

A gendered approach to drought coping mechanisms: a case of the Lubombo Region, Swaziland

SA Myeni

 orcid.org/0000-0003-3126-8563

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Supervisor: Mr GJ Wentink

Co-supervisor: Mr LB Shoroma

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Abstract

In the Lubombo region of Swaziland, one-third (300 000) of Swazis are living through the devastating impacts of drought on both their livelihoods and the environment they depend on. Drought, which has become recurrent, affects all sectors in the Lubombo region, ranging from water, agriculture, health, business and education; thus forcing people to develop coping mechanisms in order to reduce the impact. The purpose of this study was to determine and evaluate the gender-differentiated coping mechanisms of withstanding drought that are used by communities in the Lubombo region of Swaziland. The study also sought to establish the different roles that men and women play in developing mitigation and adaptation strategies to enhance their resilience against drought. The study is premised on the notion that during periods of drought, coping mechanisms employed by society are different based on gender and are related to cultural implications of the society.

To explore the phenomenon of gendered approaches to drought coping mechanisms, a mixed-methods approach was employed. Under this umbrella, an exploratory sequential design was applied to the collection and analysis of data. Qualitative data was collected through semi structured, face-to-face interviews and focus group discussions. Qualitative data was analysed and presented thematically with verbatim quotes. Quantitative data was collected through a structured questionnaire with Likert-scale ranking. The study used two sampling techniques: initially stratified random sampling was used to give a representation of the population being sampled. This was followed by purposive sampling to specify characteristics of the population under investigation and thus locate individuals who match the characteristics. A total of 167 respondents participated in the study.

The findings display no significant difference between gender and the experience of severe drought ($X^2 = 1.243$, $df (3)$, p value 0.743). The strong gender gap was observed to display women as burdened with developing various coping mechanisms whereas men solely adapted through seeking employment. The coping mechanisms adopted by women include crop production, water management, foreign aid, sale of livestock and household functional change. Alternative to women, men's coping mechanisms vastly depend on migration and seeking employment. The affiliations between men and women were observed as founded in cultural beliefs and practices. For example, women are seen as subordinates of men and carry the status of a minor. This perspective directly impacts on the lines of vulnerabilities during drought, declaring women as the target population for social aid such as food packages from foreign aid and strong social capital. Through this study, culture and vulnerability have been identified as risk factors contributing to the gross impact of drought forcing men and women to build and

engage in mechanisms to alleviate the adversities experienced. The major recommendation of the study is that drought-prone communities need to build gender-sensitive coping mechanisms to withstand the adversities of drought.

Key words: coping mechanisms, coping capacities, drought, gender, Swaziland, vulnerability, hazard, disaster, adaptation

TABLE OF CONTENTS

Acknowledgements	i
Abstract	iii
Acronyms.....	xi
Chapter 1: Overview of the study	1
1.1 Introduction and background.....	1
1.2 Demarcation of the study area.....	3
1.3 Problem statement.....	5
1.4 Research question.....	7
1.5 Research objectives.....	7
1.6 Central theoretical statement.....	8
1.7 Methodology.....	9
1.7.1 Literature review.....	9
1.7.2 Research design.....	10
1.7.3 Sampling.....	11
1.8 Data collection.....	12
1.8.1 Collecting Information.....	12
1.9 Ethical clearance.....	12
1.10 Data analysis.....	13
1.11 Limitations and delimitations.....	13
1.12 Significance of the study.....	14
1.13 Chapter layout.....	14
Chapter 2: Theoretical perspectives on drought and its impacts on communities' livelihoods	16
2.1 Introduction.....	16
2.2 Conceptualisation of drought.....	17
2.3 Drought as a hazard.....	18
2.4 Types of drought.....	20
2.4.1 Meteorological drought.....	20
2.4.2 Hydrological drought.....	20
2.4.3. Agricultural drought.....	21
2.4.4 Socio-economic drought.....	21
2.5 Causes of drought.....	22
2.5.1 Deficiency in rainfall.....	23

2.5.2 Human activity	23
2.5.3 Drying out of surface water flow.....	23
2.6 Impact of drought.....	23
2.6.1 Impact on economy.....	24
2.6.2 Environmental impact	24
2.6.3 Social Impact	24
2.7 Vulnerability and drought.....	25
2.7.1 Socio-economic approach	26
2.7.2 The integrated assessment approach.....	26
2.7.3 Bio-physical approach.....	26
2.8 Drought-coping mechanisms.....	29
2.8.1 Types of coping capacity.....	30
2.8.1.1 Economic or material coping mechanisms	30
2.8.1.2 Technological coping mechanisms	30
2.8.1.3 Social or organisational coping mechanism.....	31
2.8.1.4 Cultural coping mechanisms	31
2.9 Traditional coping mechanisms.....	32
2.10 Conclusion	33
Chapter 3: Theoretical perspectives of gender mainstreaming to Disaster Risk Reduction	
34	
3.1 Introduction	34
3.2 Conceptualization of key terms.....	35
3.2.1 Gender	35
3.2.2 Disaster risk management	35
3.2.3 Gender mainstreaming.....	35
3.2.4 Coping capacity	36
3.3 Foundation of gender analysis.....	36
3.4 Gender: an overview.....	37
3.4.1. Distinguishing sex and gender.....	37
3.5 Gender roles	38
3.6 Gender stereotypes.....	39
3.7 Gender attributes.....	40

3.7.1 Culture dynamics	40
3.7.1.1 Patriarchy	41
3.7.2 Gender discrimination	42
3.7.2.1 Gender equality	42
3.8 Gender mainstreaming in society	43
3.9 Gender and disasters	43
3.10 Conclusion	45
Chapter 4: Research design and methodology	47
4.1 Introduction	47
4.2 Research design	48
4.3 Sampling	50
4.3.1 Purposive sampling.....	51
4.3.2 Stratified random sampling	52
4.4 Data collection	53
4.4.1 Focus groups	54
4.4.2 Semi-structured interviews.....	55
4.4.3 Self-administered survey questionnaires	55
4.5 Data analysis	56
4.6 Ethical considerations	57
4.7 Validity and reliability of the data	58
4.8 Conclusion	59
Chapter 5: Empirical findings and analysis	61
5.1 Introduction.....	61
5.2 Thematic analysis of qualitative data	61
5.2.1 Biographical information of participant.....	61
5.2.1.1 Gender	62
5.2.1.2 Marital status	62
5.2.1.3 Area of upbringing.....	63
5.2.2 Theme focus 1 Perception of drought	63
5.2.3 Theme focus 2: The impacts of drought	64
5.2.3.1 Economic impact of drought	64
5.2.3.2 Environmental impact during a drought.....	65
5.2.3.3: Social impacts of drought.....	65

5.2.4 Theme focus 3: Gender differentiated roles during drought	66
5.2.8.2 Foreign aid.....	69
5.2.8.3 Crop production during drought.....	70
5.2.8.4 Water management.....	70
5.2.8.5 Sale of livestock	70
5.2.8.6 Government departments	71
5.2.8.7 Household coping mechanisms.....	71
5.2.9 Theme 6: Risk and vulnerability exacerbated by drought.....	71
5.3 Quantitative data analysis.....	73
5.3.1 Understanding the threat posed by drought on the vulnerabilities of the community	73
5.3.2 The occurrence of agricultural drought in Lubombo region.....	75
5.3.3 Financial capacity and resource identification to address drought and disaster	75
5.3.4 Livestock and agriculture as priority resources in coping with drought disasters.....	78
5.3.5 Social Capital and developing disaster risk reduction practices	79
Table 3 is quantifying the social impact of drought. It aims to explain and give answer in values as to what social livelihoods and vulnerabilities exist in the 5 Inkhundla.....	80
5.3.6 Contribution of gender in effective disaster risk reduction.....	80
5.3.7 Lack of joint drought-coping mechanisms	81
5.3.8 Discussion: The integration of qualitative and quantitative findings (see Annexure 2)	81
Chapter 6: Conclusions and recommendations	87
6.1 Introduction	87
6.2 Overview of the chapters.....	88
6.3 Addressing the research questions of the study	89
6.4 Summary of findings	92
6.5 Recommendations and conclusion.....	93
6.4 Conclusion	94
Bibliography.....	95

List of tables

Table 1: PAR Model Application 84

Table 2: Financial impact 90

Table 3: Social impact 93

Table 4: Gender roles 94

List of figures

- Figure 1: Map of Swaziland showing the Lubombo Region in green
14
- Figure 2: Disaster risk as the product of hazard, exposure, vulnerability, and capacity relationship
28
- Figure 3: Relationship among types of drought
32
- Figure 4: The Pressure and Release model (PAR)
37
- Figure 5: Flow diagram below depicting the sequence within the exploratory sequential design
56
- Figure 6: Gendered definition of gender as water shortages
78
- Figure 7: Insufficient food security during a drought
78
- Figure 8: The occurrence of agricultural drought in the Lubombo region
79
- Figure 9: Livelihood change affecting livestock and agriculture
82

Acronyms

ACDS	African Centre for Disaster Studies
CSI	Coping Strategy Index
DAC	Development assistance committee
DRR	Disaster risk reduction
EIGE	European Institute for Gender Equality
ECOSOC	United Nations Economic and Social Council
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
MDGs	Millennium Development Goals
NGOs	Non-Governmental Organizations
PAR Model	Pressure and Release model
UN	United Nations
RIASCO	Regional Inter-agency Standing Committee
SVAC	Swaziland Vulnerability Assessment Committee
UNCCD	United Nations Convention to Combat Desertification
UNICEF	United Nations Children's Fund
UNISDR	United Nations International Strategy for Disaster Reduction).
UNDP	United Nations Development Programme
WHO	World Health Organisation
VAC	Vulnerability Assessment Committee

Chapter 1: Overview of the study

1.1 Introduction and background

Drought is the most frequent hazard that affects Africa in comparison to other hazards such as cyclones, earthquakes and fires (De la Fuente & Dercon, 2008:15). Hazards on their own do not amount to a disaster; however, it is the interaction of a hazard with human vulnerabilities that results in a disastrous event (Cannon, 2002:46). The relationship between natural hazards and disasters is closely associated with the crisis situation in which the devastating event strikes. Thus, natural hazards play a defining role in the manifestation of disasters. In this regard, the magnitude of a disaster depends directly on the intensity of the hazard and the susceptibility of the exposed elements (Nyandiko, 2004:10). The dependency relationship between environmental shocks, economic stresses, and human livelihoods has a direct bearing on a community's capacity (Masson *et al.*, 2015:9). Furthermore, Masson *et al.* (2015:9) are of the opinion that within prone communities, vulnerabilities of women and men intensify, and therefore encouraging the community to mobilize different gender sensitive capacity building strategies. In addition, Mata-Lima *et al.* (2013:46) specify that understanding the relationship between hazards, disasters and the social impact addresses questions relating to adaptive capacities, social impact and survival.

Drought is ranked highly amongst all natural hazards in terms of the number of people directly affected; with a total of about 642 drought events reported across the world during the period 1900-2013 (EM-DAT, 2014; Hayes *et al.*, 2004). The impact of disasters causes immense suffering including disruption of livelihoods, loss of life, loss of financial stability and environmental degradation (Nyandiko, 2004:10). According to Sing *et al.* (2014:54) the impact of droughts is expected to grow over the years to come, affecting community livelihoods, aggravating poverty levels, and impacting the sustainability of basic societal living. Evidently, the repercussions of drought have an enormous influence on the quality of life, economy, and health of the environment it befalls (UNISDR, 2009; Mulugeta *et al.*, 2007:4; Kebede, 2004:1). African countries, and particularly those within the southern hemisphere have over the years been affected by severe and recurring droughts (Wawire, 2011:2). Within Southern Africa drought occurs often and in all climatic zones at various times of the year (Rouault & Richard, 2003:499). The region is characterised by strong inter-annual rainfall variability since the 1970s and as a result is particularly vulnerable to drought (Rouault & Richard, 2003). The impacts of drought on the sub-continent are aggravated by the fact that the region is dependent on rain-fed agriculture, foreign aid and water availability (UN-HABITAT, 2010; Stringer *et al.*, 2009:748).

The occurrence of drought is unpredictable as the intensity, spatial extension and duration are not constant (Rouault & Richard, 2003:499). The frequent droughts have reduced the GDP growth rate of Southern African countries as well as threatened developmental gains (Shiferaw *et al.*, 2014:68), thus leaving Southern African countries poverty-stricken and vulnerable to disease epidemics, livelihoods, and food security severe (Masih *et al.*, 2014:3635; Shiferaw *et al.*, 2014:68). Furthermore, drought impacts Southern Africa outside the household, through environmental degradation, growing crop and decreased livestock prices, unemployment, and forced migration (Shiferaw *et al.*, 2014:68). As a recurrent climatic phenomenon, drought remains a major hazard that affects humanity, the environment, and the economy (Masih *et al.*, 2014:3635). Despite the continuous and considerable progress of monitoring, forecasting and mitigation of drought across the world and ultimately Southern Africa, drought continues to overwhelm the region (Masih *et al.*, 2014:3636).

The recorded history of drought in Swaziland as part of the Southern Africa region dates back to 1982 (Shongwe *et al.*, 2014:87). Since then, the most severe droughts have been felt in 1992, 2001, 2007, 2008 and recently 2015 (Shongwe *et al.*, 2014:87). Droughts in the Lubombo region (located in north-eastern Swaziland (see figure 1 below) have occurred in different magnitudes, periods and areas. As an agricultural ~~haven~~ ^{heaven}, the Lubombo region is frequently faced with constant risk in crop production, water scarcity, poverty, hunger, and livelihood stability (Manyatsi *et al.*, 2010:168). The agricultural production within this region is mainly rain-fed and this intensifies the impact of dryness and drought. As such, rainfall distribution in the region has considerably affected farmers through frail crop production, livestock loss, and unsustainable livelihoods (WFP, 2016). For example, the Lubombo region has been experiencing severe drought with water levels dropping to less than 30% over the 2015/2016 season (Royal Swaziland Sugar Cooperation, 2016). The effects of the destructive nature of droughts thus pose multiple threats to human life, livestock, and livelihoods.

Livelihood shift remains one of the primary concerns for the country during a drought event (Swaziland Vulnerability Assessment Committee, 2016: II). From a gender perspective, Swaziland faces varying vulnerability degrees (Swaziland Vulnerability Assessment Committee, 2016:24). For example, the impact of shocks and the implementation of coping mechanisms vary depending on gender (Swaziland Vulnerability Assessment Committee, 2016:24). Furthermore, during the compilation of the Swaziland annual Vulnerability Assessment and Analysis report 2017, it was established through the use of the Coping Strategy Index (CSI) that behaviours within communities have to be measures to explain and determine the strategies that people or households employ when they cannot access food and livelihood security.

Drought adds strain to the already fragile gender lines that exist in Swaziland (Nhleko, 2009:2). Traditionally in Swaziland, women and men have set roles and responsibilities (Nhleko, 2009:2). Women and girls in Swaziland are primarily responsible for domestic chores and care-giving whereas men are described as bread winners, and awarded power and rights (Nhleko, 2009:3). In this regard, during the occurrence of a drought women and men are expected to function and perform distinct duties. These duties shape the livelihood mechanisms employed as a tool to cope with drought (Dlamini, 2017).

Developing sustainable coping mechanisms to withstand the widespread effects of drought is challenged by the vulnerability measure of the communities in Swaziland. As a drought-prone region, the men and women residing in Lubombo attempt to mitigate the effects of this hazard through various activities of change and adaptation (Swaziland Vulnerability Assessment Committee, 2016:24). In this context, gendered disaster risk reduction mechanisms that will help cope with extreme weather events are a stepping stone towards vulnerability mitigation. However, a key challenge lies in the integration of these mechanisms and bridging the gender gap (UNDP, 2008). With these challenges facing the Lubombo region identified, the next section demarcates the study area.

1.2 Demarcation of the study area

The Kingdom of Swaziland is a small landlocked country within Southern Africa, bordered by South Africa and Mozambique. The country is divided into four administrative regions namely: Hhohho, Lubombo, Manzini and Shiselweni. Despite its small size of 17,364 km², Swaziland is populated by 1.1 million people (United Nations, 2016). There is an estimated 50.8% of female and 49.2% of males (United Nations, 2016). Swazis traditionally are farmers and herders although this has changed over the years to include work in government, the urban economy, sugar plantations and mines (World Population Review, 2016).

The Lubombo region, which is the focus of the study, is populated by 250 000 people of which 78% are considered poor and vulnerable (Mabuza, 2016). The Lubombo region is a pastoral region with an annual mean rainfall of 700 mm and an average annual temperature of 19C^o (UNDP, 2012). More importantly, agriculture provides livelihoods and income for 70% of the population of the Lubombo region thus making the communities within the region dependent on its produce (UNDP, 2012). Consequently, the region is prone to weather-related hazards such as drought due to its dependency on rain-fed agriculture (Vilane *et al.*, 2015:784).

Under the Lubombo administrative region there are 11 regional councils or local government administration centres called *inkhundla* (Dlamini, 2016). An *inkhundla* is an administrative

Figure 1: Map of Swaziland showing Lubombo Region in Green (Source: World maps, 2018)

For purposes of the study, the regional councils have been chosen with respect to the impact of recurrent drought in Swaziland. The purpose of depicting each Inkhundla is to enhance and enlarge the scope of coping mechanisms in relation to drought and the Lubombo region and better equip those affected by drought with a standard of living suitable for Lubombo as a whole.

The focus of this study is on the gender-differentiated coping mechanisms of withstanding drought employed by communities in the Lubombo region of Swaziland. This focus is necessitated by the assumption that the nature of the challenges faced and the coping mechanisms employed during periods of drought are different based on the gender roles of the area exposed (Wawire, 2011:2). As Campbell (1984:35) postulates, the impacts of drought within a society or environment are directly linked to the social, cultural, economic, and political structure of that area. The next section presents the main problem that will be studied.

1.3 Problem statement

Globally, the livelihoods of millions of men and women are at risk due to droughts. The risk incurred is different depending on whether an individual is male or female (Enarson & Chakrabati, 2009: XIII). The difference between these genders emanates from social norms, practices and vulnerabilities experienced on a day-to-day basis within the affected community (Wawire, 2011). Hence, men and women cope and employ different coping mechanisms to resist drought. The relationship between drought, coping mechanisms and gender is pronounced through the ability of men and women to rise above the existing repercussions of water scarcity and gender roles (Falola & Jean-Jacques, 2015:1160; Qureshi & Akhtar, 2004:1). As an example, men and women in Swaziland are constantly challenged by traditions and cultures within the country, dictated by male dominance over women (Wawire, 2011). This cultural and gender differential stigma therefore prescribes how disasters, more specifically those resulting from drought, are adapted to and mitigated.

In Swaziland, the Lubombo region is specifically one-third of Swazis who live through the devastating impacts of drought both on livelihoods and the environment (Marquette & Pich n, 1997:312; Mlenga, 2015:6). Due to recurrent droughts events, the devastation in rainfall amounts has affected all sectors in the Lubombo region ranging from water, agriculture, health, business, and education, hence forcing people to engage and develop coping mechanisms as

response to the vulnerabilities and impact of the sector shock (Mabuza, 2016; Manyatsi *et al.*, 2013:242). Evidently, the implications of drought have a downstream effect that is dependent on the context and underlying population dynamics of the area it is found (Wawire, 2011).

According to the Vulnerability Analysis for the 2015/2016 consumption year, 200 897 people were in need of interventions and disaster risk reduction mainstreaming that aims to maintain livelihood assets and strategies (FAO, 2016). Hence, coping and strategizing as a means of yielding drought impact on the environment and inhabitants focus on addressing the needs and vulnerabilities of these individuals. The struggle of living in a drought-prone region has inevitably, made men and women eager to devise their own methods for protecting themselves and their livelihoods. In the face of a drought or threat thereof, coping mechanisms are built based upon skills, technologies, resources, culture and experiences of men and women who inhabit the area (Kettler *et al.*, 2012:2). The priority of building human capacity and alleviating the impact of drought on gender levels (i.e. both men and women) seek to prioritize, build, and create awareness of gender as an underlying issue towards the achievement of disaster risk reduction in immediate societies where people dwell (FAO, 2016).

Against this background, men and women in Swaziland are disproportionately viewed. According to the Swaziland Annual Vulnerability Assessment and Analysis Report (2016), coping mechanisms are an essential component of how the Lubombo region attempts sustainability. The capacity to adapt and adjust to the adversity of drought is not the same between men and women. The coping mechanisms index used by the Swaziland Vulnerability Assessment Committee indicates that the different coping mechanisms between men and women are dependent on vulnerability associated with culture, roles, responsibilities, and locality (Swaziland Annual Vulnerability Assessment and Analysis Report, 2016).

The purpose of this study is to determine and evaluate the gender differentiated coping mechanisms of withstanding drought employed by communities in the Lubombo region of Swaziland. The study also aims to establish the roles these mechanisms can yield towards building mitigation and adaptation mechanisms to enhance disaster risk reduction in drought prone areas. It is assumed in this study that the nature of the challenges that are faced and the coping mechanisms that are employed during periods of drought are different based on the gender roles of the area in which they happen (Wawire, 2011:2). This is based on Campbell (1984:35) who highlighted that the impacts of drought within a society or environment are directly linked to the social, cultural, economic and political structures of that area. The role of gender within the coping process of drought depicts the personal encounter of individuals and the steps to be taken to ensure disaster risk reduction achieved. More specifically, the coping

mechanisms that individuals engage in are directly dependent on gender (Mkhabela, 2016). For example, in a patriarchal country like Swaziland, men and women have set roles which culture prescribes thus awarding certain tasks to certain individuals (Nhleko, 2009; Wawire, 2011). According to Mkhabela (2016), to survive the disastrous effects of drought, women engage in practices that are separate yet domestic to men.

Building gender-focused mechanisms within communities prone to drought is a priority towards the achievement of disaster risk reduction activities (Fordham *et al.*, 2011:11). There is more to be gained from building a gendered approach to capacity building in particular, coping mechanisms towards drought. Women have been identified by UNISDR as being more exposed than men to disaster risk, suffering mortality, morbidity, and damage to livelihoods (Fordham *et al.*, 2011:7). This premise generates the foundation of this study, countering the evaluation and relevance of determining what different coping mechanisms employed by men and women in the Lubombo region. The problem under study will further be explored by addressing the research questions as outlined below.

1.4 Research question

In order to address the full ambit of the research problem of the study, the following questions have been considered:

- What does the relevant literature say about the impact of drought on communities?
- What theoretical perspective does gender mainstreaming impose in the context of Disaster Risk Reduction?
- What are the existing and current drought-coping mechanisms and practices employed in Lubombo, Swaziland?
- What is the value of having generic gender coping mechanisms suitable for the Lubombo region?
- What recommendations and conclusion can be made on the gendered approaches to coping with drought in the Lubombo region, Swaziland?

1.5 Research objectives

The main objectives of the study are to:

- To provide a theoretical overview of the impact of drought on communities.
- To provide theoretical perspective of gender mainstreaming in Disaster Risk Reduction.
- To determine and analyse drought-coping mechanisms employed in Lubombo, Swaziland.

- To determine the value of generic gender coping mechanisms within the Lubombo region.
- To provide conclusions and recommendations on the gendered approaches to coping with drought in the Lubombo region, Swaziland.

1.6 Central theoretical statement

The Pressure and Release Model (PAR) shapes the theoretical application of the study. Building the perspective that vulnerability and exposure are critical components towards building capacity of hazard prone communities, the PAR model is foundational for answering the objectives of the study. Disaster results from the interaction of hazards and the social, political and economic vulnerabilities that structure the lives of men and women (Le Masson *et al.*, 2015:9). In the PAR model these underlying factors are categorised as root causes found in everyday life (Fordham *et al.*, 2011:7). Men and women in disaster prone communities are challenged with building different levels of coping mechanisms towards existing hazards and the damaging effects of the hazard occurrence (Dlamini, 2017). Understanding this interaction as dynamic pressures, echoes the problem statement and position that men and women are affected by disaster differently due to the socially constructed roles and responsibilities (Fordham *et al.*, 2011:7). Since the level of exposure differs on gender lines, unsafe conditions for men and women are generated, calling for a need to grow and understand how drought-resistant capacity can be built (Dlamini, 2017). The mechanisms used by men and women to build capacity are thus dependent on the separate individualities that men and women have.

The following theoretical statements inform the study:

Worldwide, drought is considered devastating and disastrous (Ujeneza & Abiodun, 2014). Particularly in Southern Africa, drought is the most prominent hazard affecting communities' livelihoods (De Waal & Whiteside, 2003:1234). Due to the semi-arid landscape of Southern Africa, drought poses a threat to water management, agriculture and sustainable livelihoods in communities (Manatsa *et al.*, 2015:1; Milgroom & Giller, 2013:91). As a result of this prominence, it becomes imperative to document how communities cope with drought in order to develop sustainable coping mechanisms.

