An evaluation of the organisational preparedness of the University of the Free State to respond to hazards or disasters within its environment

by

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DECLARATION

I declare that the thesis entitled *"An evaluation of the organisational preparedness of the University of the Free State to respond to hazards or disaster within its environment"* is my work. This dissertation was not presented to another institution of higher learning either by me or by any other person. All the cited or quoted sources are indicated and acknowledged using a list of references.

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Sara-Jane Jansen

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ABSTRACT

This is a study of the organisational preparedness of the University of the Free State for responding to hazards and disasters within its environment. Using an established Disaster Preparedness Framework developed by Kent in 1994, this research measured the degree of compliance of the University of the Free State with the nine components of that framework. The study investigated whether vulnerability assessments are conducted and whether there is a resource base in place for managing disasters. In addition to the compliance measurement, the investigation also measured staff perceptions of organisational preparedness among key managers in the institution concerned with disaster management.

Using a combination of self-administered questionnaires, structured observations, and document analyses, this case study research made three important findings. Firstly, that the University of the Free State is reasonably compliant with the Disaster Preparedness Framework elements necessary for an effective response to hazards and disasters. Secondly, weaknesses exist in the university's overall capability to respond to such disruptive events, including the need for more effective communication across all levels of staff and residence readiness to respond to disasters. And thirdly, that these weaknesses in organisational preparedness could be resolved through a comprehensive, coherent, and coordinated readiness plan in anticipation of a range of hazards and disasters.

Keywords

Disaster; disaster management cycle; disaster management framework; Disaster Preparedness Framework; hazards; University of the Free State

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LIST OF ACRONYMS AND ABBREVIATIONS

DiMTEC	Disaster Management Training and Education Centre for Africa
DPF	Disaster Preparedness Framework
DRR	Disaster Risk Reduction
ECPC	Emergency and Crisis Preparedness Committee
EMT	Emergency Medical Technician
JOC	Joint Operations Centre
KPA	Key Performance Area
MCEER	Multidisciplinary Centre for Earthquake Engineering Research
MMM	Mangaung Metropolitan Municipality
NDRMETF	National Disaster Risk Management Education Training Framework
NETaRNRA	National Education, Training and Research Needs and Resources Analysis
NGO	Non-Governmental Organisation
NSFAS	National Student Financial Aid Scheme
OHS	Occupational Health and Safety
PROVJOC	Provincial Joint Operations Centre
RSA	Republic of South Africa
SADAG	South African Depression and Anxiety Group
SADC	Southern African Development Community
SCD	Student Counselling and Development
SFDRR	Sendai Framework for Disaster Risk Reduction
UCT	University of Cape Town
UFS	University of the Free State
UN	United Nations
UNDRR	United Nations Office for Disaster Risk Reduction
UNISDR	United Nations International Strategy for Disaster Risk Reduction
UPP	University Preparation Programme
USA	United States of America
WHO	World Health Organization

DEFINITION OF TERMS

i) Coping capacity

According to the United Nations International Strategy for Disaster Risk Reduction (UNISDR), coping capacity is the capability of people, organisations, and systems, using on-hand skills and resources, to confront and manage adverse circumstances, emergencies, and disasters (UNISDR, 2009).

ii) Disaster

A disaster happens when the functioning of a community or society is severely disrupted by hazardous events interacting with certain conditions such as exposure, vulnerability, and capacity which can lead to one or more losses and impacts (such as human, environmental, material and economic losses), which exceeds the capability of the afflicted community or society to cope using its own resources (UNISDR, 2009; UNDRR, 2017).

iii) Disaster Risk Reduction (DRR)

Disaster risk reduction is the idea and practice of reducing disaster risks through systematic attempts to analyse and manage the causative factors of disasters. This can be done through reducing exposure to hazards, lessening the vulnerability of people and property, wise management of land and the environment, and enhanced preparedness for adverse events (UNISDR, 2009).

iv) Emergency

An emergency occurs when a hazardous event affects but does not result in the serious disruption of the functioning of a community or society as they have the available resources to respond to the event; thus they do not need to request external assistance (UNDRR, 2017; United Nations Office for Outer Space Affairs, 2020).

v) Hazards

Hazards refer to human activity, a process, substance or phenomenon, which may cause injury or other health impacts, loss of life, loss of sustainable livelihoods and services, damage to property, economic disruption, social disruption, or environmental degradation. Hazards may be derived from natural, anthropogenic, and socio-natural origins (UNISDR, 2009; UNDRR, 2017).

vi) Multi-hazards

Multi-hazards refers to multiple major hazards that a country encounters and/or the specific circumstances where hazardous events may occur concurrently or cumulatively over time when the potential interrelated effects of these events are considered (UNDRR, 2017).

vii) Preparedness

Preparedness refers to the knowledge and capacities developed by individuals, communities, professional response and recovery organisations and governments to effectively anticipate, respond to, and recover from, the impacts of probable, imminent or current hazardous events (UNISDR, 2009).

viii) Safety

The Oxford Dictionary defines safety as the "the condition of being protected from or unlikely to cause danger, risk or injury" and as "indicating something designed to prevent injury or damage, e.g. safety barrier" (Oxford Dictionaries, 2017).

1. CHAPTER 1: GENERAL INTRODUCTION

1.1. INTRODUCTION

Across the world, universities are subject to the threat of hazards and disasters that threaten infrastructure, operations as well as staff and student well-being (Mwachi, 2020). Such events cause small to major disruptions of academic administration, teaching, and research. Laboratory specimens may be threatened in a fire; classes might be discontinued because of floods; computer systems might collapse because of external malware; and student records could be threatened by a collapsed building. As a result, more and more universities everywhere have become conscious of the need to be prepared for managing disasters and the disruptions they bring (Kapucu & Khosa, 2013).

South African universities are no exception to such threats and are indeed vulnerable to hazards (a dangerous event that potentially threatens humans) and disasters (an event that harms humans and disrupts organisations and society)(Habib, 2019; Jansen, 2017a). Crime on campuses and violent protests put universities, their students, staff, and property at risk. Natural disasters like prolonged droughts or floods also impact on universities, sometimes leading to closure. For example, in June 2017, Cape Town institutions had to close in anticipation of a severe storm (Price, 2017). A shortage of water, for example, could impact on the water levels required for the safe operation of laboratories. When a municipality cannot provide water, as was the case at Rhodes University, this creates a crisis which if not well handled, could escalate into a potential disaster on campus (Badat, 2013).

Therefore, it is necessary to evaluate the level of preparedness of different tertiary institutions with different operational capacities for responding to potential hazards and disasters. It is also crucial to determine how tertiary institutions can close the gap between where they are and what is required as stipulated in the Disaster Management Act (No. 57 of 2002), amended by Disaster Management Amendment Act (No. 16 of 2015), and the South African National Disaster Management Framework of 2005 (RSA, 2005).

1.2. BACKGROUND OF THE PROBLEM

Disasters occur with or without any warning, and no one is excused or unthreatened because such events are unpredictable and do not discriminate. Therefore, organisations must proactively plan for potential hazards and disasters to mitigate the impacts and respond effectively (Fagel & Krill, 2012:2). Universities typically have large numbers of staff, students, and visitors on campuses at any time of the day and night, especially in the case of residential institutions. For this reason, effective and appropriate preparedness plans need to be put in place to ensure the safety of people on campus. Consider, for example,

how one institution, the University of Cape Town (UCT), responded in real time with emergency plans to prepare staff and students for a pending disaster.

On 24 May 2017, a notice was distributed on the UCT website that everyone should be mindful when using water since the Western Cape had been declared a disaster area because of low water levels in the dams (UCT, 2017a). The Executive of the UCT appointed a special Task Team to investigate UCT's water usage and to develop a plan to respond to this challenge. In the same notice, the university listed ways to save water including a UCT App called *Drop Drop* that could be downloaded to help "*residents use water responsibly"* (UCT, 2017a; UCT, 2017b).

Shortly afterwards, on 6 June 2017, UCT announced the closure of the university on 7 June 2017 because a severe storm was expected to hit Cape Town (Price, 2017). The decision to close down the university for the day was partly informed by a decision of the Western Cape Department of Education to close primary and secondary schools on 7 June (Price, 2017). The university made this decision to minimise the risk to students and staff being outdoors in extreme weather as it was predicted that there would be cold temperatures, extremely high wind speeds, the possibility of damage to infrastructures, as well as possible flooding (Price, 2017).

However, nothing brought home more clearly the danger of disasters and the imperative of preparedness for disaster management than the historic and sometimes violent South African campus protests of 2015-2016. The *#RhodesMustFall* protests started at UCT in April 2015 and led to nationwide protests calling for the decolonisation of former white universities. The *#WitsFeesMustFall* protests started at the University of the Witwatersrand in October 2015 demanding free higher education. Together, these two hashtag protests merged in pressing for "a free, decolonised higher education" (Booysen, 2016).

As protest violence escalated across campuses, universities started shutting down (Jansen, 2017a). On Tuesday, 20 October, Dr Blade Nzimande, Minister of Higher Education, announced that the 2016 fees increases would be capped at an inflation-linked 6%; he also mentioned that a Task Team would be established to investigate fee increases and report back on future fee increases. This resolution was rejected by protesters, and across the country protests continued demanding that *fees must fall* and that outsourcing for contract workers at universities be ended (Habib, 2019).

The then nation-wide protests started at the University of the Free State (UFS) on Tuesday 20 October 2015 with hundreds of students pledging to shut down the university (eNCA, 2015a). That night, the UFS management suspended all academic activities. All three campuses (Bloemfontein campus, South campus and Qwa-Qwa campus) were closed on Wednesday, the 21 October 2015, while protests continued; a High Court interdict was

served on protesting students, forcing them to leave campus within an hour of receiving said notification (eNCA, 2015b).

Subsequently, on Thursday, 22 October 2015, protesters from mainly Gauteng universities marched to Luthuli House in Johannesburg to hand over a memorandum to then ANC Secretary General, Gwede Mantashe, declaring that they wanted “no-fee increase” for 2016, free quality education and the end of the outsourcing of staff at universities (South African History Online, 2016). On Friday 23 October, under considerable political pressure, then President Jacob Zuma announced live on broadcast stations that there would be a 0% increase in fees for tertiary institutions (Habib, 2019).

After a brief lull, the increasingly violent protests continued into 2016 with the costs of damages to campus buildings (lecture halls, computer labs, libraries etc.) estimated at around R700 000-R800 000 million (Habib, 2019). University leaders would declare that they were unprepared for the scale, intensity, and the duration of these protests (Jansen, 2017b).

Against this backdrop, this study set out to measure the level of preparedness/under-preparedness in one institution directly affected by these violent protests but also other hazards or disasters in its operating environment. Such disasters would include the 2015-2016 drought which impacted the UFS to the extent that the institution decided to install 30 water storage tanks ranging from 5 000 litres to 20 000 litres on the Bloemfontein campus in strategic places of high traffic volume and residences. The water in these tanks were not to be used for drinking but for flushing toilets. Furthermore, the water would be used only in emergencies when the UFS did not have any more water or when the emergency water storage supply was depleted (UFS, 2017c).

In August 2007, there was a fire in the Chemistry building on the main UFS campus which destroyed four laboratories in the department. The cost of the damage to the building structure and the research infrastructure ran into tens of millions of Rands. This fire caused emotional trauma to staff and students with some postgraduate researchers losing their research results. Chemistry staff were stressed because during the renovations of the Chemistry building, they had to still conduct research and give practical classes. A month after the fire, most chemistry-related activities were back on track (Roodt, 2007).

In short, how prepared was the UFS for these hazards and disasters? That is the subject of this study.

1.3. THE RATIONALE FOR THE CHOICE OF THE UNIVERSITY OF THE FREE STATE AS A CASE STUDY

The University of the Free State is one of twenty-six public universities in South Africa. It is one of the oldest universities in South Africa, established in 1904 with six students and was then known as Grey College School (UFS, 2020a).

The University has three campuses (Bloemfontein campus, South campus, and Qwa-Qwa campus) which registered 41 675 students in 2020 (UFS, 2020b). The UFS has seven academic Faculties: Economic and Management Sciences; Education; Health Sciences; Humanities; Law; Natural and Agricultural Sciences; and Theology. As seen in Figure 1.1, the UFS is a medium to large-sized, multi-campus university in central South Africa surrounded by large rural areas, with moderate levels of resources available for its operational functions.

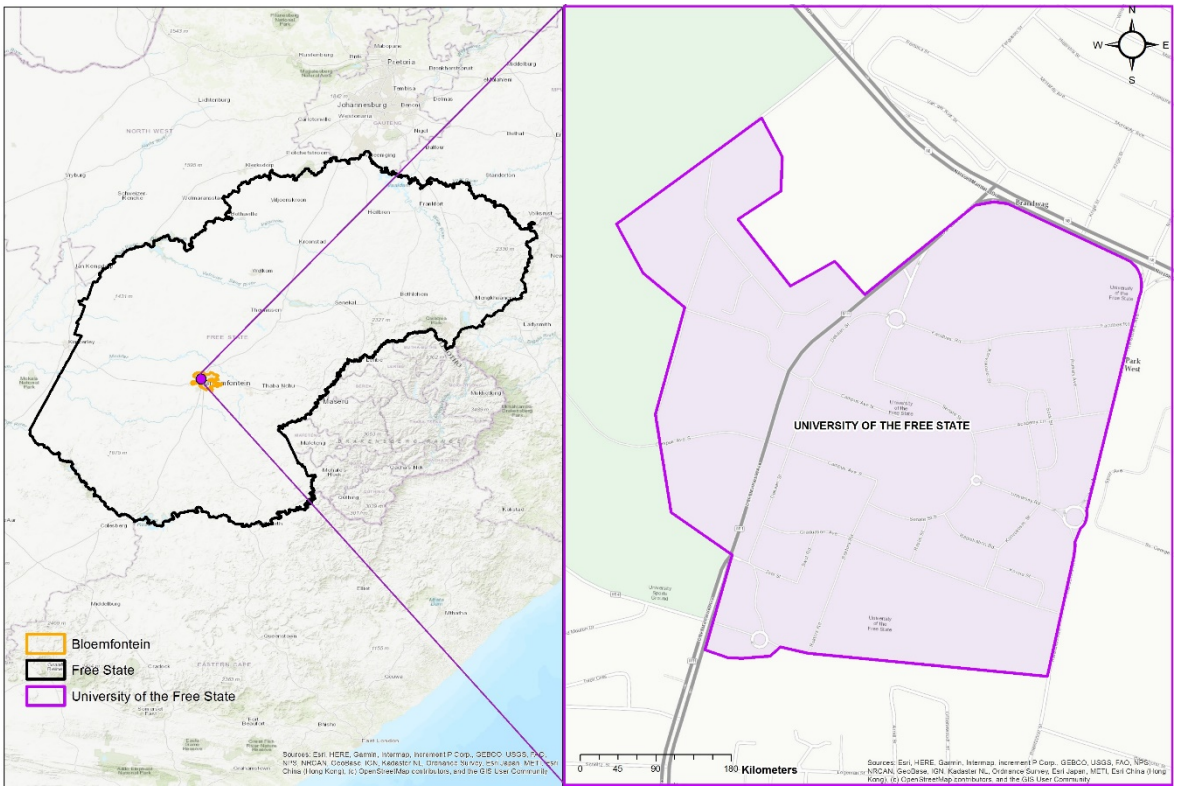

Figure 1.1: Map of the UFS and Bloemfontein in the Free State

Source: Department of Geography, 2017.

Most of the students are on the Bloemfontein main campus (which is the demarcated area in Figure 1.1). Some students are at the Qwa-Qwa campus which is situated 350km outside of Bloemfontein, and some students study at the so-called South campus, in in the southern parts of Bloemfontein. South campus offers a University Preparation Programme (UPP) designed for students who show promise of success in higher education but have weak school-leaving certificates (UFS, 2012:6).

Table 1.1 below, shows the difference in the proportion of students attending all three campuses in 2020, which shows that the Bloemfontein campus has 69.7% of students compared to the Qwa-Qwa campus (19.5%) and South Campus (10.6%) (UFS, 2020b). The number of students on each campus is significant to note with regards to preparedness planning:

Table 1.1: Composition of students on the three UFS campuses

UFS Campuses	Total
Bloemfontein campus	29 086
Qwa-Qwa campus	8 147
South campus	4 442
Total:	**41 675**

Source: UFS, 2020b.

The University of the Free State is privileged to host the Disaster Management Training and Education Centre for Africa (DiMTEC) which is situated on the Bloemfontein campus. DiMTEC offers short learning courses, a Post Graduate Diploma, Master's and PhD degrees in disaster management. The Centre and has networks with several United Nations (UN) institutions, non-governmental organisations (NGOs) and other universities (DiMTEC, 2018). DiMTEC strives to inform the public through education about disaster risk reduction. DiMTEC staff, especially lecturers, play a critical role at the UFS because they have the necessary knowledge and skills to inform safety preparedness plans and safety policy (DiMTEC, 2018). For example, Prof Andries Jordaan, the previous Head of DiMTEC, has assisted the National Disaster Management Centre with implementing a national emergency management system and has also conducted training for incident management teams (DiMTEC, 2017).

This choice of the UFS as a case study in organisational preparedness is significant for three reasons. Firstly, this is the first study of its kind to be done in the Free State. Secondly, the university was deeply affected by the student protests of 2015-16 and COVID-19 in 2020, and thus presents an ideal case for examining preparedness in a multi-campus institution; in addition, the University is affected by regular crises outside of protests including drought and experiences of explosions on campus (Department of Water and Sanitation, 2018a; 2018b; Jansen, 2017b; Mokhema, 2015; Ngoepe, 2015; Princeton University, 2018; Roodt, 2007; UFS, 2017). Thirdly, the University is in a largely rural part of South Africa which means that access to critical resources (policing, and security firms) is less available than in the large metropoles of Cape Town and Johannesburg. When student protests turned violent, for example, the UFS had to wait for days before additional policing resources arrived from Johannesburg.

For these reasons, the UFS is an ideal case study to investigate disaster preparedness in a largely rural context where the institution is often vulnerable to natural and human-made disasters and where there is little data on organisational readiness for responding to such crises.

1.4. A BRIEF REVIEW OF THE RELEVANT LITERATURE

In the United States of America (USA), universities take disaster preparedness on campuses seriously. There is, for example, a federal (national) document called the *Guide for Developing High-quality Emergency Operations Plans for Institutions of Higher Education* (2013) developed by the US Department of Education (2013) to assist institutions of higher education in creating disaster management strategies.

Cheung, Basiago, and Olympia (2014) studied the compliance of colleges and universities in the United States with the Action Guide for Emergency Management at Institutions of Higher Education. They concluded that institutions complied with these national guidelines, but that there were areas of improvement that needed attention (Cheung *et al.*, 2014:326).

A different group of researchers conducted an exploratory study on managing disaster preparedness for institutions of higher learning using the University of Malaysia Perlis as their case (Shahar, Azuddin & Valquis, 2007). This study examined the disaster preparedness at the university and the extent to which the concept was understood among students and staff through education (Shahar *et al.*, 2007:1). These researchers concluded that *"there is a need for government in general and universities in particular to increase awareness of students and staff of universities towards preparedness in managing disasters through education programs"* (Shahar *et al.,* 2007:8); the authors also specified that decisions which initiate and support these actions should be made at the highest level of policy-making in Malayan universities (Shahar *et al.*, 2007).

In 2010, the United Nations International Strategy for Disaster Reduction (UNISDR): Asia and the Pacific (2010:2) developed guidance notes on "creating a school emergency and disaster preparedness committee, designing school emergency and disaster preparedness plans, knowing the responsibilities of stakeholders and conducting emergency drills." The disaster preparedness plan created by the UNISDR: Asia and the Pacific were used to compare the implementation of preparedness plans of six universities in Cebu City in the Philippines (Paño, Abao & Boholano, 2015: 649). The conclusion of this study was that these universities had implemented measures of emergency preparedness, but that managing disasters required a comprehensive, efficient, and dynamic effort; they also specified that university leaders needed to play an essential role in boosting safety on campuses.

Kihila (2017) conducted a study to investigate the level of fire-preparedness regarding the availability and condition of firefighting facilities including knowledge of fire management at ten institutions of higher learning in Dar es Salaam, Tanzania. The outcome of the study was that institutions of higher learning in that country were not well prepared for fire disasters and that urgent plans to correct the situation were critical (Kihila, 2017:1).

Van der Linde (2007), through DiMTEC at the University of the Free State, did research investigating the implementation of disaster management activities at institutions of higher education in all nine provinces of South Africa and explored the development of a comprehensive disaster management system. The study found that some institutions implement disaster management activities while very few made use of a Comprehensive Disaster Management System (Van der Linde, 2007:92).

Van der Linde (2007:92) concluded: *"The results indicate a general level of ignorance at various academic institutions. This might be due to the fact that disasters do not commonly occur at academic institutions and there are a number of universities that have never suffered from any serious disaster."*

Another South African study by Mkansi (2012) on the preparedness of universities evaluated the preparedness of private security services to respond in case of a fire disaster at the University of Johannesburg. This study concluded that the university had made much effort towards emergency and disaster preparedness through its protection services specifically for fire hazards, but that more liaising had to be done with private security management (Mkansi, 2012:57).

While these literatures on disaster preparedness in South African universities offer considerable value and direction for this study, how are they different from, or even limiting, given the research reported for the UFS investigation?

A conceptual limitation of Cheung *et al.*'s (2014) research for this proposed study is that in South Africa, there is no action guide for emergency management at institutions of higher education; therefore, their study could not be applied to a South African context. A limitation of the study by Shahar *et al.* (2007), on the other hand, is that it is outdated and focused on disaster preparedness of students and staff through education interventions whereas this study focused on the policy and perceptions of organisational preparedness at the University of the Free State.

Van der Linde's (2007) study examined comprehensive disaster management systems at institutions of higher education in terms of all the parts of the disaster management cycle, whereas this study only put a spotlight on the preparedness aspect of the disaster management cycle at universities. The Mkansi (2012) and Kihila (2017) studies, on the

other hand, were limited to only fire disasters, whereas this research evaluated the organisational preparedness of a university to respond to multiple hazards that could disrupt campus operations.

Given the value and limits of these existing studies on universities and disaster preparation, what follows is a more precise formulation of the research problem for this study.

1.5. PROBLEM STATEMENT

It is expected of educational institutions everywhere that they should ensure the safety and general welfare of their staff, students, and campus visitors (US Department of Education, 2009:1). The institution should be able to provide relevant policies, procedures and strategies to prevent hazards and disasters from occurring on campus as well as have strategies in place to respond if a disaster should occur on campus (US Department of Education, 2009:1). Institutions of higher learning therefore have to consider issues such as controlling access, defining boundaries, prioritising resource allocation and standardising procedures and decision-making processes when planning for, mitigating and responding to disasters (US Department of Education, 2009:1). The impact of disasters may be a problem for unprepared higher education institutions as hazards/ disasters can disrupt the activities of a university (Van der Linde, 2007:6).

It is now clear that South African universities were poorly prepared for the protests of 2015-2016, in part because the scale, intensity and duration of the disruptions were unprecedented. At the UFS, the Shimla Park incident brought to attention the problem of preparedness (Kekana, Labuschagne & van der Westhuizen, 2016:36). Concerns reported in a major investigation into the incident included shortcomings such as lack of communication to top management from the head of security about protestors approaching Shimla Park, or failing to get more security, or the Vice-Chancellor not speaking to the protestors beforehand to deter them from interrupting the rugby game (Kekana *et al.*, 2016:67). Other hazards that affected the UFS was the fire in the Chemistry building in 2007, the explosions that occurred on campus at the beginning of 2017, and the drought that affected the UFS in 2015 and 2016 (Roodt, 2007; UFS, 2017).

It is important therefore to understand the level of preparedness of universities for hazards and disasters. Accordingly, the purpose of this study was to evaluate the organisational preparedness of the University of the Free State for multiple hazards and disasters in its environment.

1.6. RESEARCH QUESTIONS

The research questions that followed from this problem statement are the following:

1.6.1. The main research question

What is the level of organisational preparedness of the University of the Free State to respond to potential natural or human-made hazards or disasters within its environment?

1.6.2. Subsidiary questions

i) To what extent does the University of the Free State, with respect to disaster management, comply with a selected Disaster Preparedness Framework (DPF)?

ii) What are the perceptions of key UFS personnel (senior management, middle management, Emergency and Crisis Preparedness Committee (ECPC), DiMTEC personnel) about the level of organisational preparedness for responding to disasters?

1.7. CONCEPTUAL FRAMEWORK: KENT'S DISASTER PREPAREDNESS FRAMEWORK

According to Lemeko (2011:42), *"preparedness is getting ready to fight hazards before they occur."* The Disaster Preparedness Framework adapted from Kent (1994) seemed to be the most appropriate schema as a conceptual framework for this particular research because it is comprehensive and the elements or components fit with the analysis followed in this institutional case study.

Kent's (1994) Disaster Preparedness Framework (DPF) consists of the following aspects; vulnerability assessment; planning; institutional framework; information systems; resource base; warning systems; response mechanisms; education and training; and rehearsals; these aspects are explained in detail in Chapter 2.

The Disaster Preparedness Framework was further chosen because it can be applied without modification to the University of the Free State case to find out what aspects of the DPF are in place. The Disaster Preparedness Framework was also chosen because it covers all the crucial aspects that need to be covered when preparing for potential hazards and disasters and thus it was deemed as a holistic, comprehensive approach for purposes of this study.

1.8. RESEARCH METHODOLOGY

1.8.1. Research design

This study deployed a qualitative research approach and within it a case study design in which the single case in focus is a higher education institution, the University of the Free State (UFS). A fuller exposition of the case study design is given in Chapter 4, which deals with the Research Methodology in much greater detail.

The sampling justification for selecting the UFS relates to the limitations identified in the existing research (see Chapter 3), namely, that we do not have in-depth studies on the levels of preparedness of largely rural universities removed from concentrated public resources (such as adequate security and policing services) and institutions that are regularly exposed to multiple disasters, including drought and protests.

In addressing the first research question, concerning the degree of compliance of the UFS with a particular Disaster Preparedness Framework (DPF), the case study data drew on three methods: (i) self-administered questionnaires completed by key staff concerned with disaster management at the university; (ii) structured observations of relevant places and events on campus; and (iii) document analysis of material records related to disasters. The data from the three methods together made 'the case' for the level of disaster preparedness at the UFS regarding hazards and disasters.

In addressing the second research question, concerning staff perceptions of the organisational preparedness of their university (the UFS) for managing and responding to disasters, the case study data came from the same self-administered questionnaires used earlier, this time focused on perceptions data.

The evaluation of university compliance as well as perceptions of preparedness were made against a reputable framework for making judgments about whether or not an organisation is found to be compliant with some acceptable standard of readiness. The conceptual framework (see Chapter 2) for the evaluation of compliance is Kent's (1994) Disaster Management Framework. The case study data assembled from the three main methods was used to inform the degree of compliance with each of the nine components of the DPF.

The data analysis procedures, the standards of validation applied, the ethical concerns, and the limitations of the study are given in some detail in Chapter 4.

1.9. CHAPTER OUTLINE

The first chapter gives a general introduction to the research project. It describes what the problem is, the approach, and outlines the research questions that guide the research process. This chapter is also a summary of how the research was conducted regarding sampling, data collection and data analysis.

The second chapter provides an in-depth description of the conceptual framework that was used in the research, namely Kent's Disaster Preparedness Framework. This chapter also explains important disaster management concepts such as the disaster management cycle. The legislative framework looks at what legislation says about disaster preparedness at universities as well as current policies at the University of the Free State regarding hazards and disasters and, more specifically, disaster preparedness.

The third chapter surveys the pertinent literature and gives an in-depth review of what has been written in published research on disaster preparedness at universities. The literature review draws attention to the strengths and limitations of available research on disasters in different organisations, and within universities; the gaps in the literature provide a justification for the conduct of this study.

The methodology chapter (Chapter 4) is a detailed description of the data collection methods and data analysis procedures used in this research. This chapter also focuses on the researcher's experiences of the data collection regarding what went according to plan and what did not, and how such unplanned events were handled.

Chapter 5 presents the findings on the degree of institutional compliance with the selected Disaster Management Framework. Chapter 6 presents the findings on staff perceptions of institutional readiness for managing and responding to disasters. These are the two 'data chapters' with each addressing one of the two research questions in the study.

The final chapter (Chapter 7) synthesises the findings of the research and draws important conclusions from the data collected on the disaster preparedness of the UFS. The recommendations are identified for institutional policies and practice especially in rural universities that are prone to multiple disasters. Suggestions for further research conclude the thesis.

2. CHAPTER 2:
THEORETICAL AND LEGISLATIVE FRAMEWORKS

2.1. INTRODUCTION

This chapter describes the disaster management cycle and elucidates the components of the Disaster Preparedness Framework used in this study. It offers a discussion on what disaster management related policies are about and what they specifically say about disaster preparedness on an international, local, and institutional (university) level. The chapter concludes with a summary of applicable South African legislation.

2.2. THEORETICAL FRAMEWORKS

2.2.1. Phases of the Disaster Management Cycle

In the Disaster Management Cycle (Figure 2.1), prevention and mitigation form part of a continuous process to lessen the impact that a hazard may have on people, property, and the environment (Wood, Boruff & Smith, 2013:149). Preparedness is the actions which include equipping people with skills and knowledge before a hazard or disaster event occurs so that when the event occurs, the necessary actions will be implemented to increase the chances of survival and to reduce financial and other losses (Coppola, 2015:8; Wood *et al.,* 2013:149). Vulnerability, root causes, social forces, unsafe conditions, and the severity and the probability of a hazard play a role in determining the level of risk (Wood *et al.*, 2013:149).

