) and Response and Recovery (KPA 4). In addition to these KPAs, the framework also highlights the enablers of DRR and these are Information Management and Communication, Education, Training, Public Awareness and Research, as well as Funding arrangements for DRM (RSA, 2005). The framework described above indicates that the government has the main responsibility of DRR, even though it is supposed to be a shared responsibility. Thus, each stakeholder has his/her own responsibility in different phases of disasters but government should take a leading role (Mojtahed 2014, p.11).

This implies that the other stakeholders identified earlier above should be the "enablers", meaning that their role should be to provide the necessary support, particularly as members of the ANDM DRR advisory forum to implement the framework at all government levels. Broadly speaking, the experiences, knowledge, guidance, resources, goodwill and commitment of the stakeholders like the civil society, community based organisations and the volunteers, are all required in the development and implementation of the frameworks and plans for DRR. They also contribute in raising awareness through public campaigns and educating communities on the prevention of disasters. As indicated by one of the respondents that their role is to build a resilient people, stakeholders should focus on advocating for resilient communities.

In particular, stakeholders should focus on the effective management of disaster risk by resourcing, designing and also implementing DRR plans, programmes and policies. Capacity building mechanisms should be emphasised in order to empower the communities for preparedness, as well as to enhance their capacity to find alternative mechanisms of livelihoods, especially in post disaster conditions. Essentially, the communities as indigenous people should act as agents of change (Mainardes, Alves and Raposo (2012). Their experiences, skills and traditional knowledge (especially for early warnings) are instrumental assets in DRR hence; they should be included in the development and execution of DRR plans and means. In the same way, it is the responsibility of educational institutions and their academia to expand research and concentrate on DRR factors in the long term. The role of the private sector in this regard includes financing and investing in disaster risk, support research and innovation, raising awareness, developing technologies for disaster risk management and sharing knowledge on DRR. Importantly, the media have the inclusive responsibility of contributing to public education through disseminating information and raising awareness on DRR.

The discussion above reflects the General Assembly resolution (68/211 of 20 December 2013), which clearly stated the essence of relevant stakeholders in the implementation of the disaster management framework. The point is that stakeholders should commit themselves, cooperate, support partnerships at all levels in order to effectively implement DRR strategies. On that note,

participants also highlighted relevant issues around individual and institutional responsibility and partnership development in DRR that is in agreement with Masuda & Garvin (2006)'s finding that timeliness is the essence in DRR and how quickly these stake holders act and work together is important ultimately.

Despite the discussion above, concerns have been raised that the DMA (RSA 2002) does not explicitly delineate the roles and functions of local government in DRR (van Niekerk and Visser, 2010). This may contribute to why respondents did not necessarily focus on their respective roles on the advisory forum. Rather, they consider the involvement of other stakeholders yet provide insufficient deliberation on DRR. This obviously affects how DRR activities are implemented at local government level. The argument was that despite being a requirement by the NDMF, the focal points for DRR have not been clearly identified, while in some instances, junior officers who are not well equipped to make decisions are also assigned DRR initiatives. In other instances, when disasters occur, the DM roles are taken by other structures like the civil defence, meaning that the police and fire services become overloaded (Botha *et al*. 2011, p.1). These result in ineffective DRR.

Application of stakeholder management theory, the guiding theoretical framework for this study, could improve the effectiveness of DRR. The diagrammatic depiction of the theoretical framework as shown in Figure 4.9 is re-presented here for ease of reference.

Figure 4.9 Theoretical framework re-presented
Source: Adapted from Reed (2009:43)

Although the stakeholder management components surrounding the disaster risk advisory forum in the centre of Figure 2.8 is mainly concerned with the advisory forum. The researcher notes that respondents were interested in stakeholder engagement and management as a whole,

beyond the particular parameters of the organisations represented by advisory forum members. For example, all citizens have a normative basis for stakeholder rights to pertinent comforts, such as being free from disaster risks and hazards. As Reed (2009:43) points out (see Table 2.6), this means designing "persuading standards and strategies of community interface" that improves DRR. It also incorporates "safeguarding substantial needs" and "nourishing personal and shared uniqueness" as individuals, multi-sector organisations and diverse communities concerned with DRR practices and strategies. Reed (2009:43 further contends that, in terms of stakeholder management "community interface ought to be synchronized based on authentic or legitimate law". In that regard, there are South African national provincial and local laws and policies that govern DRR and that can be used to synchronise DRR initiatives. The stake or interest of every citizen in DRR activities is a "genuine" one and has a "normative jurisdiction" in "law, ethics, morality and integrities" (Reed, 2009, p.43).

The next section interprets data to show advisory forum stakeholder roles and activities, whilst continuing to discuss data in relation to the literature.

4.3.5 Advisory forum stakeholder roles and activities

Section 51 of DMA (RSA, 2002) illustrates the roles of the district DM advisory forum and this section discusses the participants understanding of the advisory role against the legislation.

4.3.5.1 Prevention of disasters and mechanisms to reduce disaster risks

Despite the participants arguing that natural disasters can be prevented, it has to be pointed out that DRR strategies are often a political issue which calls for decision making processes to involve all affected stakeholders. Unfortunately, this is not feasible, given the political tensions that exist amongst the different stakeholders. The reason why most communities are poor and being at risk of disasters is due to the poor governance by the responsible authorities, as well as the unavailability of DRR mechanisms, which is also often a result of poor relationships amongst stakeholders like the community leadership and perhaps political party leaders (Saito, Strachan, Fewtrell, Rosser, Jenkins & Slingsby, 2012, p. 176). Poor stakeholder participation and poor political relationships often hinder the upgrade of services and infrastructure, thereby making the majority of the poor communities vulnerable to disasters. Given such scenarios, it is suggested that law, rather than politics, should be enforced in order to accelerate development and reduce risk amongst communities. In terms of stakeholder management theory, on the one hand Reed (2009:43) points to "party-political equivalence" and "reasonable financial or economic prospects" as recognisable "stakes" or "interests" of stakeholders. On the other hand, having a stake or interest in DRR reaches beyond party politics to human needs of development. It seems that having a stake in DRR transcends individual financial or economic prospects.

Rather this hinges on saving governmental costs through involvement of citizens generally and advisory forum stakeholders in particular, in DRR preventative and mitigating strategies instead of the enormous costs associated with response to and recovery from disaster.

Kelman, Gaillard and Mercer (2015, p.27) articulate that there are challenges that contribute to non-implementation of DRR which are failure to implement disaster prevention strategies, disaster mechanisms and lack of policy frameworks to deal with DRR. Matrix 4.4 presents the mechanisms to reduce disaster as expressed by advisory forum stakeholders who participated in this study.