According to Enarson (2000:1), "Gender relations as well as natural disasters are socially constructed under different geographic cultural, political, economic, and social conditions and have complex social consequences for men and women". This implies that men and women experience disaster differently due to factors related to access to resources and cultural factors which challenge their ability to cope with hazardous events (Bradshaw & Fordham, 2013:9). These include income, education, health, and social networks (Bradshaw & Fordham, 2013:9).

Typically, socially constructed roles and norms are in favour of men, resulting in amplified women's vulnerabilities within communities (Neumayer & Plümper, 2007:9). These vulnerabilities additionally amplify already existing sufferings of women, leaving women adversely susceptible to negative effects of hazards, particularly mobility and economic damages (Neumayer & Plümper, 2007:12).

Gender shapes how humans respond to the effects of disasters (Enarson, 2000). Men and women respond differently to disasters and drought (Roehr, 2007:2). Within their respective social roles drought leads men and women towards different degrees of vulnerability and dependency on the natural environment (Roehr, 2007:3; Ariyabandu & Wickramasinghe, 2003: 51). The difference is experienced through distinct practices of early warning systems, risk reduction strategies, needs identification, and mitigation (Roehr, 2007:4). Thus advocating that men and women have different roles in disaster risk reduction.

1.7 Methodology

Research methodology is the logical and scientific accountability process of gathering relevant information from appropriate sources as a means of answering the research questions and objectives (Maree, 2007). With the primary goal of establishing and explaining the coping mechanisms of the communities in the Lubombo region during a drought, the methodology that was to be followed begins with the study of the literature to situate the study. This is followed by a description of the specific sampling methods, instruments and data collection methods and the ways in which data was analysed (De Vos *et al.*, 2011:110). Thus this section outlines briefly the research design and the research methods applied in the study (see chapter 4 for the detailed methodology used in the study).

1.7.1 Literature review

A literature review is an important part of research as it serves the purpose of providing organized search patterns of published work that will enhance knowledge on a particular topic (Robinson & Reed, 1998:58). Utilising a literature review clarifies the research problem by placing publications and literature in the contextual relevance of contributions (University of California, 2016). According to Brynard and Hanekom (2006:37) a literature review involves a coalition between primary and secondary data. Primary data is first hand evidence whereas secondary data is the analysis of primary sources (Brynard & Hanekom, 2006:37; Ithaca College Library, 2016). In order to accumulate sufficient information the following data sources were consulted:

Primary Sources: historical and legal documents, as well as first-hand conversations

Secondary sources: Newspapers, books, scholarly and peer reviewed journals, government reports.

The following databases were consulted to discover material for the purpose of this research:

- A) Catalogue of books:
 - I. Ferdinand Postma Library (North-West University);
 - II. Swaziland National Library; and
 - III. Any national library of interest.
- B) Catalogue of articles: Internet journals (accredited, peer-reviewed):
 - i. Emerald;
 - ii. Google Scholar;
 - iii. Springer;
 - iv. Government Publications; and
 - v. Newspapers.

1.7.2 Research design

According to Kumar (2014:122) research design is a plan, structure and strategy of the investigation that a researcher will perform. This plan is the programme of action and functions as a logistic arrangement and validity process of the research (Kumar, 2014:123). As a road map for this study, the researcher used an exploratory sequential design of the mixed methodology approach.

The rationale for using mixed methods approach is to pursue depth of understanding and collaboration by means of merging qualitative and quantitative techniques together (Creswell, 2015:X). Mixed-methods research is thus an approach where the researcher seeks to maximise his/her understanding of the problems and questions of the study through merging the best qualities of qualitative and quantitative data (Creswell & Clark, 2011:4).

As explained by Creswell (2015: X), the best qualities of qualitative and quantitative data will be used in the study to achieve the understanding of the set objectives and questions.

In exploratory sequential design, qualitative data is collected and analysed first and the themes that emerge from the findings serve as a framework for designing questionnaires and building instruments for the quantitative study (Creswell, 2015).

1.7.3 Sampling

The goal in sampling is to produce a representative sample: a sample that represents the population on all characteristics, except that it includes fewer people because it is a sample rather than the complete population (Johnson & Christensen, 2014:250).

With reference to mixed-methods research, sampling is a procedure of selecting participants in both qualitative and quantitative research using appropriate sampling techniques (Creswell, 2015:75). In this study, an exploratory sequential design as outlined by Creswell (2015) was employed. This involved a three-step design. The first step is qualitative in which data was collected and analysed with the goal of creating themes as foundation of participants' perceptions. During this step, men and women in the 5 Tinkhundla were interviewed through focus groups, observed and recorded. In each focus group, 5-8 female and male participants were targeted for separate focus groups interviews/discussion. Adult men and women were the targeted group in this study. This is because they are the ones directly enforcing coping mechanisms and continuously creating new mechanisms to withstand drought. The men and women are heads and supporters of families and can better understand and elaborate on the mechanisms that are used to cope with drought.

In the second quantitative enquiry, the size of the sample is a total of 80 participants. Eight female participants and eight male participants in each Inkhundla were targeted to answer the survey, self-completion questionnaires. This step sought to validate the instrument with a large sample representative of the population at large. Lastly, integration and interpretation of this data in relation to the population were done.

In the study both random and non-random sampling techniques were used. According to Johnson and Christensen (2014:254), random sampling is a basic technique where subjects for study are chosen by chance whereas non-random sampling is when subjects are chosen due to a specific characteristic. In this study, stratified random sampling that is proportional was used first to represent the qualitative enquiry. The main aim of purposive sampling is to specify characteristics of the population under study and thus locate individuals who match the characteristics (Johnson & Christensen, 2014:254). For example, the study focuses on men and women and thus within five selected Tinkhundla, adult men and women were identified.

1.8 Data collection

Baker (2003:345) states that data collection should involve the gathering and measuring of information accumulated from a conducted research. The gathering and measuring of the accumulated research have the primary function of developing answers to the research questions (Teddlie & Yu, 2007).

Primary sources of collecting data included interviews, observation, questionnaires, voice recordings and lastly historical and legal documents.

1.8.1 Collecting Information

As the methodology is mixed-method, both open-ended and closed questions were presented to the men and women of the Lubombo region. The purpose of using open-ended questions was to avoid restricting participants from giving information and responding to the clarity of a question (Creswell & Clark, 2011:176). In addition, quantitative information was gathered through using closed questions aimed at creating a platform of rating the questions on an established scale. This worked hand in hand because the closed questions justified and validated the open-ended questions therefore ensuring integration. Furthermore, because of using exploratory sequential design, data was collected first qualitatively, then quantitatively and lastly cohesively interpreted.

In the same light, collecting data requires various instruments. Questionnaires have been developed and used in interviews to guide questions. To accommodate uneducated or illiterate individuals, interviews were conducted one-on-one, and in focus groups. Supported by the use of media devices such as videotapes and photographs, other instruments included attention to individual attitudes like self-esteem scales and individual performance measures to rate the responses of the people.

1.9 Ethical clearance

According to Kings College in London (2016), ethical approval is essential for all research that involves human participation. Bearing in mind that in order to successfully conduct research using the people in the Lubombo region, permission and ethical clearance were obtained from the North-West University Ethics Office before the research began.

According to Creswell and Clark (2011:174) it is imperative to gain the necessary permission from individuals and sites before collection of data. Access in this research was obtained from the people providing the data: men and women who are of adult age. Secondly, successful data collection prompted working closely with the chiefdoms of each Umphakatsi. Hence, the chiefs and their administration were approached for permission. Lastly, permission was needed from

husbands since Swaziland is a patriarchal society and in order to sample women (wives) their husbands needed to consent.

1.10 Data analysis

Data analysis in mixed methodology requires separate analysis of qualitative collected data and quantitative data within the same framework (Onwuegbuzie & Combs, 2011:3). The aim of doing this is to examine the data and find out how it relates to the questions and theoretical statement.

Analysis of data in this study has followed a stage procedure, identified as part of a mixed-method framework (Onwuegbuzie & Teddlie, 2003; Creswell & Clark, 2011). These include preparing data for analysis, exploring the data, analysing the data, representing the analysis and interpreting the analysis. Specifically, sequential mixed-methods data analysis called connected mixed methods data analysis to generalise findings (Creswell & Clark, 2011:218) was applied in this study.

In this type of data analysis, data is analysed chronologically such that the analysis in one strand depends on the previous strand (Teddlie & Tashakkori, 2009). As such data collected qualitatively was analysed thematically first. Subsequently, the findings were used to inform the instruments to collect quantitative data. The analytic process followed in analysing the qualitative data included identifying useful quotes, codes, and themes that will be used to design items, variables and scales on the quantitative instrument (Creswell & Clark 2011). The quantitative results were analysed and a discussion was built. The study used survey analytics to analyse and quantify the quantitative data. The importance of this strategy is that it provides for theme display in merged data analysis whereby the qualitative themes derived from the qualitative analysis are arrayed with the quantitative categorical or continuous data from items or variables from quantitative statistical results (Creswell & Clark, 2011:226). The interpretation of the results in mixed methods took the form of inferences and conclusions drawn. The focus of the inferences in this study was to check whether the quantitative study had provided a more generalised understanding of the problem under study than the qualitative study alone.

1.11 Limitations and delimitations

Pointing out and discussing limitations and delimitations are essential to research because they summarize the shortcoming and thought process of the researcher. According to Simon and Goes (2013), limitations are matters that arise during a study which are beyond the researcher's control. On the other hand, delimitations are derived from limitations during the progression of the study focusing on exclusions and inclusions made throughout the study.

Limitations: The boundaries that limit the research are associated with using Swaziland as a case study. Swaziland is a patriarchal country and thus a gendered approach base for research is not openly accepted. Having to conduct focus groups and interviews while being sensitive to men (in particular the role of husbands) can be a strain for data collection. Other limitations included literacy as the older targeted generation does not know how to read and write, thus enforcing verbal interviews. Additionally, some individuals can read and write but only in siSwati so that dialect becomes a frustration.

Delimitations: The parameters of the investigation are the Lubombo region of Swaziland; with the researcher being an inhabitant of the region, relating to the context is not a problem especially in the case of language, common indigenous practices, cultural preferences and research area distances. Other delimitations involved the choice of using men and women as a focus of the research, under the umbrella of Disaster Risk Reduction which gives context and value to the topic.

1.12 Significance of the study

The study is expected to contribute scientific and environmental knowledge on the coping mechanisms used in the Lubombo region of Swaziland to overcome, mitigate, and mainstream the adverse impacts of drought on gender. It is through the insight of societal practices that the livelihoods of vulnerable individuals and agricultural susceptible areas adopt innovative mitigation and adaptation strategies as coping mechanisms of the recurrent drought. Given how much is at stake when women and men in a community are affected by recurrent drought, the study sets the stage for effective Disaster Risk Reduction opportunities and development in Swaziland as prescribed by policy such as the Sendai Framework for Disaster Risk Reduction and Millennium Development Goals.

1.13 Chapter layout

Chapter 1: Overview of the study

As the foundation of the study, this chapter gives background and shapes the topic of drought and the impact it has on communities, livelihoods and social structures.

Chapter 2: Theoretical perspectives on drought and its impacts on communities' livelihoods

Following on to the foundation laid out in the orientation chapter, this chapter justifies, describes and presents the literature that exists around gender, droughts, and Disaster Risk Reduction. This theoretical chapter focuses on giving context and substance to the topic including its value in the field of knowledge.

Chapter 3: Theoretical perspectives of gender mainstreaming on Disaster Risk Reduction

The issues that men and women encounter arise from a dynamic mix of factors that include roles, responsibilities, skills and capabilities, vulnerabilities, power relations, institutional structures and long-standing traditions and attitudes (UNISDR, 2009:3). In the light of this statement, this chapter explores disaster risk reduction and gender as phenomenon that through coalition can build the Lubombo region and reduce vulnerability.

Chapter 4: Research methodology

The manner in which research is composed is essential in academia. This chapter gives systematised patterns and action plans of executing the study. This chapter further guides the practical and evidential collection and analysis of data.

Chapter 5: Empirical findings and analysis

The empirical findings and analysis chapter validated, through practical examples, the coping mechanisms of women and men of the Lubombo region in combating drought. The views of the individuals have been analysed and used to counter/add to the literature on the topic as this gives substance and value to the topic.

Chapter 6 Conclusion and recommendations

This chapter draws a final summary of the data and the findings of the research. The findings and literature have been finalised and presented to answer the research questions and objectives. This sets the stage for the recommendations presented by the researcher as a means of developing Disaster Risk Reduction in Swaziland.

Chapter 2: Theoretical perspectives on drought and its impacts on communities' livelihoods

2.1 Introduction

The destructive impacts of drought burden agriculture, economies, water resources, and the environments (Zou *et al.*, 2017:2). Humphries and Baldwin (2003:1142) concur with this opinion by defining drought as the most serious hazard that is detrimental to human life. As a recurrent climate phenomenon, drought affects humanity in many ways including the loss of life, crop failure, livestock loss, famine occurrence, malnutrition, health issues, and mass migration (Gray & Mueller, 2012:134; Stanke *et al.*, 2013:5; Masih *et al.*, 2014:3635). According to the Centre for Research on the Epidemiology of Disasters (CRED, 2015:23), most disasters that have hit the African landscape have been due to weather and climate variation. According to the World Risk Report (2013:1), Africa is considered prone to a number of hazards and disasters. Phenomena such as floods, hurricanes, earthquakes, tsunamis and drought continue to overwhelm the continent, causing extensive losses of lives, livelihoods and property (Glover & Nyanganyura, 2017:3). Additionally, natural hazards such as drought are dependent on the geographic scales, severity, and the intensity of the affected area; thus the Intergovernmental Panel on Climate Change predicted that in the 21st century drought will intensify in certain seasons and regions such as the European Union, Northern America and Southern Africa (Wanders *et al.*, 2015:1). The southern African region has for example been reported as being heavily affected by livelihood changes as a result of severe drought (Boko *et al.*, 2009:435). Subsequently, drought becomes a disaster once it produces social, environmental, and economic impacts that are above the means of coping within communities (Wilhite & Buchanan, 2005:4).

Since 1972 Africa has been hit by extreme drought episodes due to susceptibility to conditions such as having vast arid and semi-arid lands which receive below average rain and this fosters conditions for drought (Glover & Nyanganyura, 2017:9). Droughts have become more frequent, intense and widespread on the continent (Masih *et al.*, 2014: 3635). There have been continuous efforts from different stakeholders in managing disaster risk brought about by drought; for example through capacity-building of individuals in drought-stricken communities (Gan *et al.*, 2016:1209). However, the impact and consequences remain a negative influence especially on the livelihoods of communities. According to Eiser *et al.* (2012:5) the way people choose to act during a hazard is based on how they interpret the hazard itself coupled by a range of other influences, hence the manner in which drought is understood and managed in prone communities is directly related to the mechanisms and strategies employed as retaliation and survival.

During the occurrence of a drought a community practises and adopts strategies aimed at building capacity and enable coping with drought impacts (Hart *et al.*, 2011:234). However, a range of physical, social, economic and political circumstances make some communities more vulnerable, and others more capable of adapting to changes in climate (Kais & Islam, 2016:1211). Adapting to weather variations, specifically drought, is important for a community because it ensures that the community can survive through the drought disastrous events (Shiferaw *et al.*, 2014:67).

To offer a theoretical context for this study this chapter begins with an overview of drought as a phenomenon; this is done with the intention of building a context of drought leading into a conceptualisation of the phenomenon. Resulting from the established framework, attention is drawn towards drought as a hazard leading into the different types of drought (meteorological, hydrological, agricultural, and socio-economic). This chapter concludes by explaining drought through important themes such as causes, vulnerabilities, and impacts of drought, all amounting to the creation of clarity around drought in relation to Swaziland.

2. 2 Conceptualisation of drought

Over the years defining drought has not been clear-cut. Different definitions have led to different conclusions regarding drought as a phenomenon, hence there is value in building knowledge around drought conceptualization (Yevjevich, 1967:1). According to Yevjevich (1967:1), when investigating or building clarity on a topic it is imperative to begin with defining the problem or topic at hand. Drought, however, does not have a universally accepted definition because it means different things to different people (Agwata *et al.*, 2015:22). As a regional phenomenon, drought affects many sectors in society thus building a need for different definitions (Mawdsley *et al.*, 1994; Tallaksen *et al.*, 2006: 128). For this reason, no single definition can be imposed or used to describe all situations.

According to Wilhite and Glantz (1985:111) defining drought can either be conceptual or operational. A conceptual definition refers to defining drought according to restrictions and boundaries such as viewing drought as a decrease in water availability over a given period or season (Beran & Rodier 1985). An operational definition refers to drought as the identification of its severity, and the beginning and termination of the drought period (Beran & Rodier 1985). Arku and Arku (2010:115), concur with this definition by stating that drought is the term given to a period or season where rainfall is significantly below normal rainfall levels, thus causing imbalances in ground water supply needed for community survival and other agricultural purposes.

Drought is a multi-faceted phenomenon that affects, or produces difficulties for, the livelihoods of mankind and the environment (Wilhite, 2000:4). Palmer (1956:1) elaborates further, by stating that the impacts of drought can also be used as a mechanism of defining the event. For an example, to a farmer drought means shortages in the moisture within the environment of crops (Palmer, 1965:1; James *et al.*, 2013:938; Coêlho *et al.*, 2017:1). The scourge of drought is exhibited in the definition of the United Nations Convention to Combat Desertification (UNCCD, 2003) stating, *“Drought means the naturally occurring phenomenon that exists when precipitation has been significantly below normal recorded levels, causing serious hydrological imbalances that adversely affect land resource production systems+.*

Based on these definitions, drought is defined as the result of weather variation, in particular the lack of water causing livelihood irregularities. This study accepts this definition and seeks to explain drought from a disaster risk reduction perspective. Disaster risk manifests through the interaction between hazards, exposure, vulnerability, and capacity (see figure 1). It is imperative to build literature around drought as a hazard as this is the foundation for the study. Figure 1 shows the framework developed to describe disaster risk in relation to a community. In this framework, disaster risk is the sum of hazards, exposure, vulnerability and capacity of communities. These attributes all work together to define susceptibility towards a disaster.

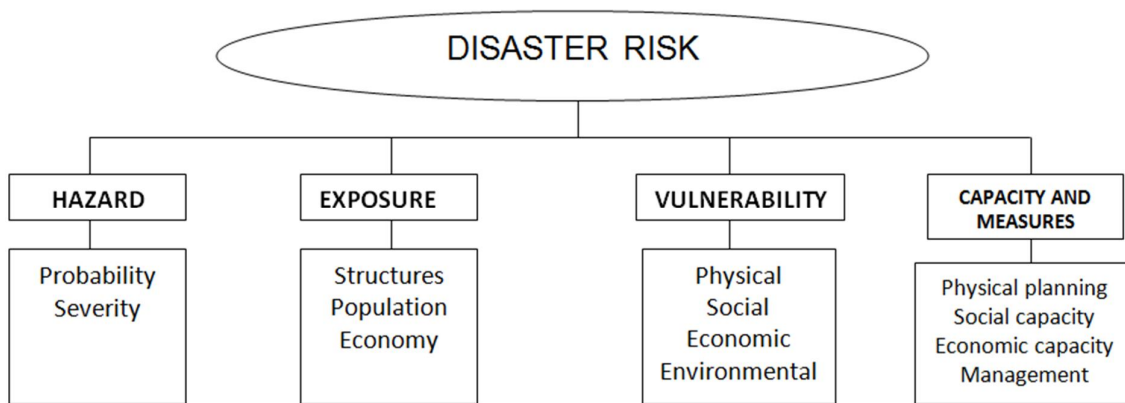


Figure 2: Disaster risk as the product of hazard, exposure, vulnerability, and capacity relationship (Ciurean *et al.*, 2013: 9).

2.3 Drought as a hazard

Hazards affect continents, countries, and communities at large in various ways. However, the impact felt by individuals and the environment results from the magnitude and consequences of a hazard (UNISDR, 2009). Hazard identification and understanding are crucial towards the definition and classification of drought as a hazard. In figure 1, it is illustrated how hazards are directly associated with severity of impact, hence the establishment of numerous definitions of hazards, each explaining the distinct nature of impact felt by hazard-prone communities

According to Harris *et al.* (1978) hazards are *“threats to humans and what they value: life, well-being, material goods, and environment”*. Derived from this definition White (1979:15) defines natural hazards as extreme events that have the potential to cause major perturbations in social systems. As a result of the above, drought is considered as a hazard because it could affect the livelihoods, economic standing, environmental stability, and property of people within the community in which it exists (Tadesse *et al.*, 2008; Tadesse, 2016:1). The classification of drought as a hazard, is further expanded by the UNISDR (2009), where natural hazards are *“a dangerous phenomenon, substance, human activity, or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage”*.

In the case of a drought, the reduction of water supply affects individual livelihoods as they lose sustainability (Knutson, 1988:3). However, for the conversion of a hazard to a disaster, vulnerabilities within the society act as enablers (Cannon, 2002:46; Jones & Bartlett, 2011:12). Vulnerability is the degree to which a system or society is susceptible to, and unable to cope with, adverse effects of a weather variation amounting to a hazard (Smit & Wandel, 2006:283). In other words, vulnerability is a *“set of conditions determined by physical, social, economic, and environmental factors or processes which increase the susceptibility of a community to the impact of hazards”* (UNISDR, 2004). Thus vulnerability in the case of weather variation is a socially and spatially changeable incident which may vary over time (IPCC, 2007:21).

According to Birkmann (2007:21) vulnerabilities determine the magnitude of the impact a hazard has on the society. Additionally, Blaikie *et al.* (1994:10) advocate that vulnerability is a term and activity that describes livelihoods that are in risk of discrete events in society; further mentioning that this risk is a sum of the individuals or groups capacity in relation to the ability to anticipate, cope with, resist and recover from a hazard (Blaikie *et al.*, 1994:10; ISDR, 2004:41). Risk results from the combination of hazards, conditions of vulnerability, and insufficient capacity or measures to reduce the potential negative consequences of risk (World Bank, 2014:17). Blaikie *et al.* (2004:12) declare that risk brought about by hazard exposure results from the interaction of the hazard and vulnerabilities that exist within the communities. During a hazardous event the spheres of the community that are at risk include the population, community structures, the environment and the economy (Alexander, 2000:17; Blaikie *et al.*, 1994:9). Drought risk is thus determined by the combination of the physical nature of drought and the degree of vulnerability to the effects of drought, as seen in the equation for assessing risk: $\text{Risk} = (\text{hazard} \times \text{Vulnerability}) / \text{Coping capacity}$ (Shahid & Behrawan, 2008:399; UNISDR, 2004:36).

Within the context of the growing frequency of drought as a hazard and density of the population of Africa, it is important for communities to understand the risks and existing threats to their livelihoods. This is because the perceptions and ideas of people about risk, and the practices that are employed as a result of the hazard-disaster relationship, constitute to how vulnerability is measured (Bankoff & Hilhorst, 2004:4). The above has given background to drought impact on Africa, and individual communities. Giving an explanation of what drought is, and laying the foundation and relevance of drought within the broader spectrum of disaster risk management. Deriving from the explanation provided by Agwata *et al.* (2015:22) building literature around drought is imperative, as this unpacks the versatile nature of drought. The lack of a precise and concise definition of drought further means that drought can be defined based on types. These will be elaborated on in the following section.

2.4 Types of drought

Following the explanation of drought as a hazard, differentiating between the types of drought is helpful towards the pursuit of building knowledge around drought. Thurow and Taylor (1999:413) identify four types of drought: meteorological, agricultural, hydrological and socio-economical as phenomena causing harm to communal livelihoods in different ways. These four types of drought are independent of one another yet closely related (Dingman, 1994).

The following section will describe each type of drought and explain drought as an extension of the above definition

2.4.1 Meteorological drought

Meteorological drought is defined by Wilhite and Glanz (1985:4) as being prevalent because it is based solely on dryness and the duration of the dryness. This type of drought is considered as region-specific since the atmospheric conditions that result in deficiencies of precipitation are highly variable from region to region over an extended period of time (ISDR, 2008:5). The Food and Agricultural Organisation (FAO, 2016) states that meteorological droughts are phenomena that occur when current water levels are significantly low in relation to long term normal levels. Meteorological drought is drought based on dryness in the environment (Wilhite, 2000). The intensity of the dryness and lack of water affects the soil, crops, and geographic area (Leszek & Bak, 2014:3).

2.4.2 Hydrological drought

From the categorization of Wilhite and Glantz (1985) hydrological drought is defined as an event that exhibits low levels of precipitation and water supply. This definition is explained extensively by Van Loon (2015:2) statement that hydrological drought manifests when there are abnormalities such as lower flow of water in rivers, low levels in lakes, reservoirs and

groundwater. The author further states that due to these characteristics, hydrological droughts denote recurrence because they are not confined to a specific area and impact on multitudes of people (Van Loon, 2015:359). In essence, hydrological drought is concerned with the effects of the dry spell on the hydrology of the affected area (Wilhite & Glantz, 1985:7).