Once a hazard event occurs, response mechanisms are implemented through rescue and evacuation, relief, and external support (Coppola, 2015:8; Wood *et al.*, 2013:149). The response mechanisms are implemented within a few minutes of the hazard or disaster event or within 24 hours (Coppola, 2015:8; Wood *et al.*, 2013:149). The recovery phase of the disaster management cycle aims to return victims' lives to a state of normalcy after the impact of the disaster event (Coppola, 2015:8). The recovery phase begins after the immediate response has finished and it can be a long-term event that includes internal processes and reconstruction processes, while keeping sustainable development in mind (Coppola, 2015:8; Wood *et al.*, 2013).

It is important for purposes of this study to highlight the difference between mitigation and preparedness. Mitigation is the reduction or the limitation of the negative effects of a hazard or related disaster (Coppola, 2015:8; UNDRR, 2017). Preparedness, on the other hand, is the knowledge, strengths, attributes, and resources used by organisations and individuals to anticipate, respond to and recover from the negative effects of the hazards and related

disasters that could not be mitigated (UNDRR, 2017). Prevention, mitigation and preparedness make up the Disaster Risk Reduction Phase as shown in Figure 2.1.

Several diagrams illustrate the cyclical nature that these disaster management components are performed over a length of time but it is important to remember that these diagrams are generalizations, and these components are intermingled, and operate to some degree before, during and after disasters (Coppola, 2015:8; Wood *et al.*, 2013:149). Modern approaches are moving away from the cyclical nature of the Disaster Management Cycle, such as illustrated in Sawalha's (2020:474) study, but the researcher has decided to stick to the cyclical nature illustrated in the diagram below.

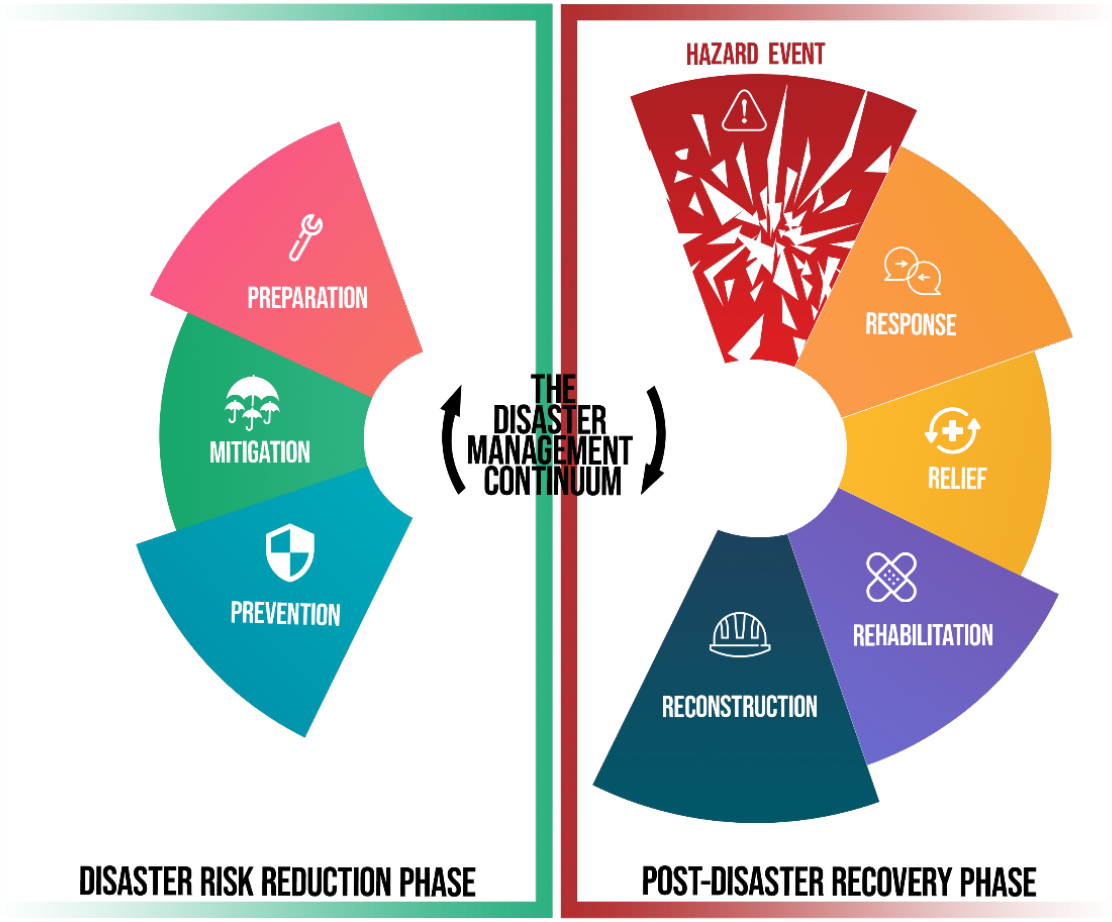

Figure 2.1: Illustration of the Disaster Management Cycle

Source: Adapted from Western Cape Government, 2015.

In this study, the focus is on the Preparedness Phase of the Disaster Management Cycle which was examined through the lens of the Disaster Preparedness Framework, discussed below.

2.2.2. Kent's Disaster Preparedness Framework

The Disaster Preparedness Framework (Kent, 1994) is implemented in the preparedness phase of the Disaster Management Cycle. The Disaster Preparedness Framework is holistic in terms of preparedness for a disaster and involves various components. According to Lemeko (2011:42), *"preparedness is getting ready to fight hazards before they occur".* It is suggested that the components of the Disaster Preparedness Framework be read in sequence; however, the components should not be seen as fixed because most times the activities can be undertaken at the same time or even in reverse order (Kent, 1994; Twigg, 2015).

The Disaster Preparedness Framework adopted for this study was compiled by Kent (1994) and consists of the following nine elements each carefully described below as was applied in the case of the University of the Free State:

Table 2.1: Components of the Disaster Preparedness Framework

Vulnerability assessment	Planning	Institutional framework
Information systems	Resource base	Warning systems
Response mechanisms	Public education and training	Rehearsals

Source: Kent, 1994.

a) Vulnerability assessment

All planning should be based on the assessment and prioritisation of hazards as well as risks, and whether the vulnerable population has the coping capacity to withstand the impact of the hazard (International Federation of Red Cross and Red Crescent Societies, 2000). Thus, vulnerability assessments are essential tools to devise effective disaster management plans (Kent, 1994). According to Kent (1994:16), *"Vulnerability analysis is a continuing, dynamic process of people and organizations assessing the hazards and risks they face and determining what they wish to do about them, if anything".*

The Inter-Agency Standing Committee, a forum of the United Nations and non-UN partners, devised a Common Framework for Preparedness in its *Components of Emergency Preparedness.* It identifies that Hazard/Vulnerability and Capacity risk assessments as some of its main components (Inter-Agency Standing Committee, 2014).

Vulnerability assessment involves a structured means of data collection which includes two general categories of information: (i) static infrastructure information; and (ii) dynamic socio-economic data (Kent, 1994).

The static infrastructure information includes determining the extent of development in the area, the physical advantages and disadvantages the residents in the community have to deal with, as well as a map of available structures that may be needed in an emergency e.g. roads, shelters, hospitals, etc, (Kent, 1994). The dynamic socio-economic data provides information on the demographics of the community, causes and levels of vulnerability, and types of economic activity (Kent, 1994). The main reason for doing vulnerability assessments is so that a database can be established on the potential effects of likely hazards as well as the relief needs and available resources in the community (Kent, 1994).

This component was applied to this study by way of determining whether the UFS conducts vulnerability assessments, and, if so, for what hazards/circumstances they do vulnerability assessments, how often it occurs, and whether it is comprehensive. The intention was that if vulnerability assessments were used by the UFS, this study would examine how the university had used vulnerability assessments in relation to three disaster-related events it has already experienced.

b) Planning

Once an actual disaster occurs, fast and effective action is needed, and this can only be done if a preparedness plan has been formulated and implemented. (International Federation of Red Cross and Red Crescent Societies, 2000). According to Kent (1994:18), *"Planning is the theme of the whole disaster preparedness exercise*". For plans to be implementable, they need to be agreed-upon and there needs to be an assurance of commitment as well as resources (Kent, 1994:18).

For plans to be effective, agreements need to be made between people and organisations in terms of a specific service the person/ organisation will be providing in an emergency. Kent (1994:18) holds that *"the written plan is a product, but not the main goal, of the planning process"* because the main objective of planning is to ensure ongoing communication between parties which should result in written agreements. Kent (1994:18) stated that the following should be included in the plan:

- *"Have a clearly stated objective or set of objectives;*
- *Reflect a systematic sequence of activities in a logical and clear manner;*
- *Assign specific tasks and responsibilities;*
- *Integrate its activities, tasks, responsibilities to enable the overall objective or set of objectives".*

Kent (1994) also suggested that four other elements be included in the planning process:

- Clarity (the specific type of plan or strategy depends on the way a disaster strikes and at what time);
- Participation in the process (who should be involved in the planning process and the extent of centralization and decentralisation);
- Planners ("*the coordination of the intentions and the plans of each collaborating party*"); and
- The status of the plan.

Regarding the last point, for Kent (1994) there are various indicators that show whether the plan is taken seriously, such as the level of commitment by participants in the planning process, adequate funds to implement the plans, and enabling legislation that reinforces actions of participants.

The planning component was applied to this study by finding out whether the UFS has plans for every building and if they are generalised or specific plans; also, to find out who oversees the plans, and how often those plans are reviewed and updated. This study explored what hazards the UFS plans responses for, and how it has previously implemented planning with regards to three disaster-related events they have already experienced.

c) Institutional framework

Instead of creating new organisations for disaster preparedness, Kent (1994) proposed that leaders rather work with, and strengthen, the established disaster preparedness structures and systems. Disaster responses usually require the sanction of those in senior positions whose authority will activate the implementation of disaster response plans (Kent, 1994). All levels of management should, however, form part of a disaster response committee.

Plans should also be coordinated with the plans of other organisations, such as local municipal disaster management offices, so that effective coordination can take place and the maximum number of people can be assisted in the shortest time possible without the unnecessary replication of services (International Federation of Red Cross and Red Crescent Societies, 2000:11). Such coordination among organisations requires mutual trust so that the coordination of efforts and services can ensure an effective disaster response (International Federation of Red Cross and Red Crescent Societies, 2000:11).

Each organisation should have one representative and take responsibility for each major type of response activity, for example, a representative from the Mangaung Metropolitan Municipality (MMM) Fire Department can train relevant stakeholders on what to do in a fire evacuation (International Federation of Red Cross and Red Crescent Societies, 2000:12). Organisations can through direct coordination, divide responsibility for different operations

and start planning their disaster response actions accordingly (International Federation of Red Cross and Red Crescent Societies, 2000:12).

Furthermore, it is important for organisations to work together on their disaster preparedness planning before a disaster strikes as this helps organisations understand each other's aims, objectives, and capacities, and identify gaps and weaknesses in an organisation's service delivery during an actual disaster response (International Federation of Red Cross and Red Crescent Societies, 2000:12).

When defining roles and responsibilities of those involved in the disaster response, three things should be kept in mind: (i) responsibilities should be given to those who have the necessary expertise; (ii) roles and responsibilities should be clearly defined; and (iii) those roles should be apportioned to the appropriate partners for implementation purposes (Kent, 1994:25). Finally, when assigning roles and responsibilities, one should take note of political and social conditions (Kent, 1994:25).

The institutional framework component was implemented in this study by finding out who gives approval for the implementation of emergency response-related plans and who the stakeholders are that the UFS works with when planning and dealing with disasters. This study also aimed to determine whether the university plans are coordinated with the plans of other stakeholders and whether roles and responsibilities are clearly defined. This study also explored how the UFS has engaged stakeholders previously and whether stakeholders are committed to the cause.

d) Information systems

Before, during and after disasters there is the constant gathering of accurate information, analysing that information, and acting on the information in a timely manner (International Federation of Red Cross and Red Crescent Societies, 2000:12). Thus, those working on a disaster preparedness plan need to make the following determinations when a disaster occurs: What information is needed? Who will collect the information? How will the information be collected? Who will analyse the information? How will the analysed information be integrated into the decision-making process? (International Federation of Red Cross and Red Crescent Societies, 2000:12).

Early warning systems are made up of many components and an effective plan has an established system that coordinates all these different inputs in the hands of the disaster response team (Kent, 1994:26). An effective disaster plan therefore clearly defines and assesses the most appropriate way(s) of gathering and distributing early warning information (Kent, 1994:26). When it comes to the appropriate information system in disaster preparedness, there are three different information exchange systems:

(i) information exchange systems within each organisation; (ii) information exchange among organisations; and (iii) information exchange between organisations and the public (Kent, 1994:26). It is vitally important that the public receives and understands early warning messages which should be simply and clearly stated (Kent, 1994:26).

There are standard features of a monitoring system that should be implemented when obtaining information for early warning systems (Kent, 1994:26), including the following: changes in the patterns of disaster threats; the number of vulnerable people; and what preparations had already been done in anticipation of a disaster response (Kent, 1994:26).

When all these components are in place, and when the disaster plan is implemented in a real emergency, then the response would be considered efficient if the appropriate relief was distributed in a timely manner to the targeted groups in need (Kent, 1994:26). Once a disaster strikes, initial assessments therefore need to be done quickly and that information has to be passed on to emergency responders to deliver on critical and urgent life-saving needs (International Federation of Red Cross and Red Crescent Societies, 2000:13).

The following information should be considered during an initial assessment: the location of the affected people, their condition, their needs, their resources, and what services are available to them (International Federation of Red Cross and Red Crescent Societies, 2000:13).

This study asked whether the UFS uses information systems before, during and after disasters, and whether the university makes use of monitoring systems for disasters. This study also determined how the UFS handles media enquiries, how information is exchanged in a disaster, and how information is collected and given to responders. The study also explored how the UFS communicated during three disaster-related events it had previously experienced.

e) Resource base

The types of disasters that the disaster plan anticipates is an indication of what resources are required to meet the disaster needs (Kent, 1994:28). These disaster needs should be made explicit in the disaster plan and should cover the implementation of all components of disaster relief and recovery (Kent, 1994:28). Pre-written agreements should be established specifying arrangements about which organisations will be securing the necessary goods and services as required (Kent, 1994:28). Important issues such as internal arrangements for getting access to funds, the distribution of funds or policies, and agreements about using other's equipment, all need to be made explicit in the plan (Kent, 1994:28).

When assessing the resources required for a disaster preparedness plan, the following must be considered: disaster relief funding; disaster preparedness funding; mechanisms for aid coordination; and stockpiling (Kent, 1994:28). Any disaster preparedness plan must ensure that there is disaster relief funding available when a disaster occurs as there is often a need for items that cannot be easily stockpiled, such as medication (Kent, 1994:28). Insurance is also another way to create funding for potential future hazards and disasters (Kent, 1994:28).

Disaster preparedness funding is essential *"to pursue the activities of the planning process including special studies, public awareness and training"* (Kent, 1994:28). If extra assistance is required, then there needs to be a coordinated, timely and useful response from those outside the community (Kent, 1994:29). Assistance from NGOs should also be brought into the coordination mechanism (Kent, 1994:29). Those drawing up disaster plans, before a disaster occurs, should establish procedures for activating the processes to request support from other organisations (International Federation of Red Cross and Red Crescent Societies, 2000:14). In terms of stockpiling, one must think about what needs to be stored, what can be stored, the required quantities and, of course, where it can be securely stored (Kent, 1994:29).

For this study, information was sought about whether the UFS has funds for disaster preparedness, how those funds are accessed, and whether the UFS stockpiles resources. This study also explored what physical resources the UFS uses to combat hazards, e.g. fire extinguishers, and how the university has made use of its resources in relation to three disaster-related events that is has previously experienced.

f) Warning systems

The reason for early warning systems is that they detect, forecast and when applicable, issue alerts about upcoming hazards (International Federation of Red Cross and Red Crescent Societies, 2000:13). In order for early warning systems to be effective, they have to be based on information about actual and potential risks that a hazard poses, as well as inform people about the measures that they can take to prepare for and mitigate its negative impacts (International Federation of Red Cross and Red Crescent Societies, 2000:13).

Regarding warning systems, it must be assumed that functioning systems such as telephones might not be available during major disasters. This means planning accordingly to consider what other forms of communication equipment will be needed if power lines are destroyed (Kent, 1994:32). Preparedness plans should also include provisions for access to alternative communication systems so that communication can occur with the police, military and government networks (Kent, 1994:32).

Those who plan effective warnings should take into consideration the perception of the public of warnings. Targeted people might have little faith in warnings, either because they misunderstand the warning messages or they are frustrated with yet another false alarm; there is also the human inclination to ignore what seems inconvenient at the time (Kent, 1994:32).

For this study, information was sought about whether the UFS has warning systems, and what other communication devices the university uses if and when telephones lines are down, and what the perceptions are among those who receive the warnings. This study aimed to determine if residents know what certain warning systems mean, and if student residences have enough warning signs in the correct places. This study also investigated how the UFS has used warning systems previously with regards to three disaster-related events it had experienced.

g) Response mechanisms

Each response is determined by the attributes of the threat. The following preparatory actions would contribute to an effective emergency response (International Federation of Red Cross and Red Crescent Societies, 2000:10):

- Preparations for storing supplies or planning for rapid acquisition of emergency relief supplies and equipment;
- Procedures for activating emergency programmes;
- Evacuation procedures and informing the public about these procedures;
- Forming assessment teams and having plans to train them as well as an assessment process and a process of disseminating important information derived from this assessment for an effective emergency response;
- Having search and rescue teams and plans to train them;
- Processes to activate special installations such as mobile hospital facilities; and
- Processes for activating distribution systems.

For this study, information about the university's response mechanisms was sought. Questions were asked about what procedures are in place to activate disaster response programmes, what processes kick in during an emergency, and who at the university declares a disaster. This study also investigated how the UFS responded to three previous disaster-related events in terms of response mechanisms.

h) Public education and training

The Southern African Development Community (SADC) has recommended that strategies are designed to increase public awareness including the education and training of human populations in high-risk urban and rural areas (SADC, 2014:2). The SADC sub-region also recommended that disaster risk reduction (DRR) be integrated into the curriculum of primary, secondary as well as tertiary education, so that risk-thinking and preparation form part of the daily learning and living of at-risk communities (SADC, 2014:2).

South Africa has a Disaster Management Act 57 of 2002 and a National Disaster Risk Management Education and Training Framework of 2013, and legislation does mandate the education and training of the public with regards to prevention, mitigation, preparedness, and response in the case of disasters (RSA, 2013).

According to the International Federation of Red Cross and Red Crescent Societies (2000:14), *"the aim of public awareness and education programmes is to promote an informed, alert and self-reliant community, capable of playing its full part in support of and in co-operation with government officials and others responsible for disaster management activities".*

The planning process will only be effective if those who are threatened by a disaster, know what to expect and know what to do (Kent, 1994:33). This can only be done if those threatened by the disaster are educated in some of the following ways: education in schools, television, radio and printed media and special training courses (Kent, 1994:33). It is especially important to train (i) those responsible for implementing elements of the disaster preparedness plan; and (ii) those responsible for issuing warnings to the public (Kent, 1994:34). Training cannot be done as a once-off intervention and therefore refresher courses are important to offer in the form of continuing education and training. Training should always include active simulations such as evacuation exercises (Kent, 1994:34).

This component was applied to this study by determining whether the UFS conducts public awareness campaigns and training for disasters, how often stakeholders who implement disaster-related plans and issue warnings, receive training – if at all. This study also aimed to find out what documents say about the UFS's public awareness and campaigns. This study explored how the UFS has previously conducted public awareness and trainings.

i) Rehearsals

Disaster preparedness simulations cannot portray exactly what will happen during a real disaster relief situation (Kent, 1994:34). Rehearsals test the system as a whole and can identify gaps in a disaster preparedness plan (Kent, 1994:34). Rehearsals should be system-wide, which means that all mechanisms that would be involved when a real disaster strikes, should also be rehearsed (Kent, 1994:35).

This component was implemented in this study by finding out whether the UFS conducts rehearsals and, if so, the type of hazards it has rehearsals for, and the frequency of rehearsals. This study directly observed how the UFS conducts rehearsals.

2.2.3. The United Nation's Sendai Framework for Disaster Risk Reduction

This section examines what the United Nation's Sendai Framework for Disaster Risk Reduction (SFDRR) 2015-2030 stipulates with respect to disaster preparedness (United Nations, 2015). The Sendai Framework 2015-2030 is a continuation and an improvement on the Hyogo Framework for Action (2005-2015). The aim of the Sendai Framework is to *"guide the multi-hazard management of disaster risk in development at all levels as well as within and across all sectors".* The Sendai Framework has seven global targets that has been devised to assess global progress in achieving the outcome and goal of this framework; one of the seven targets is to reduce the substantial amount of damage caused by disasters to essential infrastructure and the disruption of basic services, including health and *educational facilities*, by developing their resilience by 2030 (United Nations, 2015:6).

There are thirteen principles guiding the Sendai Framework (United Nations, 2015:8), and one of them mentions that *"… it is necessary to empower local authorities and local communities to reduce disaster risk, including through resources, incentives and decision-making responsibilities, as appropriate".* The seven global targets and thirteen principles can be addressed by disaster risk reduction initiatives.

The Sendai Framework has four priorities for focused action, namely (United Nations, 2015):

- *"Understanding disaster risk;*
- *Strengthening disaster risk governance to manage disaster risk;*
- *Investing in disaster risk reduction for resilience; and*
- *Enhancing disaster preparedness for effective response, and to 'Build Back Better' in recovery, rehabilitation and reconstruction".*

For this study, Priority One and Priority Four are discussed below.

a) Priority One of the Sendai Framework: Understanding Disaster Risk

Priority One of the Sendai Framework promotes understanding of disaster risk; on a national and local level disaster risk knowledge should be promoted in non-formal education, formal education, professional education and training, as well as in civic education at all levels (United Nations, 2015:10). This can be achieved using community mobilisations, campaigns, and social media strategies taking into consideration the target audience and their needs (United Nations, 2015:10). As Priority One for understanding disaster risk is one of the aspects of the *public education and training* component of the Disaster Preparedness Framework, this study tried to find out if the UFS promotes knowledge of disaster risk.

b) Priority Four of the Sendai Framework: Enhancing Disaster Preparedness for Effective Response, and to 'Build Back Better' in Recovery, Rehabilitation and Reconstruction

Priority Four of the Sendai Framework, enhancing disaster preparedness for effective response and to *Build Back Better* in recovery, rehabilitation, and reconstruction, is a mix of continuity and innovation (UNISDR, 2015:18). The continuity feature aims to continue to improve preparedness for response and the innovation feature aims to introduce the idea of preparing for recovery, rehabilitation and reconstruction before the disaster occurs (UNISDR, 2015:18). Therefore, the Sendai Framework emphasises the need to *Build Back Better* by including disaster risk reduction measures in recovery, rehabilitation, and reconstruction (UNISDR, 2015:18).

Priority Four of the Sendai Framework stipulates actions that can be readily applied to the University of the Free State in this study (United Nations, 2015:17):

- Prepare and periodically review and update disaster preparedness and contingency policies, programmes and plans with the involvement of relevant stakeholders;
- Invest in, strengthen multi-hazard forecasting and early warning systems and disaster risk and emergency communication mechanisms;
- Encourage the resilience of existing critical infrastructure, such as educational and health facilities amongst others, so that they remain safe, operational, and effective to provide life-saving and important services during and after disasters;
- Fortify logistical and technical capacities as well as train the current workforce and voluntary workers to provide a better response during emergencies; and
- Encourage regular exercises on disaster preparedness, response and recovery including evacuation drills.
- During the recovery phase, provide for everyone who needs mental health services and psychosocial support.

The Sendai Framework for Disaster Risk Reduction further holds that non-state stakeholders play an essential role in supporting government actions; therefore, scientific and research entities and networks, as well as academic institutions, should conduct the necessary research for local, national and regional application when it comes to disaster management (United Nations, 2015:20). Such research bodies should identify disaster risk factors and develop research-based scenarios for medium and long-term application; appropriate research will balance science policy for decision-making and at the same time support action taken up by local authorities and communities (United Nations, 2015:20).

2.3. SOUTH AFRICAN LEGISLATION

This section discusses the South African laws that mention safety, disaster management and specifically, disaster preparedness.

2.3.1. The South African Constitution and the Bill of Rights

The Bill of Rights is a chapter within the Constitution of South Africa (1996). Section 24 of the Bill of Rights (1996), it is declared that everyone has the right to an environment which is not harmful to their health or well-being and the right to a protected environment for the current and future generations. The right to a protected environment can be made real by preventing ecological degradation, reducing pollution, encouraging conservation, ensuring sustainable ecological development, and protecting natural resources even as social and economic development is pursued.

Section 37 of the Constitution (1996) holds that a declaration of a state of emergency may only be issued if the nation is threatened by invasion, war, general insurrection, natural disasters, disorder or any other public emergency or if it is needed to restore peace and order. This is important to note for the University of the Free State, because once institutional leaders are aware of a declaration of an emergency, then they can activate their disaster response and recovery activities for a certain disaster and appeal for additional resources from the equitable shares and allocation of revenue (Section 214).

2.3.2. The Disaster Management Act 57 of 2002

In s5(1)(e), s37(1)(e)(x) and s51(1)(d)(ix) of the Disaster Management Act (No. 57 of 2002), as amended by the Disaster Management Amendment Act (No. 16 of 2015) states that the National, Provincial and Municipal Disaster Management Advisory Forums, respectively, should consist of representatives of disaster management role-players which may include institutions of higher education, among other role-players. This indicates that institutions of higher education could play a pivotal role in disaster management.

The Disaster Management Act, in s48(1)(a)(ii), states that municipal disaster management centres should monitor *"the informal and formal prevention, mitigation and responses initiatives of municipal organs of state, the private sector, non-governmental organisations and communities in the municipal area"*. Thus, the local municipality should know what disaster management activities institutions of higher learning are initiating. It also states in Section s49(1)(c) of the Disaster Management Act 57 of 2002, that if a disaster is threatening to occur or happens, and it is regarded as a disaster event by the municipal disaster management centre, then the centre must immediately alert disaster management role-players (such as institutions of higher learning) in the municipal areas that could be of assistance in responding to impending disasters.

2.3.3. The National Disaster Management Framework of 2005

The National Disaster Management Framework is the legal framework informed by the Disaster Management Act (No. 57 of 2002), created to provide a uniformed approach across all spheres of government, civil society, and the private sector to avoid and reduce disaster losses. The National Disaster Management Framework places a sharp focus on disaster risk reduction components, such as disaster prevention, mitigation, and preparedness. The National Disaster Management Framework guides and informs provincial and municipal disaster management frameworks and plans (RSA, 2005).

The National Disaster Management Framework (RSA, 2005) consists of four key performance areas (KPAs) and three supportive enablers that are necessary to achieve its performance objectives:

- KPA 1 is about the institutional arrangements needed to implement disaster risk management in all three spheres of government (national, provincial, and municipal);
- KPA 2 is about disaster risk assessment;
- KPA 3 is about disaster risk reduction, and
- KPA 4 is about response and recovery.

The enablers needed to successfully achieve the objectives of the KPAs are the following:

- Enabler 1 is about information and communication;
- Enabler 2 is about education, training, public awareness and research; and
- Enabler 3 is about funding arrangements for disaster risk management.

Although all the KPAs and enablers are important and can be applied to this study, KPA 3 and Enabler 2 are most relevant to this study and are discussed below.

a) KPA 3: Disaster risk reduction

With respect to KPA 3 (disaster risk reduction) of the National Disaster Management Framework, it would be important to determine whether the UFS, according to the assessment and preparedness planning guidelines of the disaster preparedness framework, identifies certain areas or groups of people who are vulnerable to certain disaster risks. This section's eight key planning points for disaster risk programmes can also be applied to the UFS.

b) Enabler 2: Education, training, public awareness and research

The researcher highlights the training programmes for disaster risk management mentioned in Enabler 2: education, training, public awareness, and research of the National Disaster Management Framework that can be applied to the UFS. Enabler 2 requires that there are training programmes for communities and volunteers, training of trainers, facilitators and that there are opportunities for learnerships.

Enabler 2 also calls for creating awareness, promoting a culture of risk avoidance, and establishing good media relations. Enabler 2 highlights the need for a research programme as well as information and advisory services to provide access to all stakeholders and role-players regarding disaster risk management and related information.

Based on Enabler 2, a consolidated report was written regarding the National Education, Training and Research Needs and Resources Analysis (NETaRNRA) (National Disaster Management Centre, 2009) in South Africa which lead to a National Disaster Risk Management Education and Training Framework (NDRMETF) (National Disaster Management Centre, 2013).

2.3.4. National Disaster Risk Management Education and Training Framework (NDRMETF)

In the NDRMETF (National Disaster Management Centre, 2013), it mentions that the primary and secondary disaster management within all government departments, levels and sectors works towards a successful disaster prevention framework that has nine distinct measures, criteria and standards. This disaster prevention framework seems to be based on the Disaster Preparedness Framework (Kent, 1994) that is used in this study, as it mentions the following components: risk reduction; disaster risk reduction planning; institutional frameworks; information systems;, resource base; warning systems; emergency and response management; public education and training; and rehearsals.