Matrix 4.4 Mechanisms to reduce disaster	
Categories	**Responses**
Public awareness campaigns	"Yes, through mitigation, awareness and proper land use planning" SHN1
	"Natural disaster can be prevented if we do awareness campaigns and through mitigation methods: passive, active and community based mitigation. We can also use techniques like engineering and construction measures, physical planning measures and economic measures" MOD1
	Awareness campaigns are key in our communities; Early warning systems are also important, using local media, social networks to spread the voice in our communities.
Disaster mitigation strategies	"Yes. If there are solid and strong mitigating factors in place. This can be achieved. Maybe not 100%, but to a great extent. By using information available, enhancing good communication amongst all role players, accepting sound advice, capitalising on expert experience, knowledge, and skills available, we can achieve this goal" SHN2
	Mitigation preparedness involves readiness or disaster preparedness so as to ensure that any envisaged disasters are prevented and responded to once occur MOD1
	"Yes, floods can be prevented by building dams or control burning programmes in a veld-fire area" GD2
	"Not really, but following the trends of how natural disasters occur, their impact can be minimised" **MOF**
	"We need to begin an educational drive as soon as possible to help our communities understand how we can mitigate disasters. Example, educate them on why we should build stronger dwellings, or build our dwellings/homes on higher ground away from rivers or streams so that during the rainy seasons, our homes will not be flooded" SHN2
	We need to begin an educational drive as soon as possible to help our communities understand how we can mitigate disasters. Example, educates them on why we should build stronger dwellings, or build our dwellings/homes on higher ground away from rivers or streams so that during the rainy seasons, our homes will not be flooded. SHN2
Risk assessment and risk reduction program	Building more dams to prevent floods, we need more disaster committees at local level, improving service delivery like better houses, water and sanitation and the provision of employment to tackle poverty which often leads to communities engaging in risky behaviours and finally, training centres to assist with awareness of disaster management. GD2
	The implementation of infrastructure and other IDP identified projects in the community, because some of the disasters are caused by the absence of up to standard infrastructure. MOD2
Disaster Advisory Forum	Capacity building, sitting of disaster advisory fora MOD2

In light of Matrix 4.4, it is clear that the above perceptions point to the relevance of educating community members about hazards, risks and disaster, training the relevant authorities like community leadership to help mitigate the effects of disasters, as well as the importance of communication amongst the stakeholders, in managing disasters. This echoes the DMA (RSA, 2002) which highlights that disaster mitigation is a "multi-sectoral, multi-disciplinary process of planning and implementation", meaning that the stakeholders need to have a common agenda and pull resources together in order to mitigate the effects of disaster. It is a fact that coordinated efforts amongst the communities, and the local authorities often reinforce the municipalities' ability to effectively deliver services. In that way, working with community leadership to encourage communities to take ownership of the possible risks also promotes resilience among communities. It appears that the more that communities are aware of the 'stake' in DRR, the more likely they would be to observe preventative and mitigating strategies for their own wellbeing.

4.3.5.2 The importance of planning in DRR

The risk of natural disasters exists in all parts of South Africa. That is why widespread planning is required to handle DRM, especially working with communities. Matrix 4.5 below shows perceptions about DRR Planning according to study participants.

Matrix 4.5 DRR Planning

Categories	**Responses**
Risk reduction	To make coordinated risk reduction activities and not to focus only on responsible recovery GD1
Disaster planning	The involvement of all stakeholders is only achievable when they are involved whilst at the planning stages. Complete ownership is achieved MOF
	Development can either be positive or negative, favourable to disasters if no proper planning has been done in implementing risk reduction projects MOD2
	The importance of planning is that there has to be one centre of command, planning prevents duplication of things and it is easy to coordinate once proper planning has been done. MOD1

Indeed, as Matrix 4.5 suggest, planning is essential, especially DRR. On that note, Yodmani (2001, p. 10) suggests that policy makers in growth and poverty reduction structures recognise disasters as not just drawbacks but an opportunity for development and planning. In other words it is necessary to incorporate risk assessment in a developmental manner in order to avoid future hazards and enhance risk reduction. Regarding stakeholder management theory (Reed, 2009:43) attention should be paid to the ethics and morality underlying the protection of human life and the natural environment.

4.3.5.3 The importance of information and communication in DRR

The essence of information and communication in every aspect of our lives cannot be underestimated. From the earlier responses from the participants, it is evident that they also hinted on the essence of communicating with all the relevant stakeholders in DRR. The question of the importance of information and communication was still to follow on the list of their interview guide. Respondents, however, poorly answered this question. Perhaps due to the inability to comprehend the demands of the question. In fact, what the researcher noted was that the respondents provided information on the communication channels available in their organisations, giving examples of the use of traditional leaders, school principals, ward committees, public awareness campaigns, flyers and posters. However, the question rather sought information on why information and communication is important, about DRR. In that view, this is what came up from some of the respondents. Data on the information and communication DRR in presented in Matrix 4.6 below.

Matrix 4.6 Information and Communication in DRR

Category	**Response**
Information management	Many times we all work in silos. We are doing work, but due to no communication, we end up duplicating efforts and resources. Sometimes, it's difficult to change the mind sets of our citizens as they fear change. So we may encounter issues where residents will not want to accept your kind advices in helping to mitigate disasters. In this case, we need to work with and convince community elders first. Also, individuals who have the opportunity to make some financial gain will not want to share information in helping to mitigate disasters. SHN2

As far as DRR information is concerned, the government and other relevant stakeholders often gather information through various approaches, which could be, top-down or bottom up. In this regard, it is suggested that these approaches need to be aligned in order to enhance the accuracy of the collected information. This therefore implies the necessity of engaging various stakeholders in as far as information and communication is concerned. DiMP (2002, p.47) reported, "Disaster management tends to adopt an approach where civil responses to risk events are not integrated into the mitigation of impacts of the event". The point being highlighted here is the importance of making communities actively participate in risk management development programmes for sustainable livelihoods. For instance, when risk and vulnerability assessments are taking place, it is best to engage the vulnerable communities themselves as these could, with their indigenous knowledge, provide accurate disaster risk elements of their areas when they are given the platform to voice their priorities, needs and expectations, in relation to disasters and risks (Reddy, 2011). In other words, disaster mitigation should be everyone's responsibility.

Yodmani (2001, p.5) articulates that the disaster mitigation can be successful and yield results if it is done in an integrated manner.

4.3.6 The level of institutional capacity in managing disaster risks

Participants indicated the importance of human resources skills in order to address DRR initiatives. They noted that they have qualified personnel to tackle the different tasks involved in DRR, for instance, those with fire-fighting skills, those trained in life support, ambulance assistance, medical rescue, DM skills, project management and coordination and facilitation skills. Matrix 4.7 presents institutional capacity in managing DRR.