In the case of Africa, where pastoral farming and living are key attributes to livelihood, individuals are constantly threatened by the lack of water resources brought about by hydrological droughts (Van Lanen *et al.*, 2013:1716). This impacts on farming and crop growth and establishes the foundation of an agricultural drought (Leszek & Bak, 2014:3).

2.4.3. Agricultural drought

According to Wilhite (2000), agricultural drought can be defined as the absence of soil moisture that causes acute crop stress and degradation of agricultural productivity. The FAO (2016) stresses the supply and demand relationship between crop production and water availability by stating that agricultural droughts manifest based on the water availability of an area.

In the event of an agricultural drought, the farming sector suffers the most (Dietz *et al.*, 1998:143). According to Sivakumar *et al.* (2010:22), the agriculture sector can either suffer direct or indirect aggravation. Direct losses that arise due to a drought include, reduced crop yield, diminished pasture growth, and mortality of livestock. Indirectly, the losses that are suffered during an agricultural drought include lost opportunities in agriculture, livestock degradation, changes in soil richness and abandonment of land.

Meteorological and hydrological droughts are linked to one another due to the shortages they present in precipitation and abnormalities of moisture (Wilhite & Glantz, 1985:6). The link created by the characteristics of meteorological and hydrological droughts to agricultural drought is based on the fact that the agricultural impacts focus on precipitation shortages, differences in evapotranspiration, soil water deficit and reduced levels of water in reservoirs (Monacelli *et al.*, 2005:8).

2.4.4 Socio-economic drought

According to Wilhite (2000) the most unique drought of all is socio-economic drought. This is because it focuses on the supply and demand of economic goods and services. For example, the failure of water resources needed to meet the water demands of community creates a supply deficiency (Monacelli *et al.*, 2005:2). Thus NDMC (2016) further elaborates that basic services such as water depend on the favourable climate. The lack of water in turn means that human and environmental needs cease to be met. Therefore, socio-economic drought is viewed as the relationship between human activity and elements of meteorological, agricultural and hydrological drought (FAO, 2016). The failure of water resource systems to meet water

demands, ecological impacts on environment, and health degradation of human and animal life are typical examples of a socio-economic drought (Van Loon, 2015:362). These impacts explain that this type of drought occurs through interaction of a drought hazard with physical activity causing an imbalance in capacity.

Figure 2 shows the relationship among all four types of drought in relation to drought progression. The figure further shows the relationship between metrological, agricultural, hydrological and socio-economic drought in relation to economic, social and environmental impacts that can transpire at any time during a drought.

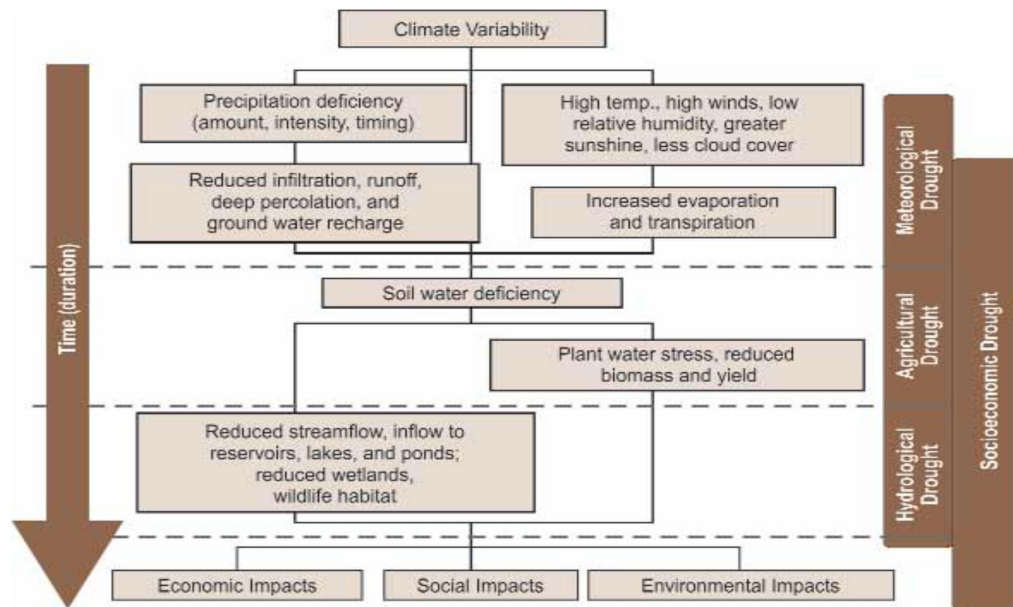


Figure 3: Relationship between types of drought (National Weather Service, 2006.)

As background to the drought phenomenon, the researcher has presented literature to build an understanding of what characterizes a drought. Building background about a hazard aims to contextually answer the research topic. However, this process is not complete without presenting the causes of drought, the impact of drought, vulnerabilities to drought, coping mechanisms and types of coping capacities. The next section will deal with the causes of drought.

2.5 Causes of drought

In the previous section it was established that the different types of drought have individualistic characters as much as they transform into one another (Van Laden *et al.*, 2013:1765). From an impact perspective, it is important to distinguish between the different types of drought as a tool for understanding what causes drought, and the magnitude of this cause within the context of the conceptualization of each type.

2.5.1 Deficiency in rainfall

Having a continuous period without rain can be detrimental to the environment and livelihoods of an area. According to the (NDMC, 2016) droughts are caused by not receiving significant rain over a period of time. For example, when the water cycle in a particular area is affected the results cause dryness and disturbance (Zolotokrylin, 2010:245). Thus, the biggest cause of drought is highlighted as not having enough water (Briney, 2016). Dry weather causes water shortages in the atmosphere, eventually trickling down to communities. Furthermore, according to NDMC (2016) the amount of sunlight that is received by an area can cause drought, in particular, the amount of water vapour is an effect to precipitation. For instance, farmers follow a routine according to seasons; they plant with the anticipation and expectation of rain so in the case of rain scarcity they fall under severe strain of drought which can be easily linked to deficiency in rainfall.

2.5.2 Human activity

Human activities that trigger drought are characterized as activities that impact on nature through man-made change (NDMC, 2016). These actions may include deforestation, as a prevalent example of the detrimental action of humans as it leads to erosion and affects the ability of the soil and land to hold water and withstand dry temperatures (NDMC, 2016). Deforestation reduces the ability of soil to hold water thus drying the ground and leading to drought. Another human activity that may trigger drought is land degradation, which is a major cause of agricultural vulnerability (Abidi *et al.*, 2013:43). Land degradation occurs when livestock dependent communities engage in overgrazing and alter the balance between biophysical and socio-economic issues in communities (Abidi *et al.*, 2013:41). Additionally, in pastoral communities, the lack of livestock distribution potentially causes drought because over-utilized land deteriorates water shed conditions and enhances erosion (Czeglédi & Radácsi, 2005: 29).

2.5.3 Drying out of surface water flow

Water banks are essential for drought management. Reservoirs supply and manage the availability of water such as lakes, rivers, streams and dams which are important in ensuring that surface water is available for vegetation and livelihoods of communities. In the event of an extremely hot and dry season reservoirs may dry out and decrease the supply of water, leading to an increase in the demand for water (NDMC, 2016).

2.6 Impact of drought

Weather hazards such as drought have over the years caused increases in severe impacts such as human loss, economic loss, crop reduction and water shortages (Easterling *et al.*,

2000:2068). Drought in Africa has been identified as a principal disaster (FAO, 2016) and Africa has been characterised as being constantly overwhelmed and seeking aid to uplift socio-economic impacts such as hunger and health (Ole-MoiYoi, 2013:3). Based on the above, there are various impacts that drought imposes on communities in Africa including economic, environmental and societal impacts (FAO, 2016). This view emanates from the statement made by Dai *et al.* (2004:1117) that drought has a negative impact on various sectors of society, including the economy, energy, recreation, agriculture, water resources, ecosystems and human health.

2.6.1 Impact on economy

The impact of drought on sectors like agriculture, forestry, and fisheries, poses a threat to the economy of a country (Adler, 2010:2186). These sectors have their basic requirements dependent on the surface and ground water supplies (Howitt *et al.*, 2015:2). The occurrence of a drought event can become the basis for losses in crop yields and livestock production (Wilhite & Glantz, 1985:6). As a result, the GDP of most African countries is reduced and hence the economy also (Ziolkowska, 2016:1). Thus the impact cost individuals and business money for example, individuals spend more money on food and materials, and businesses lose money as they depend on water (NDMC, 2017).

2.6.2 Environmental impact

The impact of drought on the environment can be seen in damage to flora and fauna including loss of wildlife habitat, forests, degradation of landscape quality, loss of biodiversity and soil erosion (Klos *et al.*, 2009:700). During a drought the environment suffers through plant and animal impact, where their habitat is damaged and food supply is challenged (NDCM, 2017). Examples of environmental impact include habitat destruction, migration of wildlife, lower levels of water in reservoirs, loss of wetlands and poor soil quality (NDCM, 2017).

2.6.3 Social Impact

Drought has the potential to cause severe direct and indirect impacts in society, the economy and the environment. For example, drought can directly cause loss of life, destroy crops and reduce water supply and quality (Jenkins, 2011:4). According to Sheffield and Wood (2011:147), during a drought society is affected directly through the loss of life and livelihood in addition to indirect effects like food and water shortages, poor health, and an increase in pandemic diseases. Jenkins (2011:4) suggests that human activity is linked to droughts regardless of the type of drought due to the interaction between society, the environment and

water. Using the definition of risk identified in chapter one of probable harm derived from hazard and vulnerability interaction (Blaikie *et al.*, 1994:10), the scale of severity of a drought impact is highly dependent on the vulnerability and exposure of the community.

In vulnerable regions, drought can significantly impact on human and natural systems (Ebi & Bowen, 2016:95). The inability to provide for basic needs because of adverse economic, social, or health status of a community, places the community at a high risk of being overwhelmed during a drought event (Zarafshani *et al.*, 2016:20). Thus, the impacts of drought depend on the underlying vulnerability of the population and community exposed in relation to the frequency and severity of the hazard (UNISDR, 2004:16). The next section will elaborate further on the interaction between vulnerability and drought.

2.7 Vulnerability and drought

Vulnerability can be defined as the conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards (UNISDR, 2004:16). This stance is elaborated by Birkmann's (2007:21) statement that vulnerability is the term given to describe the societal condition of being affected by a hazard to the magnitude of being unable to cope or otherwise function. Society is affected by drought when the ability to cope is exceeded due to pre-existing vulnerabilities (Jenkins, 2011:4). Thus one can conclude that vulnerability is a characteristic dependent on its hazard context.

As a result of this dependency, vulnerability is explained by exploring three perspectives namely adaptive capacity, sensitivity and exposure to changing weather patterns (Deressa *et al.*, 2008:1). Firstly, adaptive capacity describes the ability to adjust to the impact of a hazard and cope with its consequences. Secondly, sensitivity is the characteristic that examines the magnitude of the consequences on the community. Lastly, exposure looks at the degree of susceptibility the system or community has in relation to the hazard. This exploration of the definition of vulnerability thus suggests that in order for drought-prone systems or communities to be considered vulnerable, there needs to be evidence of exposure to drought as a hazard, and sensitivity or a scale of vulnerability within the system, in relation to the ability to adapt or cope with the hazard.

Conceptualising vulnerability is not clear-cut; however, Deressa *et al.* (2008:2) suggest three major conceptual approaches to analysing vulnerability to drought. These conceptual approaches are a socio-economic approach, a biophysical approach and an integrated assessment approach.

2.7.1 Socio-economic approach

The main focus of the socio-economic approach is the social, economic, and political status of the individuals or social groups within the hazard-prone community (Fussel, 2007:13). The groups that exist within the communities include education, gender, wealth, health status, and political power (Deressa *et al.*, 2008:2). Social groups are important because it is the state of the individual or social groups capacity to cope with the external stresses of drought hazard placed on their livelihood that is of concern in a community (Adger & Kelly, 1999:254). Derived from the definition of vulnerability in section 2.7, the terms are used to describe the condition before the occurrence of a drought or hazard, thus making vulnerability result from changes that exist.

2.7.2 The integrated assessment approach

The integrated assessment approach is a combination of both socio-economic and biophysical approaches to determine vulnerability (Deressa *et al.*, 2008:3). This approach uses the definition of vulnerability given by the UNISDR above as an example because it describes vulnerability to drought in an adaptive capacity, sensitivity and exposure function (Deressa *et al.*, 2008:3).

2.7.3 Bio-physical approach

The biophysical approach measures the level of damage that is caused by the stress or hazard on the social and biological systems (Deressa *et al.*, 2008:2). For example, the fiscal impact of drought on agriculture is measured through the relationship between the drought extent and the income received (Deressa *et al.*, 2008:2).

In a hazard context, most specifically drought, it is essential to use the disaster Pressure and Release Model (PAR) by Wisner *et al.* (2004:51) as a framework to conceptualise vulnerability (see figure 3). This model is a tool of analysis which shows how disasters occur when natural hazards affect vulnerable people (Wisner *et al.*, 2004:50). In addition Singh (2014:2320) points out that the Pressure and Release Model (PAR) depicts disaster as a product of physical

exposure and socio-economic exposure by distinguishing between root causes, dynamic components and unsafe conditions as conditions of the manifestation of a disaster.

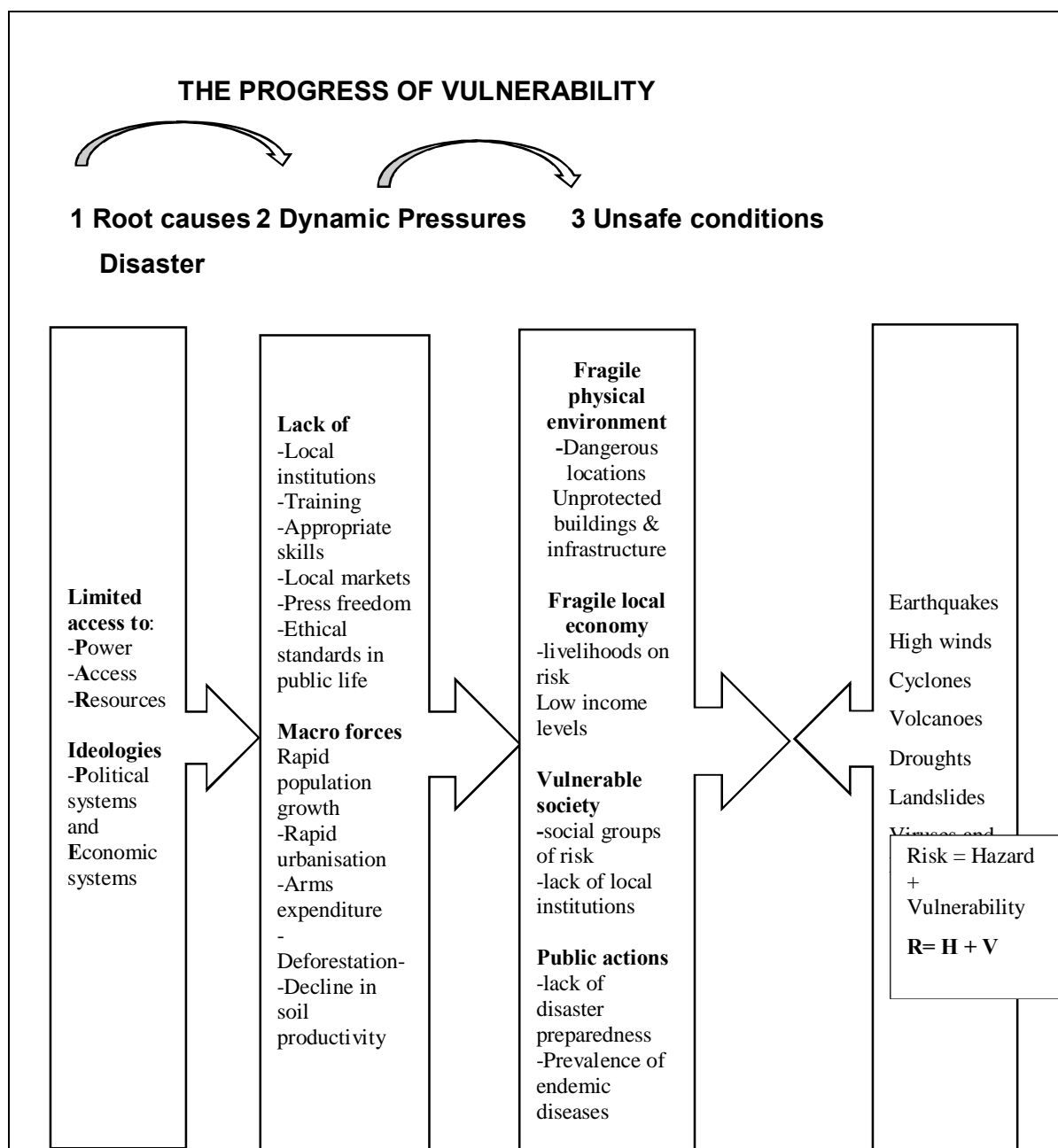


Figure 4: The Pressure and Release model (PAR) (Wisner *et al.*, 2004:51)

Root causes

The most essential root causes that lead to vulnerability are economic, demographic and political processes (Singh, 2014:2320). These principles of root causes affect the allocation and distribution of resources among different groups of people. As a result of social inequalities, root causes reflect the exercise and distribution of power in a society thus connected to the

functioning and power of the state (Awal, 2015:17). People who are economically marginalised (i.e. urban squatters) and who live in environmentally marginalised areas (such as drought-prone locations, arid or semi-arid locations) tend to be more vulnerable than those who hold economic and socio-political power because of their dependency on external aid (Wisner *et al.* 2004:50). According to Wisner *et al.* (2014:50), this creates three reinforcing sources of vulnerabilities which are, firstly, access to means of resources that are insecure and unrewarding, resulting in activities that are likely to generate high levels of vulnerability. Secondly, vulnerabilities generate government interventions to deal with hazards by incorporating frameworks such as the Millennium Development Goals, the Hyogo Framework for Action and the Sendai Framework for Disaster Risk Reduction. Lastly, people who are economically and politically marginalised are more likely to adopt coping mechanisms, and rely on indigenous knowledge.

Dynamic pressures

Dynamic pressures translate the effects of root causes both temporally and spatially into unsafe conditions (Wisner *et al.*, 2004:53). This means that dynamic pressures transform the processes and activities of root causes into vulnerabilities (Awal, 2015:17). These vulnerabilities are still the manifestations of the underlying economic, social and political patterns.

Dynamic pressures such as rapid population growth, lack of access to training, and gender inequality stem from root causes like existing power systems and limited access to resources (Fordham *et al.*, 2011:7). This leads to unsafe conditions, like gendered social norms, and low income as unfavourable conditions enhancing insecurities that have to be considered in relation to the type of hazard that is being experienced by the vulnerable (Awal, 2015:17).

Unsafe conditions

Unsafe conditions are specific forms in which the vulnerability of a population is expressed in time and space such as those induced by the physical environment, local economy or social relations (Singh, 2015:2320). Examples of such conditions include people who have to live in hazardous locations, being unable to afford safe housing, or lacking protection by the state in terms of effective building codes (Wisner *et al.*, 2004:55). Thus this may occur through processes of fragile local economies, lack of disaster planning and preparedness as well as a harmed environment (Awal, 2015:17).

According to Birkmann (2007:14) disasters are non-stop events that societies worldwide are not prepared for. Birkmann (2007:14) elaborates that the unprepared nature of societies originates from society not being able to handle and manage the threats posed by hazards such as drought. He further states that societies need to measure their vulnerabilities in advance in order to adopt and build relevant provisions to tackle vulnerability. He explains the relevance and value of measuring vulnerabilities as a tool to understand the relationship between hazards and the social, economic and environmental vulnerabilities. He concludes his stance by highlighting that measuring vulnerability is the most important step towards building a disaster resilient society and building effective coping mechanisms to drought.

2.8 Drought-coping mechanisms

Adaptation and coping practices are necessary to reduce vulnerability to drought/hazard stress as well as to prepare for possible future extreme weather variations (Opiyo *et al.*, 2015:295). Natural hazards such as drought have over the years haunted arid and semi-arid communities forcing communities to build temporary adjustments in response to change or to mitigate shocks and stresses on their livelihoods (Eriksen *et al.*, 2005). Due to this, societies have to change because there is a rise in interest based on how people draw upon and alter their belief systems in efforts to come to terms with events of catastrophic change, violence, loss, resettlement, and even humanitarian relief (Lindstrom, 1993:42).

The concept of coping reflects on the increased recognition of people's ability to face climate-related and other natural hazards (Gaillard, 2010:220). Coping within a hazard context is synonymous to capacity, ability to recover, and expression of handling the impacts of the catastrophic event (Gaillard, 2010:220). Coping further relates to resources and assets available to individuals and societies to enable them in dealing with, and recovering from the impact of hazardous incidents, and disaster shocks that they experience (Davis *et al.*, 2004: 12).

Meanwhile, Gaillard (2010:220) points out that coping capacities are often rooted in resources which are endogenous to the community and depend on traditional knowledge, indigenous systems and skills, technologies, and solidarity networks. For example since drought is a social construct, the impact of a drought can effect and change societal beliefs or customs (Krüger *et al.*, 2015:147), social organisations like gender (Oliver-Smith, 1977:8), and attitudes and values (Ammann *et al.*, 2006:111). Coping capacity thus advocates that the primary means by which populations cope with drought are found within the community, household, and individual mechanisms that act to safeguard against drought-related losses (Wisner *et al.*, 2012:263).

These responses that safeguard human livelihood are a sum of different strategies based on agronomy, environmental management, and economic and cultural practices (Wisner *et al.*, 2012:263). It is for this reason that UNISDR (2004:47) defines coping strategies as the manner in which people and organisations use existing resources to achieve various beneficial ends during unusual, abnormal, and adverse conditions of a disaster phenomenon or process.

2.8.1 Types of coping capacity

According to Twigg (2004:132), coping mechanisms are divided into four categories: economic/material mechanisms, technical mechanisms, social or organisational mechanisms, and cultural mechanisms. This four-type categorisation will be used to show the value of analysing vulnerability and coping capacity to create interventions that will reinforce existing coping strategies as well as new under-developed mechanisms (Twigg, 2004: 133).

2.8.1.1 Economic or material coping mechanisms

One of the principal elements in this category is economic diversification (Twigg, 2004:133). According to Twigg (2004:133) having more than one source of income (or food) per household is invaluable during times of stress, when some economic activities become impossible. This stance is supported by Jabeen *et al.* (2010:426) statement that economic strategies are mostly performed by households who engage in savings and livelihood change where more than one member of the household seeks employment. For example, members of a rural household engaged in agriculture may undertake other work, such as making and selling handicrafts, carpentry, building or blacksmithing (Twigg, 2015:146). Economic mechanisms thus involve a high dependency on money along with active financial contributions from household members working in different areas (Twigg, 2004:133). Jabeen *et al.* (2010:426) reinforce this view by saying that household collaborations serve as refuge for individuals during a disaster because resources such as money and food are more accessible and achievable. .

2.8.1.2 Technological coping mechanisms

Technological coping mechanisms involve the modifications done to the physical environment and also the infrastructure. Examples are given by Twigg (2004:133) as building materials and construction methods, including management of land for food production, being an important element. Jabeen *et al.* (2010:426) use the term physical coping strategies to explain taking an active role after a disaster has occurred. An example of this action is how farmers, especially those working in marginal or drought-prone lands, prefer mixed cropping, intercropping, kitchen

gardens and other practices that reduce the risk of poor harvests by widening the range of individual crops grown.

2.8.1.3 Social or organisational coping mechanism

Social coping strategies are related to the existing social networks in a society because they look into the relations that are active amongst members of a system as opposed to individual attributes (Giuffre, 2013:3). It is vital to understand the social networks that exist in communities because they paint a picture of the functioning of society and they advocate human resources as an asset during a hazard (Giuffre, 2013:10). The resources that are socially related within the community and address disasters include indigenous organisations, kinship networks, mutual aid, and self-help groups (Twigg, 2004:135). As a result of the above, networks between communities can be household, family, or government structures as they are based on trust and refuge.

The manifestation of trust relationships in relation to disaster risk reduction is a vital tool for ensuring that the community as a whole has an effective coping capacity towards disasters they are prone to (Harrison, 2014:6). The social networking and support that community members provide for one another influences disaster management by means of building strength and social capacity (Harrison, 2014:6).