2.3.5. South African legislation related to disaster management in higher education institutions

To date, little has been written in legislation regarding disaster management in higher education institutions. The Higher Education Act 101 of 1997 does not mention anything regarding safety. The Regulation of Gatherings Act 205 of 1993 is applicable in terms of gatherings and demonstrations that may occur at universities like the UFS. The following sections of the Regulation of Gatherings Act 205 of 1993 can be applicable to the UFS:

- S3: notice of gatherings;
- S4: consultations, negotiations, amendment of notices, and conditions;
- S5: prevention and prohibition of gatherings;
- S8: conduct of gatherings and demonstrations;
- S9: powers of police;
- S11: liability for damage arising from gatherings and demonstrations;
- S12: offences and penalties.

A possible example of where the Regulation of Gatherings Act 205 of 1993 could have been applied is the student fees protests of 2015-2016 that lead to the shutdown of the University of the Free State but also the arrest of students of the UFS.

2.3.6. Institutional policies regarding disaster preparedness: The University of the Free State

The researcher has in hand a security policy regarding protection services, a policy regarding the provision of medical services on the UFS Bloemfontein campus, and an occupational health and safety policy. These three policies are important to incorporate into the disaster planning and disaster response component of the Disaster Preparedness Framework. They are discussed below.

a) UFS Medical Emergency Policy

The Medical Emergency Policy was approved by the UFS Council on 25 November 2005. It is not clear whether this provision of emergency services policy of the UFS has been updated since 2005. If the policy has not been updated since 2005, it should be updated because there are names of staff members that no longer work at the UFS or no longer work in those positions mentioned in the policy.

This policy regarding provision of medical services is applicable to staff members and students at the main Bloemfontein campus and South campus. The provision of medical services policy states the procedure for ambulatory patients, non-ambulatory patients and the procedure for having emergency services present at sports and other UFS functions as well as who is responsible for coordinating the provision of medical services on the

Bloemfontein campus. This policy stipulates how it will be communicated to all relevant departments and how often it will be updated. This policy also mentions how emergency information will be distributed and how often it will be updated and this falls within the *information systems* and the *warning systems* component of the Disaster Preparedness Framework (UFS, 2005).

b) UFS Security Policy: Protection services

The researcher was able to get hold of draft 4 of the Security Policy regarding protection services and according to the policy document, it is not the final draft of the Security Policy. This draft of the Security Policy of the UFS was compiled on 12 October 2009. The researcher believes that this Security Policy has not been updated since October 2009.

The aim of the Security Policy is to create a coordinated approach to security including all relevant role-players at the UFS, to establish sustainable partnerships with relevant role-players that are situated in the wider community surrounding the UFS, to improve security-related infrastructure on the UFS campus, to empower security-related human resources on the UFS campus, to create a culture of awareness of security on UFS campuses and to create a campus that is weapon-free. The policy is applicable to all staff members and students on any UFS campus or UFS property.

Security in the policy refers to the security of the UFS infrastructure and the security of all persons and property of all staff, students and visitors. It is important to note that the UFS Security Policy is applicable to all the UFS physical information technology infrastructure and equipment and access to it but this policy is not applicable to Information Technology security at the UFS. The policy describes the strategies to implement the policy according to the aims mentioned above (UFS, 2009).

This policy has taken natural disasters and other risks into consideration because the policy mentions that one of the responsibilities, amongst others, of the Deputy Director of the UFS protection services is to get "*professional assistance in the compilation of a comprehensive security plan for the UFS inclusive, but not limited to, security threats such as natural disasters, unrest situations and medical emergencies*". Another responsibility of the Deputy Director of the UFS protection services is to "*command a Joint Operations Centre (JOC) created in terms of the above [mentioned] security plan during such natural disasters, unrest situations and medical emergencies*". The UFS Security Policy also mentions that there should be a Security Advisory Committee to ensure liaison and co-ordination regarding safety matters. The UFS security policy specifies who is part of the Security Advisory Committee, what their responsibilities are and how often they should meet. The responsibility for the administration, management and procedures for the implementation of

the policy lies with the line manager and the Deputy Director of the UFS protection services according to the UFS Security Policy (UFS, 2009).

c) UFS Occupational Health and Safety Policy

The UFS Occupational Health and Safety Policy was signed on 10 October 2007 by the Rector of the UFS at that time and the same policy was signed on 1 September 2010 by the following Rector of the UFS. The Occupational Health and Safety Policy does not seem to have any changes or improvements to the policy and it seems that it is only applicable to staff members of the UFS. The policy states that management is responsible for the health and safety of those who work in the UFS workplace. This policy relates to disaster risk reduction because this policy aims to reduce risk in the workplace as evident during COVID-19 when the UFS decided to send their staff home so that they would be less likely to catch and spread the infectious disease (UFS, 2007; UFS, 2010).

2.4. CHAPTER SUMMARY

This chapter presented the theoretical framework, namely, Kent's (1994) Disaster Preparedness Framework, on the basis of which the organisational preparedness of one university was evaluated. At the same time, this chapter discussed the chosen framework in the light of provisions in the Sendai Framework, the South African Constitution, national legislation on disasters, and very briefly surveyed the relevant institutional policies of the case study university (UFS) as they relate to preparedness.

The following chapter gives a fuller review of the research literature on disaster preparedness in organisations. This review revealed critical insights and possible gaps in our knowledge about the subject that were subsequently addressed in the UFS study.

3. CHAPTER 3: LITERATURE REVIEW

3.1. INTRODUCTION

The purpose of this literature review is to establish what we already know from research about the preparedness of organisations for managing disasters, and how insights from these studies can inform the UFS case research; to determine what is not yet known on this subject such as gaps in the available literature; and therefore to justify the research questions identified for this study on disaster preparedness in one institution of higher learning.

It is important to begin with a review of the critical concepts used in talking about 'organisational preparedness'.

3.2. DISASTER RESILIENCE IN ORGANISATIONAL PREPAREDNESS

Disaster resilience refers to the capacity of an organisation or community to recover from a major crisis. When disaster strikes, a resilient organisation returns fairly quickly to its prior state; that is to say, to conditions that prevailed before the disaster (Zakour, 2015: 4, 15). Some work has been done to make conceptual sense of disaster resilience. For example, a disaster resilience framework commonly used is that of the Multidisciplinary Centre for Earthquake Engineering Research (MCEER) which has four elements, namely: (i) rapidity; (ii) robustness; (iii) redundancy; and (iv) resourcefulness (Jung & Song, 2015:1467; Nussbaum, 2016; Zhong, Clark, Hou, Zang & Fitzgerald, 2014:933).

Rapidity refers to the speed of responsiveness (Zhong *et al.*, 2014:936). Robustness refers to the organisation's inherent strength to continue its carrying capacity of designated and essential functions while withstanding the consequences of the disaster event (Jung & Song, 2015:1467; Zhong *et al.*, 2014:936). Redundancy refers to the extent that an organisation can put into operation many solutions to deal with unexpected disruptions such as extra staff that can be on duty or back-up of resources, infrastructure and equipment (Jung & Song, 2015:1467; Zhong *et al.*, 2014:936). Resourcefulness refers to the organisation's adaptive flexibility to maintain the organisation's essential functions and its capacity to prioritise, acquire and mobilise resources (Jung & Song, 2015:1467; Zhong *et al.*, 2014:936).

The study by Zhong *et al.* (2014) on disaster resilience was conducted in the context of hospitals as organisations. Examining hospital management capacities and existing concepts of resilience, this study developed a new conceptual framework based on the following elements: safety, resources, services, and recovery in the context of hospitals. The special contribution of this study is that it draws attention to what makes hospitals

resilient; this raises the important matter of organisational contexts i.e. how does measuring organisational resilience differ in a hospital setting compared to that of a university campus? Surely measures of resilience would differ in large, multicampus universities with tens of thousands of active students compared to hospitals with smaller numbers of sick, largely immobile patients. Organisational context matters for disaster resilience.

A different study on disaster resilience examined the role of resources and collaboration in enabling an organisation's response to emergencies (Jung & Song, 2015). When a crisis hits, agencies might seek help upwards (hierarchical) and across (horizontal) organisations for support. The success of such reaching-out strategies requires high levels of trust and the capacity for co-ordination. The authors here introduced concepts of robustness (staying capacity through a crisis), rapidity (response capacity), redundancy (use of multiple resources) and resourcefulness (capacity to draw on many resources). The study found that an emergency management capacity strengthened organisational resilience.

What makes Nussbaum's (2016) study on resilience different is that it applies the concept within the context of public safety organisations; there is little research in this area of application. The USA's Department of Homeland Security's strategy document regards success as *"having a secure and resilient Nation*". Rather than reinvent the conceptual wheel, this study used a New Zealand framework for resilience and applied it to public safety agencies in America. Recommendations include standardising after action reports with federal guidance and making them publicly available to further contribute to understanding organisational resilience. The study identified factors that make for resilience in such particular organisations and found that informing the public is critical, particularly with respect to 'after-action' reports that are deemed to strengthen organisational resilience in these contexts. This rare research on public safety organisations of the federal government (USA) makes a valuable contribution to the literature through its comparative application of concepts developed in New Zealand.

Yet another study elaborated on the concept of "community resilience" (Zavaleta, Asirvatham, Callies, Franz, Scanlan-Hanson & Mollela, 2018). Here, the goal was to involve more than the experts or the first responders by bringing in everyone from students to professionals to staff from local organisations and youth in general. The authors used concepts and tools from simulation design and emergency management to identify key principles for event planning involving large and diverse groups drawn from communities. This attempt to strengthen community resilience is offered as ' proof of concept' for leaders concerned with managing disasters and the associated risks.

Resilience is a vital element of an organisation's preparedness for impending disasters (Cavallo, 2014:1) and therefore merits attention in any review of the relevant literature. However, developing resilient organisations is one thing, but that task depends on how ordinary people understand or perceive a disaster in the first place, i.e. the question of barriers to preparedness.

3.3. BARRIERS TO ORGANISATIONAL PREPAREDNESS

Three key barriers to organisational preparedness as identified in a study by Bevc, Simon, Montoya and Horney (2014) were (i) inadequate resources, (ii) high staff turnover, and (iii) the lack of skilled or experienced personnel. The context for this study on barriers – and facilitators – with respect to preparedness was vulnerable people in local health departments. In contrast to barriers, the study by Bevc *et al*. (2014) identified important facilitators of organisational preparedness, such as adequate supervisor support and the provision of timely feedback, that both enabled preparedness among organisations.

Tony Jacques' (2011) study of CEOs of organisations provided an added list of organisational barriers to effective preparedness including denial, the failure to prioritise, the lack of experience, limited size and resources, little sharing of experiences, communication, and leadership.

Dunlop, Logue, Vaidyanathan and Isakov (2016) also identified barriers to organisational preparedness in collaborating communities of academics, disaster centres and public health organisations. The authors listed among those barriers to be staff being unfamiliar with the concept, ownership of products from the partnership, different ways of working and variances in organisational culture.

Among the barriers, training needs feature prominently, necessitating further exploration of the findings from literature regarding training needs.

3.4. TRAINING FOR ORGANISATIONAL PREPAREDNESS

Working in the Malaysian context, Nazli, Sipon and Radzi (2014) set out to determine individual and organisational needs for training purposes related to crisis preparedness. They found that individual training needs included basic knowledge about emergency responses, resources to support such training and public awareness. Organisational needs extend beyond the individual and was found to include attuning the organisation to what disaster preparedness is and how the entity can better prepare individuals for emergency responses.

One way in which to determine training needs is against a formalised standard that is developed. This is what Horney, Carbone, Lynch, Wang, Jones and Rose (2017) did by developing 15 capabilities that set the requisite standard for preparedness. Some capabilities worth mentioning include public information, health surveillance, volunteer management and community preparedness. These capabilities were developed in the context of health emergencies with health departments, but their application extends beyond this one sector. Once these formal standards are accepted, the way to assess the training for preparedness against such benchmarks need to be determined.

This is what Olson, Scheller and Wey (2014) proceeded to do in the context of bioterrorism and emergency readiness training. This large evaluation study of more than 17 000 respondents tried to compare outcomes for those with more and those with less than 45 hours of training in bioterrorism. Both groups were happy with the training. More training meant better emergency decisions in general. Training in crisis and risk communication, however, had little effect on crisis and risk communication.

The commitment to evaluating education exposure, if not formal training, is also the subject of another bioterrorism study with emergency preparedness in mind (Chittaro & Sioni, 2015). Forty-four respondents were asked to play a video game concerning the mass evacuation of a train station during an emergency. Their decisions and actions were measured in relation to a number of prompts. The findings of this simulation study pointed to the positive effects of simulated learning in preparing participants for emergency situations, but it is not clear how emotional responses and threat appraisal are affected in this kind of approach.

The use of technologies in training preparation is a powerful development in organisational preparedness as is the attempt to understanding the problem through the use of novel theories.

3.5. THEORIES OF ORGANISATIONAL PREPAREDNESS

A range of modern theories purport to explain disasters and organisational preparedness for disasters (see Kim & Sohn 2017). Some are briefly mentioned here as background to justify the use of Kent's conceptual framework for this particular study.

A few authors have used chaos theory to make sense of crises such as Hurricane Katrina in New Orleans in the state of Louisiana, USA, in 2008 (Adams & Stewart, 2014). The standard procedures deployed were based on control, predictability and stability which were not found useful in the chaotic situation that resulted from Katrina. Chaos theory emphasises the opposites of standard procedures, such as non-linearity and

unpredictability. Therefore, when chaos theory was deployed, it enabled the police to manage unexpected partners such as the National Guard and to re-organise accordingly.

Sanial (2014), on the other hand, combined chaos theory and complexity theory (which emphasises interactions and feedback loops) for preparing the USA Coast Guard for unexpected crises. From the accumulated data, emergent themes were identified and connected to chaos and complexity theory for purposes of developing what was called *"a holistic approach"* to organisational preparedness. But there are other conceptions or theories of disaster management – with the summaries below drawn from a landmark paper by Kim and Sohn (2017).

Heinrich's Law, for example, argued that major disasters result from inattention or negligence with respect to relatively minor neglects. *Domino Theory*, also used by Heinrich, holds that there is a sequential flow of accidents that leads to human and physical disasters. Charles Perrow's *Normal Accident Theory*, on the other hand, expects a certain level of unavoidable accidents to occur regardless of precautions taken in advance. And Ulrich Beck's concept of the *Risk Society*, somewhat related to Perrow's theory, insists that risks are a reality of the modern era and that what nations should do, is to work together to mitigate or reduce risks rather than assume they can be eliminated.

None of these theoretical platforms offer a systematic method or ideal fit for measuring disaster preparedness in higher education contexts and that is why Kent's conceptual framework was chosen for this particular study.

3.6. PREDICTORS OF ORGANISATIONAL PREPAREDNESS

What are the predictors or determinants of organisational preparedness for disasters? One study by Sadiq and Graham (2016) found that *organisational size* is a reliable predictor of preparedness because larger organisations have more formalised risk initiatives, more resources to invest in preparedness measures and they potentially risk losing more in the event of a disaster. In a different study from one of the same authors (Sadiq, 2017), *organisational age* was added as another firm predictor of preparedness in the case of floods. It is important to note that both these studies used as their unit of analysis the organisation and not the individual or household levels for judgments about preparedness.

The same authors of these studies earlier investigated whether the presence of a risk manager predicts whether an organisation will in fact adopt risk-reduction measures with respect to disasters (Sadiq & Graham, 2014). They sampled public, private and non-governmental entities in the American state of Tennessee and found a positive difference in the uptake of such mitigation measures between those organisations with risk managers

compared to those without such personnel. They further found that *"risk perception is a significant predictor of risk-reducing measures"* (Sadiq & Graham, 2014).

In Lindstedt's (2012) *Measuring preparedness and predicting recoverability*, the author referred to Light's 23 predictors for competencies ahead of a crisis and those include crisis fortitude, leadership, performance, shared vision, teamwork which *"must ultimately manifest themselves to some degree in any successful recovery effort"* (Light, 2008: 13 as cited by Lindstedt, 2012).

Clearly many different factors predict readiness for disasters and the difference between these various studies is the unit of analysis, e.g. individual level of analysis, such as the leader, versus organisational level of analysis, meaning the whole organisation.

3.7. ORGANISATIONAL PREPAREDNESS IN HIGHER EDUCATION INSTITUTIONS

What is the role of universities in community-based disasters? A study by Dunlop *et al.* (2016) pursued this question and found that universities provided the community with critical resources in a community disaster response. However, how academic institutions respond depends on factors like their available resources, their lines of authority, the structure of their disaster planning response and prior relationships with community-based organisations involved in disaster management.

This theme of partnership between universities and other actors, such as faith-based organisations and local health departments, was taken up in a study by McCabe *et al.* (2014) involving the Johns Hopkins University in the USA. They found that a capacity building programme (training) positively affects content and skills, and that this model could be "an effective approach to promoting public health preparedness and resilience."

At the University of Minnesota another training programme was used; this time with disaster response scenarios in the curriculum (Miller, Rambek & Snyder, 2014). The authors wanted to know how effective immersive simulations were and whether there was evidence of retention and transfer of skills as a result of the training. Student teams scored better after a repeat performance of a bomb blast, pointing to the effectiveness of the training regime. After 6 to 12 months, the trainees still had better confidence in things like situational awareness and crisis communication (Miller *et al*., 2014).

Also focused on training, this time in a developing country, undergraduate nursing students in Indonesia were evaluated to determine whether a disaster preparedness training programme showed positive results in a disaster drill situation (Alim, Kawabata & Nakazawa, 2015). This study found that *"the training and drill improved the knowledge and*

ability of disaster preparedness for both undergraduate and diploma students" (Alim *et al.,* 2015:25).

The focus in these research studies on universities as partners and universities as training institutions does not, of course, offer direct evidence of university preparedness for managing disasters. Such studies exist (Kapucu & Khosa, 2013; Magni, Fraboni & Marincioni, 2017; Tkachuck, Schulenberg & Lair, 2018), but there are limitations which this study will address, including disaster preparedness with respect to actual recorded events.

3.8. COMPLIANCE AS A CRITERION IN MEASURING DISASTER PREPAREDNESS

This investigation is mainly concerned with institutional compliance with Kent's Disaster Preparedness Framework and stakeholder perceptions of such compliance in practice. This section explores literature studies about compliance adherence and perceptions of compliance to disaster preparedness.

3.8.1. Compliance with disaster management frameworks

Some studies of institutional compliance with disaster management preparedness has some theoretical notion of what an idealised model of adherence would look like. In the field of information systems research, Shahrasbi and Paré (2014) generate what they call *"a multi-dimensional conceptualization of organisational readiness"* with two overarching dimensions and nine sub-dimensions. They are in fact proposing an *a priori* model which exists in theory and which they would apply in practice *"to offer a richer understanding of this construct in the Information Systems discipline".*

Compliance is always against some referential framework; for example, an evaluation of disaster management preparedness might take as its reference point measuring compliance towards expectations set out in an organisation's strategic plan. In a journal introduction called *Frameworks for disaster research*, the Scandinavian Journal of Public Health (Sundnes, 2014) tried to impose some order on all the case work and methods for disaster management. Sundnes (2014) suggested four frameworks: conceptual, structural, operational, and scientific. It is argued that having such *"key generic structures," "is essential for understanding the pathophysiology of disasters and the preparedness for, as well as responses to them*".

While the Scandinavians provided broad classifications for frameworks, each national or multilateral system gives expression to specific ones for their context (Sundnes, 2014). For example, Papua New Guinea published a National Disaster Risk Reduction Framework (2017-2030); The Third United Nations World Conference on Disaster Risk Reduction

replaced a previous framework with the Sendai Framework for Disaster Risk Reduction (2015-2030); The Disaster Management Act of South Africa describes itself as a policy framework for disaster risk management in South Africa.

The question is not so much whether there are 'frameworks' available, but whether an institution complies with one or another framework. Of course, it matters that a framework enjoys legitimacy among professional groups or associations concerned with disaster management. This study used one such widely-acclaimed framework for an assessment of institutional compliance.

3.8.2. Perceptions of compliance with disaster management frameworks

There is a sizeable amount of conceptual and empirical literature on the perceptions of disaster. One study examined the relationship between how a threat is perceived and people's personal state of preparedness (Nam, 2018). The threat context was cybersecurity. Using complex quantitative methods, the study found that where people had experience or awareness of cybersecurity threats, they had stronger perceptions of the threat possibility but were less prepared. The level of a threat and the degree of preparedness for a threat differed among different groups. In short, people's perceptions of a threat of disaster depended on what they knew and influenced how prepared they were to respond.

Promsri (2014) took a different approach by studying the perceptions of employees about how well the company they worked for were prepared for an organisational crisis. Done among Thai workers using a questionnaire, the study found that employers had a stronger perception of preparedness compared to employees and that employees who were educated about preparedness were more positive in their perceptions. Work experience, it turned out, had little influence on perceptions of the company's organisational preparedness.

In China, by contrast, Jiao and others (2015) studied how public health staff perceived their personal responsibilities in relation to emergencies. The study used a combination of interviews and questionnaires to study employee perceptions. Staff had a weak perceptions of their roles and responsibilities which the research suggested had to do with their previous work experience and prior response experiences in a crisis. The obvious recommendations that flowed from this study revolved around training, support and monitoring of staff to heighten their role perceptions.

Promsri (2015) conducted another study on perceptions of crisis preparedness among corporations on the Thai stock exchange. The 30-item questionnaire was completed by 300 people from six companies representing a range of industries. Senior managers had a

higher perception of crisis preparedness than other staff, but in general, perceptions were quite high. As revealed in the study, the more educated the respondents, the stronger their perceptions of organisational preparedness. Those in agriculture and property had a higher perception of preparedness compared to other industries. Interestingly, there was no difference in perceptions between employees who had been exposed to education and training on preparedness and those who had not been exposed.

In a different study on perceptions among staff of organisational preparedness, Renschler, Terrigino, Azim, Snider, Rhodes and Cox (2016) gauged perceptions after employees had been exposed to an emergency planning module in work time. Using an experimental design, staff in the control group did the education module and those in the other group, did not. Strikingly, there was no difference in knowledge of emergency planning between the two groups. In the application of the knowledge, however, those who participated in the education module had higher perceptions than the other group. Not surprisingly, the authors recommended application of knowledge opportunities after educational exposure.

Do employees in public organisations have different perceptions of preparedness than those who work in the private sector? This is what Sadiq and Tyler (2016) set out to discover using three measures of disaster preparedness: (i) a first-aid kit; (ii) training and (iii) written information to employees about gathering places once a disaster hit. It was found that employees in the public sector had higher perceptions of preparedness than those in private companies. This difference was speculated to be due to the profit-seeking motives of the privates which might be less invested in costly programmes targeting preparedness. It could also be that because publics are under greater scrutiny, self-reports could be more positive about perceptions of preparedness.

Conversely, Morrison (2015) reviewed and found that senior executives are perceived to be more removed from what happens in communities when it came to disaster preparation. This is a disadvantage to organisations given the resources and authority in the hands of these high-level personnel. It flows from this research that greater efforts were recommended to bring senior personnel into operational concerns regarding disaster preparedness.

3.9. CHAPTER SUMMARY

There is without doubt an expansive body of literature on organisations and their preparedness for disasters. That literature is rich in concepts that describe organisational preparedness, such as disaster resilience and associated terms like rapidity, robustness, redundancy, and resourcefulness. There is therefore no lack of a language for capturing the many meanings of preparedness in the literature on disaster management.

This literature on disaster preparedness covers all kinds of organisational types from schools and hospitals to companies and universities but also NGOs and public sector entities. Where this literature is particularly insightful is when intersectoral collaboration or sectoral partnerships describe the different contributions that the parts make to the whole when confronting disasters.

In this review it was also found that the literature covered a wide range of disaster types from floods and fires to earthquakes and bioterrorism. Each disaster event has its own unique challenges for the disaster response and the literature reviewed has given some insight into such problems.

What is clear from the literature, is that the ability to prepare for a disaster depends on training in place for specialists (such as risk managers), but also the general personnel within an organisation. The literature is filled with studies on the effectiveness of training for dealing with real-life disasters.

There is also significant literature on theory and prediction when it comes to disasters. In this body of research, different authors tried to make sense of organisational responses beyond the individual cases (a marked feature of most studies) by looking for broader meanings and more robust predictions of what it takes across organisations to prepare effectively for disasters. More recently, complexity theory, for example, has become more popular across disciplines to give those broader explanations that move beyond linearity (X causes Y) to account for more complex, non-linear interactions between multiple variables in a particular disaster.

Still, there are many barriers to preparedness for an effective response to disasters. This review has referred to some of those obstacles, such as inadequate resources, incompetent personnel, and the lack of preparation. A long list of barriers has been identified across case studies and, as indicated, training features prominently as a way of addressing knowledge and skills gaps among key employees in an organisation responsible for the disaster response.

We know much from studies of organisations and disaster preparedness over a range of topics as summarised in this section. What we do not know in as much depth in the existing literature is how well a particular kind of organisation, such as a university, responds to multiple disasters in contexts of relative isolation (a rural institution) where disaster management resources might not be as readily accessible and key personnel might differ about basic concepts, such as what constitutes a disaster in the first place. This is certainly the case in this study of the main campus of the University of the Free State situated in central South Africa and where rolling disasters such as drought and protests are a constant in the experiences of such an institution.

This is the small but unique contribution that this study makes to the literature on organisational preparedness for disasters as measured by compliance and staff perceptions tested against Kent's disaster preparedness framework.

The following chapter describes the research methodology of this study.

4 CHAPTER 4: RESEARCH METHODOLOGY

4.1. INTRODUCTION

This methodology chapter explains the research questions, choice of qualitative research design, the sampling approach, the data collection methods, and the data analysis procedures used. This chapter also outlines the delimitations and limitations of the study as well as the ethical considerations considered during the research.

As noted in Chapter 1, the main purpose of this research was to evaluate the organisational preparedness of the University of the Free State to respond to potential natural or human-made hazards or disasters within its environment. The research objectives were pursued using two main research questions, as listed below.

4.2. RESEARCH QUESTIONS

4.2.1. Research question 1

To what extent does the University of the Free State, with respect to disaster management, comply with Kent's (1994) Disaster Preparedness Framework (DPF)?

4.2.2. Research question 2

What are the perceptions of the UFS staff (senior management team, middle management, the ECPC as well as DiMTEC personnel on campus) about the level of organisational preparedness for responding to disasters?

4.3. RESEARCH DESIGN

A qualitative research design was chosen using a combination of methods including observations, questionnaires and document analysis.

A case study, according to Cohen, Manion and Morrison (2007:253), is used to "*provide a unique example of real people in real situations, enabling readers to understand ideas more clearly*". A case study is a bounded system of one person, a group, a class, an institution, or a community (Cohen *et al.*, 2007:253). For this study, that bounded system, as an institution, is the University of the Free State.

An intrinsic case study is used as a particular approach within qualitative inquiry. According to Yin (2003) (cited by Fouché & Shurink, 2011:321) and Stake (1994) (cited by Cohen *et al.*, 2007:255), intrinsic case studies aim to describe, analyse, and interpret a particular case in question. The focus of an intrinsic study is the case itself because the case presents a unique phenomenon (Bloomberg & Volpe, 2016:46).

The case, a single university in central South Africa, was studied in-depth with regards to its disaster preparedness policies, plans and programmes. Fouché and Shurink (2011:321) stated that case studies *"can be particularly useful for producing theory and new knowledge which can inform policy development".* One interest of the researcher is certainly to inform policy development of the UFS in relation to disaster preparedness and specifically to improve hazard/disaster preparedness plans where necessary (Nieuwenhuis, 2016a:83).

Deductive reasoning from Kent's (1994) Disaster Preparedness Framework was utilised in the analysis followed in this study. The evidence being pursued was that of (implicit or explicit) predetermined themes in the data which had been identified in the conceptual framework (Maree, 2016:39; Mouton, 2014:117). The most common forms of deductive reasoning are deriving hypotheses from theories and models as well as conceptual clarification in the field of science (Mouton, 2014:117). Deductive reasoning flows from the general to the specific (Delport & De Vos, 2011:48). This type of reasoning moves from a pattern that might be logically or theoretically anticipated to observations that test whether the pattern occurs (Delport & De Vos, 2011:48).

4.3.1. Population and sampling

The main campus in Bloemfontein was sampled, thereby excluding the South campus in the southern part of the city and the Qwa-Qwa campus in Phuthaditjhaba. The reason for selecting the main campus is because it is the oldest and largest of the three campuses; it has the oldest infrastructure in constant need of maintenance and is therefore more vulnerable to more risks and disasters; it houses most of the high-risk facilities such as biochemical laboratories, animal laboratories and medical science laboratories that are potential disaster areas; and it is home to the highest percentage of students and staff of the three-campus institution (Faculty of Health Sciences, 2018a; 2018b; UFS, 2020b).

The population from which the sample was drawn was defined as all UFS staff directly involved in the disaster management function at the university. From this population, a purposeful sample was used to gain access to respondents who have the knowledge and/or experience with the phenomenon of interest that was under investigation (Creswell & Plano Clark, 2011).

Stratified purposeful sampling was used in this study. Stratified purposeful sampling is a mixed approach which aims to select groups of people that have a different perspective on a unique case, but have similar characteristics so that a comparison can still be made (Patton, 2002, cited in Nieuwenhuis, 2016a:86). The participants for this study were selected using stratified purposive sampling where specific respondents were sought for their knowledge and expertise on the theme of organisational preparedness.