Matrix 4.7 DRR Institutional Capacity

DRR Institutional Capacity Categories	**Responses**
Structures	Disaster Management Centre MOD1
	"Yes. Mount Ayliff DMC was established in 2002, the Head of DMC appointed to implement DM functions as per the Act. The disaster satellite centres at all four municipalities ensure the coordination of risk reduction projects" MOD2
Disaster Reduction and Relief Resources Capacity	"Limited resources (as focusing on small scale of the community) and enough resources to focus not only Matatiele LM" SHN1
	Assist post disaster with food parcels GD2
Human Resource Capital and training	Qualified Disaster Practitioners MOD1
	Appointed Head of Disaster Management Centre
	Satellite centres personnel, DM volunteers and ward based committees". MC1
	No, the organisation does not have capacity to deal with risk reduction on its own. Everybody must be involved in order to achieve full reduction capacity MOF
	All our staffs have been trained in DM from reputable universities and international institutes. Our personnel have also trained in UN SPHERE protocols and standards. We have sufficient financial and physical resources at any given time to respond to disasters. We also have an array of volunteers across the country ready and willing to respond at any time and help assist. SHN2

As Matrix 4.7 indicates, not all participants agree that DRR activities can be implemented, especially in local government. The reason for this could be the fact that relevant structures, as outlined in the DMA (RSA, 2002) and the DRM national policy framework (RSA, 2005) are not always available in the DM centres, while in the cases that the structures are present, their functionality is inadequate. This echoes Van Niekerk and Visser (2010) who notes that most of

the district municipalities had not established the necessary systems for DRR activities, which include the DM centres, the interdepartmental committees and the advisory forums. In the same manner, SALGA (2011) reported the non-functionality of most DM centres in different provinces. In the same year, Botha *et al*. (2011,p.1) reported that half of South Africa's local municipalities lacked or had poor DM structures, while a quarter of the district municipalities lacked the advisory forums for DM. These are some of the inhibitors of effective DRR activities. On that note, it has been concluded that "decentralised structures for disaster risk management are an absolute necessity" (Van Niekerk and Visser, 2010, p.13). This section helped address the third research objective and third question of this study regarding institutional capacity for managing disaster risks, according to advisory forum stakeholders.

The next section presents and analyses data regarding challenges and opportunities related to advisory forum stakeholder engagement. This section is in response to the fourth research objective and question of this study.

4.3.7 Challenges and opportunities of DRR encountered by advisory forum stakeholders

4.3.7.1 Challenges identified by ANDM DRR advisory forum members.

Respondents revealed a number of challenges observed during their service as advisory forum stakeholders. Challenges include DRR funding, shortage of adequate human resources skills, poor stakeholder participation, poor service delivery and risky behaviours by community members that suggest lack of responsibility for DRR matters. Each is discussed in turned and respondent codes inserted in relation to the challenges indicate the respondents that contributed to identification of such challenges and subsequently, opportunities in section 4.3.7.2.

Funding is a major contributory factor in most initiatives. In the case of DRR, funding is needed to ensure that the required resources are procured to be able to effectively mitigate the risks of disasters. More often than not, the capacity of institutions to successfully implement development programmes is determined by the level of funding towards the initiatives. In this instance, some of the participants indicated that they do have DRR policies, but their effectiveness is hampered by the shortage of funds to implement those policies. So, the lack of funding overlaps or goes hand in hand with the availability of resources (GD2).

The participants also identified the shortage of human resources skills as a DRR challenge. Twigg (2015, p. 307) contends that not only are adequate human resources required but skilled personnel should receive ongoing training. Some respondents indicated that skills shortages were a result of poor funding towards DRR initiatives. In this regard, the participants

emphasised the importance of partnership building, which helps in pulling resources together and therefore, the effective management of DRR. The implication is that there is need for sufficient funding, especially in municipalities, which are often allocated an inadequate budget for the mitigation of disasters, for the procurement of the necessary equipment, the implementation of the policies and the sourcing of the required human resources skills, or the available human resources could be capacitated through training programmes. Van Niekerk (2011) notes that DRR initiatives are inadequately incentivised, as if they are not a priority. This situation cuts across all municipality levels. Lack of funding and insufficient human resources implies that the responsible institutions would not be able to provide the DRR services because of the lack of infrastructure and resources to render the services. Even if they have the skills and knowledge, the lack of capacity in terms of human capital and equipment might hamper the effectiveness of the DRR activities (MOD1).

A number of respondents indicated that poor stakeholder participation in DRR is a challenge (MOD1, MOD2, GD1, GD2, MC1, MC2, MC3 and SHN1), Poor participation implies lack of coordination amongst the stakeholders (Van Niekerk and De Visser 2010; Roth 2011). Yet another challenge mentioned by advisory forum stakeholders is a combination of poor service delivery and the tendency of community members to erect illegal structures, sometimes in risky hilly areas. In terms of service delivery, this is a sign of lack of housing services and of course other basic service likes water, electricity and sanitation, because municipalities do not provide such services in illegal settlements. The illegal connection of electricity by the residents is a hazard on its own: people who are not professionals are making the connections, so the risk of live wires and fires is very high. Some of the participants indicated that the areas selected by community members as informal settlements are often prone to heavy rains, meaning that lightning could strike on the illegally connected electrical cables (MC2). The reason for the growing informal settlements is a result of a growing population in the area, which means the increasing population poses its own hazards and risks, which are associated with overcrowding. Unemployment, high levels of crime, diseases and pollution are some of the problems. Overcrowding also means that the community members are also forced to put too much pressure on the limited available resources, which makes them more vulnerable to disasters like flooding and lightning when they erect housing structures in the hilly places, causing deforestation and soil erosion (SHN2).

The risky behaviours described above are great challenges in terms of DRR, as this kind of human action puts both the environment and the people at great risk, while at the same time undermining DRR initiatives. From this description, there seems to be an element of lack of responsibility on the part of community members. This is according to respondents (MOD1,

MOD2, MOD3, GD1, GD2, MC1, MC2, MC3, SHN1 and SHN2. This echoes studies which also found that the lack of land ownership and proper housing amongst communities leads to risky behaviours of erecting illegal structures in areas prone to disasters (Delica-Willison & Gaillard, 2012). Moreover, risky behaviours by community members and poor service delivery by local government disrupt tenets of stakeholder management, as members of the public are unable to "live in harmony per standards and morals of their preferred communities" (Reed, 2009:43). In effect, the situation is complex. This is another reason that DRR should be integrated with development plans such that service delivery is improved and development takes into account DRR preventative and mitigation strategies.

4.3.7.2 Opportunities identified by ANDM DRR advisory forum members

Respondents were less vocal about identifying opportunities encountered in their capacity as advisory forum stakeholders. Respondents stated that there should be increased initiatives for partnerships designed to focus on DRR strategies (MOD1, MOD2,MOD3, GD1, GD2, MC1, MC2, MC3, SHN1 and SHN2.In addition, respondents pointed out that awareness raising regarding the risks associated with poor service delivery. Thus, improving the provision of services presents an opportunity that might help curb some of the problems. For instance, some of the participants suggested that the provision of housing to communities might reduce the risks associated with living in the informal dwellings called shacks, of which fire is the most common problem. (MOD1, GD1, GD2, MC1, MC2, MC3, SHN1 and SHN2) In order to achieve this, it calls for an effective working partnership on the part of the responsible authorities. The common challenge amongst advisory members is that organisations do not have permanent representatives to the forum so that lead to constant orientation without actually performing the expected accomplishments. Such partnerships present yet another opportunity for focusing on DRR initiatives while managing stakeholders involved in these partnerships (Reed, 2009, p.43).