2.8.1.4 Cultural coping mechanisms

In a cultural context coping strategies include the risk perceptions of the community, the religious values and well as the environmental knowledge (Twigg, 2015:146). However, due to diversity, communities have different cultures, experiences, and pressures towards their livelihoods (Twigg, 2015:146). In the event of a disaster, the values, beliefs, and common practices within the community are challenged (Twigg, 2015:146). According to Twigg (2015:147), this challenge forces cultures to make adjustments including reliance on indigenous knowledge expressed through experience, world views, beliefs, and ceremonies. For example, according to Douglas *et al.* (2008:199) strategies used include diversifying income sources. This means both men and women seek work that can either be illegal or quasi-legal such as street-hawking, water recycling and taking children out of school to generate income (Douglas *et al.*, 2008:199).

2.9 Traditional coping mechanisms

Historically, anthropologists and sociologists were the only scholars interested in building knowledge about traditional/indigenous knowledge (Fletcher, 2013: 3). The growth in social sciences has, however, widened this spectrum to include scholars of various disciplines (Fletcher, 2013:3). In the discipline of disaster risk reduction, traditional knowledge is acknowledged as a manner of coping with disaster impact through international frameworks. Globally, the Hyogo Framework of Action (2005-2015) declares *“traditional and indigenous knowledge and cultural heritage”* as one source of *“knowledge, innovation and education to build a culture of safety and resilience at all levels”* (UNISDR, 2007:9). Succeeded by the Sendai Framework for Disaster Risk Reduction (2015-2030), dedicated to *“reducing existing risk (through adoption of structural and non-structural methods and through preparedness for effective response, strengthening coping mechanisms including social and financial protection, and, integration of risk reduction in recovery and reconstruction)”*.

Traditional knowledge, synonymous for indigenous knowledge, and local language is knowledge that exists at local level (Kelman, 2010: 608). Traditional knowledge is passed down through generations and community lifestyles (Mazzocchi, 2006:243). Mazzocchi (2006:463) further describes that, locally, communities use traditional systems to understand and manage the changing environment they inhabit. Traditional knowledge is characterised by culture identity practices, social integrity practices, wisdom and experience of nature gained over time (Kelman, 2010:608; Mazzocchi, 2006:463). In the event of a hazard or disaster, traditional knowledge can contribute towards a community’s ability to mitigate disaster and sustain the existing livelihood (Muyambo *et al.*, 2017:2).

The vulnerabilities of communities during the occurrence of a hazard and disaster dictate the indigenous practices performed. This is because areas are affected by different hazards, for example, Zimbabwe has flood related mitigation strategies based on indigenous knowledge that are incorporated in national frameworks (Muyambo *et al.*, 2017:2). From an agricultural drought viewpoint, indigenous knowledge can be found prevalent in countries like Tanzania and Swaziland. In Swaziland, maize is stored underground in pits to last the dry season and maintain freshness. Other indigenous knowledge practices include mixed cropping, the use of animal manure to improve soil fertility and migration (Muyambo *et al.*, 2017:2). These practices all aim to ensure that the livelihoods of communities are maintained.

However, the importance of traditional knowledge, the relevance and custom of traditional knowledge, has deteriorated due to external factors (Fletcher, 2013:3). Colonialism, governance reforms and development assistance have all contributed to the slow ongoing loss of traditional knowledge (Kelman, 2010:608). In addition, social contributions to the loss of traditional knowledge practices include commercialisation, urbanisation, and change in social networks (Kelman, 2010:606).

2.10 Conclusion

This chapter has provided an overview of drought hazards by focusing on the build-up of a drought. It has in the second place used a conceptualisation framework and defined droughts through the use of various theories. Thirdly this chapter has discussed drought as a hazard and explained the four types of drought: meteorological, hydrological, agricultural, and socio economic drought. In the quest to explain drought this chapter has further explained the causes of drought, the impact of drought and vulnerability brought about by drought. Lastly this chapter concluded by highlighting the title of this paper by giving theory behind coping strategies in terms of drought. In the next chapter the relationship between coping with drought and gender perspectives is presented.

Chapter 3: Theoretical perspectives of gender mainstreaming to Disaster Risk Reduction

3.1 Introduction

In the previous chapter theory was built around the premise that environmental degradation and natural hazards such as drought manifest and engulf society through existing vulnerabilities. The hazard exposure of social groups within a community may be the same; however, the impact does not stem from people being dependent on social group vulnerabilities and capacity (Hummell *et al.*, 2016:111). It is therefore important to address the knowledge gap between capacity building and exposure, resulting from vulnerability. Elaborating on this point, Hummell *et al.* (2016: 111) state that the difference in human capacity to prepare for, respond to and recover from a drought is dependent on social vulnerabilities of individuals or areas, for example, social constructs, power dynamics, and the roles of men and women

According to Nelson *et al.* (2011:10) gender lines in society are relevant and present the relationship between vulnerability, environmental change, and the interaction between the societal standing of men and women. Vulnerability associated with women or men identification accentuates inequalities in society through the disproportional exposure of individuals to risk and hazards (Ashraf *et al.*, 2015:136). After analysing the impact of drought on the society it is clear that hazards do not impact societies in the same way. Disaster Risk Reduction is an essential tool to use when building knowledge central to disasters and societal functioning. According to the United Nations Development Plan (2010:8), the aim of disaster risk reduction is to reduce socio-economic vulnerabilities, and address environmental issues that could potentially trigger hazards. This chapter will illuminate gender under Disaster Risk Reduction, the phenomenon of coping strategies through gender in Disaster Risk Reduction, and the importance of gender in Disaster Risk Management. The value of bridging the gap between gender and disaster risk within a community is to ensure that capacity between men and women is built (UNISDR, 2017). Thus this chapter has been structured in a manner that dissects gender as a phenomenon. Beginning with development contexts, the chapter will conceptualise key theoretical terms such as gender, disaster risk management, gender mainstreaming and coping mechanisms. These concepts will be explained because they add value to the main aim of this chapter which is to ascertain the impact of gender mainstreaming in disaster risk reduction. In addition, the chapter will employ a gender-based analysis in the differentiation of components such as sex and gender, the roles attributed to men and women in communities, gender stereotypes surrounding men and women, and conclude by highlighting the role gender plays in coping mechanisms during drought disasters. Lastly, this chapter will look into gender analysis that focuses on the coping capacity of men and women during

disasters. This focus will address the impact of gender on the coping mechanisms usually employed during the occurrence of a drought hazard.

3.2 Conceptualization of key terms

Conceptualising key terms is vital for literature because these terms form part of the primary instruments under discussion (Onen, 2016:28). In this chapter the concepts to be described are gender, Disaster Risk Management, gender mainstreaming and coping capacity. These descriptions will inform the remainder of the chapter as to the meaning ascribed to the concepts.

3.2.1 Gender

According to UNDP (2010:1) gender is defined as the actions related to expectations, allowance, attitudes, and value of women or men in a given context. Gender is a loaded term as it further determines the opportunities, responsibilities, and resources awarded to males and females (UNDP, 2010:1). Socialisation within a community plays a significant role in the definition of gender because of the attributes, opportunities, and relationships formed by members of each sex (Lorber, 1994:102), thereby deriving that gender is an achieved status and is learned through socialisation processes.

3.2.2 Disaster risk management

Disaster risk management is defined as a process of *applying disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contribution to the strengthening of resilience and reduction of disaster losses* (UNISDR, 2009). Additionally, disaster risk management uses three concepts namely prevention, mitigation and preparedness responses to manage the occurrence of a hazard (FAO, 2008:iii). Recognising the need for vulnerability reduction as the foundation for resilience against disaster risk, planning and mitigation measures need to be built under a new strategy of community-based disaster management. Community-based disaster risk management is a process of reducing vulnerabilities and strengthening the capacity to cope with a hazards (Yodmani, 2001:8). This activity is done by assessing a community's exposure to hazards, analysis of vulnerabilities and capacity to cope (Yodmani, 2001:8).

3.2.3 Gender mainstreaming

Gender mainstreaming is a strategy for promoting gender equality (UN, 2017). Gender mainstreaming involves the integration of gender perspectives in any planned action including legislation, policies, or programmes in all areas and at all levels (ECOSOC 1997:2). It is a strategy for making both women and men's concerns and experiences an integral dimension of

the design, implementation, monitoring and evaluation of policies and programmes (Mukhopadhyay, 2014:356). It also entails that both men and women in different spheres, i.e. political, economic and societal aspects, benefit equally and inequality is not perpetuated (ECOSOC, 1997/2).

3.2.4 Coping capacity

Coping capacity is the ability of people, organisations and systems using available skills and resources to manage adverse conditions, risk, hazards and/or disasters (UNISDR, 2009). The capacity to cope requires continuing awareness, resources and good management. Coping capacities contribute to the reduction of disaster risks (UNISDR, 2009).

3.3 Foundation of gender analysis

During the occurrence of a natural hazard, the normal functioning of a community is disrupted (Neef & Shaw, 2013: xix). The disruption triggers widespread human, material and economic loss thus testifying to the capacity of social groups towards finding creative and effective ways to cope in the face of a disaster and its aftermath (Neef & Shaw, 2013:xix). However, the means of effective response to the adversity of a disaster is among other factors dependent on external qualities of the individuals affected, such as age, physical ability, citizenship status, cultural group, and gender (Enarson, 2000:vii).

Gender is a primary organising principle of societies, thus when building knowledge about all people living in risky environments, gender must be addressed (Enarson *et al.*, 2007:130). Within disaster risk, gender is an important variable because it envelops social factors that contribute to the vulnerabilities within an area. According to Neumayer and Plümper (2007:1), in disaster prone areas, gender maintains as social structure of society, and shapes the status quo, access of individuals, and behaviour of people in affected areas. The experiences of individual men and women in the event of a disaster showcase difference in coping capacity, opportunity, socio-economic and biological actions such as average physical strength (Enarson, 1999:159). With this in mind, developing a gender analysis is paramount because it systematically addresses all gathered information on gender differences and social relations (Reeves & Baden, 2000:2).

3.4 Gender: an overview

According to Eckert and McConnell-Ginet (2012:1) gender lines exist in the general functioning of societies. The lines of gender are found in institutions that provide direction for society and also the actions of men and women along with their beliefs, desires and conversations they have (Eckert & McConnell, 2012:1). Based on a report compiled by UNESCO (2000:6), in nearly all societies, men and women behave differently, dress differently and have different attitudes and interests. Van Niekerk (2014:5) adds that the differences between men and women include their needs and priorities. These differences found between men and women are not biologically or genetically determined, rather they are socially constructed (UNESCO, 2017:6). From a tender stage in human growth, both men and women are moulded through socialisation within the community and also exist within the borders of the community they inhabit (Crespi, 2003:1). As a result, humanity is split through gender into two groups being men and women (Crespi, 2003:1). As fundamental contribution to the theoretical literature of this study, conceptually gender needs to be clarified specifically to reduce the confusion with sex (Caplan *et al.*, 1997:7).

3.4.1. Distinguishing sex and gender

Establishing the difference between sex and gender has been deemed crucial in literature aimed at establishing sexuality (Delphy, 1993:2). The first work to depict a definite difference between sex and gender was by the sociologist Ann Oakley in 1972 (Oakley, 1985:16). The work of Ann Oakley highlights existing sensitivities between sex and gender dating back as far as 1960 (Moi, 2005:15). According to the World Health Organization (WHO, 2010:13), distinguishing between sex and gender is an important step in examining societal influences on masculinity, femininity and the established gender order in a given society. For example, societies differ with respect to the relative status of men and women in an area; the reproductive status of men and women, the abilities of men and women to make decisions concerning their livelihoods; access of men and women to and control over resources, all of which depend mainly on the understanding of individual male or female association (WHO, 2010:13). Hence in sociology, sex and gender are standardised to mean different content areas (Wharton, 2011:1), which will be explored and explained in this section.

According to West and Zimmerman (1987:125) sex is described as attributes of biology, anatomy, hormones and physiology. As an example, women physically have breasts, hips and reproduce through pregnancy whereas males have facial hair, an Adam's apple and flat chests (Delphy, 1993:2; Oakley, 1985:16). Attributes of biology are further reinforced by Siann (1994:3) through identification of individuals as male and female. Encapsulated, the biology and the

physique of individuals as genetic makeup and reproductive organs and the organisation of individuals in societies are essential to distinguish individuals as male or female (Richardson, 2010:1). Additionally, a person is born either male or female, and therefore it can be assumed that sex is an ascribed status (Siann, 1994).

As opposed to sex, gender is defined as the roles and responsibilities of men and women that are created in families, societies and cultures (Østergaard, 1992:6). Enarson (2012:23) points out that gender is a social construct that prescribes behaviour for men and women. As a result of prescribed roles, expectations, behaviours, activities and attributes that individual societies consider appropriate for men and women, gender differences in communities influence livelihoods. An example of gender differences is variance in social rules and norms (WHO, 2010:13). Bearing the above in mind, the concise definition of gender is provided by UNISDR (2015) that gender advocates the character of being male or female and having differences that are associated with masculine and feminine behaviour as prescribed by society.

Gender can consequently be described as the actions of humans, it is not a character one is born with or acquired, whereas sex is an attribute of birth based on reproductive potential (Eckert & McConnell, 2012:1). The relationship between sex and gender is formed socially through behaviour, as gender is the term given to the action of prescribing duties to men and women by virtue of biological sex (Eckert & McConnell, 2003:1). From this perspective, the terms sex and gender are closely linked, however, they differ in meaning (Stoller, 1968:9).

A related concept to the clarity provided by separating sex and gender is gender roles. Sex is a biological concept and gender is a social construct influenced by social attributes such as culture, tradition, environment, and psychology (Wood & Ridgeway, 2010:334). These social attributes are referred to as gender roles and manifest in expectations awarded to men and women within societies (Blackstone, 2003:335; Connell, 2009:10).

3.5 Gender roles

The formation of an identity through gender begins with association either as a male or as a female (Schwalbe & Staples, 1991:159). This association happens through a socialization process where attributes such as expectations, rights, obligations, and traits of temperament are prescribed upon gender (Aidala, 1985:288). All societies are structured around patterns that are aimed at establishing day-to-day social interaction (Lindsay, 2015:2) in order to subconsciously construct gender roles.

According to Blackstone (2003:335) gender roles are viewed as ideas and expectations that individuals, groups and societies have towards individuals based on their sex and societal

values and beliefs on gender. Furthermore, gender roles and identities are the most basic constructs by which individuals are guided (Aidala, 1985:288). For example, according to Blee and Tickamyer (1995:21), gender roles have significant influences on marital and family dynamics of men and women. In some cultures and traditions being female is associated with care for others and domestic chores whereas being male is associated with being aggressive, competitive, dominant and independent (Badgett & Folbre, 1999:311). The care for others ascribed to women includes a daughter not neglecting her parents, a wife never leaving her husband, and a mother never abandoning her child (Badgett & Folbre, 1999:311). Men are given freedom to be outdoors, excel, grow up to be powerful, financially stable, and breadwinners (Women's Commission for Refugee Women and Children, 2005:6). As a result, gender roles give ideas and expectations to society regarding behaviour and action that is appropriate for men and women (Yerby *et al.*, 2010:1).

The ideas and expectations of men and women are not always equal. In Africa, gender roles tend to favour men and male dominance thus allowing and encouraging female subordination through cultural and institutional practices (UN, 2008:4). According to Ashwin (2000:1), being a man connotes power, dominance, strength and authority. This premise is concurred by Østergaard's (1992:210) statement that culture usually suppresses women's roles in the family by declaring men as head of the family. Based on the above, Wood and Ridgeway (2010) suggest that gender roles restrict males and females in terms of what they can and cannot do.

3.6 Gender stereotypes

Society does not function in the singular but rather through a collective forum that shapes the behaviour and actions of men and women within that particular society (Giuffre, 2013:1). For example, the behaviour and actions of individuals become indoctrinated as the manner of living and functioning of society (James, 2011:11). According to Huddy and Terkildsen, (1993:121) men and women have different traits ascribed to them by society. These traits develop from socio-cultural factors such as nationality, culture, beliefs, and social status (Kerkhoven *et al.*, 2016:2). As a result gender stereotypes are defined as images, beliefs, attitudes, or assumptions about men and women in societies (WHO, 2017). Some of the stereotypical images and beliefs of men include having an aggressive character, being forceful, independent, and decisive whereas women are perceived as kind, helpful, sympathetic and concerned about others (Heilman, 2001:658).

However, stereotypes are usually negative and based on assumptions derived from gender norms, roles and relations (WHO, 2017). Gender roles and stereotypes become problematic when they attach expectations to one social group over another (Grau & Zotos, 2016:761). Grau

and Zotos (2016:761) further note that the problem is intensified when social groups are burdened through restriction of opportunities and social standing. As a result, men and women develop differently, and often have different specific skills (WHO, 2002:2). They also have different life experiences, and therefore different concerns, needs, and priorities (WHO, 2002:2).

3.7 Gender attributes

Gender attributes have been highlighted above through a focus on sex and gender differences, gender roles and gender stereotypes. Gender does not stop individual men and women from doing things, rather, it makes them perform certain duties and functions (Holmes, 2007:61). This further entrenches the status of gender as a social construct and highlights the social realities that form due to contributions from women and men (Homes, 2007:61). Reeves and Baden (2000), supported by Holmes (2007:6), propose that the differences between men and women that are attached at birth, exist as a result of social structures such as culture, gender discrimination, gender mainstreaming and patriarchy.

3.7.1 Culture dynamics

According to Reeves and Baden (2000:4) culture is the ideas, beliefs, norms and way of life that a society or community lives by and that makes them stand apart. Culture in a gendered context means that the rights and responsibilities for men and women are defined through societal beliefs (Dawit & Busia, 1995:8). In addition, culture describes the beliefs of a society especially those linked to tradition and religion (Schalkwyk, 2000:1). The ideologies that are associated with gender reinforce male power and women inferiority.

Gender and culture are two closely related concepts. According to Schalkwyk (2000:1) gender is shaped by culture through the distribution of expectations, attributes and behaviour appropriate to women and men. Culture shapes gender through assigning meaning to biological differences of sex among people (Brosekhan *et al.*, 2012:19). These meanings are the various gender roles attached to males and females. Similarly, culture influences the functioning of different institutions within the society, creating boundaries or prohibitions for certain types of behaviour from certain individuals. The boundaries set by culture are referred to as norms as they are derived from cultural values (Brosekhan *et al.*, 2012:17).

In light of the above, human society is shaped by cultural values and norms (Wahab *et al.*, 2012:1). Cultural practices reflect the values and beliefs shared and transmitted by members of a community for generations and generations (Wahab *et al.*, 2012:1). Every social grouping in the world has specific traditional cultural practices and beliefs, some of which are beneficial to

all members, while others have become harmful to a specific group, such as women (Maluleke, 2012:2).

In Africa polygamy is a fundamental custom and cultural practice (Anderson, 2000:99; Hayse & Liaw, 1997:293). In rural areas, men have a choice of marrying more than one wife with women being treated as subordinates of men and have no choice in the matter (Hayse & Liaw, 1997:293). The legal system (Customary Law) of Swaziland grants men power over their wives and this includes the power to represent her in legal proceedings, power of the common life of the family, and power over all property belonging to the wife (Nhlapho, 1983: 19). On account of polygamy, Swaziland accepts the practice as legal custom just like South Africa (Thobejane & Flora, 2014:1060). For example, King Mswati 3rd, king of the Swazi nation has 15 wives who are all accepted and condoned as queens of the nation (Government of Swaziland, 2017). Women, however, are often denied the same privileges as men, restricted to marrying only one man (Nhlapho, 1983:19). This challenges the balance of power between men and women and supports gender equality as action against gender discrimination (DAC, 1999:11).

3.7.1.1 Patriarchy

Patriarchy is defined by McDowell (2015:28) as a form of social organisation where men are at the centre and play dominant roles in social life including having authority in families. This definition is derived from Walby's (1990:20) proclamation that patriarchy is practiced where men exploit women, are dominant, and oppressive. In addition, Holmes (2000:28) highlights that through this systematic subordination of women through social structures, men constrain women's life choices and chances. Examples of patriarchal practices included subjecting women to reproductive roles, housework, paid work, the state, culture, sexuality, and violence without option to counter (Holmes, 2000:28).

In Swaziland, the common law relegates married women to the legal status of minors under the guardianship of their husbands (Southern African Litigation Centre, 2017). According to the Marriage Act of 1964, a married woman cannot independently conclude legal contracts of any nature without the permission of her husband. This restriction includes the ability to access bank loans, mortgages, and financial credit (Marriage Act, 1964). The legal position of common law in Swaziland supports patriarchy, further enforcing the separation and difference between men's and women's access to resources.

3.7.2 Gender discrimination

The unfavourable treatment of individuals based on qualities such as sex, race, religion, culture or gender is described as discrimination (Pokharel, 2008:80). Gender discrimination is recognized as one of the most prevalent forms of discrimination worldwide (Busse & Spielmann, 2003:3). Discrimination based on gender affects the capacity of men and women to achieve equality within societies (Pokharel, 2008:80). For example, in Christian culture, women and men are not deemed equal hence the rejection of women as priests in the church (Pokharel, 2008:80). This advocates Reeves and Baden (2007:7) stance that women are traditionally treated with less value compared to men because discrimination against women manifests itself through social dimensions like culture, politics, race, economy and religious belief within a community.

Gender discrimination is, therefore, created through the prejudiced treatment of an individual or group due to gender practices such as norms, culture and people (Shastri, 2014:27). Furthermore, gender discrimination describes behaviour that systematically produces unfavourable treatment of individuals based on gender therefore denying individuals of rights, opportunities and resources (Reeves & Baden, 2000:2). Gender equality, therefore, is integral to concern raised among women, law makers and statesman regarding gender neutrality (Reeves & Baden, 2000:7).

3.7.2.1 Gender equality

Men and women have different roles and statuses within societies they inhabit (Guez & Allen, 2000:6). Socialisation continuously shapes and moulds individuals to fit into the categories of male and female behaviour constructed by society (Crespi, 2003:2). Within societies, differences between men and women are found in the variation between employment capacity, access to the world resources, health, culture and religion, politics and human rights (Guez & Allen, 2000:27). According to the United Nations Population Fund (UNFPA) (2017), gender equality is a human right. Furthermore, it is a precondition for advancing development and reducing poverty through women empowerment (UNFPA, 2017).

Globally, gender equality has become an issue and global bodies are determined about ensuring that equality between men and women exists (Columbia Law School: 2017:2). Gender issues and non-discrimination on the basis of sex were included in the Universal Declaration of Human Rights (UN, 2017). Moreover, the Millennium Development Goals emphasize the promotion of gender equality and empowering women (Kavuma *et al.*, 2014:1).

In regards to disaster risk reduction, gender equality is a core factor in the implementation of developing framework (Kavuma *et al.*, 2014:2). The Hyogo Framework of Action (HFA)

recognized the gap between men and women, thus setting out five priorities for action for the engagement and role of women. Additionally, in the interest of gender equality, the post-2015 Sendai Framework for Disaster Risk Reduction gives a strong indication of the value of having a gender perspective towards disaster management and women empowerment

3.8 Gender mainstreaming in society

According to Holmes (2000:12) gender mainstreaming is an organizational strategy to bring about a gender perspective to all aspects of any institutional policy and activity. This includes policies, programmes and projects at all government levels (McGregory & Bazi, 2001:11). The main focus is building capacity and accountability (Holmes, 2000:12). This means that gender mainstreaming aims at ensuring equality between men and women by focusing on the policies and practices within a community (Walby, 2004:22). According to the European Institute for Gender Equality (EIGE) (2013:10) gender mainstreaming further involves a process of change and transformation implying that all policy is made in an integrated manner.

Gender mainstreaming branches off from gender equality and seeks to take women's concerns into account (McGregory & Bazi, 2001:11). Women have been generationally marginalized, therefore the United Nations Third World Conference on Women (Nairobi, 1985) snowballed, bringing women issues into policies, programmes and projects. Building from the knowledge and lessons learnt from previous gender equality policies the needs of women and men have integrated policy, programmes and projects worldwide (McGregory & Bazi, 2001:11).

In the field of Disaster Risk Reduction, gender mainstreaming is a crucial tool because it addresses women within disaster. Gender mainstreaming seeks to reduce the negative impact of disasters on women through policies, strategies, action plans, and programs (UNDP: 2013). Additionally, women's groups both nationally and locally benefit from employment of gender sensitivity in disaster risk reduction because their capacity is enhanced (UNDP, 2013).

3.9 Gender and disasters

Disasters affect social groups differently and to different degrees (Fordham *et al.*, 2011:10). The livelihoods of men and women are affected by disasters in all spheres, namely human, material, economic, social and environmental (ISDR, 2008: V). During a talk on Women, Disaster Reduction and Sustainable Development, the UNISDR Secretariat (UNDP, 2003) said *"Both women and men are part of the same society, which, as we know, does not mean we have the same rights, education, and options to manage, neither in 'normal' times, nor when a disaster strikes"*. The occurrence of disaster in society is a consequential challenge of the established roles and stereotypes imposed on men and women (Le Masson *et al.*, 2015:9).