Accordingly, questionnaires were emailed to the members of the senior management team, middle management, the ECPC and DiMTEC personnel as they have different roles at the UFS but are considered to have common interests and knowledge invested in disaster preparedness at the UFS. This full group could, therefore, be considered the population of the study from which the sample was selected, e.g. only those senior managers with direct knowledge and experience of disaster management functions at the university.

At the time when the fieldwork for this study was being done, twenty-three (23) questionnaires were sent to senior and middle management. Fifteen (15) completed questionnaires were received from senior and middle management, but one respondent withdrew. Of those fifteen (15) respondents, ten (10) were senior management respondents and four (4) were middle management respondents. Of those fifteen (15) respondents, six (6) senior management respondents and two (2) middle management respondents respectfully, are part of the ECPC. Another six questionnaires were sent to ECPC members who are not part of management and three (3) questionnaires were received in return.

There are five (5) permanent members of the DiMTEC personnel, and questionnaires were given to all five members of the DiMTEC personnel because of the small size of this group. One DiMTEC personnel did not fully complete the questionnaire therefore their responses were omitted. In total there was a 62% response rate, and this is acceptable as Mundy (2002:25) argued that in “a survey which aims to describe, a 60% response rate might be acceptable”. Table 4.1 represents the people in each of the respondent target groups and the number of questionnaires handed out.

Table 4.1: Number of questionnaires sent to respondent target groups

Respondent target group	Number of questionnaires given to each respondent target group	Number of questionnaires returned and used for data analysis
Senior and middle management	23 questionnaires	14 questionnaires
ECPC members (those not part of middle/ senior management or DiMTEC)	6 questionnaires	3 questionnaires
DiMTEC personnel	5 questionnaires	4 questionnaires
Total questionnaires	**34 questionnaires**	**21 questionnaires**

Bloomberg (2007) (cited by Bloomberg & Volpe, 2016:333) stated that samples in qualitative research consist not only of research participants but also of written material, artefacts, events, and cultural phenomena.

Purposeful criterion sampling was utilised in this study as documents had to meet the criteria of being official documents of the UFS and linked to hazards and disasters at the university. Examples of preferable data collected in the document analysis were documents like safety plans, evacuation plans, specific disaster preparedness plan documents and multi-hazard plans, for example, the UFS Security Policy: Protection Services, the UFS Disaster Management Plan (see Appendix D).

Examples of preferable data with respect to on-site observations included checking out the laboratories on campus and seeing what safety equipment they had in the laboratory or how visible Protection Services were on campus.

Examples of target group participants who received the questionnaires were the Vice-Rector of operations/institutional change, Student Affairs personnel, and the Deputy Director of Protection Services who also serves on the ECPC.

4.3.2. Data collection methods

As is typical of case study research, multiple data collection methods were used to compose "the case" on organisational preparedness at the UFS. This case was composed using direct observations, emailed questionnaires, document analysis, and the review of archival records which together aided description and exploration of the case (Fouché & Shurink, 2011:321). Each case study method that was used in the study is described in more detail below.

a) Direct observations

In this study, structured observations were done by observing fire drill evacuations of two on-campus residences (Akasia and Conlaurés) to determine the extent of organisational preparedness in practice. The researcher was therefore in attendance at each fire drill evacuation for observation and recording of the two events.

Nieuwenhuis (2016a:90) defined observations as, *"the systematic process of recording the behavioural patterns of participants, objects, and occurrences without necessarily questioning or communicating with them"*. All senses such as seeing, hearing, smelling, tasting and touching are used as well as using one's intuition (Nieuwenhuis, 2016a:90). Observation as a data-gathering method is used to help the researcher gain a deeper insight and understanding of the phenomenon being observed (Nieuwenhuis, 2016a:90).

Four types of observations are used in qualitative research: the researcher could be a complete observer; observer as participant; participant as an observer; or complete participant. For this study, the complete observer position was used where the researcher is a non-participant observer who looks at the situation from a distance (Nieuwenhuis,

2016a:91). This type of observer does not become immersed in the situation; thus he/she will achieve the most objective experience (Strydom, 2011:337). On the other hand, a disadvantage of this position is that by only observing, the researcher will not gain a full experience of being part of the community (Strydom, 2011:338).

There are three types of ways to record observed data: anecdotal records; running records; and structured observations based on an observation protocol (Nieuwenhuis, 2016a:91). In this study, anecdotal records were used where the researcher wrote brief factual notes about actions that were observed with no self-reflective notes (Nieuwenhuis, 2016a:91).

b) Questionnaires

In this study, questionnaires were administered to the senior management team, middle management, the ECPC and DiMTEC personnel. The senior management was chosen because the team knows about, as well as informs the university's preparedness response policies, and they most likely were the people who had dealt with campus disasters in the past.

Middle management was given questionnaires to complete to gain a possibly different perspective from senior management, given their position in the institution. The ECPC was included in this study because they know the operational procedures when dealing with disasters, they also know what had occurred in previous responses to disasters; thus, they know the gaps in preparedness and response plans.

Questionnaires were also given to the DiMTEC personnel because, as a world-class disaster management centre, they have the theoretical and practical knowledge of preparedness for potential hazards and disasters. Being on the campus studied, they also should know first-hand about the ways in which the UFS manages disasters.

In the study, electronic questionnaires were used and delivered by sending an e-mail to each respondent, attaching a questionnaire to complete. The questionnaires were structured to allow for patterns to be identified and comparisons to be *made across the dataset* (Cohen *et al.,* 2007:321). The questionnaire contained questions as well as statements to find out to what extent a respondent holds a certain view or attitude (Babbie, 2016:248; Bloomberg & Volpe, 2016:157).

A questionnaire, according to Babbie (cited by Delport & Roestenburg, 2011:186) is a method designed to retrieve information and opinions about a certain phenomenon that is necessary for data analysis. There are different types of questionnaires, namely, mailed questionnaires, telephonic questionnaires, questionnaires delivered by hand, self-administered/ individually administered questionnaires, group-administered questionnaires,

and electronic questionnaires (Delport & Roestenburg, 2011:186). As indicated, this study used emailed questionnaires for both efficiency and utility.

c) Document analysis

The analysis of documents was conducted to shed light on the disaster preparedness of the UFS as revealed in their printed and electronic materials (Nieuwenhuis, 2016a:88). Document analysis is a study of a variety of non-personal documents, for example, agendas, minutes of meetings, newsletters, so that the organisation can continue to function, or for a specific matter to be performed (Strydom & Delport, 2011:377).

An advantage of a document analysis, which is applicable in this study, is that there is a relatively low cost associated with obtaining these documents (Strydom & Delport, 2011:382). A disadvantage of document analysis is that the required documents may be incomplete or destroyed by natural means, e.g. floods or fires or maybe illegible over time (Strydom & Delport, 2011:382). Another disadvantage of document analysis is that the required documents may not have been compiled or are not available or that there is a bulk of documents that could be incomplete, unorganised or in deterioration – all of which would make the particular research project very challenging (Strydom & Delport, 2011:382). Fortunately, in this study, most institutional documents, where they existed, were in good condition and available for the analysis to be performed. The documents included, for example, the security policy, UFS Campus Emergency Plan, Minutes of Emergency Management Committee Meeting (see Appendix C).

4.3.3. Data analysis

Direct observation data was coded for theme identification across the two residences observed. The questionnaire data was also coded to identify divergent and convergent themes in relation to the two key research questions. Documents were analysed using basic content analysis to find evidence of preparedness in relation to policies, plans and disaster-related events that had happened on campus (See Appendix D & Appendix E). The data from the three methods (observations, questionnaires, and documents) were compared for common and unique findings.

The purpose of data analysis is to understand the accumulated data by identifying patterns, trends, relationships and establishing themes (Jansen & Vithal, 2010:27; Mouton, 2014). Planning for the analysis of the data is essential, because the data collection instruments are created with the anticipated method of analysis in mind (Maree, 2016:39). Jansen and Vithal (2010:27) and Schurink, Fouché and De Vos (2011:403) have similar steps with regards to the process of qualitative data analysis, but for this research, the steps provided by Jansen and Vithal (2010) were used.

Jansen and Vithal (2010:27) stated that data analysis typically consists of three steps, namely: (i) scanning and cleaning the data; (ii) organising the data; and (iii) re-presenting data. *Scanning and cleaning the data* involves reading through the data, checking for incomplete, wrong, unreliable or irrelevant data as well as identifying preliminary trends or patterns (Jansen & Vithal, 2010:27). *Organising the data* includes counting, describing, comparing and categorising the data and *re-presenting the data* using tables, graphs, statistical summaries, selected quotations and using case boxes so that it can provide meaningful summaries of the data (Jansen & Vithal, 2010:27). Qualitative data analysis is an interactive and non-linear process whereby the researcher repeatedly moves back and forth between data collection, processing, analysing and reporting the data (Jansen & Vithal, 2010:29; Nieuwenhuis, 2016b).

Reliability of data applies more to statistical studies but does not exclude qualitative studies, and since this study uses a qualitative case study design, measures of validity were used (Jansen, 2017a). The instruments used in this study, such as the questionnaires, were piloted with one or two persons who are not in the full study to enhance the validity of the questionnaire.

Triangulation was another validation measure used by comparing the evidence from the direct observations and the data from the questionnaires and document analysis to ensure that the data collected is consistent and the findings are valid. Where divergent data was found, this was explained in relation to the overall study findings.

4.4. DELIMITATIONS AND LIMITATIONS OF THE STUDY

4.4.1. Delimitations

This study is limited to a single higher education institution justified as such, given the qualities of a qualitative case study design. The focus is only on higher education because many disaster-related studies have been done at the primary and high school level (Beukes, Fraser & Rambau, 2011; 2012; Coles, 2011; Ersoy & Koçak, 2016; Pinar, 2017).

The focus is also on higher education because there are many more students and staff at universities, thus there is a need to find out if the plans for preparedness and response to possible disasters are adequate, given crowded campuses such as the UFS.

Only the main Bloemfontein campus was studied thus excluding the Qwa-Qwa campus and South campus. Only management and other personnel were involved. It could have been a more comprehensive study if students and the non-academic workers of the UFS had been included.

4.4.2. Limitations

This study used a sample and purposeful sampling and is therefore not representative of the population of university personnel (all staff of the institution); it is also a study of one university out of the 26 public universities of South Africa.

It is acknowledged therefore that the results of this study cannot be generalised across the universities or to the disaster preparedness of other universities in South Africa. At the same time, a single case study approach offers the opportunity for depth, nuance and complexity, in the study of a problem that is not always evident in a survey or quantitative studies.

4.5. ETHICAL CONSIDERATIONS

The researcher received ethical clearance from the University of the Free State to proceed with the research (UFS-HSD2018/1106) (See Appendix A). The University of the Free State required that the research proposal be submitted online to the relevant academic committee structure using the Research Information Management System (RIMS) (Postgraduate School of UFS, 2018:43). There were regular checks for plagiarism in the course of this study and this final document, the mini-thesis, was passed though Turnitin, an online plagiarism-detection instrument (See Appendix H).

The senior management team, middle management, the ECPC, and DiMTEC personnel were given the choice to participate or not to participate in terms of completing the questionnaires. Those who chose to participate had to complete a consent form (See Appendix B).

4.6. CHAPTER SUMMARY

This chapter provided a detailed description of the research methodology used in this research. Sampling frames were explained and justified. The qualitative case study design and the three case study methods were outlined: the observations, questionnaires, and documents. The data analysis procedures were made explicit. Study limitations and ethical concerns were briefly outlined. The findings of research question one, the institutional compliance with the Disaster Preparedness Framework, are provided in the next chapter.

5. CHAPTER 5: DATA ANALYSIS AND FINDINGS OF THE STUDY PART 1: INSTITUTIONAL COMPLIANCE WITH THE DISASTER PREPAREDNESS FRAMEWORK

5.1. INTRODUCTION

In this chapter, the findings of this research study on the preparedness of the University of the Free State (UFS) for managing hazards and disasters are presented.

The findings for the first research question on the degree of compliance of the UFS with the Disaster Preparedness Framework are presented; these findings are drawn from data for all three research methods: the observations; the questionnaires; and the documents studied.

5.2. FINDINGS ON INSTITUTIONAL COMPLIANCE

Research question 1: To what extent does the UFS comply with the Disaster Preparedness Framework?

The information to answer this question was found by using three different instruments. The researcher conducted on-site *observations* of two fire drills at student residences to determine how prepared the university was for disasters and how they conducted these disaster preparedness activities. The Occupational Health and Safety Officer *completed a questionnaire* to determine the degree of compliance of the UFS with the Disaster Preparedness Framework. Lastly, the researcher did an analysis of institutional *documents* to determine the extent of the university's preparedness as evident from their official policy and planning documents. An analysis of the university's response, from the study of documents, about three disaster events that affected the UFS, namely, protests, drought, and COVID-19, was done to determine how prepared they had been for the disasters.

By comparing the data from the questionnaire, observations, and documents it was possible to triangulate from the three sources and thereby determine the university's preparedness for disaster risks in the context of the Disaster Preparedness Framework.

5.3. OBSERVATION OF TWO FIRE DRILLS

The following section describes what the researcher observed at the two fire drills; one each at the Akasia residence and Conlaurés residence.

5.3.1. Akasia residence

Akasia is a female residence that was established in 1974 and has a student occupancy of 179 ladies (2020).

Figure 5.1: Akasia residence

Source: UFS, 2020c.

a) Observation of the Akasia fire drill

The Akasia fire drill that was observed occurred on the morning of 18 October 2018. It was an announced drill so the residence functionaries (members of the residence that implement the disaster response plan) knew about it. The residence functionaries have training some time before the drill occurs. The functionaries change on a yearly basis because students move in and out of the residence and some functionaries are part of the leadership of the residence, thus training must occur on a yearly basis. Before the actual drill occurred, a functionary briefing was held outside the residence for those who would usually be involved in the disaster risk response of the Akasia residence.

Those present at the functionary meeting were the occupational Health and Safety Officer from the UFS, a firefighter from the MMM Fire Department, a representative from UFS Protection Services, a representative from the cleaning staff of Akasia, the residence functionaries and the researcher. The UFS Occupational Health and Safety Officer oversaw the fire drill. The residence functionaries consist of the residence head of Akasia, two people who play the role of the evacuators, two firefighters and a first aider. The residence head of Akasia is blind and has a guide dog, there was no first aider present at the meeting and at first there was no firefighter functionary present but one did end up coming later to the functionary briefing. The researcher was asked to fulfil the role of the missing firefighter.

At the meeting, the MMM firefighter explained the role of everyone at the briefing, the possible exits were discussed and before the first firefighter residence functionary arrived,

the residence head emphasised the need for ‘blanket preparedness’ campaigns in case some of the functionaries are not present in a drill or real emergency. It was noted that 179 students live in the Akasia residence and it is difficult to control who comes in and out of the residence using the turnstiles. It was noted that the turnstiles would not be operational during a drill or real emergency because it would slow down the evacuation procedure. It was also mentioned that the students are supposed to know the sound of the whistle. Functionaries have vests to wear so that they are identifiable.

b) The fire drill

Smoke from a smoke machine was used to portray a real fire. The smoke machine was located on the ground floor, near the entrance of the room of the residence head. After the smoke machine was activated, because the researcher played the role of a firefighter, and had to wait about a minute near the smoke machine and was then instructed by the firefighter to blow the whistle and go up and down the staircase to all the corridors so that the students would hear the whistle and be aware that a fire was occurring and act accordingly. While blowing the whistle and quickly walking up and down the staircase, the students would come out of their rooms and ask the researcher what was happening. When the researcher got downstairs, she noticed that the student who played the other role of the firefighter with an extinguisher took a while to get to the simulated fire and did not know how to approach the fire, so the MMM firefighter showed her how to do it in event of a real fire. The big door at the front of the residence was opened to allow the students to exit quickly.

The residence head who is blind, was the first out of the residence, taking note that her room is on the ground floor and about twelve metres from the front door of the residence (Figure 5.1). During the entire drill no one came to check up on her or her guide dog. It was observed that as students were leaving the residence, one student was talking on the phone while exiting the building and there was another student who, instead of going to the assembly point, walked off and possibly went to class. There seemed to be a lack of a sense of urgency in terms of the students leaving the residence.

The MMM firefighter kept two ladies aside during the drill because they had walked into the simulation of smoke and he did this to illustrate the point that in the event of a real fire these ladies would have died from smoke inhalation. He seated these ladies on the couches to the right of the staircase to see whether the functionary who played the role of the evacuator would notice them when she came down the staircase and act accordingly. The evacuator did not notice these two ladies sitting on the couch as she came down the stairs and thought she had evacuated the entire residence as she exited the residence.

After the drill at the assembly point, the MMM firefighter and the UFS Occupational Health and Safety Officer spoke to the students about the drill. One of the functionaries had a roll

call list but it was not completed fully. They relayed to the students that the drill took seven minutes long and it is supposed to take them five minutes to evacuate the residence. The MMM firefighter also mentioned that the windows were left open during the fire drill and that when they exit their rooms they must make sure that they close their windows and doors as this can lessen the oxygen that fuels the fire. The students mentioned the emergency exits and how they were locked. Students who were at the assembly point after the evacuation were very keen to have a follow-up meeting and talk more about what to do in the event of a real fire. The discussion at the meeting point was short.

An unannounced drill was to be scheduled before the end of 2018. When an unannounced drill is scheduled to happen, just the residence head is informed about when the drill would take place but not the rest of the functionaries. An unannounced drill usually occurs at night.

5.3.2. Conlaurés residence

Conlaurés residence is a co-ed or mixed residence that was established in 2013.

Figure 5.2: Layout of Conlaurés residence

Source: UFS, 2020d.

Figure 5.3: Conlaurés main entrance

Source: Qualicon, 2020.

a) Observation of the Conlaurés residence fire drill

The resident head of Conlaurés, the MMM firefighter, the UFS Occupational Health and Safety Officer, two residence functionaries, a person from the UFS Protection Services and the researcher were present at the functionary briefing. Other residence functionary students were missing without excusing themselves.

Ultimately, the fire drill could not take place because more planning had to be done on how to conduct the fire drill with the layout of the Conlaurés residence. As can be seen in Figure 5.2, the residence is split into two buildings, separated by two large grass quads with a corridor on the ground floor and second floor corridor connecting the two buildings. Conlaurés is a co-ed residence thus females reside in the one building and males reside in the other building. The main entrance and hall to the Conlaurés residence (Figure 5.3) is on the male side of the residence. There are three floors in each building. On the female side of the building, there are three floors which each has two corridors that are separated by a staircase. Each corridor has an access door and only a student who resides in that corridor can swipe their card and gain access to the corridor.

b) The fire drill

The fire drill could not take place because the team was unsure where to place the smoke machine so that everyone or most people would be able to see the smoke due to the two buildings. Several questions were raised: How would the students be alerted by the simulated smoke of the fire drill due to the access doors? How would the firefighter who alerts the students be able to access every corridor easily because of the access doors? How would the evacuator functionary be able to access every corridor due to the access doors because he/she needs to make sure that everyone gets evacuated from the residence?

Therefore, even though the fire drill could not take place, the team that was supposed to conduct the drill went through the residence to see how the fire drill could possibly take place in the future as more planning was needed to conduct the drill. The team looked at possible exits for students and workers. The team looked at doors to see whether they were wide enough according to regulations so that wheelchairs can get through doors and whether the ramps for those with disabilities were on the correct side of the corridor connecting the two buildings and whether this would have implications during a possible fire or fire drill.

The team also gained access to a corridor through an access door to see what the corridor looked like and investigate possible emergency exits at the other end of the corridor. In terms of signage, it was observed that the one sign indicating the water hosepipe used

for fires below it, was facing the wrong direction. Signage had also broken off from where it was initially placed.

The team also looked at the turnstile in the entrance area of the residence and the door next to it and how it would operate during a fire drill and a real fire. Those with disabilities go through the door next to the turnstile so again it was examined whether it was the required width so that a wheelchair can get through the door. The area where the turnstile and door were located in the entrance area seemed to be in a cramped area as it leads to the men's corridor and the staircase is right next to the turnstile and it leads to the connecting corridor to the building where female students reside. This could be a concern during a fire drill and a real fire as this area could become congested.

There were not enough exit signs and they were not placed in the relevant areas of the residence. It was observed that the one water hosepipe for fires in the main hall was not the required distance from the floor according to regulation. It was decided that a separate planning session was needed to plan an appropriate fire drill for the layout of Conlaurés residence.

The next section analyses what the Occupational Health and Safety Officer said, what information the documents revealed and what insights the observation of the two fire drills revealed in relation to the nine components of Kent's Disaster Preparedness Framework.

5.4. FINDINGS OF COMPLIANCE TO KENT'S DISASTER PREPAREDNESS FRAMEWORK

Reference to the evidence of the findings are displayed in brackets and can be found in Appendix E, Table E.1.

5.4.1. Vulnerability assessments

The Occupational Health and Safety (OHS) officer stated that the UFS does conduct vulnerability assessments and that this is done once per year.

In the plans of the UFS, general vulnerable areas and assets on the campuses are identified (1B). Another example of this is when a hazard occurs; one of the first items on most of the plans ask for information to be gathered about the hazard in relation to the incident (1A).

For drought, vulnerability assessments are somewhat evident when the UFS decides when water from the reservoir and JoJo tanks can be used (1C).

The UFS incorporated assessments to assess the risks that led to the suspension of academic activities quite a few times during the protests (1D).

For COVID-19, the UFS used vulnerability assessments to inform planning and make decisions, for example, the UFS decided to suspend the academic programme based on the assessment of risk data about the global spread of COVID-19 and on recommendations provided by the UFS Coronavirus Task Team (1E). Another example of this is that the Special Executive Group meets twice a week so that they can assess the overall impact of COVID-19 on the university and decide whether to make changes to decisions made previously (1F).

There is no evidence of a specific vulnerability assessment that has been completed for the Akasia and Conlaurés residences.

5.4.2. Planning

The OHS officer stated that he and the Head of Protection Services oversee the preparedness and response plans of every building on the UFS campus and these plans are reviewed and updated every year.

The UFS plans responses for the following hazards, namely: evacuations; fire hazards; medical emergencies; bomb threats; hostile intruders/ active shooters; utility failures; floods; earthquakes/structural collapses; suspicious packages or objects; gas leakages; explosions; armed robberies; telephonic threats; chemical hazards; unrests/ strikes; evacuation procedures of people with physical disabilities (Appendix D). The responses for these hazards mentioned in the plans are mostly generalised and not specific for the buildings, for example, the Chemistry Department Emergency Preparedness and Response Plan is quite specific about the evacuation procedures to be taken in case of a fire, but it does not have a specific procedure for a chemical disaster in this building which is more likely to occur. The UFS does have a brief Disaster Management Plan that focuses on command and the emergency management team, a control point, collaboration, planning, communication, logistics, contingency plans, finance, documentation, recovery, and contact details for emergency services (2A). It was noted that some plans of the UFS were not complete, as they were not dated and signed.

For drought, planning is evident when the UFS decides when water from the reservoir will be used and when water from the JoJo tanks will be used, for example, during water interruptions, the UFS would distribute water from the water reservoir and at that same time no water from the JoJo tanks was to be used (1C).

In terms of protests, that the UFS has experienced, the university uses plans to change the academic calendar in addition to planning and engaging with other stakeholders to come up with a solution to issues (2B).

With regards to COVID-19, the UFS uses the combined effort of the Coronavirus task teams to predict and plan what impact the pandemic will have on the university and plan for the continuation of the academic programme (2C).

The researcher has not come across a specific *plan* for the Akasia residence. During the functionary briefing at Akasia, planning was implemented by defining roles and making sure that turnstiles were not operational during the drill. For the Conlaurés residence, due to a lack of a written fire drill plan adapted to the residence, the fire drill could not take place. If there was an adapted written fire drill plan, the team could have worked according to the plan and conducted the fire drill, hence saving time and not having to reschedule the fire drill. More planning is needed regarding where to place the smoke machine due to the layout of the residence so that all or most students can see the smoke produced by the smoke machine. Planning still needs to be done on how the residence evacuator and firefighter functionary would gain access to the corridors if they are only accessible with the student cards. Another planning session for the Conlaurés residence was meant to be scheduled to fully plan how the fire drill would work.

5.4.3. Institutional frameworks

That OHS officer stated that the ECPC meets once a month and the Vice-Rector of Operations, who is also part of the Committee approves the implementation of the emergency response-related plans. He mentions that the Mangaung Disaster Management Centre, Mangaung Metropolitan Municipality (MMM) and the South African Police Service are external stakeholders that work with the UFS when planning and dealing with disasters. The OHS officer further stated that the UFS preparedness and response plans are coordinated with plans of other organisations.

The plans of the UFS clearly define the roles and responsibilities of different role-players as well as the order of command during an emergency (3A). Planning for an evacuation simulation drill is done in partnership with the MMM (3B).

For drought, following the recommendations of the MMM, the UFS informed the UFS community about the possibility of water contamination in the municipal water systems. This indicates that the UFS trusts the MMM (3C).

In terms of protests, the UFS defines roles and responsibilities between stakeholders for example, between the UFS Protection Services and the involvement of the South African Police Service (3D). However, this does not happen all the time, as was the case where Private Security hired by the UFS aggressively handled students in residences and after the incident, the UFS stated that the Private Security actions had not acted in line with the UFS's values (3E).

To deal with COVID-19, various teams were established, namely: the Coronavirus task team; the Special Executive Group; the Teaching and Learning Management Group; the Community Engagement Task Team; the Operations Task Team; the Staff Task Team; and a Student Reintegration Task Team. The UFS stated that DiMTEC represents the UFS at the Provincial Joint Operation Centre (PROVJOC) (3F).

At the Akasia residence, before the drill, a functionary meeting was held, and it was clear that the OHS Officer of the UFS and the firefighter from the MMM were in charge. Various other role-players were involved, such as a representative from the UFS Protection Services, a representative of the cleaning staff from Akasia and the residence head, the evacuator functionary, and the firefighter functionary. The one firefighter functionary came late, and the other firefighter functionary and the first aider did not come nor make an excuse for their absenteeism. At the functionary meeting, roles and responsibilities were defined.

At the Conlaurés residence, the team at the functionary meeting consisted of various stakeholders, namely: the residence head of Conlaurés; the MMM firefighter; the UFS OHS Officer; two residence functionaries; and a person from the UFS Protection Services. Only two residence functionaries were present at the fire drill and there were no excuses from the other functionaries which could showcase that the functionaries do not take their roles seriously or do not find it necessary to make an excuse for the fire drill or send someone in their place. This showcases the need for blanket preparedness for when residence functionaries are absent.

5.4.4. Information systems

The UFS does not use any information system before, during and after disasters. However, the respondent claimed that the UFS thinks about what information they will need in a disaster, who will collect that information, how they will collect the information, who will analyse the information, how will they analyse the information, and how the analysed information will be integrated into decision-making. There are monitoring systems in place to monitor certain hazards, but it is unknown what these systems monitor.

Every plan that the UFS has mentions emergency contact details and how the UFS will handle media enquiries (4A). In the UFS Disaster Management Plan, it states that the Emergency Controller in consultation with the Emergency Coordinators decides when an emergency can be declared a disaster (4B). This plan also says that the Emergency Controller informs the Emergency Coordinator about any decisions regarding any policy changes (4C).

With regards to drought and water interruptions, the UFS communicated effectively by informing the UFS when water interruptions were expected to occur and for how long (4D).

The UFS also communicated to the UFS community when the Free State was declared a drought area (4E).

For the protests, the university regularly communicates updates to the campus community about the state of critical events on campus (4F). The UFS also regularly communicated that they were constantly monitoring the protest situation on the campus (4G).

In terms of COVID-19, on many occasions the UFS gave information to the UFS community about this virus, for example, information about symptoms, what to do to reduce your risk of getting COVID-19, who are more at risk of contracting COVID-19, and information of the localities affected by COVID-19 (4H). The UFS also reminded the UFS community on many occasions to pay attention to social media, the UFS website or official communication from the UFS for information about COVID-19 and information surrounding the academic programme (4I). The UFS continuously mentions that it is monitoring the COVID-19 situation on the campus (4J).

For the Akasia and Conlaurés residences, the functionaries will most probably collect information such as changes in the hazards (monitoring system), if other residents are stuck in the residence and cannot evacuate, they will, if possible find out what conditions they are in, what their needs are and what resources are available to them. After collecting such information, the functionaries will most probably pass this information onto the UFS Protection Services or the Fire Department or other emergency services.

5.4.5. Resource base

Funds have been allocated to disaster preparedness, such as for research, public awareness, and training according to the OHS officer. Although the UFS does stockpile resources such as water, food, and first aid kits, the OHS officer was not sure about how to get access to funds for responding to disasters. Another colleague of the OHS officer mentioned "…*We do not budget for disasters or protests. We do have a budget amount for unforeseen [expenses] in general. Insurance usually covers the cost of damage to infrastructure at riots... OHS budget[s] R1.5 million to be used for training, and other preventative matters. Unforeseen [budgeted amount is] R7 million."*

However, according to the UFS Disaster Management Plan, funding is the responsibility of the University Emergency Controller (5A). In terms of UFS documents, there is a document that describes the type of fire extinguishers that the UFS uses although it is unknown how many fire extinguishers are needed in each building. Plans for buildings do not specify where resources, such as fire extinguishers, first aid boxes, are located.

For droughts, the UFS can supply water to the whole campus from the water reservoir when municipal water interruptions occur and water from the JoJo tanks can be utilised (1C).