The literature reveals additional opportunities in which advisory forum stakeholders can advance DRR such as advancing financial measures through their respective organisations to fund and incentivise DRR-M activities, which enhance resilience (Scorgie & Cumming, 2014). Increased advisory forum stakeholder involvement in DRR planning at their relevant organisations in conjunction with the advisory forum itself (Manyena *et al.* 2011).

This section helped address the fourth research objective and question of this study. Next the themes that emerged from the study are identified before a cross-case analysis and triangulation of data are discussed.

4.4 Themes emerging from the study

The categories shown in the matrices in sections 4.3.3 to 4.3.6 along with the challenges and opportunities identified in the previous section, allowed certain themes to emerge. These themes are as follows:

- Disaster risk reduction knowledge and information management
- Disaster risk reduction capacity
- Disaster resilience
- Disaster risk reduction activities

Figure: 4.10 illustrate the processes followed that resulted in emerging themes.

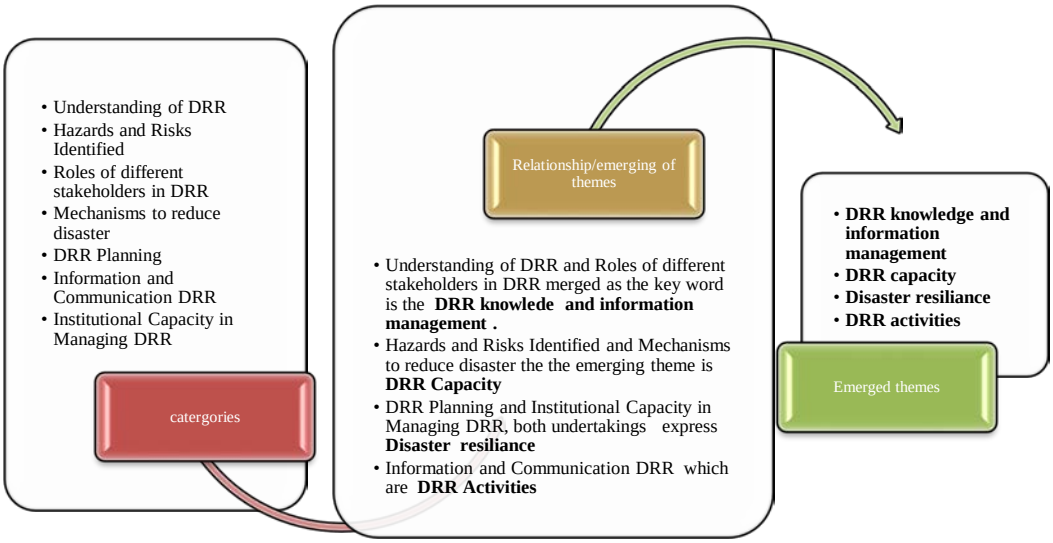

Figure: 4.10 Themes emerging from the study
Source: Researcher's fieldwork 2016

4.1 Theoretical framework and philosophical worldview

The constructivism perspective is thus adequate in the study of DRR. The reason is that the constructivist approach presents a discursive approach to DRR.

In this particular study, it was shown that constructivism helps in appreciating the discursive angles of DRR through the ways in which disasters are framed, as well as their implications. The results of the study have shown that DRR can be viewed subjectively because it is socially constructed hence, constructivism. Thus, constructivism can be taken as the framework from which theories can be built, which influences how people perceive DRR. The framework would then influence people's perceptions and thus determine their understanding of how things are linked. The sentiments from the participants have shown that people have their own worldviews

about DRR, and those views influence their professional practices, their personal behaviour, as well as the perspectives they would assume in responding to disasters. In this view, it is thus shown that an understanding of how DRR knowledge is negotiated is thus an element of a certain worldview and theory, while at the same time it provides a better perception of the field of DRR.

The constructivist worldview shows the theoretical perception that reality is a social construction. The perspective explores how people interpret and make sense of their daily experiences in the world in which they live. This is also evidenced in how respondents to this study described their understanding of DRR. The methodology employed also indicates constructivism, which aimed at understanding social reality that is formed and sustained through the experiences of the participants. The qualitative methods aimed at decoding and interpreting the meaning of DRR from the context of the respondents. The results from the study are thus further explored in the sections that follow.

4.5 Cross Case Analysis

As articulated by Houghton and Catherine (2015, p. 8-12), the cross case analysis approach on data analysis is a way of illustrating whether data converge or diverge. Since there are multiple units of analysis involved, this section actually considers whether responses from the units or analysis converge or diverge (Braun and Clarke, 2006). This qualitative study adhered to these four principles and procedures to ensure that the findings are credible in explaining the phenomenon under study. Comparing whether data results converge or diverge adds to the rigour to the research whilst preserving the voice of respondents. The respondents converge on the ANDM community being at risk of disaster incidents as shown in matrix 4.8 below.

Matrix 4.8 The ANDM community is at risk of disaster incidents	
Yes, by looking at the topography and rural nature of ANDM it is difficult to prevent all identified disasters. It will take a lot of educations programs to cover the district. MOF	Yes, the ANDM is termed the disaster prone area due to geographical location; and the socio-economic factors, which causes high levels of vulnerability. MOD2
Yes, because most of the people in ANDM community build the shelters on the high level and there is a most of grass on the areas so each and every year there is a disaster. MOC1	Yes- households are in steep areas. Lot of hills around that can cause disaster. Poor infrastructure. Poor water supply can lead to disaster. GD2

The data in Matrix 4.8 show agreement among respondents that the ANDM community is at risk of disaster incidents. In contrast, respondents disagree on whether natural disasters can be prevented as depicted in matrix 4.9.

Matrix 4.9 Natural disasters can be prevented	
No it cannot be prevented because its natural disasters are too risky in our community. MC3	Yes, because we can change locations that are located in disaster prone areas**.** MC1
Not really, but following the trends of how natural disasters, the impact of the disaster can be minimised. MOF	Community awareness and emergency quick responding help with mitigation of risks. GD1
	Yes, by ensuring that buildings are not erected in disaster prone areas. Introduction and implementation of legislations that prohibit construction at disaster prone areas. Educate the public about risks prevalent to each area inclusive of them, so that they are aware of their own risks. MOD2
	Yes. If there are solid and strong mitigation factors in place. This can be achieved. Maybe not 100%, but to a great extent. By using information available, enhancing good communication amongst all role players, accepting sound advice, capitalising on expert experience, knowledge, and skills available, we can achieve this goal. SHN2

Similarly, data results diverge as to whether organisations that the advisory forum stakeholders represent have the capacity and resources to manage DRR. This can be seen in matrix 4.10.

Matrix 4.10 Matrix 4.10 Organisational capacity and resources for DRR	
No, the organisation will not/ does not have the capacity to deal with risk reduction on its own. Everybody must be involved in order to achieve full reduction capacity**.** MOF	Yes, Mount Ayliff Disaster Management Centre was established in 2002; a HOC centre appointed to implement disaster management functions as per the Act. The disaster satellite centre at all four municipalities ensure the coordination of risk reduction projects. MOD1

On the one hand, matrix 4.8 indicates that respondents perceive that the ANDM community is at risk, according to respondents. On the other hand, matrices 4.9 and 4.10 show that respondents have different constructions or interpretations as to whether natural disasters are preventable and whether their respective organisations possess adequate capacity and resources to manage DRR.