Gender roles, values and beliefs of men and women are very important towards understanding the influence of gender during disasters, because it determines the resources and opportunities of individuals (Mehta, 2007:1). For example, according to Briceño (2002:2), stereotypes and roles such as women being care-givers and men being job-seekers, create vulnerability barriers and hinders equality. The vulnerability of women is created by the disproportional access to resources between men and women. According to Enarson and Chakrabarti (2009: XIII) men and women are impacted by disasters differently depending on their exposure to risk, potential harm, and vulnerability. In addition, Le Masson *et al.* (2015:9) state that disaster vulnerabilities of women and men force demographics to mobilise different capacity building mechanics that allow resilience.

According to Enarson and Chakrabarti (2009:xii) the magnitude of disasters on gender demands the need of establishing and practising gender sensitivity towards analysing disasters and building disaster risk reduction policy and practices into the promotion of building a culture of safety. As an extension of encouraging gender sensitivity, policies like the Hyogo Framework for Action, the Millennium Developmental Goals and the Sendai Framework for Disaster Risk Reduction have been developed, indicating that disaster management is a vital tool towards addressing gender during a disaster.

Disaster management is defined as an integrated process of planning, organizing, coordinating, and implementing measures that are needed for effectively dealing with the disaster impact on people in a community (Deshmukh *et al.*, 2008:2). From a gender perspective, the socially constructed duties and roles of men and women can be performed interchangeably and result as a tool of dealing with the impacts of a disaster (UNESCO, 2017:6). According to the International Labour Organization (ILO, 2008:1) external sudden events or crises like war, famine or drought can radically change the roles of men and women. During World War II, the number of economically active women rose dramatically for the first time in Europe indicating that gender equality can be achieved in spite of the effect of adverse events on society (ILO, 2008:2).

Building a gender sensitive disaster risk management strategy to resist drought includes four key elements, viz. mitigation, preparedness, relief and long-term reconstruction (Atmanand, 2003:286). Firstly, mitigation or risk reduction activities include structural and non-structural measures undertaken to limit the adverse impacts of natural hazards (Atmanand, 2003; Boshier *et al.*, 2007:5). Structural mitigation looks at hazard mitigation in terms of strengthening buildings and infrastructure exposed to hazards (building codes) (Boshier *et al.*, 2007:5). Non-structural mitigation on the other hand involves shifting or relocating new developments to safer

locations and protecting natural environments such as forests and vegetative areas (Bosher *et al.*, 2007:5). Secondly, preparedness deals with reactive activities and measures taken in advance to ensure effective response to the impact of hazards, including timely and effective early warnings and temporary evacuation of people and property from threatened locations (Moe *et al.*, 2007:789). Thirdly, response is also important through providing assistance and intervention during or after a disaster to meet the life preservation and basic subsistence needs of those people affected (Moe *et al.*, 2007:790). Lastly, reconstruction refers to the rebuilding of damaged living conditions of the stricken community with the aim of long term sustainability (Moe *et al.*, 2007:790).

3.10 Conclusion

Gender, as well as gendered disaster management was introduced in this chapter as social constructs, shaped by the different culture, geographical, politico-economical and social conditions existing in societies (Crespi, 2003:3). Enarson (2000: vii) states that disaster interventions should be built around the knowledge and understanding of the gendered context of the community. Gendered attributes such as gender roles, stereotypes, cultural dynamics, and customs dictate capacity and response to disaster, thus emphasising the need and value in building understanding of relationship between gender and disaster management (Holmes, 2007:6; ISDR, 2008:V).

To conclude, this chapter has built on gender and identified how best to define and explain the phenomenon. This chapter has explained how disaster management is valuable to ensure societal vulnerabilities and gender prejudices can be met. This enquiry was important because it validates acknowledging the different gender lines during the occurrence of disasters, especially how these gender lines contribute to the adoption of different survival strategies/coping skills to withstand this occurrence.

Chapter 4: Research design and methodology

4.1 Introduction

This chapter describes in detail the strategy that was used by the researcher in gathering information to address the research objectives and questions. In general, research methods are the tools and techniques for doing research (Williman, 2011:1). According to Maree (2007:262) research methodology is the logical and scientific accountability of assembling relevant information from literature and accumulating results to answer the research questions set out in the chapter, and to gain understanding of the research problem. In consensus, De Vos *et al.* (2011:110) state that research methodology further includes the description of specific methods or instruments which have been used to collect data, and the procedures for administering the data collection instruments.

Thus this section begins by explaining how research was carried out by describing the research design of the study. Under the umbrella term mixed-method design the researcher engaged in a collective process of depicting the findings as statistical patterns and narratives of personal experience (Creswell, 2015:2). Following this, the chapter discusses sampling and the sampling procedures that were used during the research.

As set out in the literature review, this study draws attention to published contexts regarding the gendered nature of coping during a drought and the impact on the livelihoods of the following communities in the research area, namely:

- Inkhundla Mhlangetane: Manjengeni community
- Inkhundla Mhlume: Mhlume community
- Inkhundla Matsanjeni Nord: Mambane community
- Inkhundla Mpolojweni: KaShoba community
- Inkhundla Lomahasha: Lomahasha community

The sampling method that was used within each community mentioned above was a stratified purposive sample and random quota sampling. The reasons for using stratified purposive sample and random quota sample will be discussed, and succeeded by a discussion of how data was collected.

The instruments for collecting data based on the set objectives in chapter one include focus groups, semi- structured interviews and survey questionnaires. The advantages and disadvantages of using these instruments will be provided as a means of ensuring validity and

reliability. After the description of research instruments and collection of data, the chapter will elaborate and explain how the gathered data will be analysed.

The analysis of data was done through an interpretation process, generated from synthesizing recorded data from focus groups, responses from the semi-structured interviews and the opinions gathered from the survey questionnaires. The primary aim of this process is to give an account of the existing and current drought coping mechanisms and practices employed in the Lubombo region from a gendered perspective. Additionally, this chapter will authenticate the information by describing the reliability and validity of the data gathered.

Finally, this chapter concludes by discussing the limitations and ethical considerations adhered to during the research phase. The challenges met included distance and culture barriers, while the ethical considerations ensured that all activities followed an approved ethical code of conduct.

To correctly use the above research methodology, discussion will begin with a look at the research approach and research design, followed by sampling and sampling procedures, description of research instruments as part of data collections, and end with data analysis procedures.

4.2 Research design

A research design is a plan, structure or strategy that the researcher uses to explain all research decisions made (Abosede & Onanuga, 2016:113). These decisions include how data will be collected, what instruments will be employed, how these instruments will be used, and the means that will be used to analyse the data collected (Enayet & Supinit, 2016:465). In addition, using a research design ensures that the research questions and objectives are met (Kerlinger, 1986:279). As a blueprint of conducting the study, using a research design ensures that the research questions are answered validly, objectively and accurately (Kumar, 2014:122). A research design is therefore the type of enquiry within a set methodological approach that the researcher will use. Due to this nature, Denzin and Lincoln (2011:243) refer to research designs as the strategy of enquiry in research. The crux of what research design is, therefore focuses on describing a comprehensive plan and procedure followed by the researcher to answer research questions set out in chapter 1 (Abosede & Onanuga, 2016:113).

The three primary models of enquiry within the mixed methods approach are (Creswell, 2014:15)

1. Convergent parallel mixed methodology;
2. Explanatory sequential mixed method; and
3. Exploratory sequential mixed method.

An exploratory design is used in a study when the problem under investigation is new, has a high level of uncertainty, has unknown variables and when the problem or subject is not well-understood due to limited availability of existing research on the subject matter (Creswell & Clark, 2007: 75; Edmonds & Kenny,2013:167). Based on this premise, the main aim of exploratory research in this study, is to explore a phenomenon in depth and then measure the prevalence of this phenomenon based on the boundaries of the environment in which the problem is found (Creswell & Clark, 2007:75).

As a relatively new field of study, gender and disaster risk reduction exist adjacent to each other (Enarson *et al.*, 2007:130; Fothergill, 1996:33). The progress and challenges in mainstreaming gender perspectives in disaster risk reduction result from the principle that the roles and relationships of women and men in Disaster Risk Reduction should be analysed within a gendered socio-economic and cultural context (UNISDR, 2009:2). Using exploratory research is therefore vital because it aids in establishing an understanding of how best to include and clarify gender issues in Disaster Risk Reduction research, and thus fostering a complete understanding of disaster risk within societies (Fothergill, 1996:34).

As can be seen in Figure 1, quantitative data must first be collected and analysed, then through that analysis, a foundation for qualitative collection and analysis is built. Lastly the data is interpreted. The purpose of an exploratory sequential mixed-methods design is to explore a phenomenon through qualitative data gathering and then using quantitative techniques to explain the relationship found in the qualitative data.

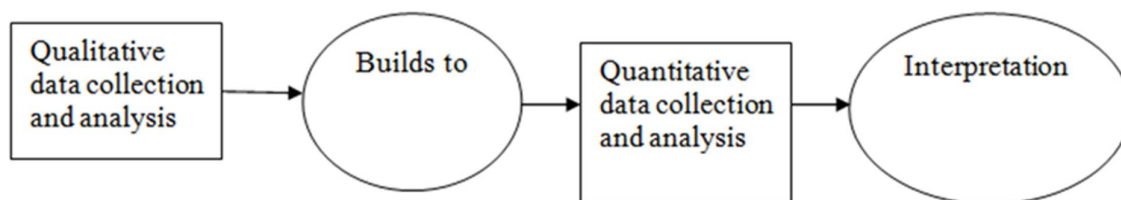


Figure 5. Flow diagram below depicting the sequence within the exploratory sequential design (Subedi, 2016:573).

An exploratory sequential design is a two-phased approach (Creswell & Clark, 2007:77) beginning with the researcher exploring a problem or subject through qualitative data collection and analysis (Creswell, 2015:39). In the second phase, the qualitative results and findings are interpreted, analysed and developed into measures for experimentation or quantitative research (Creswell, 2015:39). During this study, exploratory sequential research was done by selecting participants by virtue of their sex, male or female. This target population of men and women answers the primary goal of building a gendered perspective of drought in the Lubombo region, Swaziland.

4.3 Sampling

During research, sampling includes a process of selecting units, be it individual people or groups from a population that is being studied (Fox & Bayat, 2007:54). These smaller groups, extracted from the bigger, aid in acting as representatives of the larger group by providing appropriate in depth information about the topic or study (Brynard & Hanekom, 2006:54). With this in mind, De Vos *et al.* (2008:224) highlight that samples play a significant role in research because they reduce tediousness, constrain data mass, and enhance feasibility especially during the analysis and interpretation stage. Thus, sampling is the process of deciding how many participants will be selected in the study, and how these participants will be selected (Onwugbuezie & Collins, 2007:281).

Sampling in mixed methodology research refers to the process of choosing participants and areas of interest in both, qualitative and quantitative designs (Creswell, 2015:40). Each research design (i.e. qualitative or quantitative) has sampling strategies, which ought to be adhered to and will be discussed below.

According to Teddlie and Yu (2007:77) mixed-method strategies include probability (random), purposive (non-random) and convenience sampling. For the purpose of this study, the focus was on probability and purposive sampling. Probability sampling techniques are primarily used in quantitative studies through the selection of units from a large population pool. This is done in a random manner with the probability of including all population members based on a certain set of criteria. Furthermore, the primary aim of probability sampling is to demonstrate how the chosen sample successfully represents the interests and purpose of the entire population.

Contrary to probability sampling, purposive sampling techniques are often used to make a qualitative enquiry (Teddlie & Yu, 2007:77). This process involves the blatant selection of individuals, groups, or institutions based on a particular measure, reason, or to answer a set research question (Maxwell, 1997:235). This characterisation is further defined by Maxwell's

(1997:235) explanation that purposive sampling focuses on selecting individuals or settings that will yield important information unattainable from any alternative.

For this study, the researcher used critical case sampling as a purposive sampling tool, as well as probability sampling in the form of stratified random sampling. Each sampling technique will be discussed in the following sections.

4.3.1 Purposive sampling

According to Etikan *et al.* (2015:2) data gathering is a crucial component of conducting research. The contributions presented through acquired data enhance the understanding of the theoretical framework and literature. It is for this reason that the researcher used a purposive sampling technique of collecting data to enhance and focus on the purpose of the study.

Purposive sampling is a non-random technique that allows the researcher to generate new theory by obtaining new insight or fresh perspectives about the target (Tashakkori & Teddlie, 2010:357). Using purposive sampling allows the researcher to use informants who are key, elite or central to the topic, and can furthermore give an account of the topic (Tashakkori & Teddlie, 2010:357). As a primary form of collecting qualitative data, purposive sampling techniques such as selecting individuals to represent men and women groups in the Lubombo region, have been used by the researcher (Teddlie & Fu, 2007: 77).

In critical cases, the researcher chooses a setting, group or individuals based on the specific characteristics because their inclusion provides the researcher with compelling insight about a phenomenon of interest (Tashakkori & Teddlie, 2010:358). Guided by the research objectives presented in chapter one and the theory built in chapters two and three, the group of interest was gender specific. Men and women were selected from various communities with the intention of gathering information about coping mechanisms used by each gender during a drought. The value of using critical case sampling as a purposive sampling technique was to narrow down the data collected to ensure it was area-specific and relevant. Showing the comparison between men and women has also been achieved by means of purposive data collection.

Using the critical case purposive sampling approach, sixteen participants in each Inkhundla/regional administration were identified. Separate to the focus group sample. Within these sixteen, eight participants were men while the other eight were women... Male and female individuals who reside in Mhlangangetane, Mhlume, Matsanjeni Nord, Mpolojweni and Lomahasha Inkhundla were chosen to obtain their perspectives regarding the gendered coping mechanisms in the Lubombo region. This supports Palinkas *et al.* (2015:534) description that

purposive sampling involves identifying information-rich cases experienced about the phenomenon of interest. In addition, participants were also chosen based on setting and the area in which they reside. The ultimate goal of this process was to apply the findings to the general population of Lubombo (Krefting, 1991:220). The qualitative data obtained from these interviews and focus groups was used to develop a questionnaire survey. Questionnaire surveys fall under a quantitative enquiry, which was administered randomly and discussed further below, in section 4.3.2.

4.3.2 Stratified random sampling

Probability sampling, also known as random sampling is a sampling which permits every single item from the universe to have an equal chance of presence in the sample (Etikan & Bala 2017:2). Under the umbrella of probability sampling are various types of probability random sampling techniques; for the purpose of this study, stratified sampling was used.

Stratified random sampling is a sampling technique that divides the population into several types and then sampling randomly within each type (Shi, 2015:3). This process is done to bring about an understanding or representative variation between a population regarding a characteristic of interest (Teddlie & Yu, 2007:79). Stratified sampling divides the sample pool into sub groups that are homogenous within the population and generates a sample within each subgroup as a reflection of the entire group (Etikan & Bala 2017:2).

During research, the researcher divided the population within each Inkhundla/administrative region into relevant characteristics, men and women. The division aimed to show variation and representation on a larger scale of the views of men and women. Forming strata out of the population of interest, eight women and men were randomly selected to represent the Inkhundla of interest and ultimately represent Lubombo as a whole.

The overall sample made a total of eighty participants (80), where sixteen (16) participants gave information qualitatively and quantitatively. The sample size (16) for qualitative data was determined by data saturation while sample size for quantitative data was determined by statistical power calculation using Survey Analytics. Focus groups, interviews, and survey questionnaires were the tools used to gather data.

4.4 Data collection

The process of data collection is achieved through numerous strategies (Hox & Boeije, 2005:593). These strategies include experiments, surveys, structured questionnaires, participant observations and focus groups (Hox & Boeije, 2005:593). Through the aforementioned instruments or strategies, data is generated and knowledge is built.

Adhering to the aforementioned structure of using exploratory sequential design, data was collected sequentially. Collecting data sequentially means beginning with a qualitative procedure of gathering and acquiring data through interviews, open-ended questions, documents, and focus group discussion. According to Zohrabi (2013:254) collecting qualitative data uses texts to gather, analyse and interpret information. Succeeding the qualitative procedure is a quantitative enquiry. Creswell and Clark (2007:114) point out that quantitative instruments for gathering data are closed-ended questions, aptitude tests, measuring techniques, interviews and surveys. These instruments are further characterised as being numerical and tools of gathering, analysing, interpreting, and contrasting information to yield factual deduction (Zohrabi, 2013:254).

The interactive process of the exploratory sequential design was used for collecting data in this study. Using this process, the researcher collected perceptions, attitudes and strategies regarding the gendered nature of drought-coping mechanisms. The study participants were both men and women within drought-prone communities in the Lubombo region, Swaziland. The recruited individuals involved participants who could best provide knowledge and background on drought, livelihood patterns and the interaction between men and women in ensuring risk management. For reasons of clarity and an interactive discussion, focus groups and semi structured interviews were used as a foundation for questionnaire surveys, which varified and argued the results of the population.

The two-phase strategy under the exploratory sequential design employed by the researcher is explained in the next section, starting with focus groups and semi-structured interviews and how these instruments were used by the researcher. Succeeded by a quantitative data collection phase, the second phase of data collection is discussed by making inference to questionnaire surveys and the value it adds to this study.

4.4.1 Focus groups

Focus groups discussions are an interactive instrument of gathering information using a qualitative enquiry. The hallmark of focus group discussions is to aid in generating better understanding of how people feel, think, and perceive a particular issue (De Vos *et al.*, 2011:360). Kitzinger (1995:299) adds that the importance of focus group discussions is to explore the knowledge and experiences of participants. Thus, the synergy of focus group discussions allows participants to draw inferences of one kind or another, brainstorm ideas and explain the variation in perspectives about a specific topic.

In this study, the focus group discussion instrument of collecting data was chosen because it allowed the researcher access to and understanding of the socially constructed gendered views, opinions, and experiences of the participants. The views of the participants are important because through this research, they are generalised as the view of the general public. Additionally, focus group discussions served as a platform to discuss drought, in particular the effects, occurrence and capacity to withstand the phenomenon.

The researcher conducted ten focus groups, two focus group discussions per administrative region (Inkhundla). The participants were divided into a group of men and a group of women. This encouraged comfortability of participants and the flow of discussions held. The researcher furthermore recruited six to ten participants for each focus group to ensure that a representative number of the population was sampled. A total number of eighty three (83) participants were part of the focus groups. Forty four (44) participants were men and thirty nine (39) participants were women.

During the focus group discussions non-verbal communication from the participants was not documented and a non-threatening environment was maintained by the researcher. The researcher managed to establish good rapport by clarifying the research aims and objectives to the participants. The number of questions in the focus group discussions was twenty-four (24) excluding the eight (8) participant information questions. The twenty-four questions were clustered by key research themes, namely, gender, drought and coping mechanisms (see annexure 1). However, disadvantages of using this instrument exist. De Vos *et al.* (2011:374) acknowledge that limitations arise during research and stress that researchers need to develop skills to rise above these challenges. The challenges that were experienced during data collection included having a dominant participant, dress code and the age of the researcher. Dominant participants were silenced by directing follow-up questions to probe more opinion of other participants. Dress code was very important especially when conducting focus group discussions with men, and the researcher had to be bashful in presentation and wear a skirt.

The traditional nature of the community dictated the dress code, which was respected by the researcher. Lastly, the age of the researcher in relation to the participants and questions of culture and gender seemed to be a challenge in the beginning but ultimately changed as respect of opinion and traditions of Swaziland was identified.

4.4.2 Semi-structured interviews

According to De Vos *et al.* (2011:351) semi-structured interviews are essential in research when the aim is to gain detail on a particular topic or to understand a controversial issue. Semi-structured interviews offer the researcher the chance to probe the participants' responses thus encouraging detail and clarity (Harris, 2010:1).

In this study, semi-structured interviews were conducted with the senior members of government (Inkhundla Structure). This was carried out with the intention of exploring the gendered perspectives of local government during the occurrence of a disaster such as drought. Furthermore, semi-structured interviews were conducted to gather information on the strategies used by administrative bodies in the Lubombo region to mitigate drought. Semi-structured interviews were thus chosen as an instrument of gathering information because they aid the researcher in gaining information from an interviewee by means of verbal interchange and questions (Kajornboon, 2005:6).

A total of six (6) respondents participated in the semi-structured face-to-face interviews. One government official in each administrative region (Inkhundla) was interviewed, including the regional Inkhundla officer of the Lubombo region as the sixth. Together with the collected views of respondents in focus groups, self-completion survey questionnaires were developed.

4.4.3 Self-administered survey questionnaires

As part of the second phase of collecting data a quantitative enquiry was engaged. Survey questionnaires guided by focus group responses were compiled and conducted on sixteen participants (eight men and eight women) in each administrative region/Inkhundla. The advantage of self-completion questionnaires rests in how they are standardized and made uniform, cheap, absence of interviewer effects, and time-saving (Bryman, 2011:133). The disadvantage, however, is that self-completion survey questionnaires lack room for justification or explanation. Self-completion questionnaires, furthermore, lack contact with the researcher for clarity when and if a question is ambiguous, and may not be appropriate for some kinds of respondent (Bryman, 2011:135). For example, respondents who have limited literacy in English and cannot read siSwati, will not be able to answer the questionnaires.

The sixty-six questions from the self-completions surveys stem from the themes identified through analysis of data from the focus groups and semi-structured interviews. The 66 questions within the survey address drought impact, gendered reaction to drought impact and coping mechanisms through eight themes:

1. Respondents perception on drought
2. Financial impact of drought
3. Environmental impact during drought
4. Social impact of drought
5. Gendered differentiated roles during drought
6. Culture and gender roles within coping with drought
7. Drought coping strategies
8. Risk and vulnerability exacerbated by drought

These themes answer the broad topic of gendered differentiated drought-coping mechanisms in the Lubombo region. The purpose of the self-completion survey was to evaluate the influence of social constructs such as gender and culture in building capacity and strategies to with stand and resist the adversities of drought in the Lubombo region.

A total number of 80 surveys were compiled, 60 of 80 were-hand delivered to participants in each administrative region (Inkhundla), and the remaining 20 were emailed through a software called Survey Analytics. The self-completion questionnaire surveys were distributed over a two-month period. After the questionnaires had all been gathered, data analysis could commence.

4.5 Data analysis

According to Creswell and Clark (2011:212) exploratory sequential design data analysis consists of collecting data through a two-phase process. The value of separating collected data for analysis is to ensure that the research questions and objectives are met (Onwuegbuzie, 2011:2). For the qualitative component, the primary focus is the identification of themes resulting from a thematic analysis that will infer the quantitative component. The quantitative component will give descriptive and inferential statistical analysis to the collected data. Thus, the analysis of data collected in a mixed-method study is dependent on the research design of the study (Creswell & Clark, 2007).

Beginning with phase one, which is the qualitative component, the researcher used a thematic data analysis by Creswell (2009), firstly, assigning initial codes: Initial codes can be a word, a phrase or the respondent's own words. Secondly, revisiting initial coding: At this stage, a large number of codes would have been developed. Some will be redundant and will need to be collapsed and/or renamed (Creswell (2009).Thirdly, developing an initial list of categories:

Modified codes were organised into categories. Fourthly, modifying the initial list based on additional re-reading: After re-reading, a decision was taken on which categories were less important than others and/or could be combined. Lastly, revisiting categories and sub-categories: The list of categories was revisited with a view to final organising. The final organisation included organising codes into concepts of the most informative manner.

Qualitative data regarding men and women experiences during drought, as well as the perspectives on coping with drought was analysed to characterize and understand the social contexts, and attitudes of men and women in drought-prone areas. Open-ended questions were posed to the focus group participants and discussions were recorded using voice-recording techniques. The recordings were done to ensure all responses given by the participants are precisely and accurately documented. At a later stage, once all focus group discussions had been completed, the recordings were transcribed by the researcher revealing common themes. Using the thematic analysis process, textual data was analysed and classified to present classifications for interpretation (Ibrahim, 2012:40). The themes mentioned in section 4.4.3 were extracted from the narratives and summaries of the observations made by the researcher and where a comparison between men and women was drawn to investigate the impact of drought on communities within the Lubombo region, including what coping mechanisms men and women in the region employ.

In phase two, following the analysis of phase one, a quantitative enquiry was conducted. The use of the survey questionnaire in this study aimed at answering research questions in a statistical manner to achieve numerical justification of the narratives and themes of phase one. The survey questionnaire data was entered into a software database, that quantified each question answered. Using Survey Analytics, a statistical analysis of the survey questionnaire was interpreted and compiled. The results of the analysis have been reported in the form of a discussion in chapter 5. The discussion will provide information on how high a percentage of variance existed between the perceptions of men and women during a drought.