In terms of protests, the UFS draws from a wide range of *resources* such as in protest one and three the involvement of the police and the use of the interdict could be considered a resource for the UFS to draw on (5B). Specifically, in the first protest, the medical personnel were on hand at the Shimla Park incident to assist injured persons and for the third protest (5C), the Counselling department could be relied upon to give counselling services to those that had been traumatised by the conduct of Private Security forces (5D). In the second protest, to continue the academic programme without interruptions, the UFS switched to virtual learning (5E) and was able to arrange zero-rated websites from cellular providers (5F) and provide support resources (5G) for students to complete the academic year.

For COVID-19, the UFS switched again to virtual learning (5H), so that their students could complete the academic programme. The UFS once again successfully negotiated with cellular service providers to provide zero-rated websites and for each student to get a bundle of 10GB data for four months (5I). The UFS was also able to procure 3 500 laptops for students who have bursaries from the National Student Financial Aid Scheme (NSFAS) and Funza Lushaka and for those who have disabilities (5J). The UFS also provided lecturers with the *#TeachOn* resources (5K) to assist them with teaching during the pandemic and students were given the *#LearnOn* resources (5L) to assist them with virtual learning (See Appendix G, Figure G.1). The UFS community also received regular *#WellnessWarrior* resources (5M) to assist them mentally and emotionally to get through the period of the pandemic (See Appendix G, Figure G.2). From the beginning of September 2020, students could also contact a 24-hour toll-free student mental health careline if they were struggling with their mental health (5N).

At the Akasia residence, a whistle, fire extinguisher and vests were used to identify functionaries, and a first-aid kit was available to manage the drill and a real emergency. It is believed that most of these resources can be found at the reception area of the Akasia residence. The OHS Officer brought a loud hailer and the MMM firefighter brought the smoke machine to the fire drill at the Akasia and Conlaurés residences. At the Conlaurés residence, different types of firefighting equipment could be seen all around the residence although the one water hosepipe was not the required distance from the floor according to OHS regulations and signage for the firefighting equipment was facing the wrong direction and broken off.

5.4.6. Warning systems

The OHS officer mentioned that the UFS does have warning systems for disasters, but it is unclear what the warning systems look/sound like, and for what disasters these early warning systems are intended.

The UFS Emergency Plan mentions that two-way radios, the evacuation public address system, and loud hailers are used for communication (6A).

In terms of water-related issues on campus, the UFS warned the UFS community to not drink water directly out of the tap as the municipality had given a notice that there had been a possible water contamination in Mangaung and to boil water first or buy bottled water instead (3C).

For protests, the UFS issued warnings to staff and students about the use of the interdict if disruptions occurred on campus (6B) and if people post and repost dishonest slanderous statements on social media with the intention to spread fear, threaten individuals and stir criminal conduct within the UFS community, they would be liable to an investigation under the law (6C).

For COVID-19, the UFS issued a warning that anybody who posts fake news about COVID-19 or the infection status of a person regarding COVID-19 or fake news about the government actions to address COVID-19, is liable to a fine or imprisonment according to the Disaster Management Act (6D). Another warning was issued to the UFS community, about fake travel permits being sold and issued to students for R100 and that anybody in possession of these fake travel permits, would face criminal and disciplinary measures (6E).

For the fire and evacuation drill at the Akasia residence, students did not know what the sound of the whistle meant, and it was perceived that they should know from previous training what the sound of the whistle meant. The students' reaction time and attitude to the evacuation of the drill were displeasing as evident by a lack of urgency while exiting the building, a student talking on the phone while exiting the building, and a student exiting the building who bypassed the assembly point, walked off and possibly went to class. The Conlaurés residence did not have enough emergency exit signs in the relevant places.

5.4.7. Response mechanisms

The OHS officer stated that the UFS has procedures for activating disaster response programmes, evacuation procedures and informing staff, students, and visitors at the UFS about these procedures. He also mentioned that the UFS has teams to assess disasters, and training is offered for members of the assessment team and there is a process for distributing important information derived from this assessment for an effective response. The respondent was unsure whether the UFS has any search and rescue teams in place. The respondent believed that the UFS does not have processes to activate special installations (e.g. mobile hospital facilities) or processes for activating distribution systems (e.g. distributing stockpiled items).

The UFS security policy aims to establish sustainable partnerships with relevant stakeholders in the broader community, to improve security-related infrastructure and human resources at UFS campuses. The UFS Disaster Management plan states that it will manage any emergency on its campus according to the University Emergency Plan until the Emergency Controller declares it a disaster (7A). In response to an emergency, a control point will be set up close to where the emergency has occurred, and this is where plans can be discussed, and decisions can be made (7B). The Emergency Coordinators following through the Emergency Controller, will also constantly inform the ECPC about the nature of the disaster, the damage to property, casualties, potential risks, resources required and whether internal or external assistance is required (7C).

The UFS as a response to the drought, installed 30 JoJo tanks of varying sizes from 5 000 litres to 20 000 litres all over campus and again the UFS would use their water reservoir to distribute water to the whole campus in the event of water interruptions (7D).

For protests, the university sometimes fails to have the full range of protection services (police, private security, campus security etc.) in place to manage a sudden surge in the protest movement. The university suspended academic services on campus for two of the three protests to ensure the safety of the staff and students and to avoid any damage to assets of the university (7E).

To mitigate the spread of COVID-19, the UFS decided to suspend on-campus academic activities from 17 March 2020 till 13 April 2020 (1E) (extended again) and on 24 March 2020 it was announced that the UFS community would transition to virtual learning for students so that they could complete the academic year and staff could work from home (5H).

During the Akasia fire and evacuation drill, no residence functionary or student came to check on the blind residence head and her guide dog, which should also be the role of the evacuator. The residence functionaries were able to quickly access the emergency resources from the reception area. The residents took seven minutes to evacuate the residence when they should have taken less than five minutes to evacuate. The reason why the roll call list was not completed is unknown. For the Conlaurés residence, it is uncertain what response mechanisms were identified during the walk around the residence.

5.4.8. Public education and training

According to the OHS officer, the UFS has disaster-related training for stakeholders that implement disaster-related plans, for example, for staff that live in student residences. He also mentioned disaster-response-related training for those who issue warnings to those on campus, i.e. the communication team.

The security policy mentions that it aims to create a culture of security awareness on campus. Documents of the UFS also mention general hints regarding safety (See Appendix F) and instructions on how to use a fire extinguisher. According to the minutes of one meeting, the UFS also provides training for the ECPC and the UFS also planned to have a safety campaign to inform the campus community to look out for the safety of deaf and blind students (8A; 8B).

In terms of water-related issues and drought, the UFS distributed information to the UFS community to boil water before drinking it as it may be contaminated (3C) and to warn them to use water sparingly, and gave tips on how to save water in the workplace and at home (8C).

The only evidence of public education and training at the UFS for protests is the warning issued by the university, that those who post and repost slanderous statements on social media could be subjected to an investigation under the law (6C; 6D).

The UFS on many occasions distributed information about COVID-19 and they also reminded the UFS community about COVID-19 mitigation practices and to do these things at home/ workplace and on campus (8D). The UFS also continuously informed the UFS community about what the University can/cannot do during each level of the risk-adjusted regulations of the COVID-19 lockdown and what is expected from staff and students (8E). More than one-thousand staff members were also trained to use the University's remote online strategy (8E).

Training of the Akasia and Conlaurés residence functionaries is done on a yearly basis because the leadership of the residence and members of the residence change on a yearly basis. It was assumed that all the students of the Akasia residence know that the sound of the whistle indicates that there is a fire and to evacuate. Yet, the students did not know what the sound of the whistle meant which is an indication of the ineffectiveness of the education and training of this hazard. This could have likely had an impact on the pace of the evacuation, as they could have evacuated the residence quicker if they had known what the sound of the whistle meant. The students learnt at the assembly point after the drill to close their windows and doors to prevent more oxygen fuelling the fire. Students were also told not to walk straight into the smoke as they would have likely been seriously injured or have died from smoke inhalation in a real fire; again, this is an indication of the ineffectiveness of the education and training of those who reside in the residence. Those who were at the assembly point eagerly asked questions and were willing to have a follow-up session to learn more and ask questions. It is unknown whether a follow-up session did occur.

5.4.9. Rehearsals

The UFS conducts rehearsals for fire twice a year (one scheduled drill and one unscheduled drill) and rehearsals for explosive (bomb) hazards take place once a year, according to the OHS officer.

The UFS conducts rehearsals for fires as evidenced by their emergency evacuation fire drill schedule and at each evacuation drill for a building, an assessment report is completed. However, there are no UFS schedules or assessment reports that refer to a bomb drill being done. A mock emergency management exercise was planned for the ECPC after they had completed the training (9G).

There is no record of rehearsal events in anticipation of a drought.

There does not seem to be evidence of rehearsals specifically related to dealing with protests but maybe the rehearsal of an evacuation of a residence had an impact on the one residence that had to be evacuated during the first protest (9H).

The UFS could not rehearse for the pandemic before it occurred, but the UFS informed their community about COVID-19 mitigation practices in the early months of the pandemic (4H).

Rehearsals test the system as a whole and identify gaps in the emergency plan. It is noted that disaster preparedness rehearsals cannot depict what exactly will happen during a real disaster. During the Akasia rehearsal it was discovered that the one firefighter functionary did not know how to use the fire extinguisher to tame the fake fire, the evacuator functionary was not alert and therefore missed out on the ladies who had ‘died’ from the smoke inhalation. Another gap identified during the rehearsal was that some of the emergency exits were locked. A positive aspect was that the residence functionaries wore vests so that they were identifiable.

An unannounced drill at night-time was expected to happen sometime near the end of the year. It is unknown whether that unannounced drill occurred and if it did, what the results were of that drill.

The Conlaurés residence was established in 2013. Due to no prior plan, the rehearsal could not take place. According to the UFS plans, two fire evacuation drills, scheduled and unscheduled, are supposed to take place every year at every residence. It is not clear how they had been able to conduct previous fire drills between the years 2013 and 2017 at this residence. This could possibly indicate that a fire drill had not occurred at this residence before October 2018.

5.5. CHAPTER SUMMARY

In summary, according to the OHS Officer, the observation of the two fire drills and the document study, the UFS is partly compliant with the requirements of the Disaster Preparedness Framework in relation to institutional frameworks, information systems, resource base, warning systems and public education and training. However, the UFS is not compliant in relation to vulnerability assessments, response mechanisms, and the rehearsal components of the Disaster Preparedness Framework.

The following chapter describes the analysis and findings related to the second research question regarding staff perceptions about the UFS's preparedness for managing disasters.

CHAPTER 6: DATA ANALYSIS AND FINDINGS OF THE STUDY PART 2: STAFF PERCEPTIONS OF INSTITUTIONAL PREPAREDNESS FOR MANAGING DISASTERS

6.1. INTRODUCTION

This chapter presents the research findings related to the second research question which was to determine the perceptions of UFS staff about the preparedness of the university to respond to disasters.

To answer this question, self-administered questionnaires were distributed to the senior and middle management of the university, members of the ECPC and DiMTEC personnel to determine their perceptions of institutional preparedness for disasters. A total of 34 questionnaires was sent out, of those twenty-two questionnaires that were completed and returned, one questionnaire was incomplete. Hence the findings are based on a total of twenty-one (21) completed questionnaires (See Table 4.1 for details).

Table 6.1 indicates the number of respondents from senior management, middle management, number of other respondents that are part of the ECPC and those at DiMTEC.

Table 6.1: Number of respondents from each target group and part of the ECPC

Respondent target groups	Total number of respondents from each target group	Number of those part of the ECPC
Senior Management	10	6
Middle Management	4	2
ECPC members (those not part of middle/ senior management or DiMTEC)	3	3
DiMTEC	4	0
Total	**21**	**11**

6.2. GENERAL KEY FINDINGS

The following key findings were made in relation to staff perceptions of preparedness levels at the UFS. In Figure 6.1 below, eighteen (18) respondents mentioned protests, strikes and unrest and ten (10) respondents mentioned drought, and eight (8) respondents mentioned that fire had previously impacted the UFS. There was some disagreement amongst respondents who did not believe that these events constitute the definition of a disaster.

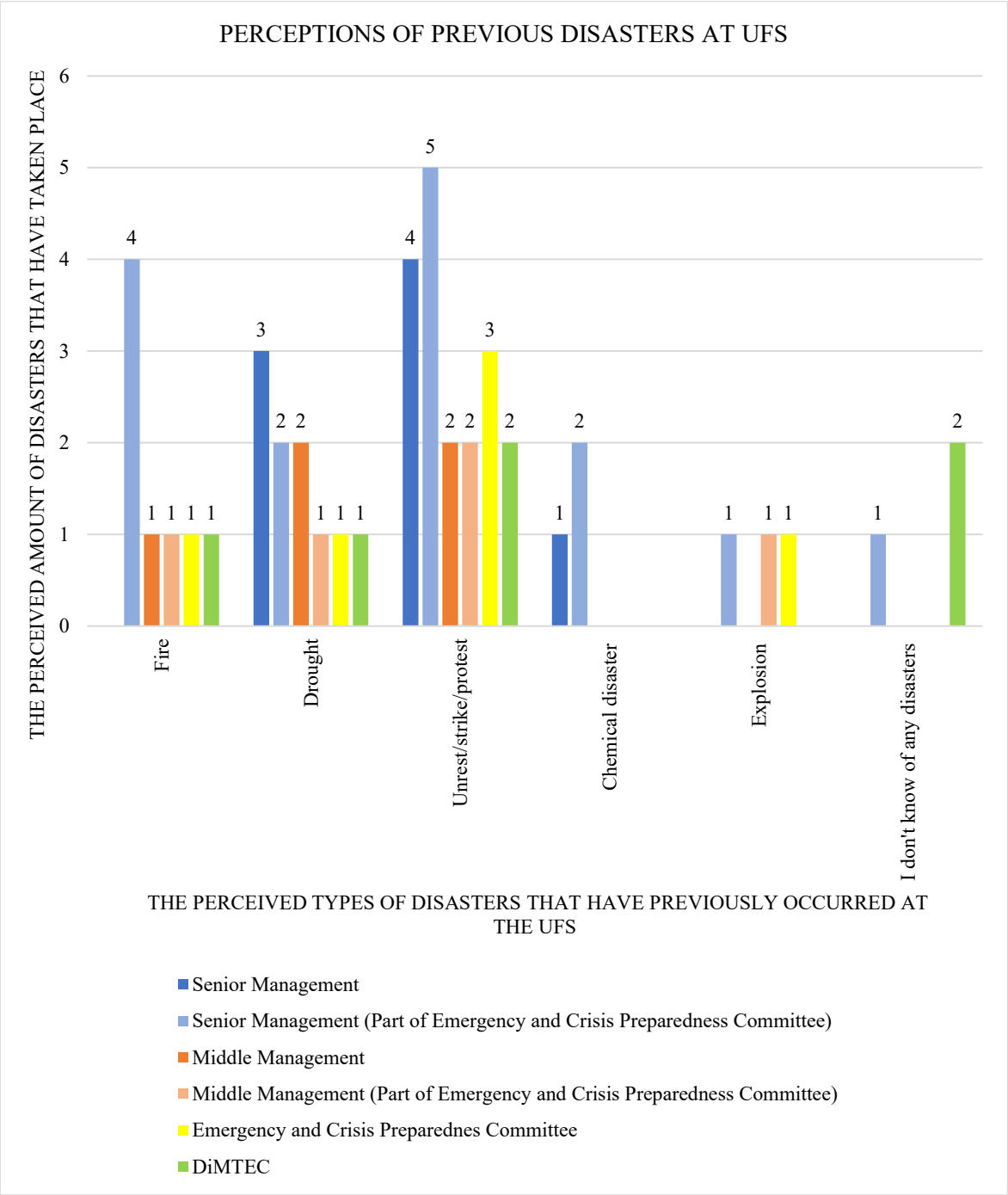

Figure 6.1: Perceptions of previous disasters at the UFS

In Table 6.2 below, one can see that explosions, chemical disasters and fires were rated highly as perceived disasters, while pollution, hostage situations and bomb threats were ranked among the lowest perceived disasters to occur on the UFS campus.

Table 6.2: Perceived disasters that are likely to occur on the UFS campus

Type of disasters	Name of disaster	Number of times the disaster is mentioned
Biological disasters	Health-related disasters e.g. biomedical, disease outbreak and HIV/AIDS	4
Environmental disasters	Pollution	1
Geological or geophysical disasters	Earthquakes	1
	Wind-related e.g. tornadoes	1
Hydrological disasters	Flooding	5
Technological disasters	Fires, veldfires	6
	Cybersecurity/ paralyzing the UFS's digital infrastructure	3
	Hostage situation	1
	Bomb threat	1
	Social unrest	1
	Xenophobia	1
	Stampede	1
	Chemical	11
	Explosion	11
	Structural collapse	1

In Figure 6.2, fourteen (14) out of twenty-one (21) of the respondents (67%) provided a positive assessment (6 to 9) of the university's preparedness for disasters, while three (3) respondents (14%) gave a neutral rating (5), whereas four (4) respondents (19%) gave a negative assessment on readiness (less than 5).

Nine (9) out of fourteen (14) senior and middle management respondents (64%) positively assessed the university's preparedness for disasters, and this is in line with Promsri's (2014) study which stated that employers have a higher perception of preparedness than employees.

Nine (9) out of eleven (11) ECPC (including senior and middle management) members (82%) gave a positive assessment of the university's preparedness for disasters, which correlates with Promsri's (2014) study and Nam's (2018) study which stated that employees who were educated about preparedness had more positive perceptions.

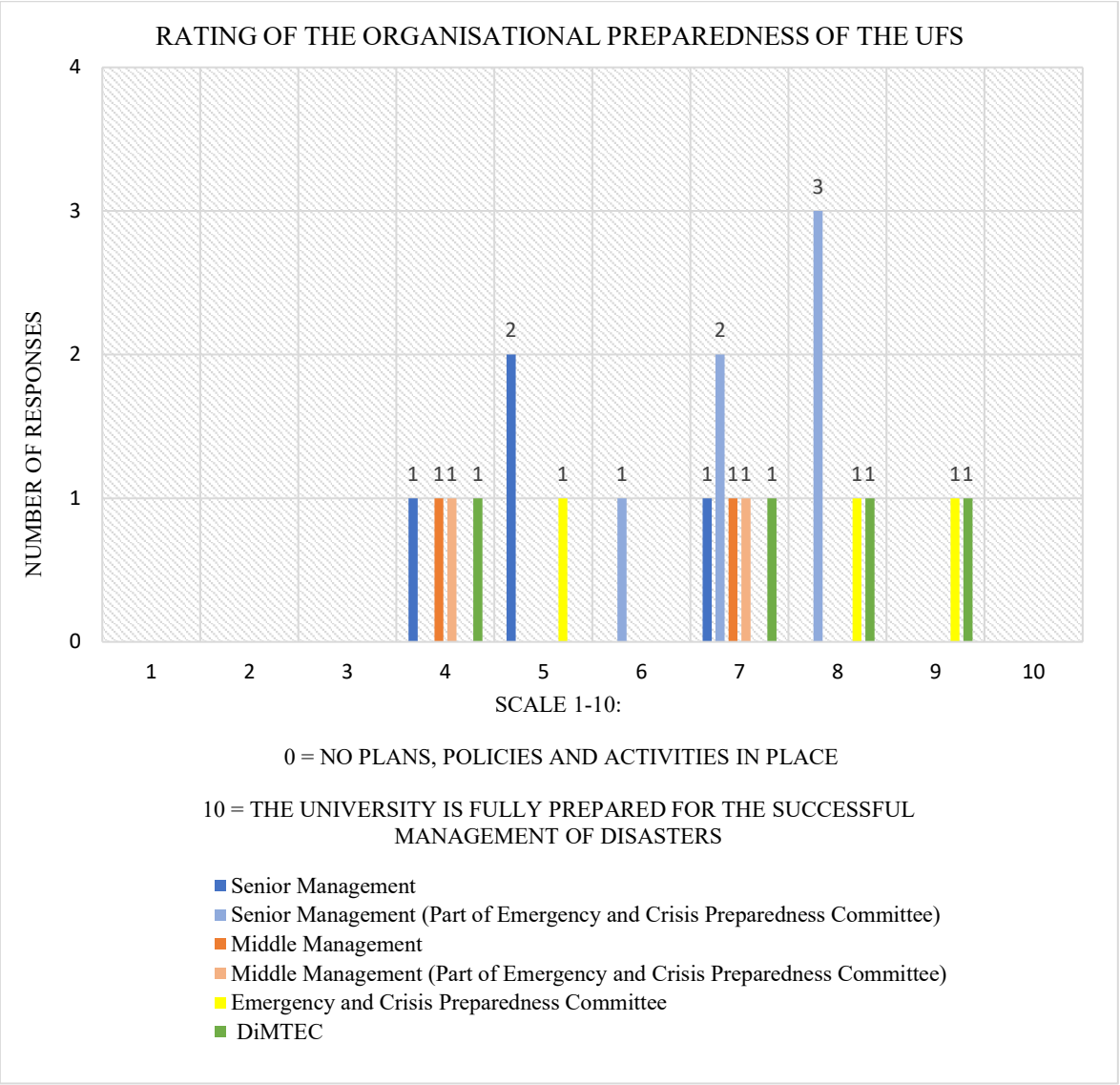

Figure 6.2: Rating of the organisational preparedness of the UFS

In Figure 6.3 below, two (2) respondents strongly agreed, and twelve (12) respondents agreed that the UFS has been effective in managing disasters in the past. Four (4) respondents disagreed and three (3) respondents were not sure whether the UFS has been effective in managing disasters in the past.

Again, eight (8) out of eleven (11) ECPC members (73%) strongly agreed/ agreed that the UFS has been effective in managing disasters in the past which continues to correlate with the studies of Promsri (2014) and Nam (2018), who posited that the employees had more positive perceptions when they were educated about preparedness.

Also, nine (9) out of twelve (12) top and middle management respondents (75%) strongly agreed/ agreed that the UFS has been effective in managing disasters in the past which again correlates with the study of Promsri (2014), which stated that employers have a more positive perception of preparedness compared to employees.

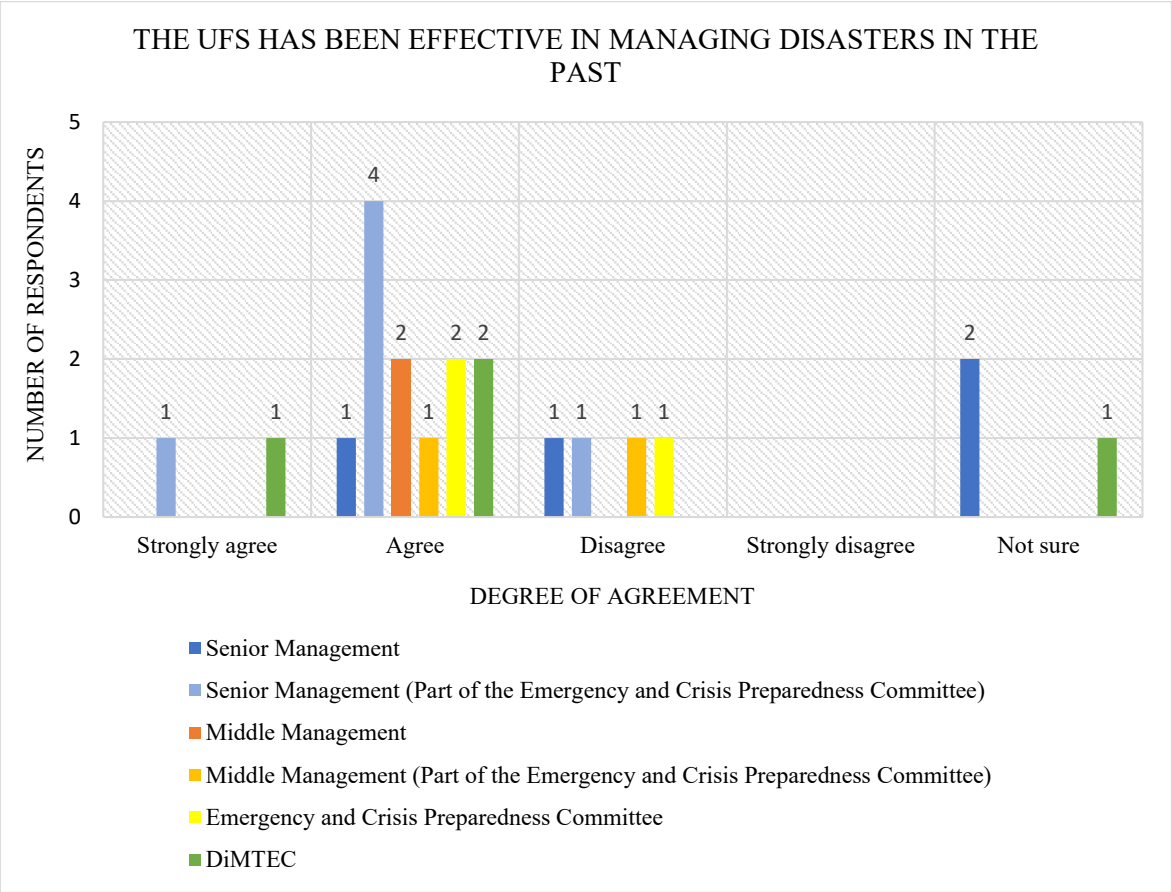

Figure 6.3: The UFS has been effective in managing disasters in the past

6.3. KEY FINDINGS ABOUT THE PERCEPTIONS OF THE RESPONDENTS REGARDING THE COMPONENTS OF THE DPF

6.3.1. Vulnerability assessments

In Figure 6.4, thirteen (13) respondents strongly agreed, and eight (8) respondents agreed that the UFS should conduct vulnerability assessments. Strikingly, it is among senior managers who form part of the ECPC that the highest number 'strongly agreed' with the need for vulnerability assessments. This strong need to have vulnerability assessments done at the UFS could be because vulnerability assessments would identify possible weaknesses of the UFS campus. The UFS could then address these weaknesses and thereby make the university more prepared and resilient towards disasters. Vulnerability assessments also inform planning (International Federation of Red Cross and Red Crescent Societies, 2000; Kent, 1994) and thus can inform the plans of the UFS.

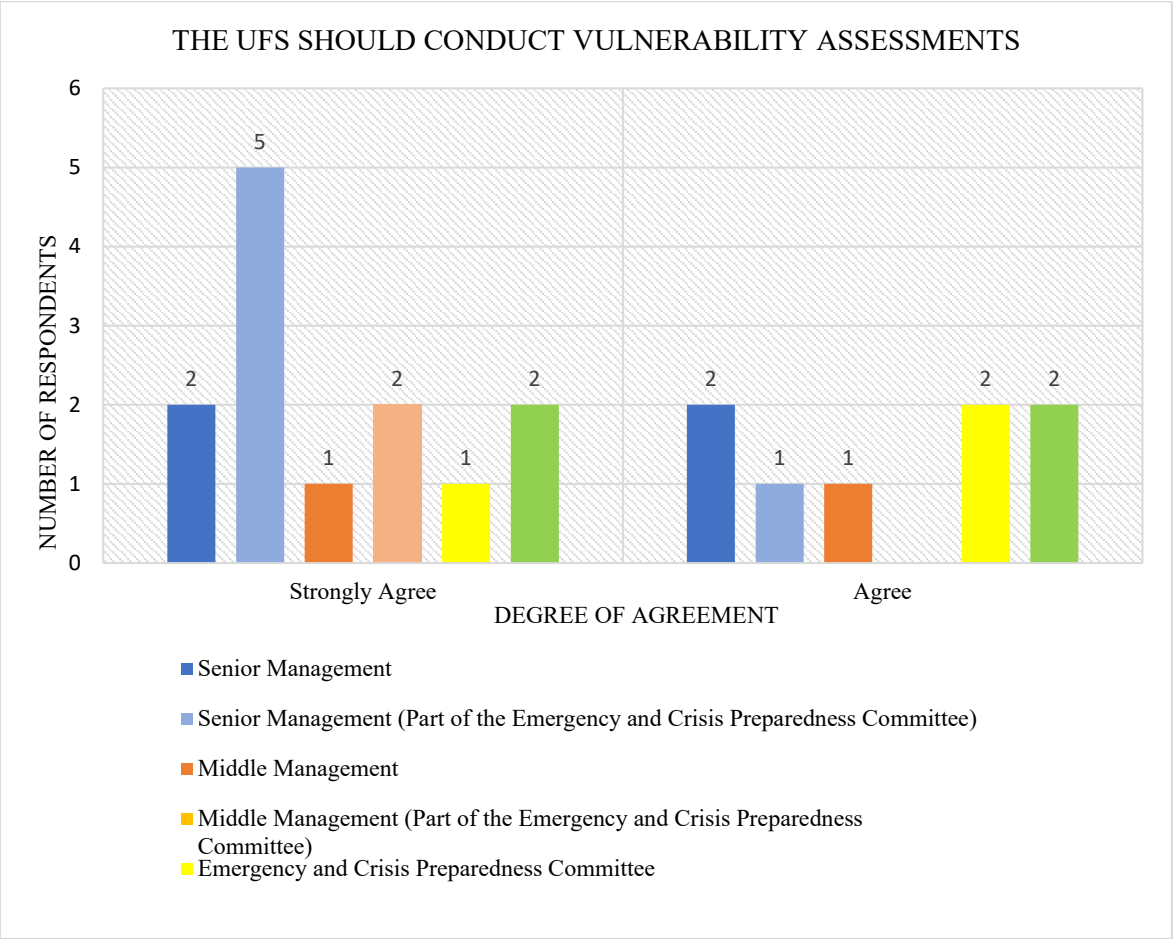

Figure 6.4: The UFS should conduct vulnerability assessments

6.3.2. Planning

In Figure 6.5 below, thirteen (13) respondents were of the opinion that the UFS has disaster preparedness policies in place, whereas three (3) respondents did not think so and five (5) respondents were unsure.