Becker (2013, p.227) points out that that many communities believe that natural disasters can be prevented. However lack of capacity development for DRR makes it hard to substantially reduce disaster losses, which threatens sustainable development and the achievement of the municipalities' goals. To reduce disaster loses Thywissen (2006) suggests that organisations should invest in terminology, local context, ownership, capacity assessment, roles and

responsibilities, mix of activities, and monitoring, evaluation and learning. This would build DRR capacity at organisations.

Just as comparing and contrasting data results from units of analysis is useful for understanding data results, so does triangulation add credibility to the findings of the study. Triangulation is discussed next.

4.6 Triangulation

Triangulation is the combination of two or more methodological approaches, theoretical perspectives, data sources, investigators and analysis methods to study the same phenomenon (Creswell, 2014). In this study data source triangulation was used by combining primary data from interviews and secondary data from documents as presented in table 4.7 below.

Table 4.7: Triangulation

Research objectives & Research questions	**Findings from interviews**	**Documentary evidence**
To identify the advisory forum stakeholders and their roles in disaster risk reduction(RO) What is the role of advisory forum stakeholders in disaster risk reduction?(RQ)	From the respondents, it is well known fact that the fact that the disaster advisory forum members are legislated in the DMA (RSA, 2002) and the forum is multi sectoral multi disciplinal structures that, it was shown that DRR is also multi-sectoral approach that calls for the participation of all relevant stakeholders. There was no clear model on how DRR can be implemented by all stakeholders (Advisory forum members)	DMA(RSA, 2002) Section 51 stipulate that district municipalities must formulate disaster advisory forum and also prescribe the stakeholders/members ANDM DRMP(2015,p. 46), guide the formation of advisory forum
To establish how advisory forum stakeholder participate in DRR activities. (RO) How do advisory forum stakeholder participate in DRR activities?(RQ)	The participation to the forum is not good as the member organisations found to be not having constant representative's permanent representatives. And such has created delays in actual understanding of the concept (the municipality has trained advisory forum members but those that were trained were not necessarily the permanent members) According to the responses from the participants it became clear that advisory forum members only on response and recovery but not pre disaster preparedness and prevention, DRR.	Appointment of focal point to form part of disaster advisory forum and be champions of disaster risk reduction for their respective organisation is paramount (ANDM Disaster Management Policy Framework, 2015)
To assess the institutional capacity of advisory forum stakeholders.(RO) What is the institutional capacity of advisory forum stakeholders?(RQ)	Discussing the level of their institutional capacity in managing disasters, participants indicated that they do their best in dealing with disasters, even though there are many impediments that hinder the effectiveness of their efforts	Capacity building is enabler 2 of NDMPF(2005)
To identify the challenges and opportunities advisory forum stakeholders encounter in their efforts towards DRR(RO) What are the challenges and opportunities encountered by the advisory forum stakeholders in DRR?(RQ)	It has been revealed in this study that despite institutions' preparedness to deal with disaster risks, their efforts are in one way or the other hampered by several challenges. Amongst the challenges include that fact the DRR initiatives seems to be allocated inadequate budgets, especially in local municipalities, probably because it is not regarded as a priority like any other elements The opportunity is that the advisory forum members are very keen to implement DRR projects in their area of jurisdiction	ANDM DMPF(2015,p 39-43) guide integrated implementation DRR within the municipal area of jurisdiction and also outline monitoring and evaluation and to how to resolve implantation bottlenecks

Source: Researchers field work (2016)

Data source triangulation presented above has given more insight into the topic under study. Inadequacies found in either in in-depth interviews or documents collection were minimized as

these two sources confirm the same data. The researcher can clearly state that in-depth interviews and documents collection sources are providing verification and validity while complementing similar data enabling the study to have more comprehensive data obtained. This made it easier to analyse data to draw conclusions and outcomes as inconsistencies in data sets are more easily recognized.

4.7 Towards a model for municipal advisory forum stakeholders

It has been observed through the study as well through the practical experience of the researcher that generally the disaster advisory forum in the forum meetings and in their respective area of operation they do not focus on disaster risk reduction activities but rather on response and recovery which is reality is re active and expensive. Here is the example of the scenario (using agrarian reform as an example) and recommended action by respective advisory forum members.

Table 4.8 A new disaster advisory forum model

Sector / Organisation	**Current practice**	**The new advisory forum model**
Traditional Leaders	Traditional leaders are the leaders in their own right within prescribed area of jurisdiction. Currently government comes to rural areas mostly to conduct post disaster impact assessment, and consult the traditional leaders for relief activities and as such they are converted to placid onlookers and government continues taking action on their behalf. This creates a dependency syndrome, by default government resources are diverted to post disaster response and not on DRR. For example provision of seedlings and feed for livestock after disaster which will be insufficient, rather investing more on preventative actions.	Traditional Leaders must be encouraged to practise their indigenous bylaws and focus on pre disaster prevention (disaster risk reduction) and government need to enhance those activities with the traditional leaders and community at large. i.e. community awareness campaigns on disaster prevention championed by traditional leaders, progress thereof must be discussed at advisory forum level.
Department of Agriculture	Generally has mandate to provide and promote agriculture to the entire populace in its area of jurisdiction, currently there is less that is done in terms of DRR as the activities are more on what the department will do when disaster strikes and not on what can be done to prevent disaster occurrence /phenomena.	The department is expected to focus on DRR which will be a result of environmental scanning and identification of bottle necks to the mandate of the department (disaster risk profiling) in order to design disaster risk programmes. For example, early warning mechanism and related pre disaster endeavours.
Non-Governmental organisation	Currently the NGO's are more standing on post disaster activities and as relief organisations which is then not giving sufficient time and allocation of resources for DRR. There are organisations, which even on their objectives of existence are based on post disaster response rather than DRR, which should be changed in order to ensure paradigm shift to DRR.	NGO's must now focus on disaster prevention like community capacity building and awareness campaigns thus promoting disaster resilience and disaster risk reduction as a way of life.