.4.6 Ethical considerations

Ethical rules and behaviours are followed by researchers in the social sciences to prevent harm to others and to protect themselves (Boeije, 2010:44). Gaining knowledge during research can be executed through various mediums, such as photography, tapping observations, voice recordings and written letters (Boeije, 2010:44). Thus researchers must consider the moral implications of their research and research activities.

During this study the researcher adhered to ethical principles to ensure morally-founded outcomes, beginning with informed consent. In research, the researcher has an obligation to

outline the full nature of the data-collection process and the purpose of the data collected to the participants (Boeije, 2010:45). In the study a covering letter accompanied all survey questionnaires and was handed to all focus group participants including government officials who were part of the semi-structured interviews. The cover letter further included the topic of the research, the purpose of the research, and the procedure that would be followed by the researcher during data collection. Additionally, the cover letter served as an open invitation to participants, highlighting voluntary consent and unforced participation, open to cancellation at any time.

Subsequent to informed consent, confidentiality is an important ethical principle to adhere to during research. Confidentiality within research refers to privacy and how data collected is handled (Boeije, 2010:46). A key component of confidentiality is being anonymous, and within the study participants names have been withheld (Boeije, 2010:46). Only the researcher has access to the names of the participants and refers to participants in group language (men and women).

4.7 Validity and reliability of the data

Validity and reliability are rooted in positivism where the role of the researcher was limited to data collection and interpretation through an objective approach and the research results are observable and quantifiable (Bothma *et al.*, 2010:42).

Validity is one of the most important components in research (Ihantola & Kihn, 2011:48). According to Creswell and Clark (2011:210), all good research should ensure validity of the data, results and interpretation of knowledge. Validity in qualitative research is not the same as in quantitative research (Creswell & Clark, 2011:210). In quantitative research, the researcher has to ensure the *quality of the scores from the instruments used, and the quality of the conclusions drawn from the results*+ (Creswell & Clark, 2011:210). Hence, the quality of the scores was maintained through the employment of external software (Survey Analytics) as this ensured the statistical procedure of the research. Achieving reliability in qualitative research looks at the stability and consistency of the variables (Heale & Twycross, 2015:66). According to Heale and Twycross (2015:66) repeatability is also important and in this study, it was achieved by having a set of questions that can be administered in other circumstances. This study would yield the same findings if presented once over because the same questions were presented to respondents during the questionnaire surveys. This consistency advocates how the study is repeatable and valid.

In qualitative research reliability is a key attribute, seeking to ensure participant responses are consistent and stable (Creswell & Clark, 2011:211). The focus in qualitative data is more on reliability than validity, because narratives need to be checked based on occurrence, trustworthiness, and credibility (Creswell & Clark, 2007:146). The researcher ensured reliability through observation and photography of the gendered coping strategies given by communities. To ensure trustworthiness of the account provided by the researcher, accuracy with narratives of participants included voice recordings of conversations. These recordings were listened to over and over again to ensure all opinion was correctly transcribed. The credibility of the researcher included carrying the aforementioned cover letter that was signed by the researcher and the researcher's supervisor. This letter was additionally written on a North-West University letterhead, including the African Centre for Disaster Studies logo to assure all participants that the researcher was a master's student conducting research for academic purposes.

Validity in qualitative research is achieved by Lincoln and Guba (cited by Bothma *et al.*, 2010) proposed trustworthiness as an alternative construct for validity and reliability in qualitative research. Trustworthiness has three epistemological standards which will be used as criteria to assist the value of findings according to the standards, strategies and applied criteria to ensure rigor in this research (Bothma *et al.*, 2010; Golafshani, 2003:602). Firstly, in terms of credibility, the supervisors evaluated the research proposal to determine the true value of the study. To augment credibility of the study, the researcher sought advice from the supervisor throughout the study to appraise the research process and outcomes. Secondly, dependability and consistency were achieved through consensus discussions between the supervisor and the researcher to determine themes of the study. Lastly, neutrality in the study was achieved by the researcher consulting, using audio recordings and independent coding software (Survey Analytics) to analyse the transcripts.

4.8 Conclusion

Throughout this chapter, mixed-methods research was conceptualized, explained and discussed. Using both qualitative and quantitative research approaches to derive an answer to the research questions and objectives, this study used exploratory sequential design. Building on this, exploratory sequential design was employed as method of building knowledge on the relationship between gender, drought and coping capacities in the Lubombo region. Through the use of participants from five administrative regions which serve as representation of Lubombo as a whole, coping mechanisms used by how men and women to cope with drought have been gathered.

In addition, as a foundation of the research process, this chapter has indicated the manner in which qualitative data was used to build up quantitative data. This sequence will be adhered to in the subsequent findings chapter where the discussion will be around what the gendered coping mechanisms of drought-prone communities are regarding the social constructed boundaries of Lubombo region, including the acknowledgement of disaster risk reduction. Statistical interpretation will be presented in support of the theoretical thematic analysis.

Chapter 5: Empirical findings and analysis

5.1 Introduction

In this chapter the results of the gathered are presented and analysed. Based on the outline in chapter 4, a combination of qualitative and quantitative research approaches called mixed-methods research were used in this study to provide an account of the gendered coping mechanisms used by men and women in the Lubombo region, Swaziland. This analysis is grounded in the sequential exploratory design. A thematic analysis was used to build a descriptive qualitative knowledge, followed by quantitative analyses of the quantitative data collected through instruments developed from the findings of thematic analysis of qualitative data (Creswell, 2015).

According to Braun and Clark (2006:79) thematic analysis is a process used to identify, analyse and report patterns found in collected data. Using thematic analysis, this study further derives themes from data collected through focus group interviews and semi-structured face-to-face interviews. This process stems from Braun and Clark's (2006:86) proclamation that thematic analysis is a process involving instruments such as interviews, focus groups, and texts to generate data. Thematic analysis of data is vital because it draws attention on the predetermined study focus located in the research questions and ultimately the research topic (William *et al.*, 2015:81). Subsequent to the allocation of themes, patterned responses form a background and accompany empirical data. In sequential format, quantitative data was analysed using Survey Analytics, which is software that can capture data online, as well as capturing data in the numerical format (Rahman, 2017:105; Survey Analytics, 2017). Both qualitative and quantitative data is presented side-by-side under qualitative themes.

5.2 Thematic analysis of qualitative data

A thematic analysis was used in the below integrated analysis of the information presented by the participants. This study has eight themes that will be discussed separately, pointing out their contributions towards addressing the research topic.

5.2.1 Biographical information of participant

The purpose of the first theme was to analyse selected demographic characteristics of the respondents and determine the value of each characteristic in terms of answering the research questions. This study points out six demographic characteristics: precise characteristics include gender, current social standing, marital status, race, social organisation and area of upbringing. These demographic characteristics were considered invaluable to the study because they create context and reasoning behind the implementation of specific coping mechanisms by different communities during drought in the Lubombo region.

Data was obtained from men and women of Inkhundla Mhlangatane, Mhlume, Matsanjeni, Mpolojweni, and Lomahasha. Respondents who participated in the focus groups interviews included traditional leaders (i.e. chiefs), Indvuna, community leaders and community members as representative of all community inhabitants. Following demographic characteristics such as variables of acquiring data, participants responded and gave background information about their households. The relevance of building or identifying the variety in demographics, is to display the vulnerabilities contexts within the same community. These vulnerabilities will be discussed against drought and ultimately disaster risk reduction practices within the Lubombo region.

5.2.1.1 Gender

Gender disparities in disaster risk reduction as a field of study are rooted in the social, economic and political spheres (see section 3.4). The livelihoods of men and women are shaped by gender, including impacts and vulnerabilities (see section 3.6). This stance contributes to the study and research topic by drawing attention to the value of building a differentiation analysis. Based on the principles of a mixed-method enquiry, during the qualitative analysis eighty two (82) participants in total were drawn from the five above-mentioned administrative Tinkhundlas. The proportion of men was greater than that of women, because access to men and women in the Lubombo region is unequal and restricted by culture. Within the legal system of Swaziland, women are subordinates of their husbands (see section 3.6.1) and thus the researcher had to acquire permission from husbands to interview their wives. Resulting from this challenge, some females were not given permission and this caused most participants in focus groups interviews to be slightly skewed towards favouring males.

5.2.1.2 Marital status

Marriage is a social institute governed by laws and customs characterising the behaviour of individuals (Nock, 2005:6). Respondents identified that women and men in Swaziland conform to marriage because it is an expectation of society. Marriage in Swaziland is not only a social status but also identity, particularly for women (Russell, 1993:54). The Lubombo region in Swaziland showcases marriage as an institution and system either being practised currently by individuals or having been practised at certain points in time. In this study, the majority of women respondents were married, whereas men included an equal number of both married and unmarried individuals. The women further indicated that being female was characterised with attributes of gender, marriage and being a wife. Contrary to women, the social standing of men is not dependent on marriage; it is rather determined by number of children, house duties and responsibilities.

5.2.1.3 Area of upbringing

The Lubombo region is described as being extremely vulnerable to weather-related shocks like drought (SVAC, 2016:iii). The impact of drought has challenged the ways in which the population has access to food, nutrition and economic needs. In this study, the majority of the participants were from rural areas, and migrated to urban areas in search for employment opportunities in the agricultural industry. The lack of resources in the rural areas was highlighted by the respondents as major reasoning for moving to towns, cities, and per-urban towns in the region. Respondents emphasised that due to the experiences and upbringing coping with drought varied as coping mechanisms stem from societal behaviour during environmental shocks.

The vulnerability of respondents in the area corresponded with the report given by Swazi VAC (2016:iii), stating that understanding where participants grew up is helpful in determining the source of knowledge participants have regarding coping with drought, and the methods that are used during a disaster.

5.2.2 Theme focus 1 Perception of drought

The respondents and the researcher engaged in a number of focus group interview discussions to find out the respondents' perspectives on drought. Questions regarding conceptualisation, characterisation and experiences of drought were asked and answered by the respondents. At a general level, most respondents understood drought as a period where there is scarcity of water, food and financial security, resulting in hunger. Numerous times respondents said *komiso indlala yodvwa, kumaima kulima*+this translates to *drought means hunger, farming is a serious challenge*+

Respondents residing in the Lubombo region acknowledged their dependency on farming, arguing that drought challenges successful production yield. Maximizing agricultural production has been identified in literature as essential for food security and thus during a drought crop yield gaps increase. Residents of the Lubombo region further explained that yield gaps disturb the stability of food supply. Literature points out that agriculture is gendered, as during a drought women plan and mitigate the impact of drought by changing cropping systems. Respondents agreed with literature, highlighting that regardless of the challenge of insufficient water, hunger is mitigated through development of patterns such as saving bath water to use as irrigation water, growing fast-maturing vegetation and planting crops that don't require a lot of water.

The gendered implications of women as the backbone of farming include making decisions on the crops to be planted, including where and how these plants will be planted. Men adhere to this role differentiation and help women where needed. Most respondents mentioned that men have the role of helping women with tractor driving, livestock herding, ox ploughing and during harvesting. During a drought respondents declared that this interchange and collaboration of roles and duties guarantee livelihoods by encouraging sustainability within communities.

5.2.3 Theme focus 2: The impacts of drought

Drought events have the largest impact on society (see section 2.6.3). The damages that occur from drought are pointed out in the literature as economic, environmental and social.

5.2.3.1 Economic impact of drought

According to Kreimer and Arnold (2000:143) coping with the economic impact of disasters is associated with the allocation of funds for assistance and understanding the financial abilities of a community. During a drought there is a close association between fluctuation of food, prices and unemployment. The respondents highlighted that food prices soar during a drought forcing various communities within the study focus to sell assets such as livestock, vegetables and services like domestic work and prostitution for women, as well as producing and selling drugs for men. Selling assets generates income and respondents use this money for buying food and clothes. The respondents further highlighted that the financial impact of drought induces poverty and undermines the existence of sustainable livelihoods. For example, respondents mentioned that the vulnerabilities and disadvantages of rural areas worsen; water availability is scarce on a day to day basis and during a drought rivers and reservoirs become dry. This forces community members to buy water for survival.

When the respondents were asked about the activities performed by men they replied that men are breadwinners and because of this culture should bring in money for the family. Both men and women responded the same stating that money lightens the burden of drought by giving those affected access to better services. Access to money or financial security is a responsibility of men, requiring them to migrate from rural areas in the Lubombo region to peri-urban areas in search for jobs. As a means to conform to the demand for money, respondents were questioned on where they receive money from and how well they value it. Women responded that money is received from husbands and male partners (boyfriends and cohabitants).

In women-dominated household where men are not there to provide financial support, respondents mentioned that access to money is managed by women. Women collect wood in

the forests and bushes and sell them to communities. Respondents mentioned that buying wood is a growing business during drought seasons.

5.2.3.2 Environmental impact during a drought

The livelihoods of communities within the Lubombo region are dependent on livestock and agricultural production (Tadesse, 2010:3). Respondents repeatedly identified that, during a drought, lack of rainfall to feed agricultural produce and livestock creates a strain in societal functioning and thus intensifies already existing vulnerabilities within the society. To emphasise this point, the respondents referred to livestock as %ibhange lemaSwati+translating to %be bank of the Swazi nation+.

Respondents further explained that because of the mortality rate of livestock, cattle in particular men and women buy feed to save their animals. Feed that is normally bought during a drought includes bales of grass from farms in the urban areas, molasses from the sugar plantations to substitute nutrients in the cattle feed. The buying of feed was identified as the only option because naturally the lack of water causes grass not to grow. With the lack of naturally growing grass, livestock starve and end up dead.

5.2.3.3: Social impacts of drought

The empirical findings revealed that the social or livelihood impact of drought includes cultural change and gender dynamics within the community. Traditionally, including culturally, women stay at home, raise children and provide for the family domestically. During a drought, women are highlighted by respondents as becoming independent of these duties by getting jobs in cities and acquiring money to cope with drought. Furthermore, culturally men provide for families both financially and domestically, serving as %head of the family+. However during a drought, it was identified that men leave family set-ups and migrate in search of jobs and better lives. %Kuhlehla+a traditional ceremony where men (Swazi warriors) pay tribute in labour at the royal kraal becomes a refuge, as men leave home and permanently stay at the royal residence because there is food and shelter provided for all warriors. Consequently, the impact of drought on the livelihoods of men and women is grossly affected by drought and culture.

These social factors determine the vulnerability of a community. The livelihood of a society changes according to the risk levels towards the impact of drought. Attributes such as loss of jobs, human loss, loss of social support systems, exchange of goods for food, children withdrawal from schools and farming all happen when a drought occurs, according to the respondents.

Support among the communities within the Lubombo region is very important because the community members depend on one another. According to the respondents, during a drought the community works hand in hand, women go to neighbours and seek labour or assist with washing, cleaning and collecting wood in exchange for food or money. Women respondents mentioned that a 25-litre bucket of dirty laundry is charged as 20 emalangeni and cleaning such as windows is charged at 50 emalangeni a day. Men begin transportation businesses, they usually turn their vehicles into taxis, children are responsible for gathering water at pump stations and create rotation systems to balance out labour within the homesteads. These practices all seek to affirm that social support is available within the community.

Some respondents, however, feel that during a drought, the community members become self-centred. A traditional Swazi saying was used numerous times during the research data-gathering stage, *%Gubela kwesakhe+* that translates into *%ocusing on oneself and ignoring anyone else+*. Respondents explained that during droughts community members do not want to share, hogging all food and job opportunities for themselves and relatives. A minority of the respondents felt that this behaviour exists because people are so hungry, that food is rationed and accounted for monthly. When a neighbour comes over to ask for food, it is a burden as there is not enough food to share. Another reason for the adoption of such an attitude is because foreign aid received in Lubombo region aims at giving food to women and children before providing men with assistance. A programme by World Vision was highlighted, where food, cloth and water samples were given to households; however, based on how many elderly women and children under sixteen live the part of household. Respondents added that this disadvantages households dominated by men.

5.2.4 Theme focus 3: Gender differentiated roles during drought

Moreover, socialisation is the root of social structures within societies, including attributes such as expectations, rights, obligations and traits of gender that are prescribed on men and women (Aidala, 1985:288). According to FAO (2012) there is a gender gap between men and women in relation to disasters, particularly drought impacts and societal livelihoods because gender roles determine power and access to resources. With this in mind, it was imperative to ask the respondents whether being a man or a woman has implications within the community, and what happens to the functions of men and women during a drought.

The respondents indicated that roles and responsibilities including vulnerabilities vary between men and women. Respondents further discussed that during a drought, men have to continue to provide financially for the household and maintaining their role as head of the household. The roles of women during a drought include assuming domestic tasks like gathering wood and

water and taking care of children. Such views are in line with the literature. For instance, Lindsay (2015:2) states that societies are structured around patterns and behaviour that dictate day-to-day living.

According to Garbero and Muttarak (2013:1), social differentiation and the availability of assets make certain groups more exposed to risk and less capable of adapting to certain situation or disasters. Looking at the drought disaster in Lubombo, Swaziland, the respondents echoed this position stating that men and women have different vulnerabilities and thus they are impacted on differently by the occurrence of a drought. The vulnerabilities of men, as pointed out by the respondents, were psychological pressures. The burden of maintaining the household and the fear of failing as a provider was a big concern among men in discussion sessions. In the case of women, vulnerabilities include lack of resources, e.g. money and exposure to exploitation, especially from men. These vulnerabilities, according to the respondents, were the major contributing factors with reference to gender roles and gender barriers.

Furthermore, the researcher asked respondents about the different roles that men and women have. The reason for this question was to discover the foundation of these roles and whether the roles could be interchanged between men and women. The underlying reason for difference in roles was summarised as power relations and patriarchy. With regard to power relations, respondents from all five Tinkhundla noted that men and women do not possess the same level of power and dominance. This affirms that gender determines the power relations in a household. The management of resources in the household is gender dependent. This position was undisputed by some respondents and they indicated that it varied with individuals such as those who are academics, religious people and traditionalists. The researcher asked follow-up questions to determine the root of this position and unanimously received the response %advodza ngumhholi nje ngci+translating to %a man is a leader, full stop+. To the researcher this indicated that this role (and practice) is so ingrained that it has no justification.

In accordance with the nature of the country, the Lubombo region is largely considered patriarchal. Respondents were of the opinion that men are regarded as stronger and have better access to resources than women. Women have less access because they do not have an identity outside being their husbands' wives and their children's mothers. This practice and lifestyle make women vulnerable and dependent on men. Respondents further discussed how the patriarchal nature of the region makes coping mechanisms challenging to administer because men have to publicly present systems of coping as second-hand information, thought of and initiated by women, because women do not have a public opinion.

Customary rules and regulations mandate livelihoods; however, cultural customs are undermined by the adversities of drought. There are basic responsibilities that never change regardless of the external influences, which are domestic work and responsibilities. Domestic responsibilities are maintained by women during a drought and not by men at all. The patriarchal nature further classifies men as head of the household and as *breadwinners*. The distinction (and difference) between men and women includes resources that are managed and accessible between individuals depending on sex. Resource allocation favours men over women, further heightening women's vulnerability.

Talking to people in each inkhundla/administrative region, culture continued to be identified as a gender separation tool. The livelihoods of men and women in the Lubombo region are vulnerable to drought. The livelihoods of the residents of the region derive from subsistence agricultural production. During a drought all agricultural production is at risk, thus all farmers have to ensure adoption of interventions to sustain production. The adoption of interventions is a challenge for men's and women's sustainability and equality because women have fewer resources than men. Literature further explained that due to the uneven access of resources women have low adaptive capacities. For example, the economic status of men and women is not the same, as women are lower than men, as men earn 67% more than women.

5.2.5 Theme focus 4: Drought-coping mechanisms

A drought-coping mechanism is identified as the central theme of this study, as the study seeks to identify the coping mechanisms employed by men and women in the Lubombo Region to withstand drought. Based on the literature studied and the responses gathered, drought-coping mechanisms are the activities and practices that men and women employ to withstand, adapt to, rise above and tolerate the drought situation in their community. This study in section 5.2.4 above revealed that activities and practices of men and women during drought are differentiated. The results of the respondents highlighted migration, foreign aid and crop production changes and water management, sales of livestock, assistance from government departments like Regional Development Agriculture (RDA) and household activity changes.

5.2.8.1 Migration

In the Lubombo region people migrate to other towns, especially those next to industries and plantations as means of searching for employment. The towns targeted are Big Bend, Mhlume and Tabankhulu, and respondents mentioned that these towns have sugar plantations and employ most men as cane-cutters and women as sugar planters. Despite this, the majority of the respondents identified that migration was a coping mechanism used by men due to cultural and societal roles as being financial providers of households. In addition to migrating for

financial gain, men also migrate to search for livestock feed and water, through buying livestock land the “*Kukhonta*+system (i.e. traditional land acquisition, allocated by chiefs).

During a drought, the migration of men was further identified by the respondents as posing a challenge to the sustainability and security of the household. Migration affects household functioning because women are left behind to raise children by becoming heads of families.

The majority of the respondents felt that during a drought, men as per the responsibility of being bread winners and symbol of financial security, relocate in search of income, employment and greener pastures to provide food for their families. Migration is not perceived as a positive coping mechanism because family structures are torn apart by the drought and men never return home.

Additionally, once the men migrate, women are forced to rise above cultural constraints and become providers for their households in the absence of their husbands. The respondents explained that women assume the roles of men during droughts, resulting in females being heads of families. Drought continues to undermine culture, forcing some practices such as keeping livestock, water management being solely women-oriented and women not having jobs paying more than men, to be abandoned.

5.2.8.2 Foreign aid

Foreign aid during drought seeks to build the capacity of the community through strategies such as training, food donations and self-reliance skills (BBC News, 2016). The training of community members using the chiefdoms and Inkhundla (i.e. administrative region) meetings equips community leaders and members with coping strategies during drought events, such as eating twice a day, using animal waste as manure, dividing food among days and using bath water to irrigate plants and vegetables. The study further highlighted food donations by Non-Governmental Organisations (NGO) as coping mechanisms. Respondents mentioned that once every two weeks, food donations are handed out to the community as mitigation tool. Organisations such as Philani MaSwati, World Vision, World Food Programme and CANGO have dedicated themselves to ensuring this mechanism. Thus, most respondents felt that communities depend on the food sample donations during a drought. The food packages aim to supplement the lack of basic food accessibility for communities and to bridge the gap between the ability to sustain the livelihoods of communities and adapting to impact of disasters.

5.2.8.3 Crop production during drought

The Lubombo region is a farming sanctuary, with crop production being the main source of income, food and livelihood. To reduce the negative impact of drought respondents stated that various adjustments are made during drought to crop production. The production adjustments are made so that production loss can be averted. The various coping mechanisms used in the region include shifting to wide spacing when planting, planting rapidly maturing crops, having smaller gardens, and planting crops in different directions.

During drought periods men and women explained that the crops that are grown include sweet potatoes, nuts and juko beans. They further mentioned that because of the scarcity of water, women put water in water bottles and open tiny hole at the bottom of the bottle. The water irrigates the plant a drop at a time thus keeping them moist and controlling water usage as well.

5.2.8.4 Water management

During droughts, water scarcity within the community, in particular rural areas, threatens the livelihoods of individuals (Enfors & Gordon, 2008: 607). Men and women depend on water for survival, hence the respondents indicated that water management coping mechanisms are developed and applied, to withstand and adapt to the scarcity. The respondents further discussed that water management is practised through activities such as regulating domestic water usage, regulating water to fulfil basic household activities, separating water gathered by quality, either for consumption or for cleaning and watering plants, all of which fall under the umbrella of allocating water strategically.

Women also described that during drought seasons, local water pumps overflow with people queuing to fill buckets and 25-litre tanks. Due to the high volume of people, some individuals come home empty-handed without water. This process forces households to collect river water and purify it using traditional methods of purification such as the use of Jik and Dettol. The purifying ratio is 1 teaspoon of disinfectant for every 25 litres of water and leaving it to settle for a full day. The respondents mentioned that this makes river water consumable.

5.2.8.5 Sale of livestock

This research has determined that livestock in the Lubombo region represents wealth and food security. As a way of addressing drought, livestock farmers continuously have to sell cattle as a means of generating income and providing finance for their households. Additionally, a minority of the respondents were overwhelmed by the drought and resorted to selling their livestock for money.

The dominance in the sale of livestock was also highlighted by a minority of men. The frequency of lobola ceremonies was said to be the reason for the growing number of cow sales during droughts. Respondents described that as the prices of cattle dropped, men ready to take a wife would buy cows to pay lobola for their girlfriends.

5.2.8.6 Government departments

Tinkhundla Administration, as a branch of the government of Swaziland, has the responsibility to ensure that vulnerable and at-risk farmers are assisted during droughts. This assistance takes place through building capacity through radio announcements. Information such as drought-resilient crops to plant and methods of planting them are announced.

According to the information gathered from the government officials, the field of disaster risk reduction is new in the country. The growth of the field is drawing attention on the varied behavior and methods of coping that men and women have. Government officials further acknowledged that women are target population during a disaster such as a drought thus imposing interventions that begin with assisting women.