Seven (7) out of eleven (11) ECPC respondents (64%) were of the opinion that the UFS has disaster preparedness policies in place and their opinion could be valid because they are part of this committee and therefore should know whether disaster-related policies are in place. Three (3) DiMTEC respondents were not sure if the UFS had any disaster preparedness policies and this could be because they do not have first-hand knowledge about the ways in which the UFS manages disasters.

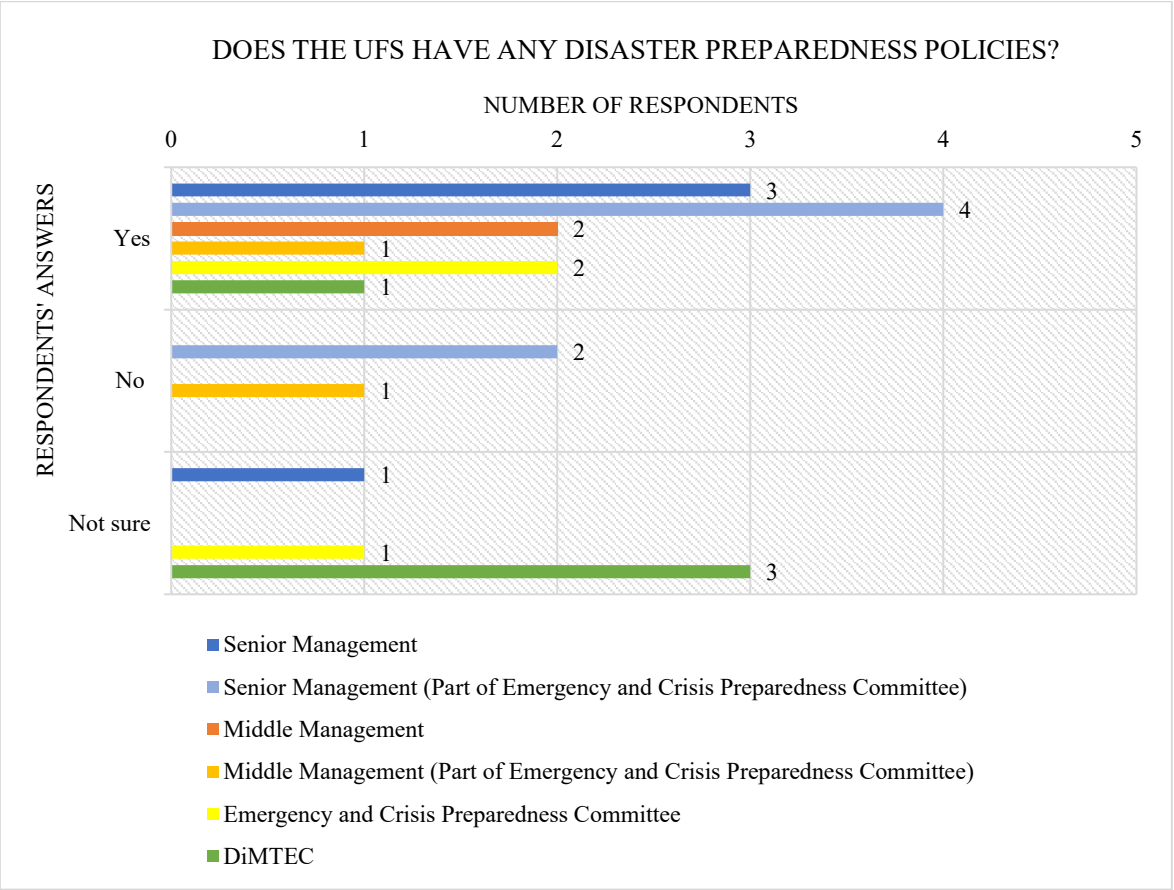

Figure 6.5: Does the UFS have any disaster preparedness policies?

In Figure 6.6 below, four (4) respondents strongly agreed, and six (6) respondents agreed that regular campus-related disaster planning sessions are provided. However, seven (7) respondents did not think that regular campus-related disaster planning sessions are provided, and four (4) respondents were unsure. The fact that seven respondents disagreed indicates that more regular campus-related disaster planning sessions need to be provided.

Of the ECPC respondents, six (6) strongly agreed and agreed, four (4) respondents disagree, and one (1) respondent was unsure whether the UFS has regular campus-related disaster planning sessions. This is interesting because the ECPC should most definitely be involved in regular campus-related disaster planning sessions and this again indicates a gap that can be addressed. This relates to Kent's (1994) statement that the main purpose of planning is to make sure there is ongoing communication between stakeholders which then results in written agreements.

Again, three (3) DiMTEC respondents are unsure whether regular UFS campus-related disaster planning sessions occur because they do not have first-hand knowledge about how the university manages disasters.

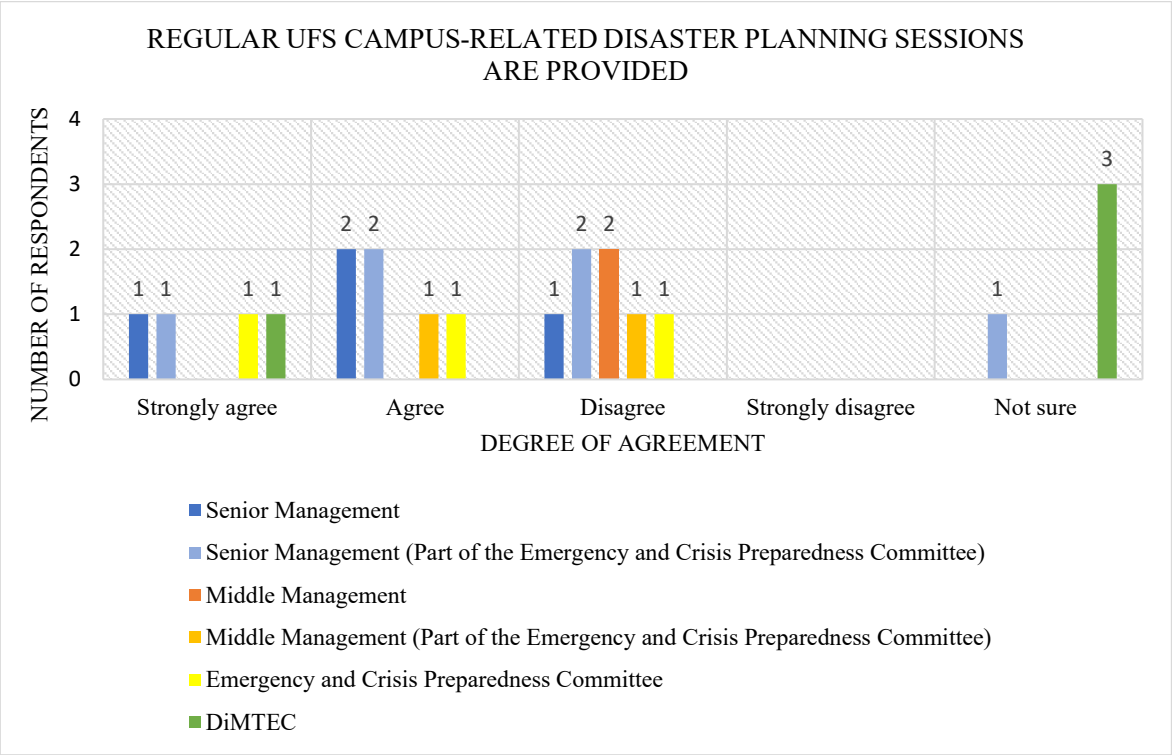

Figure 6.6: Regular UFS campus-related disaster planning sessions are provided

6.3.3. Institutional framework

Six out of ten (60%) senior management respondents and two out of four (50%) middle management respondents are part of the ECPC. All four of the DiMTEC respondents did not know whether the UFS has an ECPC. Two of the respondents from DiMTEC thought that it is necessary for them to be part of the ECPC so that they can add value by "*strategic planning*" and one respondent stated that, *"As a disaster professional and working at the Disaster Management Centre, I should bring in a lot of professional expertise into this committee. DiMTEC should be an important stakeholder of this committee."*

Two of the DiMTEC respondents did not think it is necessary for them to be part of the ECPC because they "*don't have the time*" and the one respondent stated that, *"I have seen and read about the organisational preparedness planning on campus being done by Protection Services. I feel that they are doing a very good job. It may not be out there that this is disaster preparedness, but I am certain that they will be able to handle any emergency on campus."*

Twelve (12) respondents strongly disagreed/disagreed that the sole responsibility for disaster management on the UFS campus should reside with the ECPC (See Figure 6.7).

Seven (7) out of eleven (11) ECPC respondents (64%) strongly disagreed/ disagreed that the sole responsibility for disaster management of the UFS should reside with them. Reasons for this could include that it entails '*too much work*', '*too much pressure*' and that

'*disaster response is everyone's responsibility*'. This can tie in with Kent's (1994) statement that roles should be apportioned to the appropriate partners for implementation purposes. In contrast, eight (8) respondents agreed that the sole responsibility for disaster management on the UFS campus should reside with the ECPC and one (1) respondent was unsure.

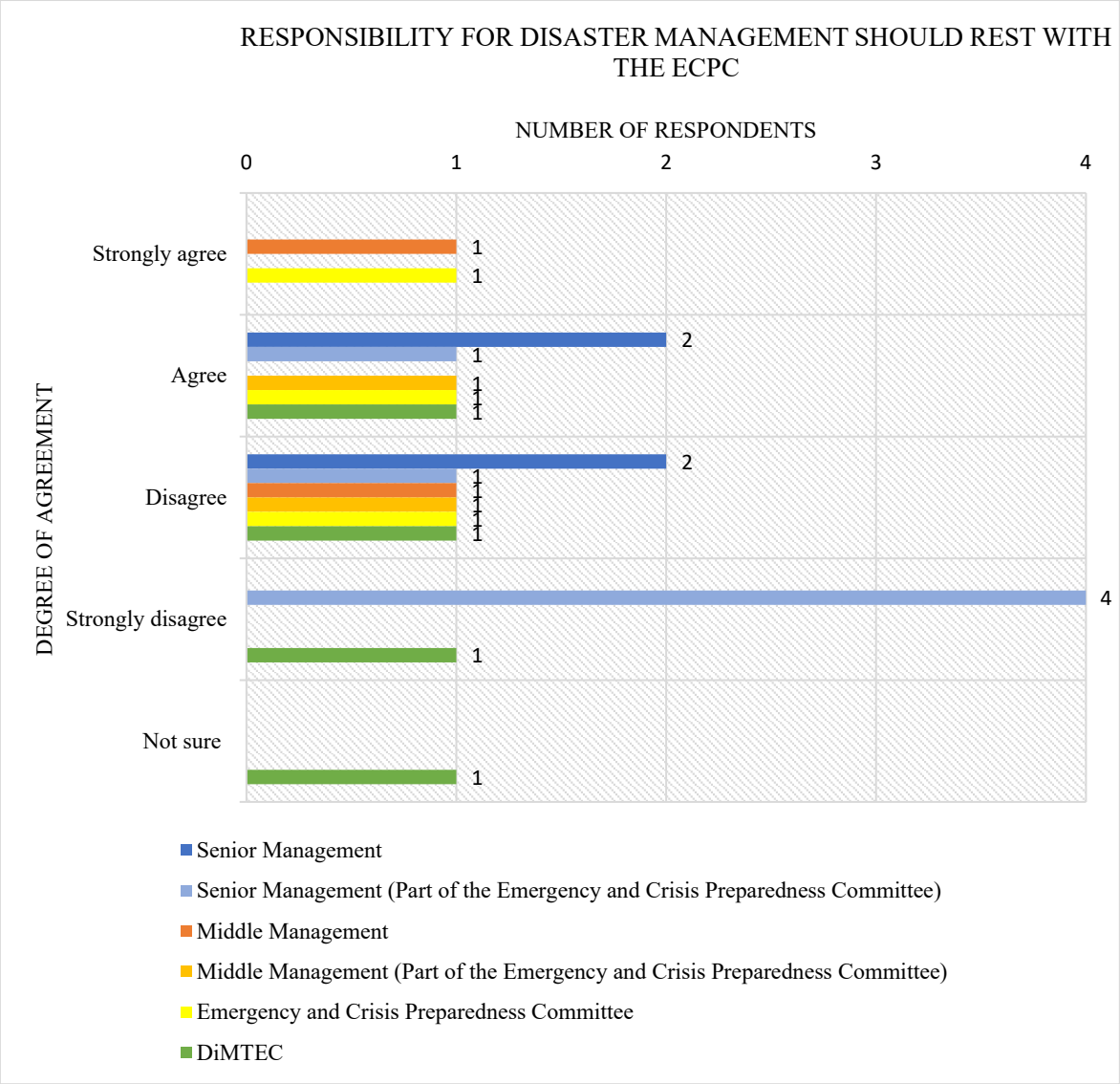

Figure 6.7: Responsibility of the UFS should rest with the ECPC

Figure 6.8 shows that eleven (11) respondents strongly agreed and four (4) respondents agreed that the UFS has a sound relationship with support services such as the MMM Fire Department or Netcare ambulatory services.

Six (6) respondents were unsure whether the UFS has a sound relationship with support services in the city. Of the eleven (11) ECPC respondents, eight (8) respondents (73%) strongly agreed and three (3) of them (27%) agreed that the UFS does have sound relationships with support services in the city because the respondents are part of this

Committee and they could have more insight into whether this statement is true or not. Alternatively, this could explain why two senior management and two middle management respondents who are not part of the ECPC and two DiMTEC respondents were unsure whether the UFS has a sound relationship with support services in the city.

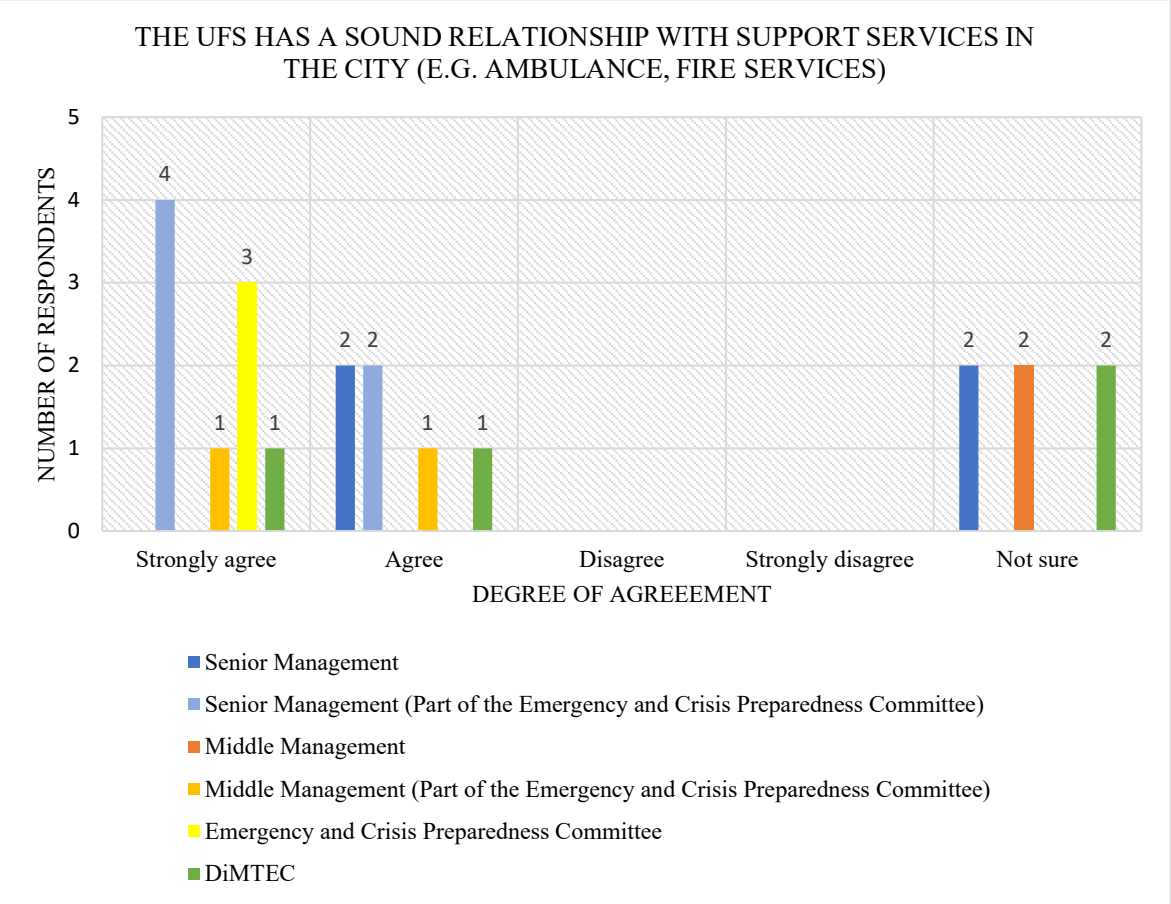

Figure 6.8: The UFS has a sound relationship with support services in the city

6.3.4. Information systems

Five (5) respondents stated that ordinary staff members receive information on a regular basis from the university about how to respond to disasters. Seven (7) respondents stated that ordinary staff members who are not part of management *sometimes* receive information from the university about how to respond to disasters. Four (4) respondents stated that ordinary staff members *rarely* receive any information and two (2) respondents stated that they do not receive any information from the university about how to respond to disasters (See Figure 6.9).

This clearly indicates a gap that can be addressed because if ordinary staff members receive information about how to respond to disasters they may feel more prepared (Promsri, 2014), but also this may improve their response time to disasters in the future.

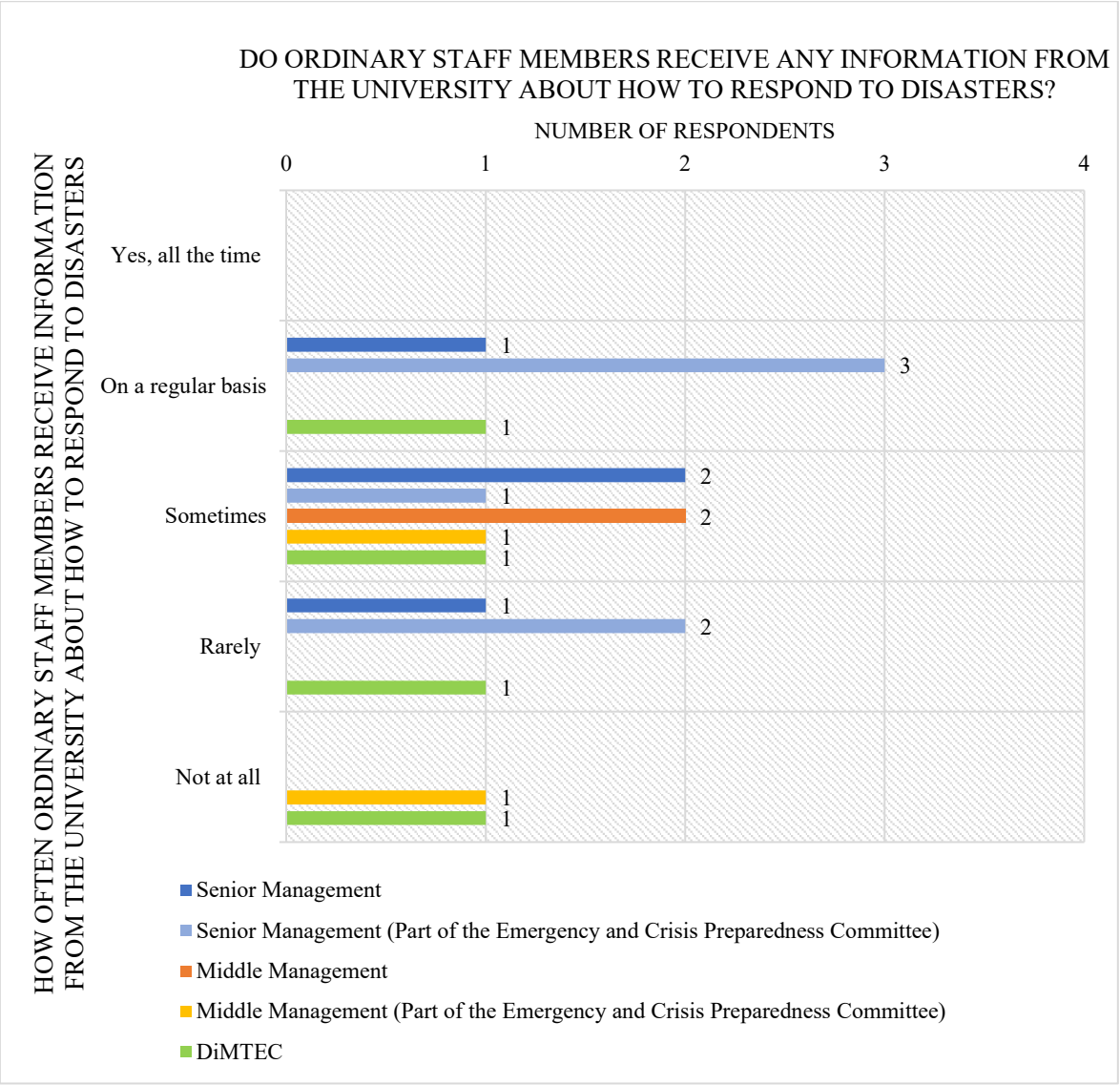

Figure 6.9: Do ordinary staff members receive any information from the university about how to respond to disasters?

Two (2) respondents stated that they rarely give information to the university about how to respond to disasters and two (2) respondents mentioned that they do not give information to the university management about how to respond to disasters. Based on Figure 6.9 and these replies, DiMTEC can assist the university by giving them information about how to respond to disasters since they have the skills and knowledge.

Figure 6.10 shows that eight (8) and twelve (12) respondents respectively, strongly agreed and agreed that the UFS should have a monitoring system. Only one (1) respondent did not think that the UFS should have a monitoring system.

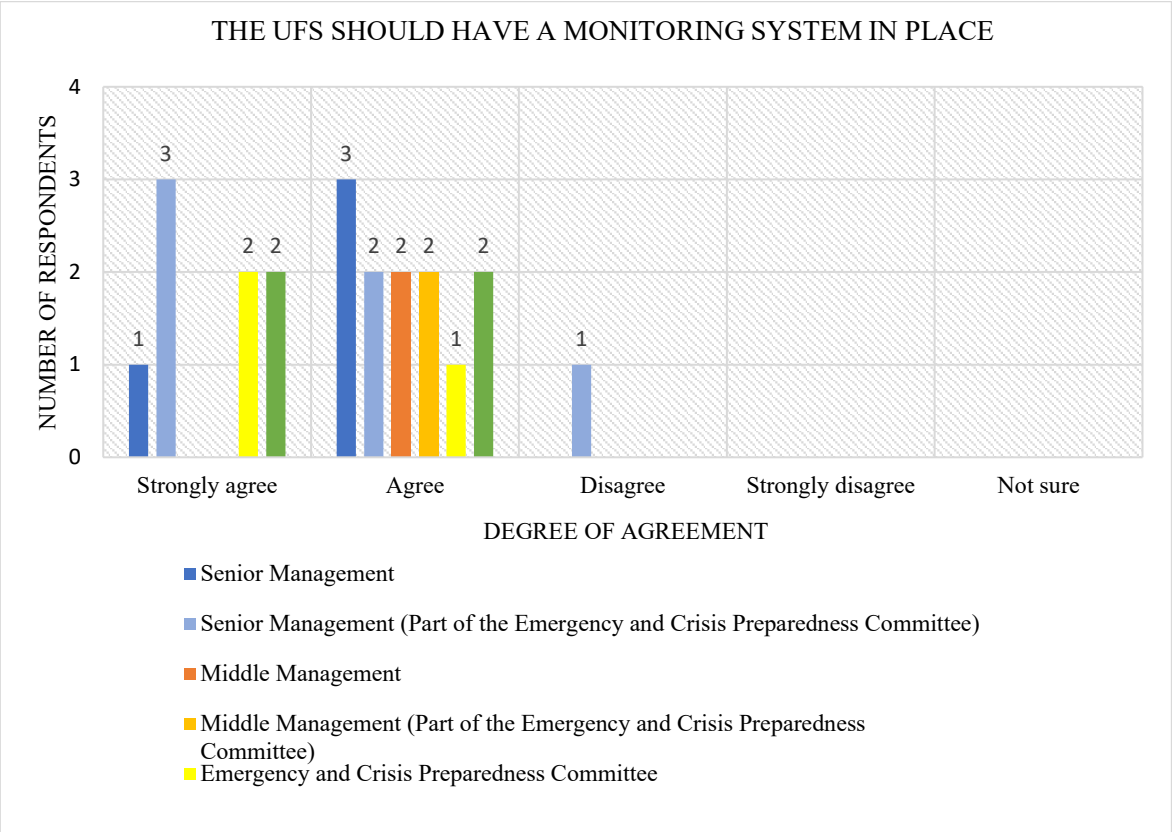

Figure 6.10: The UFS should have a monitoring system in place

6.3.5. Resource base

Six (6) respondents strongly agreed, and another six (6) respondents agreed that the UFS has the skilled personnel to manage campus-wide disasters; whereas five (5) respondents disagreed and four (4) respondents were unsure whether the UFS has skilled personnel to manage campus-wide disasters. What is interesting to notice, is that five senior management respondents, of which three (3) of those respondents are part of the ECPC, disagreed that the UFS has the skilled personnel to manage campus-wide disasters. Two (2) senior management respondents of which one (1) is part of the ECPC were unsure whether the UFS has the skilled personnel to manage campus-wide disasters. Figure 6.11 indicates that the UFS should consider upskilling their personnel to manage campus-wide disasters.

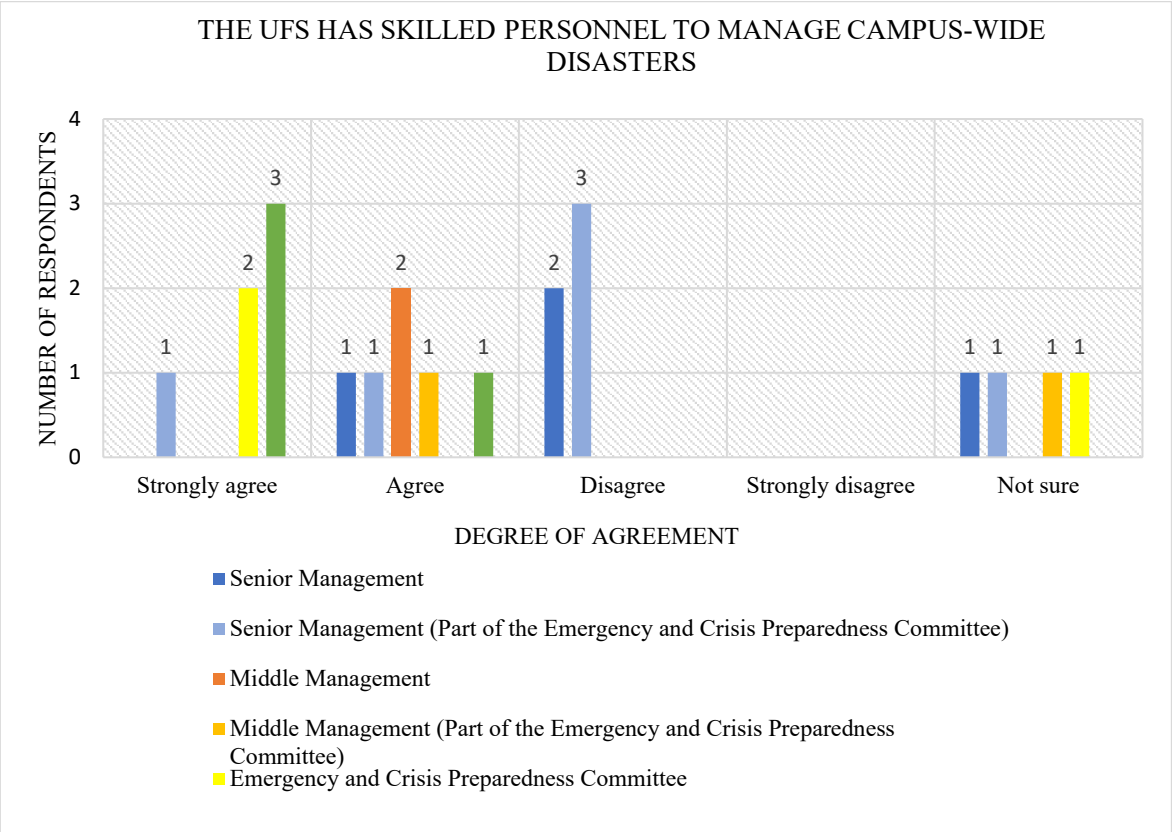

Figure 6.11: The UFS has skilled personnel to manage campus-wide disasters

Figure 6.12 shows that three (3) respondents strongly agreed, and two (2) respondents agreed that the UFS has the full range of material or physical resources to manage campus-wide disasters. Eight (8) respondents disagreed and eight (8) respondents were unsure whether the UFS has the full range of material or physical resources to manage campus-wide disasters.

It is interesting to note that five (5) senior management respondents, of which three (3) are part of the ECPC, disagreed and three (3) respondents were unsure if the UFS had the material or physical resources to manage campus-wide disasters. Hence, the UFS should look into getting the full range of material or physical resources to manage campus-wide disasters.