Source: Researchers field work (2016)

Figure 4.11 illustrates the disaster advisory forum disaster risk reduction model:

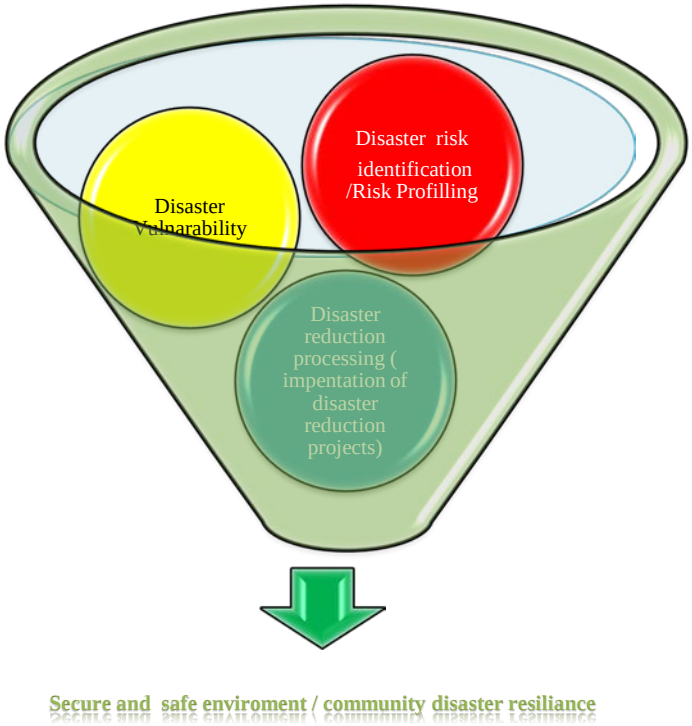

Figure 4.11 Disaster Advisory Forum Disaster Risk Reduction Model
Source: Based on outcome of study findings

As figure 4.10 suggests, DRR processing should be done by all advisory forum in their area of jurisdiction. Based on the findings, it does not appear that this is currently happening. However, once all the members of the disaster advisory forum focus on DRR even the agenda of the forum will change. Rather than focusing on how many people received post disaster relief material the discourse would change to how many people were capacitated to be self-reliable and what programme have been implemented to reduce disaster. Hence, the disaster advisory forum can be the main conduit for DRR as per the spirit of Disaster Management Act (DMA, RSA, 2002).

4.8 Chapter conclusion

This chapter posited the data presentation, data analysis using qualitative research method. The chapter exposed that focus on DRR is not an easy undertaking because it is a development issue. It has emerged that most of the things that put communities at risk of hazards relate to shortages of basic services and infrastructure like housing, electricity, water and sanitation, caused by increased community growth and overcrowding. These elements expose the communities to

multiple risks, thereby increasing their vulnerability. Given the issues that emerged from the analysis of the gathered data, the following chapter provides a summary of the findings, conclusions and recommendations, based on the findings.

CHAPTER 5: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter concludes this study. In that view, the chapter provides an overview of the whole study, from reviewing the research objectives and the research questions, a summary of the chapters, summary of the findings, conclusions based on the findings, recommendations, as well as identifying areas for further research. The conclusion is provided as the last item. It is therefore important to give a recap of the study in question. The purpose of this study was to establish the roles of stakeholders in DRR.

5.2 Recapitulation of the research objectives and research questions

Table 5.1 below re-presents the research objectives and research questions for ease of reference.

Table 5.1: Recapitulation of research objectives and research question

RESEARCH OBJECTIVE	RESEARCH QUESTION
To identify the advisory forum stakeholders and their roles in disaster risk reduction	What is the role of advisory forum stakeholders in disaster risk reduction?
To establish how advisory forum stakeholder participate in DRR activities.	How do advisory forum stakeholder participation in DRR activities?
To assess the institutional capacity of advisory forum stakeholders.	What is the institutional capacity of advisory forum stakeholders?
To identify the challenges and opportunities advisory forum stakeholders encounter in their efforts towards DRR	What are the challenges and opportunities encountered by the advisory forum stakeholders in DRR?

5.3 Summary of chapters

The first chapter introduced the study by highlighting the abovementioned objectives. The rationale and the significance of the study were also established. The purpose of the chapter was to give an overview of the study. Chapter 2 discussed the literature, as well as the theoretical framework relevant to the study. The reason for doing so was to show the theories underpinning the study and to review literature in the field of DRR. Chapter 3 presented the step by step methods used to collect data for this study, in order to answer the research questions. Chapter 4 presented the findings of the study. An analysis and discussion of the results also formed part of the chapter. The chapter (Chapter 4) also assisted the researcher to acquire the retorts on research questions as well as research objectives.

This chapter thus concludes the study. A summary of the results of the study is given alongside the conclusions, recommendations, limitations of the study, as well as areas for further research. It is important to highlight the fact that the objectives of the study, as indicated above, have been fulfilled and this is shown in the summary that follows, which reflects each and every objective, identified earlier.

5.4 Summary of findings, conclusions and recommendations

Amongst other things, the results of the study indicated that the participants had knowledge of what DRR entails, even though the majority of them could not provide a convincing definition of the concept. They also gave good examples of disasters, even though some of them confused disasters with emergency situations which can be dealt with in a matter of hours. A summary of findings, conclusions and recommendations is presented for each of the four research objectives that guided this study.

5.4.1 Objective 1: Identify advisory forum stakeholders and their roles in DRR

Finding: The participants also discussed their advisory forum roles in DRR and the roles of other stakeholders like the government, the civil society and the community members. Their roles included helping formulating policies for the mitigation of disasters, building a resilient people, environment and infrastructure in the district municipality, interacting with the government and contributing to studies and commissions to help manage disasters more effectively, assisting victims of disaster with disaster relief services like food, blankets and clothing, as well as disaster knowledge management.

Conclusion: The findings of the study lead to several conclusions. First, it is concluded that the participants' understanding of DRR was not adequate. It is further concluded that stakeholders do not understand their roles in DRR more especially government department representatives have an understanding that DM in general is the responsibility the municipality whilst municipal officials envisage more involvement from communities.

Recommendation: That the comprehensive awareness campaigns including capacity building of stakeholders in DRR legislative mandate. These awareness campaigns should revolve around stakeholder management theory as used in this study. Stakeholders should be aware of their respective stakes in DRR, the normative rights or claims that underlie this as well as the legal, ethical and integrity related reasons for stakeholder management.

5.4.1.1 Enhance stakeholders' understanding of DRR

Although not a research objective, this study found that stakeholders tend to lack sufficient understanding of DRR. In that view, the researcher suggests that the stakeholders'

understanding of DRR and all its aspects like hazards and vulnerabilities should be enhanced – including the rigours of stakeholder management. This is very important because the implementation of the DRR policies and practices is automatically based on stakeholders' understanding of DRR principles. Therefore, leveraging of their knowledge of these principles would be beneficial in terms of risk assessment, mitigation, prevention, as well as the development and implementation of disaster response. This means shifting from a focus on response and recovery to one on DRR. In order to enhance the understanding of the DRR principles, stakeholders can engage in knowledge sharing sessions in which they share their experiences, good DRR practices, training and education on the concept and more importantly, having frequent communications and dialogues on DRR. It is important to note that communities should also be engaged in these processes, since their indigenous knowledge is essential in pre-disaster risk assessment, among other things.

5.4.2 Objective 2: Establish how advisory forum stakeholders participate in DRR activities

Findings: From their responses, it was shown that DRR is a multi-sectoral approach that calls for the participation of all relevant stakeholders from researchers in the academia, the private sector and the government. The participants also highlighted the common disasters in the study area, pointing to heavy rains, tornadoes, and fires and flooding, among other things.