5.2.8.7 Household coping mechanisms

Respondents described the coping mechanisms used in households as including skipping meals, reducing the portion sizes of meals, and having small gardens to plant vegetables as opposed to buying vegetables. Other activities that are performed during drought include cutting back on personal hygiene by, for instance, not bathing on weekends. The lack of money encourages cooking outside and not on electrical stoves inside, as electricity and handy gas are expensive. Women collect wood for household use and also to sell to neighbours in exchange for food or money.

5.2.9 Theme 6: Risk and vulnerability exacerbated by drought

The collection of drought coping mechanisms, such as migration, foreign aid donations, crop production management, water management, sale of livestock, household activity adjustments and implementation of government suggested behaviour and programmes, all seek to address the risk and vulnerability of individuals during a drought. In pursuit of addressing the need of building capacity through coping mechanisms employed by men and women, the PAR model is employed. The management and reduction of vulnerabilities faced within each Inkhundla, are identified as triggers through the PAR model, formally referred to as the progression of vulnerability consisting of three stages: root causes, dynamic pressures and unsafe conditions (Fordham *et al.*, 2011:7).

Table 1: Table depicting the application of the Progression of Vulnerability in PAR model.

The progression of vulnerability	Root causes	Dynamic pressures	Unsafe condition
Physical exposure	-Presence of houses, people and livestock in areas without sufficient rain	- Settlement in hazardous zones -Socio-spatial segregation	-Inequality between men and women - Class society: patriarchy -Marginalisation of women over men
Social Exposure	-Culture dictates the way of living	-Inadequate water availability -Inadequate water management	-Livelihood adjustment -Farming changed and deemed impossible
Physical	-Physical incapacity to resist or cope with impacts	-Hunger becomes common -cheap labour -Adjusting coping mechanisms	-Migration
Judicial/Legal	-Culture separating men and women activities, duties and responsibilities	-Implications of the Marriage Act -Implications of the Common Law stating women to not have legal or community standing - Women seen as domestic and family primary care givers	-Coping mechanisms of men and women are different -Dependency on men to continue to provide, regardless of impact -Generalised system of men above women
Socio economic	-Subsistence farming economy -Hierarchy, class society and	-The economic crisis of Swaziland -Unequal structures of land ownership	-Low income and minimal affordability of resources, particularly the women as very few

	<p>patriarchy dictate the economic structures in homes</p> <p>-Marginalisation and inequality brought on primarily by culture behaviour</p>	<p>- Differences in power between men and women</p>	<p>work.</p> <p>-Women depend on resources from selling vegetables</p> <p>-Selling homes and livestock to have acces to credit</p> <p>-prostitution as survival and manner of making money</p>
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According to Naumann *et al.* (2014:1591) understanding the vulnerabilities of individuals to drought is a challenge because vulnerabilities depend on biophysical and socio-economic factors and the impact of these factors on the capacity to cope. The vulnerabilities of the Lubombo region are closely associated with risk. The majority of the residents live in rural areas and thus in the event of a drought, individuals lack resources to adapt and cope. The livelihoods of men and women in the Lubombo region are threatened by lack of rainfall because the economy is dependent on rain-fed agriculture and they are also threatened by social inequalities between men and women. The respondents identified that this vulnerability is amplified by the lack of resources to withstand weather variations and drought impacts.

5.3 Quantitative data analysis

In this section, the second phase of the exploratory sequential design is implemented. The results of the gathered quantitative data are presented using analyses yielded by Survey Analytics software. The primary aim of this second phase is to give statistical evidence to the responses and coping mechanisms given by respondents in the first phase. This process is presented by using statistical methods such as percentages, frequencies and cross-tabulations.

5.3.1 Understanding the threat posed by drought on the vulnerabilities of the community

The climatic characteristics of the Lubombo region are both arid and semi-arid. Respondents identified two seasons of weather, hot and rainy between November to April and dry and cool weather between during May-to-October. These two seasons were further identified as complex months towards a drought occurrence. In Lubombo, respondents conceptualisation of drought was defined as water shortages and insufficient food. Water shortages resulting from insufficient rainfall were indicated as a severe problem by both men and women at 72.5%. On an average

scaling 25% of both women and men were of the opinion that water shortages described a drought period.

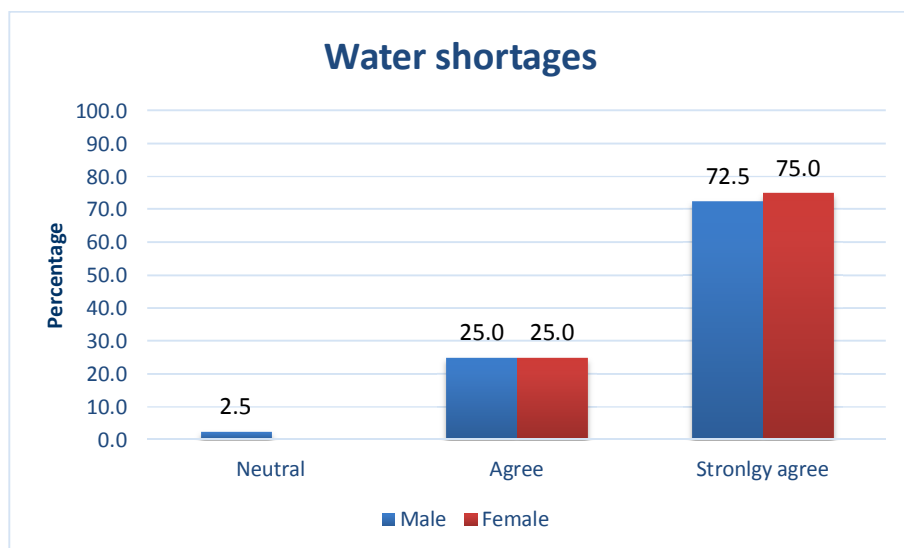


Figure 6: Understanding of the threat posed by drought

In addition to defining drought as water shortages, respondents were of the opinion that during a drought hunger is rife and food resources perish. Statistically, a majority of 77.5% of women voiced this stance strongly and only 65% men strongly agreed (as presented in figure 6). Both men and women respondents merely agreed (22.5%) regarding food security, leaving only 12.5% men neutral (see figure 7 below). Women are thus more aware of and affected by the decrease of food availability as opposed to men. Through these figures the researcher gathered that the concerns of food security are acknowledged by women more than men because women are socially and culturally expected to manage domestic cooking for the household.

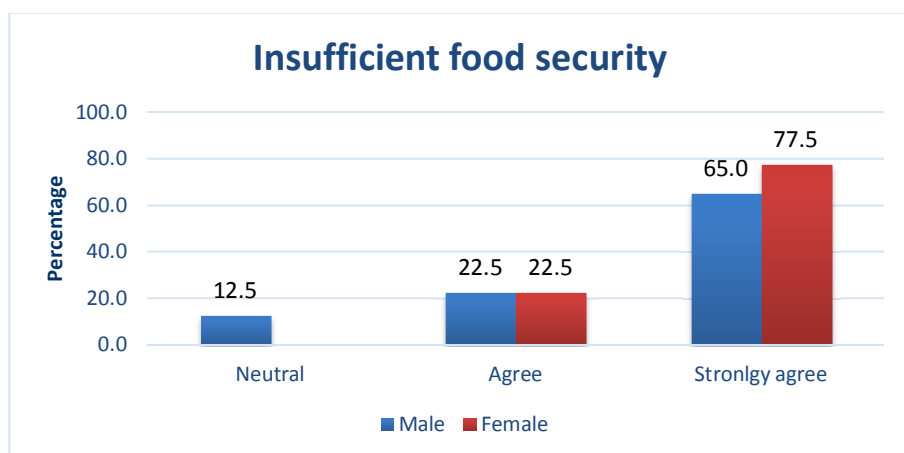


Figure 7: Insufficient food security during a drought.

5.3.2 The occurrence of agricultural drought in Lubombo region

Derived from the qualitative data collection, drought was defined through various synonyms by the respondents. These characteristics included, lacking, hunger, shortages, water-shedding, dryness and changes of lifestyle. In the Lubombo region, the dependency on agriculture fostered the response that among hydrological, meteorological, socio-economic and agricultural drought, the most relevant for the region was agricultural drought.

As an agricultural sanctuary, farming industries harvest sugar and cotton while household rely on subsistence farming for survival. The respondents all agreed that agricultural drought and the lack of soil moisture amounted to a drought. At a neutral level, an agricultural drought occurs in the Lubombo region because the soil loses moisture which results in making crop planting impossible. 10.3% of the men within five Inkhundla administrations stood by this definition, and were supported by 17.5% of women in the region (see figure 8). The number of individuals who agreed with the definition included more men (33.3%) than women (30%).

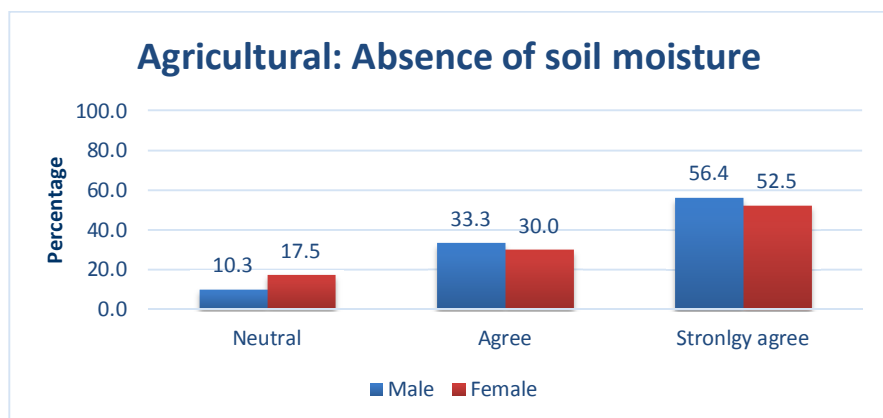


Figure 8: The occurrence of agricultural drought in the Lubombo region

In light of the definition of an agricultural drought, respondents were questioned on the impact of drought on crop production and community's livelihoods. The responses indicated that drought causes a significant decline in the availability of agricultural produce thus causing a livelihood breakdown. Respondents also indicated that drought's magnitude is experienced every second-year (98.75%) due to the region being arid.

5.3.3 Financial capacity and resource identification to address drought and disaster

Having established drought as a phenomenon and a disaster within the region, dealing with the disaster and resisting its impacts includes building capacity in most times. Financial capacity

and resource identification are essential coping mechanisms highlighted by the respondents in the study.

To confirm the demand for money, respondents were questioned on where they receive money from and how well they value it. Out of all the local members of the Lubombo region interviewed, about 73.78% said that saving is a necessity in order to provide for their individual households, while 21.25% attested to not saving (see table 2). In general, respondents declared that saving money was impossible, which stemmed from not having money to save (64.71%), not wanting to save (29.41%) and not having the culture to save (5.88%).

Table 2 below indicates the ways in which drought affects communities in Lubombo, of which the impacts are differentiated between men and women. Money was identified as one of the commodities that alleviate the pressures of drought, because men and women can go to the local super market to buy food, water and clothes. When questioned about money, the respondents replied that:

+ Imali sonkhe siyayidzinga, somiso singabakhona kepha nawunemali imphilo yakho immelula ngoba yonkhe intfo iyatsengeka”

This translates to: money is a need for all people, drought can occur but if you have money life is simple. You can buy everything you need. This response guides the split interest in saving as a practice within the community. Saving is deemed a coping mechanism because it involves behaviour that is cautious and mindful; however, everyone does not accept this habit. Respondents were asked to justify the lack of saving, and responses indicated that the Lubombo region does not have a savings culture among various communities (11.1% women), there is no full access to money to save (men 62,5% and 66.7% women), and the lack of will to save (men 37.5% and women 22.2%).

Based on these statistics, respondents were asked regarding employment and sources of finance. Eighty-five percent of the male respondents have jobs whereas 72.5% of females are employed. Seeking work has become a reality in the Lubombo region, especially because a single income is not sufficient for a household. There is still a dependency behaviour among women towards men and receiving money. A majority of women (77.5%) receive money from someone other than an employer, as opposed to 22.5% of men. Money is received from various individuals and organizations during a drought. During the collection of data, it was discovered that women (54%) received more money from immediate family than men do. Statistics continue to highlight that men received the lowest amount of money from immediate family and

relatives; however, government grants are received by more men than women. The amount received by men from the government is an annual grant of E 2640 (Dlamini, 2013).

Table 2: Financial impact of drought on the community

		<i>Men</i>	<i>Women</i>
<i>Do you save money?</i>	Yes	80%	77.5%
	No	20%	22.5%
<i>If no why not?</i>	We do not have a culture of saving	0%	11.1%
	I have no money to save	62.5%	66.7%
	I don't want to save	37.5%	22.2%
<i>Do you get money from someone (i.e. boyfriend, husband, relative, colleague, friend someone?)</i>	Yes	22.5%	77.5%
	No	77.5%	22.5%
<i>If yes who do you get it from?</i>	Immediate family	20%	54%
	Relatives	10%	22.6%
	Government grant	40%	22.6%
	Any other close relative	30%	0%
<i>Do you have a job?</i>	Yes	85%	72.5%
	No	15%	27.5%
<i>What traditional methods for saving or banking do you use?</i>	Livestock	17.9%	2.5%
	Kuhholisana/Stokvel	10.3%	35%
	<i>Bank</i>	71.8%	62.5%

Table 2 indicates the financial dependency of men and women during a drought. It depicts the responsibilities highlighted in literature that men have in providing financially for households, yet displaying the growth of women towards becoming financially stable.

Based on the results of the financial impact of drought on communities, bridging the gap between men and women's dependency, financial responsibility and inequality depends on

policy development. The adoption of disaster management principles and strategies such as Swaziland Disaster Management Act (1/2006) and the National Gender Policy (2010) seeks to establish functions and responsibilities for all disaster risk reduction governance in Swaziland. These frameworks further serve as stepping stones towards enforcing gender mainstreaming as a means to facilitate equality between men and women. For example, women have been identified as vulnerable compared to men, hence one of the core strategies to ensure gender mainstreaming in the National Gender Policy of Swaziland (2010) is to build the capacity of women in training, development, and management. This step has been echoed in the 72.5% employment rate of women in the Lubombo area.

5.3.4 Livestock and agriculture as priority resources in coping with drought disasters

Severe livelihood change and food security in the Lubombo region during a drought, have been identified by respondents as compelling the liquidation of livestock and agricultural products.

Subsistence dry land farming provides livelihoods for 70% of the population in the region. The occurrence of a drought undermines this livelihood pattern, forcing inhabitants to liquidate livestock in exchange for food and money. Respondents also highlighted that due to the close proximity with the sugar band (Tabankhulu, Mhlume, Simunye sugar estate), during a drought subsistence farming is minimal because land is rather rented out to sugar companies as they have irrigation means and resources. Based on figure 9, the livelihoods of men and women change significantly, as 70% men experienced change and 65% women experienced change.

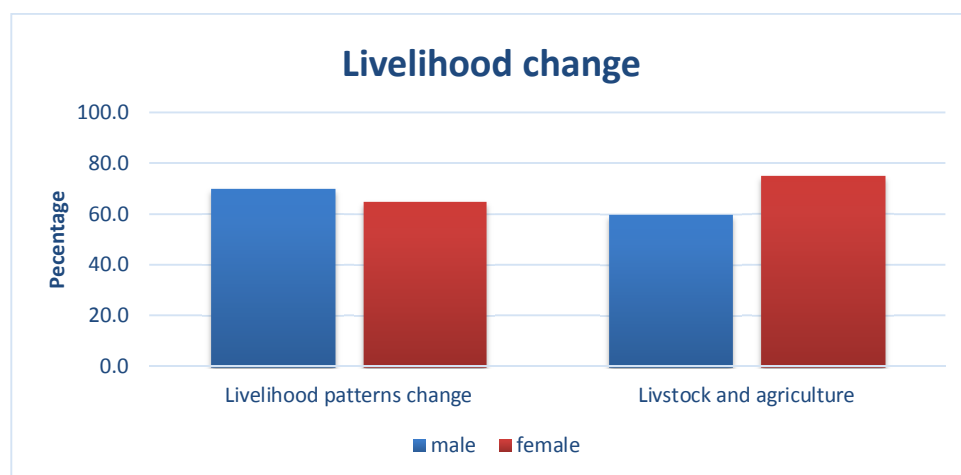


Figure 9: Livelihood change affecting livestock and agriculture

5.3.5 Social Capital and developing disaster risk reduction practices

Social capital and trust relationships in society are very important and valuable for increasing society's livelihoods, standards of living and social welfare of a community (Myeong & Seo, 2016:2). Social organisations such as networks, norms and social trust within a society allow individuals to work together and achieve mutual benefits (Myeong & Seo, 2016:2).

In the Lubombo region social support is important and is made up of neighbours, relatives, government, foreign aid, NGOs and household members. In the event of a drought disaster, 72.5% of men respondents felt supported by the community while 87.5% women felt that support from the community was evident. Coping mechanisms in terms of social capital in the Lubombo region, involved assisting one another through food sample donations from NGOs, borrowing of livestock for farming, food sharing, gifting and loaning of money and helping physically to plough fields of those who have lost cattle. These coping mechanisms are a stepping stone towards evidence of disaster risk reduction within the Lubombo region.

Social capital is thus a pivotal disaster reduction strategy aiming at mitigating the adverse impacts of disasters. Social capital is depicted in the statistics in table 2 as necessary towards reducing the social impact, networks and influences as a form of coping mechanism. The burden of vulnerability and impact is lightened, when community unifies, and acts in solidarity.

Table 3: Social impact of drought

		Male	Female
Do you get social support from community	Yes	72.5%	87.5%
	No	27.5%	12.5%
If yes, what kind of support?	Food sample donation	2.5%	100%
	Borrowing of livestock to farmer	87.5%	87.5%
	Food	55%	45%
	Gifts or loan of money	0%	0%
Do you get social support from Government or NGO?	Yes	80%	20%
	No	97.5%	0%
If yes, what kind of support?	Food packages	65%	76.5%
	Jobs for skilled and unskilled work	20%	23.5%
	Loan of money		
Do you have special knowledge or skills?	Yes	61.5%	55%
	No	38.5%	45%

What knowledge and skill do you have?	Hand craft making	4.2%	68.2%
	Mechanic work	41.7%	4.5%
	Carpentry	37.5%	0%
	Baking	0%	27.3%
	Electronics	16.7%	0%

Table 3 is quantifying the social impact of drought. It aims to explain and give answer in values as to what social livelihoods and vulnerabilities exist in the 5 Inkhundla.

5.3.6 Contribution of gender in effective disaster risk reduction

The literature in the study has indicated that gender disparity and response to drought is directly dependent on the roles and responsibilities of gendered individuals (see chapter 3). Vulnerabilities are associated with women more than men due to culture and opportunity. Respondents highlighted this position by showcasing that during a drought women's traditional duties do not change, duties such as reproduction, household maintenance and agricultural production strain women during a drought. The findings of the study reveal that a large majority (97%) of male respondents believe that men and women have different roles and responsibilities to manage during drought. An affirmative response of 92% women respondents also agreed when asked about the differences in roles and responsibilities as reflected in table 3 below.

Based on the differentiation of roles, the respondents affirmed that gender determines the power relations in a household. This position was affirmed by 95% male respondents. Table 4 below displays the gender differential roles during drought. It reflects the resources associated to men and women by displaying that men have better opportunities over women. For example, 97.5% men and 92.5% women have agreed that, regardless of the situation or disaster, men continue to be heads of the households and women continue to manage the domestic responsibilities of the household.

Table 4: Gender differential roles during drought

		Male	Women
Women and men have different roles and responsibilities	Yes	97.5%	92%
	No	2%	2%
What are the roles of men and women	Gender division of labour	76.9%	91.9%
	Agriculture activities	5.1%	2.7%

	for income purpose		
	Cash crop production and subsistence farming	5.1%	2.7%
	Water use and management	2.6%	2.7%
	Livestock management (cows: men and poultry: women	10.3%	0%
The patriarchal nature of your community	Not at all patriarchal	0%	2.5%
	A little patriarchal	45%	37.5%
	Unsure	7.5%	7.5%
	Somewhat patriarchal	30%	32.5%
	Completely Patriarchal	17.5%	20%
During drought women continue to do domestic work	Yes	100%	100%
	No	0%	0%
During drought men viewed as head of family	Yes	97.5%	92.5%
	No	2.5%	7,5%

5.3.7 Lack of joint drought-coping mechanisms

The literature indicated that men and women have separate activities to perform during a drought (see chapter 2). These activities derive from the social norms, and cultural practices associated with being male or female. It has been mentioned in the results of this study that women are the backbone of agriculture and men are pastoralist. This division separates coping mechanisms as women focus on ensuring crop production and men focus on ensuring that livestock mortality rates do not increase. The researcher notes in this study that although men assist women through carrying of water from rivers and driving tractors during ploughing or harvesting, this assistance was highlighted by the respondents as being separate to sharing drought-coping mechanisms.

5.3.8 Discussion: The integration of qualitative and quantitative findings (see Annexure 2)

For the first theme, the respondents were demographically characterised. Three demographic characteristics stood out from the rest, displaying convergence between qualitative and quantitative data. These three demographic characteristics were gender, marital status and area of upbringing. The first sub-theme, gender, was identified as a manner of differentiating between male and female individuals. Further differentiation was identified through culture lines indicating men as superior than women property. This is in line with the overwhelming majority of male focus group participants. Female focus group participants were subordinate and subject to husband permission.

The second sub-theme, marital status, stems from the distinction of male and female respondents. Marital status in the Lubombo region is important because it describes the identity of an individual. Between the qualitative data and the quantitative data it is clear that respondents conform to the social institutionalisation of marriage.

The last sub-theme, area of upbringing, is important for the foundation of the study because it gives feedback to the practices and mechanisms employed during a drought. Vulnerability and risk are relative phenomena, thus characterised by individuals' urban or rural background. Respondents who grew up in the rural areas compared to urban areas are more poverty-stricken and aware of their vulnerability towards drought. Most women in the Lubombo region were born in the rural areas - (37.5%) women compared to men at 35%. Resulting from vulnerability risk and poverty identification, more women than men were identified as migrants in urban areas. An overwhelming 85% women continue to migrate to peri-urban areas during drought seasons compared to men, migrating at only 72.5%. This diverges from the literature that men migrate more than women to fulfil their roles as providers of the household.

The perception of drought is the second theme, and focused on understanding the threat posed by drought to the vulnerabilities within the community. Drought is understood and described by the respondents as synonymous to lack of water, food, resources and means of mitigation. The scarcity or lack is identified in both water and food security. The qualitative findings correlates positively with the statistical information (quantitative findings). For instance, in the qualitative findings the majority of respondents indicated that drought results in water and food shortages. On the other hand, the quantitative findings show that 77.5% women and 65% men agreed that the occurrence of drought equated to lack of food or food shortages.

Theme 3 focused on the impacts of drought with sub-themes focusing on economic impact, environmental impacts and social impacts.

The sub-theme on economic impacts looked at the financial capacity and the identification of resources to address drought. The allocation of resources and funds in the region was indicated by the respondents as being gendered. Finance and resources were identified as favouring men over women. The qualitative data converged with the quantitative because 77.5% women indicated that they were receiving money from men. Furthermore, a majority of 98% respondents declared men to be heads of the family and financial providers of the household.

The environmental impact sub-theme I focused on livestock and agriculture. During a drought, the lack of water impacts on the growth of grass and animal feed and causes livestock loss because of hunger. The environment is the source of feed for animals and human life. When

there is no water to grow crops for human consumption, the livelihoods suffer because most men and women in the Lubombo region depend on subsistence farming.

The social impact of drought sub-theme focuses on the livelihoods of individuals. The relationship that is created within society makes the impact bearable. It creates connections and ensures risk reduction through support. However relationships built are challenged by culture. The women in the region are most likely to seek help from neighbours and friends thus building a system of seeking refuge from one another. Men on the other hand, are believed to be strong and able to handle situations in solitude. This cultural construct estranges men from the society and puts men at risk due to insufficient support. Women receive more support than men due to culture taking this stand. 87.5% women receive social support from neighbours, government and foreign aid. Men are not far behind women with a rate of 72.5% support. The findings within this theme show convergence between literature and results of the study.

Theme 6 looks at gender-differentiated roles during droughts. Social patterns are determined by gender. Gender dictates what men and women should do and how they should behave. These patterns and duties determine the magnitude of drought impact because of the vulnerabilities associated with men and women.

The roles and responsibilities of men and women vary and dictate the resources including the behaviour patterns of men and women. The qualitative findings correspond with the statistics that 97% of men and women have different gender roles. 92% women agreed with this statistic. There is convergence between the qualitative and quantitative findings and the literature as presented in chapter 2.