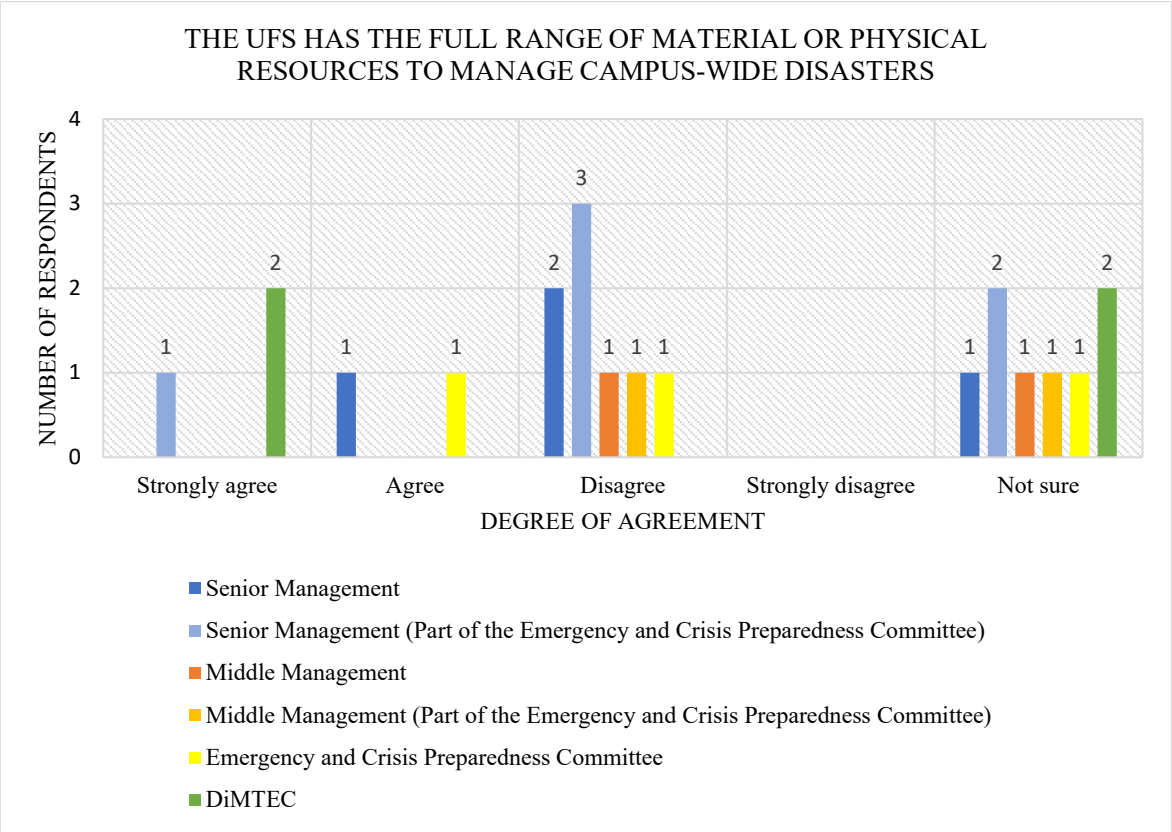

Figure 6.12: The UFS has a full range of material or physical resources

6.3.6. Warning systems

As shown in Figure 6.13 below, five (5) respondents strongly agreed, and eleven (11) respondents agreed that the UFS has a sound communication capacity for distributing information in the case of a disaster. Three (3) respondents disagreed, one (1) respondent strongly disagreed, and one (1) respondent was unsure whether the UFS has a sound communication capacity for distributing information in the case of a disaster.

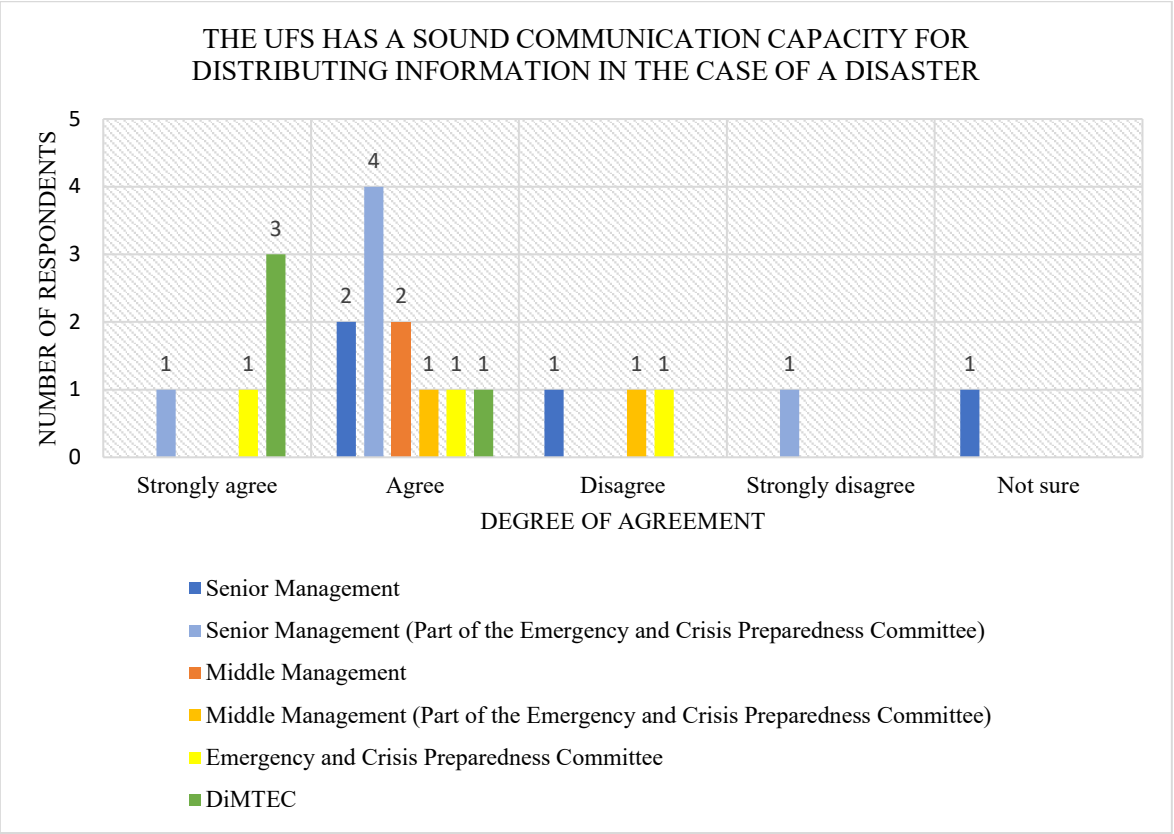

Figure 6.13: The UFS has a sound communication capacity for distributing information in the case of a disaster

6.3.7. Response mechanisms

Three (3) respondents strongly agreed, and six (6) respondents agreed that the UFS has efficient response mechanisms to respond to disasters. Four (4) respondents disagreed and eight (8) respondents were unsure whether the UFS has the efficient response mechanisms to respond to disasters (See Figure 6.14). What is interesting to note is that four (4) out of fourteen (14) senior and middle management respondents (29%) disagreed, and six (6) management respondents were unsure if the UFS has efficient response mechanisms to respond to disasters. This indicates that the UFS needs to relook their response mechanisms and see if there is a way to improve them.

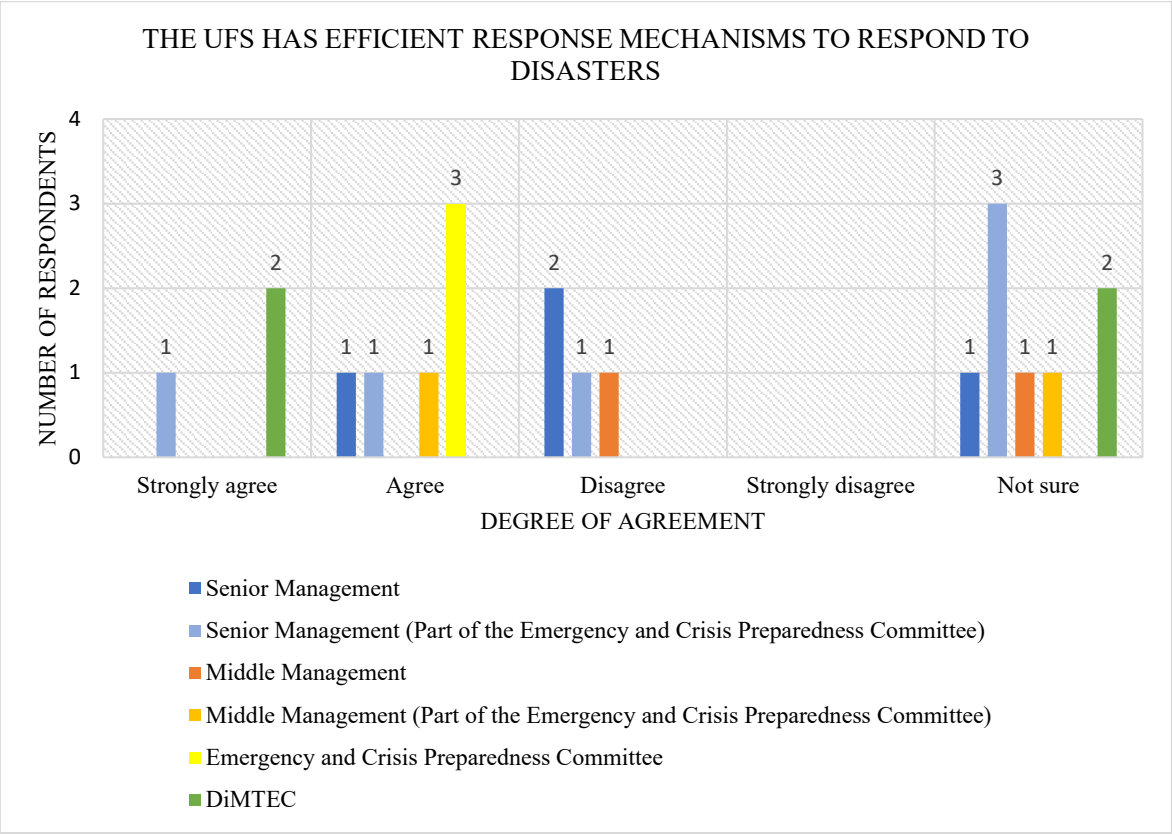

Figure 6.14: The UFS has efficient response mechanisms to respond to disasters

As seen in Figure 6.15 below, one (1) respondent was of the opinion that *all* staff are prepared, three (3) respondents believed that *most* staff are prepared, four (4) respondents believed that *half the staff* are prepared, six (6) respondents believed that *a few* staff are prepared and seven (7) respondents cannot tell if the staff are prepared to respond to a disaster. This possibly indicates that the UFS needs to educate or train more of their staff to respond to disasters.

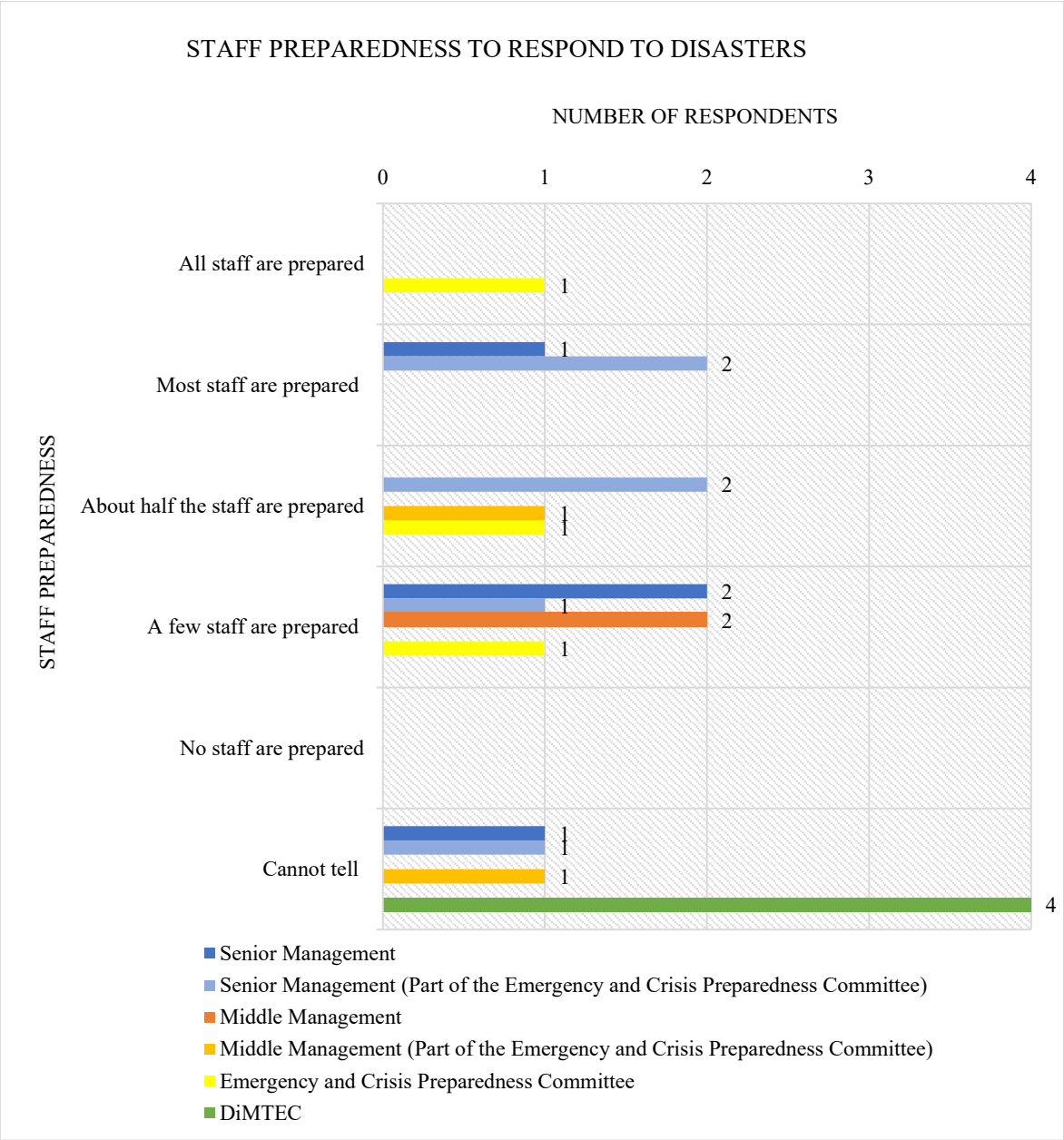

Figure 6.15: Staff preparedness to respond to disasters

6.3.8. Public education and training

Two (2) respondents strongly agreed, and six (6) respondents agreed that the UFS educates the campus community about potential disasters, whereas eleven (11) respondents disagreed, and two (2) respondents were unsure (See Figure 6.16). This indicates that the university should probably look at how they can improve educating the campus community about potential disasters.

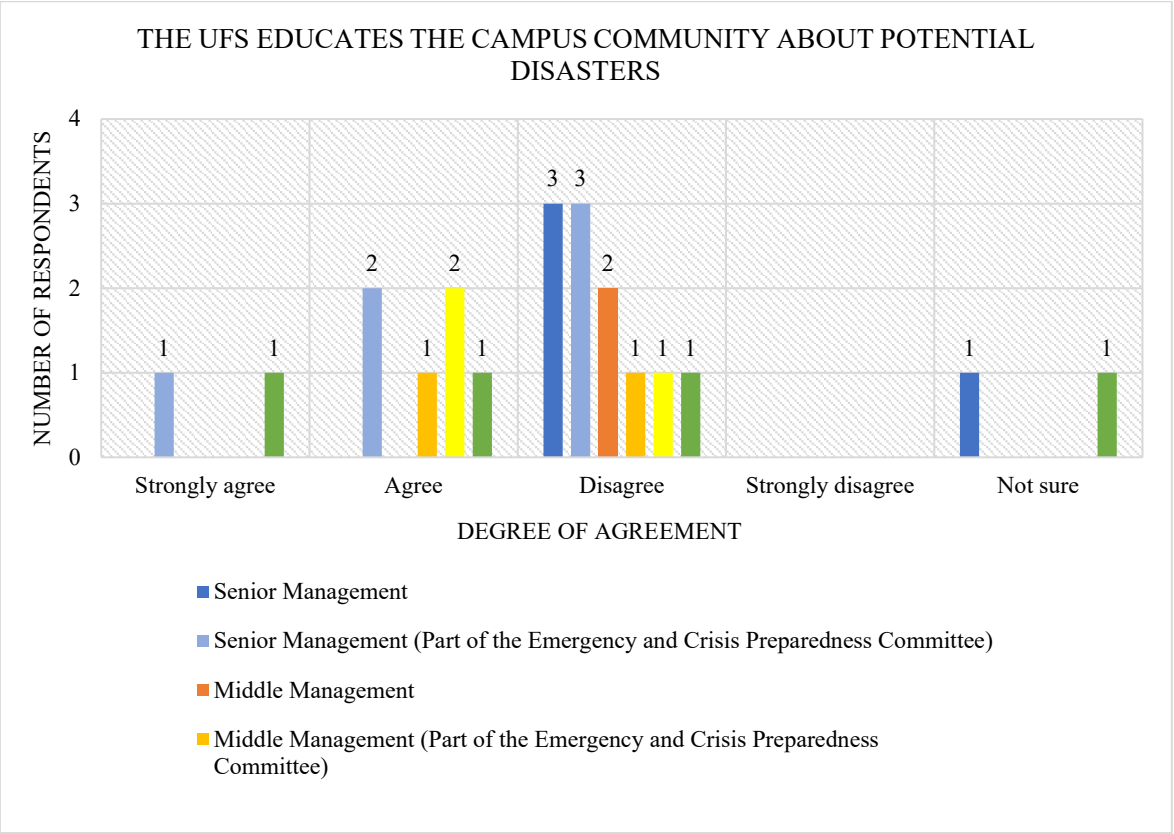

Figure 6.16: The UFS educates the campus community about potential disasters

6.3.9. Rehearsals

As shown in Figure 6.17 below, two (2) respondents strongly agreed, and four (4) respondents agreed that the UFS conducts effective rehearsals, whereas seven (7) respondents disagreed, two (2) respondents strongly disagreed, and six (6) respondents were unsure whether the UFS conducts effective rehearsals.

This brief survey of *staff perceptions* suggests that the UFS needs to evaluate their rehearsals and how effective they are and evaluate how they can improve their rehearsals. The mixed perceptions data is empirically backed up by evidence from documents and observations, summarised here: that UFS is supposed to conduct fire drills twice a year and for explosive (bomb) hazards, once a year. However, the UFS conducts rehearsals for fires and evacuations; but there are no reports referring to bomb drills being done; there is no record of rehearsals related to drought; and there does not seem to be evidence of rehearsals specifically relating to protests.

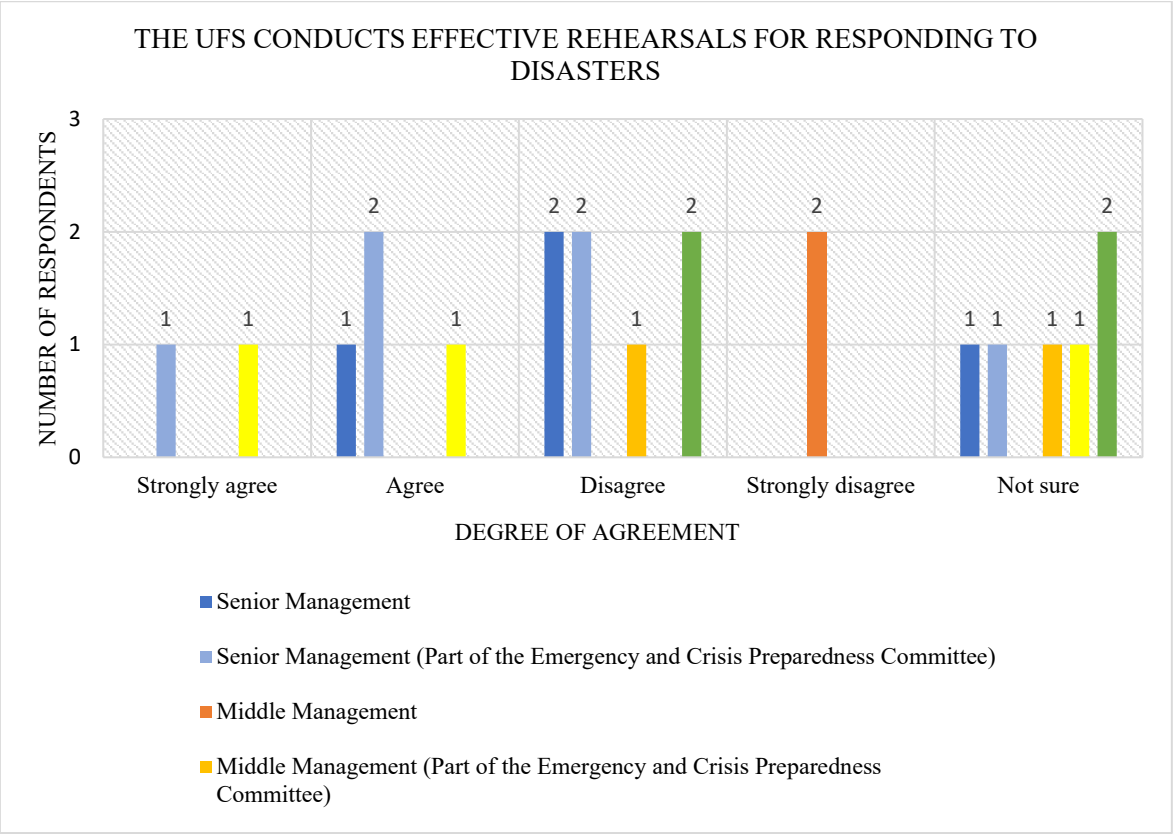

Figure 6.17: The UFS conducts effective rehearsals for responding to disasters

6.4. CHAPTER SUMMARY

In summary, according to the perceptions of the respondents, the UFS is *partly compliant* with the requirements of the Disaster Preparedness Framework in relation to vulnerability assessments, institutional frameworks, and warning systems.

However, the UFS is *not compliant* in relation to planning, information systems, resource base, response mechanisms, public education and training, and rehearsals of the Disaster Preparedness Framework.

The following chapter concludes this study and offers recommendations.

7. CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

7.1. INTRODUCTION

As indicated in the literature review, this study addresses one key limitation of the existing research on disaster management: it measures disaster preparedness from the perspective of a university in central South Africa that is vulnerable to several potential disasters at one time, such as regular droughts and routine student protests. This chapter summarises and synthesises this research, draws some critical conclusions, and offers key recommendations for policy, practice, and further research.

7.2. CONCLUSIONS

7.2.1. Conclusions related to institutional readiness for disaster preparedness

Using Kent's (1994) Disaster Management Framework, this study found that, while *vulnerability assessments* were done at least once per annum, it was sometimes done unevenly, informally, or not at all in the case of the two residences studied. In the same way, the UFS did have formal *planning* in place but not tailor-made for the residences; furthermore, policies and plans were often outdated. For example, the Occupational Health and Safety Policy was last signed in 2010 but the same policy signed in 2007 can still be found on the UFS website as if it is the latest version. Also, the Provision of Medical Emergency Services on Bloemfontein campuses policy was approved in 2005 (See Appendix D for documents studied in the document analysis).

Regarding the *institutional framework*, the UFS has formal structures in place and works with local authorities. Roles and responsibilities are well-defined, though in practice, those functions can be blurred in a crisis as recorded in the rugby incident. With respect to *information systems*, the university does seem to be compliant with regards to basic data on 'who does what' and 'where to go' or 'whom to contact' in a crisis. In this regard, the emergency controller plays a critical role at the university.

With respect to the *resource base*, the UFS is largely compliant in dedicating funds for disaster preparedness (research, training, awareness), but staff members were not all aware about where and how to access those resources in an emergency. Students, on the other hand, were able to access vital resources during the COVID-19 lockdown which demonstrated a high level of responsiveness on the part of the university (See Appendix E, Table E.1: 5I-5K; 5M-5N).

With respect to *warning systems*, the UFS does have warning systems for disasters, for example upon observation, warning systems can comprise of a whistle to blown during a fire evacuation at a residence or sending messages to student and staff emails and cellphones. However, it is not clear according to the OHSA officer what these warning systems look/sound like, and for what disasters these early warning systems are intended.

The warning communication devices used by the UFS includes two-way radios, the evacuation public address system and loud hailers according to the UFS planning documents. However, as detailed earlier, at the Akasia evacuation drill, the residences did not know the sound of the whistle which indicated that there was a fire, and indicates the ineffectiveness of the education of residents regarding hazards that may impact them. The Conlaurés residence did not have enough emergency exit signs.

Regarding *response mechanisms*, the UFS has assessment teams to assess disasters and these teams undergo training, according to the OHS Officer. An example of an assessment team that the UFS has used for disasters is the Special Executive Group formed to assess the impact of COVID-19 on the university. The plans of the UFS somewhat refer to making an assessment when an emergency occurs; however, for rehearsals, an evacuation assessment form is completed. The UFS certainly has procedures for activating disaster response programmes as stated by the OHS Officer which is in alignment with the plans of the UFS. However, the OHS Officer indicated that the UFS does not have procedures to activate special installations (e.g. mobile hospital facilities) or procedures for activating distribution systems (e.g. distributing stockpiled items). Furthermore, according to the OHS Officer, the UFS does not have its own search and rescue team as confirmed by the UFS's earthquake/ structural collapse plan (Appendix D).

With respect to *public education and training*, the university is mostly compliant in providing a range of resources for both information and capacity building among staff and students. For COVID-19, for example, the UFS continuously distributed information about COVID-19 mitigation practices and reminded the UFS community to continue doing these practices at home and at their workplace.

Regarding *rehearsals*, the UFS conducts rehearsals for fire, but it does not seem as if the UFS conducts rehearsals for bombs as there were no documents specifying the timing of these rehearsals or a specific bomb hazard evacuation assessment form. However, as indicated in the residence observations, the students missed vital cues such as the meaning of the sound of the whistle and movement in the drill was haphazard and potentially dangerous. There was, interestingly, no evidence of rehearsals in the case of student protests.

7.2.2. Conclusions in relation to staff perceptions of institutional preparedness

The small group of respondents to the questionnaire was justified on the basis of expert opinion and distributed across senior management, middle management, crisis personnel and DiMTEC staff. Perceptions of institutional preparedness varied, even within this relatively small group, on the various dimensions of the Disaster Preparedness Framework.

The perceived need for vulnerability assessments was unanimous, though. About a third of respondents believed that the UFS does have disaster preparedness policies in place, the UFS does not have a specific disaster management policy although elements of the disaster-related issues are mentioned in the Security Policy but the UFS does have its own brief Disaster Management Plan. Less than half agreed that regular campus-related disaster planning sessions are conducted. It is certainly striking that DiMTEC staff members were not aware if the UFS conducts campus-related disaster planning sessions. Based on the above findings on the perceptions of the respondents, the UFS should work on the *planning* component of the Disaster Preparedness Framework.

Regarding the institutional framework, more than a third of the respondents *agreed* that the responsibility for disaster management should rest with the ECPC; a majority do not. Reasons include that it involves '*too much work'* and that it placed '*too much pressure*' on the ECPC and for the mere fact that '*disaster response is everyone's responsibility'*. Most respondents agreed that the UFS has a sound relationship with support services such as MMM fire services or Universitas Hospital.

Perceptions on information systems were highly uneven across the three categories of staff, but this probably relates to many not having information on things like regularly receiving information from the university about how to respond to disasters. It would be optimal if ordinary staff members regularly received more information from the UFS about how to respond to disasters. Virtually all respondents agreed, however, that the UFS should have an inclusive monitoring system.

Most staff also agreed, in relation to the resource base criterion, that the UFS has skilled personnel to manage campus-wide disasters. Most however did not agree that the university had the full range of material or physical resources needed for a disaster response (maybe of a certain magnitude).

Similarly, most respondents agreed that that the UFS has a sound communication capacity for distributing information in the case of a disaster. The same holds for efficient response mechanisms being in place. However, most respondents did not agree that sufficient public education and training was in place for disaster preparation; the same holds true for rehearsals.

7.2.3. Overall conclusion: The larger story about institutional compliance and perceptions regarding disaster preparedness at the UFS

The DPF provides a relatively objective account of organisational compliance on the part of the university given the data sources from observations, questionnaires and documents (See Appendix E). The staff perceptions, on the other hand, offer a more subjective account of organisational readiness to respond to disasters as seen in the somewhat different responses of staff at different levels of the university.

Taken together, however, certain trends can be identified. One, that the university is in a reasonable state of compliance when it comes to formal policies, plans, and programmes regarding organisational preparedness (See Appendix D and Appendix E). The institution is certainly not in a state of crisis when it comes to disaster readiness; basic elements are in place from planning and resourcing to training and information.

However, it is clear from this study that there are a number of shortcomings in most of the nine DPF elements. Some official documents are outdated such as the Occupational Health and Safety Policy mentioned at the beginning of the chapter. Some policies are poorly understood. Some strategies are uncoordinated. Some key players are not in agreement about shared perceptions of the state of readiness of the university.

The incoherent and sometimes contradictory perceptions among staff of UFS policies on disaster readiness were not completely unexpected. For example, such divergent perceptions could have been resolved if DiMTEC, as a specialist resource on the campus, was fully integrated into decision-making at all levels of the university's disaster planning initiatives. It would also have helped if the most compact spaces on campuses, such as student residences, had effective response strategies for disasters. In short, diverse staff perceptions of institutional readiness are a consequence of uneven and inadequate planning given the resources available (e.g. DiMTEC) and actions not taken (residences).