In their responses to the causes of disasters in the area, the participants indicated the implications of poverty among community members, which they identified as being forcing community members to engage in risky behaviour activities like erecting shacks in risky hilly areas which are too close to rivers and streams. In other words, the point that emerged here was the poor service delivery in the rural areas of ANDM, which force people to live in poor conditions, thereby making themselves more vulnerable to disasters. Lack of service delivery in the area implies that the community members have to rely on other forms of water supply, poor sanitation methods and alternative sources of energy like firewood. Others get engaged in illegal connection of these services like water and electricity, of which exposes them to the risky of fires, especially with electricity, because of the illegally connected live wires. The participants in their answers came out clearly that the disaster advisory forum members were participating mostly on post disaster response and very limitedly on DRR. And organisations and participants posited their readiness in responding to disasters without clearly outlining DRR endeavours.

Conclusions: The findings of the study are that ANDM is a poverty stricken with low socio-economic status, and community vulnerability is also motivated by poor service delivery.

Advisory forum members participate in range of activities through their service on the advisory forum; however, there is insufficient focus on DRR.

Recommendations: Prioritisation of basic services like portable water in the municipal IDP including identification of DRR project and implementation thereof will improve community disaster resilience. These and other preventative measures can be the focus of local governance to integrate DRR and development strategies. Advisory forum stakeholders should increase their roles to monitoring and evaluation as well as advancing investment in DRR innovation and technology. Each of these is discussed in turn.

5.4.2.1 Monitoring and evaluation

Despite the presence of the legislative framework, policies, the personnel and infrastructure for the effective implementation of DRR activities, there is still the need to ensure that these are complemented by review systems to ensure that the trusted authorities are complying (DFID, 2006). One of the participants in this study pointed that their organisation has some policies governing DRR practices, but the operationalization of the policies is very minimal. This could be the case with most institutions charged with the responsibility of DM. To help improve this situation, constant monitoring and evaluation is essential to ensure participation, accountability and compliance, while at the same time it enhances a sense of ownership of the responsibilities on the part of the responsible authorities.

5.4.2.2 Investing in DRR innovation and technology

As part of capacity building, it is suggested that institutions develop and distribute science-based equipment to address the problems associated with DRR in terms of research and challenges. The development of DRR assessment, EWs tools and mapping could strengthen the mitigation and prevention processes. This also highlights the importance of technology access and transfer, which could help enhancing mechanisms for effective DRR communication. It also calls for the strong partnership with communities from all over: the scientists, the academia, the information technology specialists, as well as the policy makers. It also calls for the need to increase funding towards DRR initiatives, considering the expenses involved in procuring the tools needed, the skilled personnel to operate the technologies, as well as the necessary infrastructure needed towards the cause.

5.4.3 Objective 3: Establish the institutional capacity of the advisory forum stakeholders' organisations

Findings: Discussing the level of their institutional capacity in managing disasters, participants indicated that they do their best in dealing with disasters, even though there are many impediments that hinder the effectiveness of their efforts. For instance, they pointed to the lack of qualified personnel in some instances and volunteers to help with DM, few water tanks, limited warehouses for the storage of emergence supplies and in general, non-functional policies and legislations due to the inadequate financial support from other stakeholders. In order to improve this, participants indicated the need for improvement in terms of committee involvement and the implementation of legislation and policies in line with DRR. They also suggested the need to do more to streamline communications between institutional partners so that they might curb duplication and stretch their resources even more. Importantly, they called for the participation of all the stakeholders in DRR, as one participant clearly indicated that "some organisations that only make a "helicopter operation" that is, come into a disaster zone make some noise and leave. They come in haste and leave in a haste. No constructive relief operation or relief distributions happen".

Conclusions: The integrated institutional capacity to deal with disasters and implement DRR is very limited within the district, disaster risk management is known for post disaster response and recovery.

Recommendations: The identification of gaps within DRR stakeholders, including skills audit so as to draw up intervention plan which will focus on improving the DRM and DRR capacity so as to better service ANDM entire populace.

5.4.3.1 Strengthening of the intergovernmental relations

DRR is the responsibility of all the spheres of government. Thus, the participation of all the stakeholders is essential. The coordination of these three important stakeholders strengthens DRR governance in terms of mitigation, prevention, preparedness, rehabilitation, response and recovery. In order to achieve this, there is need for clear guidelines of roles and responsibilities. From the researcher's own experience, sometimes the overlapping of roles and responsibilities result in stakeholders not discharging their responsibilities, hoping that the other part would do so. This is one reason for the delays in service delivery in many municipalities, the fact that sometimes the provincial and the local government are mandated to deliver certain services to communities. What often happens is that the local government would not have the financial means to do so, while the provincial government that is financially capable of doing it expects the local government to carry out the duties. This discussion highlights the importance of communication amongst government offices. It therefore implies the need to strengthen the

coordination forums which consists of the relevant stakeholder, to ensure the implementation of the Sendai Framework for Disaster Risk Reduction 2015–2030(2015).

5.4.4 Objective 4: Identify the challenges faced by and opportunities available to advisory forum stakeholders in DRR

Findings as to challenges:
It has been revealed in this study that despite institutions' preparedness to deal with disaster risks, their efforts are in one way or the other hampered by several challenges. Amongst the challenges include that fact the DRR initiatives seems to be allocated inadequate budgets, especially in local municipalities, probably because it is not regarded as a priority like any other elements. In addition, human resources are inadequate. This could be a result of lack of knowledge of the impact of disasters on communities. In fact, the truth of the matter is that it is better to invest in DRR activities as the returns are more favourable, meaning that the amount spent on DRR is far much less than the funds spent when disasters occur. In that view,

Conclusions as to challenges: DRR is not regarded as priority by the municipality both district as well local municipality including government departments that are expected to implement DRR strategies. This leads to inadequate resources allocated for DRR functions as a whole.

Recommendations as to challenges: Minimum DRR capacity level for the municipalities and government department need to be adopted so as to internalise the function. Municipalities and any other relevant stakeholders ought to enhance their abilities to cope with DRR phenomena through various ways: having the personnel that are well equipped in terms of knowledge and skills, engaging in more DRR related research, ensuring the functionality of advisory forums and DM centres, clearly defining each stakeholder's roles and responsibilities and continuous knowledge sharing amongst stakeholders. These aspects enhance the institutions' preparedness to deal with disaster risks, thereby implying effective disaster response strategies in place.

Findings as to opportunities: Opportunities include refocusing the role of advisory forum stakeholders in line with DRR principles, more fully implementing existing ANDM DRR policies and increasing in-depth DRR awareness campaigns consistent with stakeholder management theory. First, willingness from non-governmental organisation to implement DRR has been identified as an opportunity although their focus at the moment is more on response and recovery once disaster strikes. There are dedicated officials from both government departments and municipalities for DRM. Willingness from councillors on DRR initiatives is

identified to be an opportunity. Secondly, ANDM has adequate policies, qualified DM professionals and infrastructure that is good foundation for realising opportunities to implement DRR. Third, the study found that, according to advisory forum stakeholders, community members engage in risky behaviours, which make them more vulnerable to disasters. It is not established whether community members do this out of ignorance or because they want to draw attention of their plight to government authorities so that service providers would facilitate basic services like housing, water, electricity and sanitation.