Drawing attention to the value of culture in building effective drought coping mechanisms. Culture enforces the differentiation between men and women. The patriarchal nature of the region dictates that men are heads of household and leaders in the community during a drought. Women are seen through cultural lenses as subordinate and having domestic management responsibilities. 62.5% of both men and women affirmed that culture determines which roles are performed by which gender during droughts. This thus informs the coping mechanisms that each gender will follow.

Drought-coping mechanisms are presented in theme 8. The different coping mechanisms employed by men and women result from societal, economic and political pressures of a community. There are seven coping mechanisms that were identified by the respondents as being practiced during a drought.

- i) Statistically, livelihood breakdown is evident in migration (43.59%). As indicated above, the separation of families is a form of generating income and at the same time, leaves the family unstable and forced to adapt to change. Women are forced to assume traditional male roles (30.77%) like herding the cattle and looking for work to supplement the financial situation of men. Migration has been identified as a practice rather performed by men than by women. Men also migrate to search for livestock feed (7.50%) and water (5%), by buying livestock land through the “*Kukhonta*+system (traditional land acquisition, allocated by chiefs). Women on the other hand migrate to escape from home conflict (2.50%) that results from the frustration of not having enough water and food. Respondents pointed out that migration is necessary but undermines the livelihoods of the community, with 43.6 % of both men and women concurring with this view.
- ii) The Lubombo region uses foreign aid as a coping mechanism. The impact of drought is mitigated by the food samples and packages received. They aim at ensuring food security. The process involves respondents but women in particular going to the USAID, Red Cross, World Food Programme and World Vision centres in the community once a month to receive food rations. These rations are awarded to women and children first, then men. This gender differentiation bases the respondents 98% rate of foreign aid support not being equal.
- iii) Crop production in the Lubombo region is very important for the stability of livelihoods and for food security. During a drought men and women plant and grow crops that should withstand the grave dry conditions. The women are in charge of weeding and management of the crop. Women plant nuts, cassava and sweet potatoes as starch substitute for maize. They eat natural shrubs and weeds such as Ligusha (*Corchorus olitorius*), umbhidvo (shoot), and inkhakha (*Mormodica balsamina*). These greens are healthy and full of nutrients, helping them maintain a healthy diet. Male coping mechanisms relating to crop production include men hiring trucks and driving them to prepare the fields for production.
- iv) Water management is an essential part of ensuring that drought alleviation occurs. The lack of water or precipitation is the root cause of drought disaster. The role of women in water management involves collecting water, fetching water from rivers, ensuring that water is not used in wasteful ways, ensuring that children are bathed once a day and not twice, only using it for drinking and ensuring that enough water is available every day. Men on the other hand do not employ water management as a coping mechanism because water management is done mainly by women. Men follow the rules laid out by women.

- v) The sale of livestock is a difficult coping mechanism to implement. Men are in charge of the livestock and thus have a wealth-based attachment to cattle, goats and poultry. The selling of livestock allows a household to get money, food or services. Women have no cultural input in the sale of livestock. Women, during migration of their husbands, cope with drought by executing a sale, only if it is sanctioned by the husbands or the male dominant in the household.
- vi) Government as a coping mechanism seeks to provide services such as cheaper renting mechanisms and water stations around the region.
- vii) Household coping mechanisms are the day to day coping mechanisms that a community and household implement. The households within the Lubombo region have been identified as following practices such as skipping meals to save food. Children eat first and adults share food, reducing the portions of food being eaten. Bathing once a day and not at all on weekends, cooking outside to save electricity or the expense of buying electricity, switching on the necessary lights at night only, collecting wood and selling it to neighbours in exchange for food and money, doing laundry for others in exchange for food and saving money for essentials.
- viii) Having joint coping mechanisms has been indicated in the above findings as a coping mechanism that does not happen due to cultural implications on communities in the Lubombo region. There were some instances, like fetching water, where men and women do work together; however, these instances are more on a supportive basis to women. Men have been identified to help women when roles get overwhelming but not as a primary duty.

Theme 9 lastly focused on the risks and vulnerabilities that were exacerbated by drought. Women are more vulnerable than men and respondents have identified this. During a drought changes happen in society and to the livelihoods of individuals in societies. These challenges force men and women to behave differently and change the way in which they do things. Women experience rape and hijacking on the way to and from the water collection, therefore they tend to travel in groups. Secondly, the balance at home changes. Men become more violent during drought because of the frustration and thus women and children sleep together and women find jobs so they do not depend solely on men. The lack of resources is the main difference. Men are in charge of resources and thus women find other means of gathering resources, like relying on the social trust relationships.

5.4 Conclusion

The study has established that coping mechanisms are essential towards the alleviation of the effects caused by drought. From the results the vulnerabilities of men and women have been identified as contributing factors to risk associated with being a community member in the Lubombo region. The coping mechanisms identified in the study are migration, foreign aid, cropping systems during drought, water management, sale of livestock, government departments and NGO aid and household activity changes. Gender relations have also been identified in this study as key contributors to the opportunities and constraints experienced in a community. Culture has been identified as the central mandate, prescribing rules, roles, norms and responsibilities to men and women. The interactions of coping mechanisms and gender have been clearly portrayed in this study focusing on the vulnerabilities and gender sensitivity as a tool for disaster risk reduction.

The following chapter will summarise the entire study and point to the relevance of the study towards understanding the relationship between gender and drought in the Lubombo region.

Chapter 6: Conclusions and recommendations

6.1 Introduction

The preceding chapter presented the findings of the study highlighting the impacts of drought on the livelihoods of men and women. Using the empirical evidence, the chapter also identified the coping mechanisms that men and women in the Lubombo region adopt to mitigate the adverse impacts of drought.

The purpose of this study is to determine and evaluate the gender differentiated coping mechanisms of withstanding drought employed by communities in the Lubombo region of Swaziland.

To achieve this goal, a literature review was conducted and an exploratory sequential mixed-methods design was adopted to collect empirical data through both qualitative and quantitative approaches. The complementary relationship between these approaches made provision for insight over a wide range of coping mechanisms utilised by men and women during a drought disaster. Throughout this study, culture and vulnerability have been identified as risk factors contributing to the gross impact of drought, forcing men and women to build and engage in mechanisms to alleviate the adversities experienced.

In the Lubombo region of Swaziland, drought continues to undermine livelihoods of men and women. The physical, social, and economic implications of drought on men and women are directly associated with the patriarchal nature of society. In the Lubombo region culture prevails, dictating female sub-ordination to men. Communities within the region are divided among gender lines, as defined in this study (you can cross-reference the specific section that deals with this), and thus differing coping mechanisms are adopted by the different genders to reduce risk and withstand the impacts of drought on livelihoods.

This chapter will use the data presented in the empirical findings chapter and the literature chapters 2 to 3 to give a summary of the entire study, followed by drawing conclusions on each chapter. Recapping the findings, the chapter will conclude with the answering of the research questions set out in chapter 1, highlighting the main findings of the study. The last section of this study will focus on providing recommendations for the growth of knowledge on the gendered nature of coping with drought in Lubombo, Swaziland.

6.2 Overview of the chapters

This chapter summarises the overall aim of the study and concludes the study conducted by the researcher.

Chapter 1 focused on building a framework for the study and thus provided an overview of the study. It summarised the structure of the study by stating the topic, background and baseline data, problem statement and relevance of the study. Furthermore, the value of chapter 1 focuses on guiding and displaying the researchers' procedures into ensuring that the problem-solving and objectives are achieved.

Chapter 2 assessed and presented the various literatures on drought as a disaster and a phenomenon impacting communities severely and further identifies the coping mechanisms as responsive measures. Laying the foundation of the study and the relevance of drought as a key component of the study and topic, this chapter described drought as a hazard and depending on magnitude and severity of the impact, as a disaster. This chapter concluded by establishing the relevance of studying drought as a disaster in the Lubombo region and therefore a topic to be taken seriously when building resilience and managing risk through reduction mechanisms.

Chapter 3 explained the existing gender perspectives towards drought as found in the academic literature. Gender and disasters have become a growing topic and it has been established that gender perspectives shape the functioning of society. The Lubombo region, Swaziland has throughout the study been established as a region prone to drought as described in chapter 2, shaped by and adhering to patriarchal principles of culture that govern Swaziland. Gender lines within culture have been identified through this chapter as main contributing factors to vulnerabilities context and risks associated with men and women during a drought. Chapter 3 concludes by displaying how disaster risk reduction can be achieved by building coping mechanisms specific to men and women as a response to drought impact adversities.

In **chapter 4**, the research methodology of this study was presented in detail. The research procedures, including steps, stages and processes undertaken to collecting the necessary data in response to the research questions and objectives are set out in chapter 1. The key decision behind using a mixed-method approach rests on the presentation of data that combines two distinct methodologies (i.e. qualitative and quantitative research design) as means of adequately addressing gendered drought-coping mechanisms in the Lubombo region.

Building on the methodological process in chapter 4, chapter 5 sought to establish a correspondence between literature and the collected data by presenting an overall empirical finding. The responses served as data and gave the literature gathered in chapters 2 and 3

value and validity. Using a mixed methodology to display the collection of data, men and women's experiences were captured, revealed and used to answer the relevant research questions. This chapter concludes by providing statistical analysis of data and literature on the gendered drought coping mechanisms of the Lubombo region.

Thus the primary directive of this chapter is to give confirmation and summarise the data to determine the achievement of the research objectives indicated in chapter 1. This is done by indicating the value and contribution of this study to the field of disaster risk reduction, particularly gender mainstreaming.

6.3 Addressing the research questions of the study

This study sought to assess the gender differentiated coping mechanisms of withstanding drought employed by communities in the Lubombo region of Swaziland. To achieve the overall success of the study, research questions linked to the research objectives of the study were formulated as presented in chapter 1. Formulation of research questions ensured that the objectives of the study and ultimately the chapters were in sequential order and the alignment of context. The main purpose of this section is to demonstrate that the study's research questions and ultimately the research objectives were addressed through the synthesis of the literature and in light of the new perspectives generated from the empirical findings. The ways in which the research questions have been addressed are summarised below.

Question 1: What does the relevant literature say about the impact of drought on communities?

This research question was addressed through the review of the literature as presented in chapter 2. The literature in section 2.6 revealed that the major impacts of drought on communities are grouped into four main categories: social, environmental, political, and economic impacts. Susceptibility to drought manifests when the threat to human life overwhelms already existing livelihood gaps thus increasing the chance of loss, imbalance and disadvantage between groups in society to such an extent that external aid is needed to recover and build back damaged livelihoods.

In relation to the economic impacts, the literature shows that drought affects all sectors of the economy and therefore reduces the GDP of any country. Particularly for farming communities, drought results in loss of yield and loss of livestock, which ultimately affect the value chain. As a result food prices increase because of food shortages, jobs are lost and some farmers are forced to abandon their operation. All this leads to increased inflation, which will then affect the entire economy of a country. As indicated in section 2.6.2, the environmental impacts of drought can be observed through damage to flora and fauna including loss of wildlife habitats, forests, degradation of landscape quality, loss of biodiversity and soil erosion. The literature in section 2.6.3 indicates that during drought, society is affected directly through the loss of life and livelihoods in addition to indirect effects such as food and water shortages, poor health, and an increase in pandemic diseases. It should, however, be noted that as stipulated in section 2.6.3, the impacts of drought depend on the underlying vulnerability of the population and community exposed in relation to the frequency and severity of the hazard.

Question 2: What theoretical perspective does gender mainstreaming impose on Disaster Risk Reduction?

This research question forms the core of the study and it was addressed using the literature review in chapter 2. Gender, as well as gendered disaster management was introduced in this chapter as social constructs, shaped by the different culture, geographic, political-economic, and social condition existing in societies (Crespi, 2003:3). Enarson (2000: vii) states that disaster interventions should be built around the knowledge and understanding of the gendered context of the community. The literature in section suggests that gendered attributes such as gender roles, stereotypes, cultural dynamics and customs dictate capacity and responses to disaster, thus emphasising the need and value of building understanding of relationships between gender and disaster management.

In the field of Disaster Risk Reduction, gender mainstreaming is a crucial tool because it addresses women within disaster. Gender mainstreaming seeks to reduce the negative impact of disasters on women through policies, strategies, action plans, and programs (UNDP, 2013). Additionally, women groups both nationally and locally benefit from employment of gender sensitivity in disaster risk reduction because their capacity is enhanced (UNDP, 2013).

To conclude, this chapter has built on gender and identified how best to define and explain the phenomenon. This chapter has explained how disaster management is valuable to ensure societal vulnerabilities and gender prejudices can be met. This enquiry was important because it validates acknowledging the different gender lines during the occurrence of disaster, especially how these gender lines contribute to the adoption of different survival strategies/coping skills to withstand this occurrence

Question 3: What are the existing and current drought-coping mechanisms and practices employed in Lubombo, Swaziland?

This question forms the basis for the empirical study and is therefore addressed in chapter 5 of the study. The empirical findings in chapter 6 show that men and women in the Lubombo region have different coping mechanisms to drought. The livelihoods within the region are based particularly on agriculture and livestock and thus the coping mechanisms of individuals are directly linked to these two entities. The activities such as crop production, mixed cropping and intercropping, selling cattle and other livestock, looking for income generating jobs such as migration, beer brewing, collecting wood in exchange for money, prostitution, social capital being able to have a social support network, commercial agriculture and water shedding were all highlighted as ways of coping with the impacts of drought.

Question 4: What is the value of having generic gender coping mechanisms suitable for the Lubombo region?

This question also forms part of the empirical study and is therefore addressed in chapter 5 of the study. Swaziland is a patriarchal country, separating male and female activities, roles, and responsibilities. Due to the strong social feature of patriarchy, the cultural and religious beliefs within the region continue to be sovereign conferring distinct roles on men and women.

In this study it has been indicated that coping mechanisms are entrenched in culture and the gender order of separation. The gender order in the Lubombo region follows national practices that enforce the supremacy of men over women. Men are discouraged from participating in women's activities such as fetching water from the river and looking after children. Men can only

assist the women once the water is fetched, by pushing heavy wheelbarrows and helping to carry heavy drums.

The restrictions of culture thus hindered this research question from being achieved. This research question can therefore serve as a recommendation for the occurrence of drought in the Lubombo region.

6.4 Summary of findings

This section summarises the major findings of the study as presented in chapter 5. This is done to provide a solid foundation for the recommendation of the study. The major findings are presented below:

- The findings in this study have shown that men and women in the Lubombo region perceive drought as lack of water and periods of insufficient food, amounting to hunger/starvation.
- The lack of rainfall has been highlighted as the main contributing factor to the reduction of soil moisture and existence of an agricultural drought.
- The impacts of drought are social, economic and environmental. The environment is impacted by drought directly through insufficient food supply, lack of water resources, and livelihood pattern change. Water degradation is the source of all loss, including human, livestock and livelihood. Socially drought impacts communities through livelihood degradation. The social traditions and patterns that men and women abide by are challenged including the relationship between neighbours to assist one another during a drought event. Lastly, drought affects the financial balance of men and women. Money and having a job have become solution to coping with drought.
- The occurrence of change in the livelihoods was identified as the primary reason men and women build capacity through coping mechanisms. The main coping mechanisms that men employed during drought adversities are migration and livestock sales, receiving foreign aid to alleviate hunger, planting crops that can withstand water shortages and relying on natural shrubs and weed, managing water usage and collection, government intervention of cheap machinery to rent, domestic mechanisms: bathing once a day if necessary, cooking outside to save electricity and money, using bathing water to water plants, and purifying river water using household detergents.
- Women alternatively focus on water management, household domestic duties like looking after children and cooking and changing of crops to cultivate.

6.5 Recommendations and conclusion

The key findings of the study suggest that cultural indoctrinations within the Lubombo region create differentiation between men and women. The livelihoods of men and women are structured around culture and thus during a drought the mitigation technique used continues to follow the cultural restrictions.

Thus the following recommendations are both nationally and locally suggested to ensure that droughts, along with all other disasters in the region, are reduced through coping mechanisms shared by men and women.

1. Culture challenges the practical implementation of equality between men and women. This challenge needs to be overcome with proactive, cooperative roles and duties within the community. An example of such a stand would include women getting legal standing and a voice during tribunals and chieftom meetings. Thus the recommendation is that women's status be legally reviewed and women's participation in cultural tribunals be recognised.
2. As much as patriarchy is practiced in the Lubombo region, people need to move towards sharing coping mechanisms during drought because the activities practiced by men and women complement each other. Thus the recommendation is to have joint coping mechanisms.
3. Indigenous knowledge needs to be revisited and fostered. Modernization has moved past the practices that used to be in use. Generations do not pass down knowledge of how to cope with droughts and disasters. The recommendation is that indigenous knowledge be taught to people within communities. The community should sit with the elderly and enquire about knowledge and skills used such as burying food (maize) in the kraal for winter and dry seasons.
4. Water gutters and tanks need to be installed in all households to ensure effective water management. Town council as well as chiefs, in the case of Swazi nation Land need to enforce this recommendation as it will ensure that households continuously have access to water.
5. Introduction of employment diversification towards the non-agricultural sector. The recommendation is that the community needs to be open-minded and guided into employment that looks past agriculture.
6. Globally, disaster risk reduction and the Hyogo Framework of Action have endorsed the Sendai Framework for Disaster Risk Reduction. Swaziland, in particular the Lubombo region should look at implementing it in relevant policies. The recommendation is the

growth of disaster risk reduction and keeping up to date with interventions as they are developed.

6.4 Conclusion

With the above conclusions in place, drought is a hydrological phenomenon relevant in the Lubombo region due to the arid and semi-arid landscape. During a drought men and women in the Lubombo region adopt coping mechanisms as a means of adapting to the grievances and challenges of drought. The gendered nature of weather variation impact distinguishes coping mechanisms between men and women. The social structure of the Lubombo region also contributes to the establishment of the distinctive coping mechanisms. Women are burdened with coping mechanisms, including planting crop for cultivation, adjustment of water usage by the household, skipping meals to save food and men alternatively provide money and food for households through migration and selling of livestock. From this study it can further be concluded that the gender gap between men and women in the Lubombo region rests on culture and policy implementation. This ultimately challenges joint coping mechanisms and enforces women as solely responsible for developing mechanisms to withstand drought adversities.

For further studies, and the contribution to knowledge, this study has established the gender gap between societies. The primary focus of this study was the social impacts and the coping mechanisms employed to adapt to these impacts. Further study could look at the effectiveness of these coping mechanisms while maintaining the gender attribute. In Swaziland, disaster risk reduction is a new field of knowledge; further research can look at expanding this domain.

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ANNEXURES

Annexure 1

	Male (n=40)	Female (n=40)	Total (n=80)
Marital Status (%)			
Married	52,5	47,5	
Single	17,5	17,5	
Widowed	7,5	10,0	
Divorced	5,0	12,5	
Polygamy	17,5	12,5	
Current social standing (%)			
Chief	-	2,5	
Indvuna	15,0	7,5	
Community leader	20,0	20,0	
Community member	62,5	70,0	
Other	2,5	-	
Where I grew up (%)			
Rural area	37,5	35,0	
Town	15,0	22,5	
Suburb	17,5	17,5	
City	22,5	12,5	
Peri-urban/ township	7,5	12,5	
Current employed (%)			
Yes	85,0	72,5	
No	15,0	27,5	
Religion/ Affiliation (%)			
Religion	45,0	41,0	
Creative or performance arts	20,0	17,9	
Cultural/ ethical	17,5	12,8	
Academic/ Professional	17,5	28,2	
Race (%)			
Black	72,5	89,7	
White	2,5	2,6	
Asian	2,5	7,7	
Coloured	22,5	-	

ANNEXURE 2

		Qualitative findings	Quantitative findings
Main Theme	Sub Theme	Focus group Interview	Online Survey
Demographics and background information	Gender	<ul style="list-style-type: none"> -Responses stated that the definition is based on social, economic and political sphere -More men than women because female needed permission - Dependent on male or female -Culture make strong distinction 	The number between men and women was equal and women didn't need permission, because no explanation was needed, it was a self-completion questionnaire.
	Marital status	<ul style="list-style-type: none"> -More married women than men were part of the study. Marriage is an identity rather than a legal institution. 	<p>The study revealed that 52.5% of women were married compared to 47.5% men.</p> <ul style="list-style-type: none"> -Between men and women 17.5% were single.
	Area of upbringing	<ul style="list-style-type: none"> -Lubombo area vulnerable to weather - Poverty stricken with most respondents from rural areas 	<ul style="list-style-type: none"> -Majority of the respondents declared being born and raised in rural areas (37.5% women and 35% men) - Moving to other parts of the region is due to poverty and seeking money, thus 85% women employed and 72.5% men employed
Perception of drought	Understanding the threat posed by drought on the vulnerabilities of the community	<ul style="list-style-type: none"> -Drought as lacking in means of survival -Scarcity of water and failure to produce agriculture 	<ul style="list-style-type: none"> - 25% from both men and women were view that water shortages define a drought -Insufficient food security was viewed by 77.5% of women as drought, majority over 65%men
Financial impact of drought	Financial capacity and resource identification to address drought, disaster	<ul style="list-style-type: none"> -Allocation of funds -Fluctuation of prices overwhelms men thus saving is a necessity -Men provide for women to cook 	<ul style="list-style-type: none"> -Men bread winner and women receive money from men. 77.5% women receive from men yet men do not receive from men -Men head of family -Women domestic and receive money from men -Saving as mechanism to

			cope as viewed by 73.78% members in general
Environmental impact of drought	Livestock and agriculture as priority resource in coping with disaster	-Dependency on livestock -Agriculture dies of lack in rain	Farming was revealed by the 70% respondents as being central to existence in the region. -70% of men respondents specified agriculture and livestock as being pillars of the livelihood. 60% of the women agreed with the men respondents indicating that drought changes this dependency by 70%
Social impact of drought	Social capital and developing disaster risk reduction practices	-Culture change - Support from community Foreign aid initiatives	Culture practices dictate the social functioning of a society, which was agreed by majority of the respondents -Social support allows for mutual benefit during a drought, 87.5% women received social support from the community. This majority is not far from the 72.5% men responses that also received community support. - Foreign aid is very gendered, with an overwhelming 100% women getting support yet only 2.5% males getting support.
Gender differentiated roles during drought	Contribution of gender in effective disaster risk reduction	-Society under patterns or behaviour -Determine resources	-Male respondents, it is 97% true that men and women have different roles and responsibilities to manage during drought. An affirmative response of 92% women respondents also agreed when asked about the difference in roles and responsibilities. - The management of resources in the household is gender dependent. This position was affirmed by 95% of the respondents and denied by 5% of the population.

Culture and gender roles within coping with drought	The role of culture and gender in coping with drought	-Culture keeps balance	Women were pointed out as having to provide for the family and be the head, while men are out seeking jobs. Respondentsq indicated that 62.5% of both men and women experience and identify the change in culture practices.
Drought coping mechanisms	Migration	Majority respondents migrate because they seek employment and greener pastures	Respondents pointed that migration is necessary but undermines the livelihoods of the community.43.6 % men and women were equally of this view.
	Foreign aid	Respondents stated that through foreign aid, community capacity is built. A minority however stated that it suppresses men as they focus on women and children.	Foreign support focuses on women and children thus 98% men and women, saw it as a mechanism aimed at women.
	Crop production	Lubombo region is a farming sanctuary, hence relevance of crops as means of food	65% women respondents cultivate crops over 50% men.
	Water management	Respondents explained how water management is a women responsibility. The collection and sterilization is part of women duties.	Only 2.5% Men respondents over 5.1% respondents were of the opinion that water management is gendered in favour of women.
	Sale of livestock	Respondents enforced that wealth and food security is a representative of wealth and statue	Livestock has significant value in the Lubombo region. Only 10% men believed in selling it and 7.5% women too in the event of a drought
	Government departments	Government interviews brought to floor that farmers and communities in need of water are assisted during drought.	Respondents were of the opinion that government does not help out. Only 2.5% men agreed to government help yet 100 percent females said the help is of existence.
	Household	Respondents highlighted different activities to cope within the household including -Skipping meals -Reducing food portion sizes - Small garden for vegetables -Bathing once a day and not at all on weekends	60% male respondents and 67.5% women felt that home management was more women responsibility than men.

		-Cooking outside	
	Joint drought coping mechanisms	Culture and society does not allow for it to happen.	90% of men and women believed society was too cultural for joint coping mechanisms. Men and women livelihoods are not the same.
Risk and vulnerability exacerbated by drought		<ul style="list-style-type: none"> -Women have been identified as being more vulnerable do to patriarchal nature of region and country. -Gender based risks are women cantered opposed to men -Gender based violence -Human trafficking -Fertilization of poverty -Prostitution -Access to services 	<ul style="list-style-type: none"> -Women target population for services - Access to services -Women, men and both the male respondents answered that 50% women were the target, 2.5% male were target, and 47.5% attested to target being both equally.