Conclusions as to opportunities: First, it is concluded that, as a good baseline, there is opportunity to reorient advisory forum stakeholders, who could in turn reorient their respective organisations toward implementation of DRR principles and practices. Secondly, it is concluded that, in view of ANDM's policies, deeper implementation of said policies is an available opportunity. Third, it is concluded that more awareness campaigns could empower the communities on disaster preparedness and prevention. Importantly, it is concluded that communities need to be educated on the benefits of proper land use practices, especially those that counter land degradation and those that would link DRR and development.

Recommendations as to opportunities: It is recommended that the ANDM take the lead in reorientation of advisory forum stakeholders toward DRR so that such stakeholders can reorient their respective organisations and adopt a clear integrated programme of action to implement DRR by all stakeholders. Secondly, ANDM should hold regular seminars or workshops for advisory forum stakeholders and other interested stakeholders to demonstrate how ANDM DRR policies can be better implemented in line with national and provincial legal and ethical mandates pursuant to stakeholder management theory. Citizens have normative rights and claims to be free from hazards and disasters but should participate in DRR practices and principles that prevent and mitigate same. Third, community awareness could be achieved through the integration of DRR knowledge in both formal and informal education. DRR knowledge and information should be disseminated through various media platforms including the social media, campaigns, community- based organisations, non-governmental organisations and the mobilisation of communities, of course depending on the diverse needs and understanding of various audiences.

5.5 Significance of findings from the study

The findings indicated that planning is very important in DRR, as it enables a strong and fortified policy/directive to help them during a hazard or a disaster situation. It also makes it possible to know what to do and all the role players will know their responsibilities and duties.

Therefore, planning is key in order to help manage disaster situations better. In the same way, stakeholders also pointed to the importance of information and communication, in as far as DRR is concerned. They argued that communication amongst all stakeholders is very important, especially in the planning phases. On that note, the importance of community members also emerged, the point being that community members, with their indigenous knowledge, are capable of contributing relevant disaster risk information regarding their areas, especially EWs. Thus, the active participation of community members is critical. Knowing their respective areas, they are able to identify their priorities and needs, which help authorities in the prevention and mitigation of disasters. In other word, it was highlighted that DRR is not the responsibility of the government and other institutions alone, but each and every stakeholder has an important role to play in DM.

5.6 Areas for future research

This study has focused on the roles of stakeholders in DRR, which have been revealed and discussed in the preceding chapter. However, the study did not go further in assessing the level or the extent of participation by those stakeholders. This is an area that needs further analysis, in order to establish who is supposed to be doing what and who is actually doing what. Some participants in this study indicated that some stakeholders, in cases of disasters, they come to the scene and leave as soon as they can and never do or contribute anything, when in actual fact they are supposed to do something. In other words, this is one of the challenges encountered by stakeholders in their efforts towards DRR initiatives. Again, this is another area for future research: establishing the challenges faced by DM stakeholders in their efforts towards DRR. It has been noted in this study that poor service delivery contributes to the vulnerability of communities to disasters. This needs further analysis: the effects of poor service delivery on DRR-M.

5.7 Chapter conclusion

This chapter presented the conclusion of the study, postulating summary of all chapters. Both research objectives and research questions were analysed to assess whether they has been addressed by the research study. A summary of the study findings, conclusions and recommendations have been articulated in relation to the research objectives and questions. This chapter pointed out the significance of the findings from the study as well as areas for future research before the study ended with this chapter conclusion.

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APPENDIX 1: INTERVIEW GUIDE

The purpose of this research is to investigate the role of stakeholders in disaster risk reduction by municipalities. As stakeholders in this regard, you are hereby kindly being requested to participate in the following interview questions. Your contribution to this study is highly appreciated. For any queries, please contact me, Sinothando Mtshengu at the following contact details:

Tel: 039 254 0748
Cell: 073 682 3782
Fax: 039 254 0747
Email: sinothandomtshengu@gmail.com

1. What do you understand by disaster risk reduction?

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2. What is your designation/ role in disaster risk reduction?

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3. What do you think /know are the hazards and risks within ANDM?

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4. Do you think the ANDM community is at risk of disaster incidents? Please explain your answer

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5. What do you think needs to be to be done to reduce disaster risks in the community?

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6. What do you think is the importance of planning in disaster risk reduction?

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7. What is the role of your organization / institution in disaster risk reduction related matters?

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8. Do you think your organization possesses the capacity and resources to assist in managing disasters risk reduction? Please explain.

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9. What human resource skills does your organization possess to address disaster risk reduction initiatives?

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10. What do you think are the resources and opportunities that can be built on to reduce the risk of disasters in ANDM community?

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11. What issues do you see as relevant with regards to information and communication concerning disasters, especially for mitigation and preparedness?

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12. What do you see as the relevant issues around individual and institutional responsibility and partnership development in disaster risk reduction?

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13. Do you think natural disasters can be prevented? Please explain your answer.

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14. What are some of the policies in place to deal with or respond to disasters in your sector?

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To what extent are the policies effective**?**

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15. Based on your experience in disaster risk reduction, *how would you evaluate* the adequacy of the current institutional arrangements for dealing with natural disasters?

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THANK YOU FOR YOUR PARTICIPATION!!!

APPENDIX 2: INFORMED CONSENT LETTER

School of Management, IT and Governance

College of Law and Management Studies

School of Management, Information Technology and Governance

Master's in Public Administration

Researcher: Sinothando Lawrence Mtshengu (073 682 3782)

Supervisor: Dr F.A.Ruffin (076 811 9595)

Research Office: Mariette Snyman (031 260 8350)

Dear Respondent

I, Sinothando Lawrence Mtshengu am a Public Administration master's student in the School of Management, Information Technology and Governance, Discipline of Public Governance, at the University of KwaZulu-Natal. You are invited to participate in a research project entitled:

"**The Roles of stakeholders in disaster risk management in local government: The case of Alfred Nzo District Municipality"**

The overall aim of the study is to assess the roles of stakeholders in disaster risk reduction in the Alfred Nzo District Municipality with the following objectives;

- To establish the stakeholders and analyse their roles in disaster risk reduction.
- To evaluate the extent of stakeholder participation in disaster prevention and mitigation.
- To determine the level of institutional capacity of the stakeholders in disaster risk reduction.
- To identify the challenges faced by the stakeholders in disaster risk reduction.

Your participation in this project is voluntary. You may refuse to participate or withdraw from the project at any time with no negative consequence. There will be no monetary gain from participating in this research project.

Confidentiality and anonymity of records identifying you as a participant will be maintained by the School of Management, Information Technology and Governance, Discipline of Public Governance at UKZN. Your identity will not be revealed or your name used in connection with this study. If you so permit, the interview will be recorded to allow you to listen to your responses after the interview and to assist the interviewer to capture your actual responses. Kindly indicate on the consent form whether you agree or disagree to have your interview recorded by ticking your choice.

If you have any questions or concerns about participating in this study, please contact me or my supervisor at the numbers listed above.

It should take you about forty minutes to complete the interview questionnaire with me. I hope you will take the time to participate in the interview.

Sincerely

Investigator's signature: _____ Date: _____

This page is to be retained by participant

APPENDIX 3: ETHICAL CLEARANCE