No doubt the university is highly responsive to disasters as they emerge, such as the unexpected COVID-19 pandemic lockdown. But this seems to be more a result of senior management's agility at the top, than as a result of well-prepared, well-integrated, and well-executed plans and policies already installed for disruptive events.

What this study offers, therefore, is both a sense of the strengths of the current state of the university with respect to readiness but also where the weaknesses lie within the organisational arrangements as they stand. Accordingly, here are some recommendations that align with what was identified as potential weaknesses in policy and practice.

7.3. RECOMMENDATIONS FOR POLICY, PRACTICE, AND FURTHER RESEARCH

The recommendations which follow are identified for policy, practical improvements, and further research.

a) Policy recommendations

It is clear from this study that the UFS needs to develop and establish an extensive disaster management policy that is shared with, understood by, and for which buy-in is secured from all institutional stakeholders. Such a policy should be crafted in the context of the unique challenges of a university surrounded by large rural areas and geographically removed from the major urban centres where resources tend to be concentrated.

b) Practical recommendations

There is also a range of practical actions that the university can take to address shortcomings identified in this study. The following are three *illustrative recommendations* among many derived from the responses of the different stakeholders participating in this study.

A first recommendation would be for experts to conduct formal vulnerability and risk assessments, prioritise hazards and risks and to test equipment. In this regard, it would be important for the university to do extensive vulnerability assessments for all potential disasters, e.g. to assess the potential effects of drought on the UFS community. Pertinent questions or assessment would include the following: Can the university community cope with the demands of a severe drought? Does the UFS have enough water from the water reservoir and JoJo tanks to sustain the campus during a drought and for how long? It is further recommended that vulnerability assessments be done for each major building on the UFS campus and for these assessments to inform the building plans.

A second recommendation is that the UFS updates and ensures that it has extensive and specific preparedness and response plans for a variety of hazards and disasters. Each building should have a specific plan and not a generalised plan, and a picture of the layout of the building should be attached to the building plan. Each illustration should identify emergency exits, first-aid kits, and identify hazard areas, such as where gas tanks are situated. The UFS should have an overall extensive risk and disaster management plan which should include a disaster risk reduction plan, emergency communication plan, training plan, a plan for a Joint Operational Centre that will be used when disasters occur. If plans are updated yearly, they should have the relevant people's names and the roles and responsibilities they occupy, current dates and signatures.

A third recommendation, in line with the mission of a teaching and training institution, is that the university should train and upskill personnel who manage campus-wide disasters to make sure that they are skilled enough to manage a disaster on campus. In this regard, the university must improve the training that residence functionaries attend. Evacuator residence functionaries must also make sure that they are alert and check on people with disabilities. All staff and students in residences should be exposed to formal public education and training sessions about how to respond to various hazards/ disasters and specifically, how to deal with a fire and bomb hazard and how to evacuate the residence to prepare them for the fire evacuation and bomb hazard rehearsal. Systematic, comprehensive, and ongoing training of all stakeholders for impending hazards and disasters is crucial for organisational preparedness in large, multicampus universities such as the UFS.

c) Recommendations for further research

It is important to conduct comparative studies on institutional preparedness where urban and rural universities are compared against common frameworks that measure such readiness to cope with disasters. It would also be valuable to conduct more research on how students, especially older students, lived through one or more disasters, to gauge their perceptions of the levels of preparedness of their institutions for handling such crises.

7.4. OVERALL CONCLUDING STATEMENT

The University of the Free State is a well-intentioned organisation that has many of the DPF elements in place for an effective response to disaster risk management. However, it has several loopholes in its policy and planning infrastructure that this study suggests may be addressed to strengthen the organisational response to, and readiness for, hazards and disasters.

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APPENDIX A: ETHICAL CLEARANCE

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA

UFS·UV
NATURAL AND AGRICULTURAL SCIENCES
NATUUR- EN LANDBOUWETENSKAPPE

Faculty of Natural and Agricultural Sciences

20-Sep-2018

Dear **Miss Sara-Jane Jansen**

Ethics Clearance: **An evaluation of the level of organisational preparedness of the University of the Free State to respond to potential disasters.**

Principal Investigator: **Miss Sara-Jane Jansen**

Department: **DiMTEC Department (Bloemfontein Campus)**

APPLICATION APPROVED

This letter confirms that a research proposal with tracking number: **UFS-HSD2018/1106** and title: **'An evaluation of the level of organisational preparedness of the University of the Free State to respond to potential disasters.'** was given ethical clearance by the Ethics Committee.

Your ethical clearance number, to be used in all correspondence is: **UFS-HSD2018/1106**

Please ensure that the Ethics Committee is notified should any substantive change(s) be made, for whatever reason, during the research process. This includes changes in investigators. Please also ensure that a brief report is submitted to the Ethics Committee on completion of the research.
The purpose of this report is to indicate whether or not the research was conducted successfully, if any aspects could not be completed, or if any problems arose that the Ethics Committee should be aware of.

Note:

1. This clearance is valid from the date on this letter to the time of completion of data collection.
2. Progress reports should be submitted annually unless otherwise specified.

Approved

Yours Sincerely

Dr. Karen Ehlers
Chairperson: Ethics Committee
Faculty of Natural and Agricultural Sciences

Natural and Agricultural Sciences Research Ethics Committee
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APPENDIX B: RESEARCH INFORMATION LEAFLET AND CONSENT FORM

Organizational Preparedness for Campus Disasters (DiMTEC)

Research Information Leaflet and Consent Form

ETHICAL APPROVAL NUMBER:
UFS-HSD2018/1106

TITLE OF THE RESEARCH PROJECT:
An evaluation of the level of organizational preparedness of the University of the Free State to respond to potential disasters.

The purpose of this study is to determine the level of organizational preparedness of the University of the Free State's ***main campus*** to respond to disasters.

Your participation is voluntary. You are free to withdraw at any time and without giving a reason. The potential benefit of taking part in this study is that it could possibly implement and improve policies related to disaster management. I will be the only one who has access to the data. You will not receive any financial rewards or gifts for participating in this study.

If you would like to be informed of the final results or require any further information about the research study, please contact the researcher.

Researcher: Sara-Jane Jansen
Email address: sarajanemj@gmail.com

Supervisor: Dr. Johannes Belle
Contact number: 051 401 2721
Email address: BelleJA@ufs.ac.za

Thank you for taking the time to read this information leaflet and for participating in this study.

* 1. CONSENT TO PARTICIPATE IN THIS STUDY:
I understand and agree to the terms mentioned in the research information leaflet above.

Name

APPENDIX C: DATA COLLECTION TOOL

The Disaster Preparedness Framework as developed by Kent (1994) consists of nine key components: Vulnerability assessment; planning; institutional framework; information systems; resource base; warning systems; response mechanisms; education and training; and rehearsals. The analytical questions applied to the question of compliance are the following:

i) Vulnerability assessments

- Does the UFS conduct vulnerability assessments?
    - If yes, how often do these vulnerability assessments take place?
- Are these vulnerability assessments generalised or specialised?

ii) Planning

- Do buildings at the UFS have preparedness and response plans?
    - If yes, who oversees the preparedness and response plans?
    - If yes, how often do these plans get reviewed and updated?

iii) Institutional framework

- Who at the UFS gives approval for the implementation of the emergency response-related plans?
- Who are other stakeholders that the UFS works with when planning and dealing with disasters?
- Are the preparedness and response plans of the UFS coordinated with plans of other organisations?

iv) Information systems

- Does the UFS make use of any sort of information system before, during and after disasters?
- Does the UFS think about the following aspects before a disaster takes place?
- What information they will need in a disaster?
- Who will collect the information in a disaster?
- How will they collect the information about the disaster?
- Who will analyse the information about the disaster?
- How will they analyse the information about the disaster?
- How will the analysed information about the disaster will be integrated into decision-making?
- Are there monitoring systems in place to monitor certain hazards?

v) Resource base

- Does the UFS allocate funds to disaster preparedness (e.g. research, public awareness campaigns and training)?
- Does the UFS have internal arrangements to get access to funds for responding to disasters?
- Does the UFS stockpile resources, such as water, food, first aid boxes?

vi) Warning systems

- Does the UFS have any warning systems in place?

vii) Response mechanisms

Does the UFS have the following response mechanisms in place:

- Does the UFS have procedures for activating disaster response programmes?
- Does the UFS have evacuation procedures and inform employees and visitors about these procedures?
- Does the UFS have an assessment team to assess disasters?
- Does the UFS offer training to members of the assessment team?
- Does the UFS have a process for distributing important information derived from the assessment for an effective response?
- Does the UFS have search and rescue teams?
- Does the UFS have processes to activate special installations (e.g. mobile hospital facilities)?
- Does the UFS have processes for activating distribution systems (e.g. distributing stockpiled items)?

viii) Public education and training

- Does the UFS offer disaster response-related training for stakeholders that implement disaster-related plans?
- Does the UFS have disaster response-training for those who issue warnings (i.e. the communication team) to those at the university?
- Does the UFS conduct training on a regular basis?

ix) Rehearsals

- Does the UFS conduct rehearsals?
    - If they do conduct rehearsals, is it done on a regular basis?

APPENDIX D: LIST OF DOCUMENTS STUDIED

Type of document	Name of document
Policies	Occupational Health and Safety Policy signed in 2007 Occupational Health and Safety Policy signed in 2010 Policy with regards to the medical provision of medical emergency services on the Bloemfontein campuses (Approved by the UFS Council on 25 November 2005) Security Policy: Protection Services (Draft 4 12/10/2009)
Plans	Mangaung Metro Municipality (MMM) Evacuation Simulation Drill: Evacuation Planning Methodology Evacuation Management System: Fire Emergency Evacuation Drill Evacuation Exercise: Assessment Report Gas leakage – Emergency Procedures Casualties – Emergency Procedures Chemical – Emergency Procedures Explosion – Emergency Procedures Flooding – Emergency Procedures Unrest/ Strike – Emergency Procedures Fire – Emergency Procedures Earthquake/Structural Collapse – Emergency Procedures Water cuts/ Breakage – Emergency Procedures Bomb Threat – Emergency Procedures Chemistry Department – Emergency Preparedness and Response Plan Biotechnology Building – Emergency Preparedness and Response Plan ICT – Emergency Preparedness and Response Plan Emergency Evacuation – Short Procedure Disaster Management Plan Emergency Plan – UFS Campus
Minutes of Meeting	Emergency Management Committee Meeting (named later changed to Emergency and Crisis Preparedness Committee (ECPC)) – 28 May 2018
Public Education Posters	Emergency Procedures Poster On a safe note: Fire Extinguishers

APPENDIX E: EVIDENCE OF DOCUMENTS STUDIED

Table E.1: Evidence of documents studied

Institutional documents and Disaster-related events	Reference	Name/type of documents and page number	Date	Quote
Vulnerability assessments				
Institutional Documents	1A	Plan: "Explosion: Emergency Procedures," p.1.	-	For an explosion: "Establish the following: Where did the explosion take place? What exploded? Extent of damage? Any injuries? Is there any fire?"
	1B	Plan: "Emergency Plan: UFS Campus," pp.6-7.	-	"FGG: Computer room and ICT Computer store room, Print Production area, lecture rooms and offices, venues, libraries and archives/stores."
Drought	1C	Email: "Water supply on the Bloemfontein Campus," p.1.	21 November, 2017, 09:18AM	"Due to a burst municipal water pipeline, the university will make use of our reservoirs to supply water to the entire Bloemfontein Campus according to the following time schedules until the service is restored…Various JoJo tanks are available and can be utilised during the times not listed above."
Past Protests	1D	Email: "State of our campuses #15: UFS closes campuses until Friday 28 October 2016 to readjust academic programme," p.1.	13 October 2016, 11:46AM	"The senior leadership of the University of the Free State (UFS) has carefully analysed all the risks facing the University in the current national crisis in higher education, which includes the possibility of losing the academic year."
COVID-19	1E	Email: "Update: UFS suspends academic programme from 17 March 2020 to 13 April 2020," p.1.	16 March 2020, 20:03PM	"In light of the current global COVID-19 outbreak and the spread of the disease, the recent address by State President Cyril Ramaphosa, recommendations by the *UFS Coronavirus (COVID-19/SARS-CoV-2) Task Team*, as well as consultation with the Senior Leadership Group and other members of management, the executive management of the University of the Free State (UFS) has decided on the following immediate steps to mitigate the possible local impact of the pandemic: 1. Academic programme: The UFS will go into early recess and classes are suspended from 17 March 2020."
	1F	Email: "Update: UFS suspends academic programme from 17 March 2020 to 13 April 2020," p.1.	16 March 2020, 20:03PM	"A *Special Executive Group*, chaired by the Rector and Vice-Chancellor, will meet twice a week to assess the overall impact of Covid-19 on the university, and to decide on changes to decisions taken earlier."

Institutional documents and Disaster-related events	Reference	Name/type of documents and page number	Date	Quote
Planning				
Institutional Document	2A	Institutional Document: Plan: "Disaster Management Plan," p.2.	-	"This Disaster Management Plan (UFSDMP) will form the basis to establish policies and procedures that will assure maximum and efficient utilization of all resources on the University of the Free State Campus, minimise the loss of life and/or injury to the population, and protect and conserve resources and facilities of the University of the Free State during large-scale emergencies considered to be of disaster magnitude."
Protests	2B	Email: "UFS State of our campuses #10: UFS Bloemfontein and South Campuses closed from 25 to 26 February 2016 to reopen on Monday 29 February 2016," p.1.	24 February 2016, 10:55AM	"The Bloemfontein and South campuses will be closed on 25 February to 26 February 2016…Management will use Thursday and Friday to prepare campus for lectures and finalise agreements with the protesting parties."
COVID-19	2C	Email: "08 April – Alumni Update on Developments at the UFS," p.1.	9 April 2020, 03:48AM	"The following task teams were established to look at various aspects of the university's operations: the Teaching and Learning Management Group…a Community Engagement Task Team …an Operations Task Team,…a Staff Task Team…and a Student Re-integration Task Team…The combined aim of these task teams is to forecast and plan the impact of the pandemic on the UFS and the continuation of the academic programme in 2020."
Institutional framework				
Institutional documents	3A	Plans: "ICT Emergency Preparedness and Response Plan," p.2.	2017	"Order of Succession: Leadership authority during an emergency shall flow downwards through the following list of people: 1. Director: Protection Services, 2. Occupational Health and Safety Officer, 3. ICT Services Head."
	3B	Plans: "Mangaung Metro Municipality Evacuation Simulation Drill," p.1.	-	"Safety meetings: A series of meetings will be held, where all role-players that will participate would be represented. The safety plan that comprises of risk assessment, evacuation and contingency plan will be discussed. Role-players: Disaster management, fire safety, traffic, bomb disposal, emergency medical service, law enforcement, landlord, safety coordinator, safety marshals. All the role-players will make inputs on the plans as per their competency."

Institutional documents and Disaster-related events	Reference	Name/type of documents and page number	Date	Quote
Drought	3C	Email: “Boil water before drinking,” p.1.	7 February 2018, 14:16PM	“The Executive Management of the university is aware of a public notice issued by the Mangaung Metropolitan Municipality on 6 February 2018 regarding reports of possible water contamination in Mangaung. To ensure safe drinking water, staff and students are encouraged to boil water before drinking it.”
Protests	3D	Email: “Statement by Prof Jonathan Jansen, Vice-Chancellor and Rector of the University of the Free State (UFS) about the situation on the Bloemfontein Campus,” p.1.	23 February 2016, 18:15PM	“Monday morning workers and students were arrested after moving onto Nelson Mandela Avenue, after which the South African Police Service (SAPS) took over as the matter became a public safety concern outside the hands of the university.”
	3E	Email: “State of our campuses #6: Summary of events on the Bloemfontein and Qwaqwa campuses since Wednesday 18 October 2017,” p.1.	23 October 2017, 07:40AM	“The executive management explicitly stated that the approach taken by the security company was not in agreement with the UFS’s stand on students protest.”
COVID-19	3F	UFS webpage, “Fighting Covid-19: Here is how we are helping,” p.1.	16 April 2020	“DiMTEC represents the UFS on the Provincial Joint Operation Centre (PROVJOC).”

Institutional documents and Disaster-related events	Reference	Name/type of documents and page number	Date	Quote
Information Systems				
Institutional Documents	4A	Plans: "Biotechnology Building Emergency Preparedness and Response Plan," p.3.	2017	"Enquiries from the media during or after an emergency will be addressed to Communication and Brand Management. Communication and Brand Management will be consulted at x2584 before releasing and information to the media. Any media enquiries can simply be referred to Communication and Brand Management."
	4B	Plans: "Disaster Management Plan," p.6.	-	"The Emergency Controller in consultation with the Emergency Coordinators decides when an emergency can be declared a Disaster."
	4C	Plans: Disaster Management Plan, p.6.	-	"The Emergency Controller keeps the Emergency Coordinator informed of any policy decisions."
Drought	4D	Email: "Water interruptions in Bloemfontein," p.1.	29 August 2016, 15:46PM	"The city's water supplier, Bloemwater, will embark on its annual winter maintenance programme, which includes repair work on the Leeukop-Brandkop pipeline. 31st August 2016, 1 September 2016. 00:00-12:00 (36 hours)…Please note that the university is affected by the water interruption accordingly."
	4E	Email: "Water use on campus," p1.	17 November 2015, 09:21AM	"The Free State is one of the most arid areas in the country, and the province was also declared a drought area by the government."
Past Protests	4F	Email: "State of our campuses #8: Situation on the Bloemfontein UFS Campus under control over disruptions," p.1.	23 February 2016, 13:49PM	"State of our campuses #8: Situation on the Bloemfontein UFS Campus under control over disruptions."
	4G	Email: "State of our campuses #8: Situation on the Bloemfontein UFS Campus under control over disruptions," p.1.	23 February 2016, 13:49PM	"Members of the university's Protection Services and the South African Police Service are on the Bloemfontein Campus and are monitoring closely the situation."

Institutional documents and Disaster-related events	Reference	Name/type of documents and page number	Date	Quote
COVID-19	4H	Email: “Health advisory: 2019 Novel Coronavirus.”	31 January 2020, 14:46PM	“Health advisory: 2019 Novel Coronavirus.”
	4I	Email: “Update: UFS suspends academic programme from 17 March 2020 to 13 April 2020,” p.1.	16 March 2020, 20:03PM	“A dedicated webpage on the virus has been created. Please visit the webpage regularly, as the latest information and operational matters will be uploaded there. Other communication platforms include social media, SMS, the KovsieApp, Blackboard, and the staff Intranet.”
	4J	Email: “Update: UFS suspends academic programme from 17 March 2020 to 13 April 2020,” p.1.	16 March 2020, 20:03PM	“The *UFS Coronavirus (COVID-19 SARS-CoV-2) Task Team* comprising of representatives from various key functional areas on the campus was formed at the beginning of March 2020 to monitor the situation very closely.”
Resource Base				
Institutional Documents	5A	Plans: “Disaster Management Plan,” p.8.	-	“Finance: This will be the responsibility of the University’s Emergency Controller. He must make sure that the funds can easily be sourced during an emergency.”
Past Protests	5B	Email: “Explanatory note on the interdict issued by the Free State High Court on 22 February 2017,” p.1.	22 October 2017, 21:36PM	“Explanatory note on the interdict issued by the Free State High Court on 22 February 2017”- A80.
	5C	Email: “State of our campuses #7: Varsity Cup match between FNB Shimlas and FNB NMMU Madibas disrupted,” p.1.	22 February 2016, 23:45PM	“Protestors were chased off the field and beaten by the spectators. Injured persons were treated by Medical personnel”- A13.

Institutional documents and Disaster-related events	Reference	Name/type of documents and page number	Date	Quote
Past Protests (continued)	5D	Email: "State of our campuses #7: Agreement between the UFS executive management and the Bloemfontein Campus SRC on Monday 23 October 2017," p.1.	23 October 2017, 15:05PM	"Optional counselling will also be offered to these students by means of group debriefing sessions with trained counsellors…Students can start contacting counselling services immediately… Students in Armentum and Beyers Naude residences, which were singled out by the SRC as particularly affected by the events, would be offered counselling and medical assistance" – A81.
	5E	Email: "State of our campuses #16: Follow-up information regarding adjustment of the 2016 UFS academic year," p.2.	14 October 2016, 19:24PM	"Instead of students going to class, they will have content delivered to them where they are (library, computer labs, their own computers, etc.) through Blackboard and printed and electronic material" – A55.
	5F	Email: "UFS zero-rated data access points," p.1.	7 November 2016, 15:16PM	"The UFS has managed to secure zero-rated (no cost) URLs from the following Cellular Providers until 31 December 2016: Vodacom (await final implementation), MTN (already available), Cell C (already available), Telkom (8ta) (already available)" – A60.
	5G	UFS webpage: "Academic Reboot Pack 2.0: Aid to successfully complete 2016 academic year," p.1.	-	"The UFS has developed a strategy to rescue the academic year, which will allow students to continue with their learning and achieve outstanding assessments (assignments, tests and exams), whether they are on or off campus. As part of this strategy, the UFS has developed the Academic Reboot Pack 1 and now Academic Reboot Pack 2.0. The aim of Reboot Pack 2.0 is aimed at providing students with practical steps on how to: get information on what they need, access online material – and where appropriate – printed material in the most cost-effective way, prepare effectively for academic assessments (tests, assignments, and exams), manage their time, manage stress and where they can get support."- A59a.

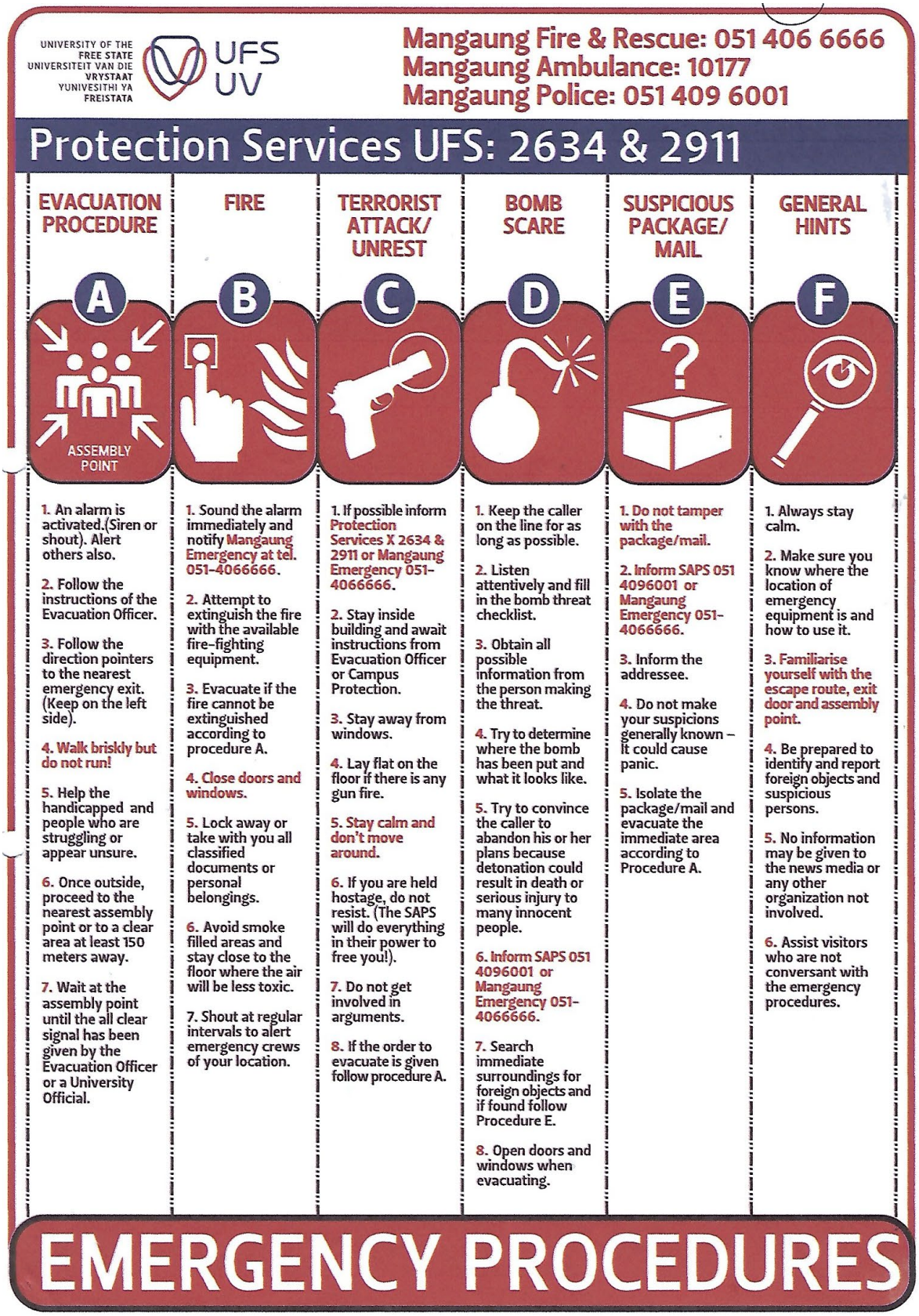
Institutional documents and Disaster-related events	Reference	Name/type of documents and page number	Date	Quote
COVID-19	5H	Email: "Keep Calm, Teach On and #UFSLearnOn: An update on learning and teaching at the UFS," p.1.	24 March 2020, 12:49PM	"Like most other universities, our best alternative to continue our learning and teaching is to move online" – B13.
	5I	Email: "Reminder: updating of cell phone number to get a 10-GB, 30-day data bundle," p.1.	19 April 2020, 10:35AM	"The University of the Free State (UFS), in collaboration with Universities South Africa, is continuously working on the zero-rating of websites. It has been agreed that some sites will be zero-rated over the short term and that students will be provided with a 10GB, 30-day bundle" – B27.
	5J	UFS webpage: "UFS at low risk of not completing 2020 academic year," p.1.	31 August 2020	"We immediately initiated the purchase of 3500 laptops to be distributed to NSFAS-and Funza Lushaka-funded students and students with disabilities" – B65.
	5K	Email: "UFS at low risk of not completing 2020 academic year," p.1.	31st August 2020	"The *#UFSLearnOn* campaign for students creates materials that students can download on their cell phones and that would provide them with skills and ideas on how to get connected and create an environment where they could study."
	5L	Email: "UFS at low risk of not completing 2020 academic year," p.1.	31st August 2020	"The *#UFSTeachOn* campaign focused on supporting staff to transform their materials and teaching approach to a new reality."
	5M	Email: "Message from Prof Francis Petersen, UFS Rector and Vice-Chancellor," p.2.	9 May 2020, 14:58PM	"Look after yourself and your mental health – make use of the *#WellnessWarriors* campaign of our Department of Student Counselling and Development that is aimed at encouraging health and well-being among students."
	5N	UFS webpage, "SADAG and UFS Student Counselling and Development launch 24/7 health line," p.1.	26 August 2020	"UFS Director for Student Counselling and Development (SCD), the South African Depression and Anxiety Group (SADAG) will establish and enhance the mental-health support services offered by SCD and Careways as from 1 September 2020 in the following ways: SADAG will extend SCD services by offering a dedicated UFS student mental health careline, which is free and accessible 24/7 to all students."

Institutional documents and Disaster-related events	Reference	Name/type of documents and page number	Date	Quote
Warning Systems				
Institutional Documents	6A	Plans: Emergency Plan: UFS Campus, p.9.	-	"Emergency Communication: Two-way radios will be used as the primary emergency communication medium between emergency role-players (in the event of an emergency). The evacuation Public Address System will be used when the building is to be evacuated and by first aiders. The evacuation team leader will control the assembly points and will use loud hailers for communication purposes."
Past Protests	6B	Email: "Strike by outsourced contract workers: Academic and administrative services on the Bloemfontein Campus to continue as normal," p.1.	21 February 2016, 16:30PM	"Management will immediately apply the interdict should any disruptions occur."
	6C	Email: "State of our campuses #15: Statement by the senior leadership of the UFS regarding the situation on the Bloemfontein Campus," p.1.	29 February 2016, 09:45AM	"It has further come to the attention of the university management that a number of individuals and organisations continue to make blatantly false and defamatory statements on social media platforms with the intention of inciting criminal conduct, threatening individuals, and spreading fear within the university community in order to unsettle the campus. Investigations are at an advanced stage to prosecute individuals and groups involved in such criminal conduct in the social media; both those who post these statements and those who repost or retweet them, are liable under the law."
COVID-19	6D	Email: "Regulations: COVID-19," p.1.	19 March 2020, 11:05AM	"In terms of the regulations promulgated in terms of the Disaster Management Act of 2002 (Act no.57 of 2002). Any person who publishes any statement through any medium, including social media, with the intention to deceive any other person about (a) COVID-19; (b) COVID-19 infection status of any person; or (c) any measure taken by Government to address COVID-19, commits an offence and is liable on conviction to a fine or imprisonment for a period not exceeding six months, or both such fine and imprisonment."
	6E	Email: "Warning: Fake travel permits issued to students," p.1.	5 June 2020, 14:53PM	"It has come to the attention of the University of the Free State (UFS) that fake travel permits are being issued to students at a cost of R100 per permit. The UFS advises students not to fall for this scam, as it will result in criminal and disciplinary steps against those who are found in possession of fake permits."

Institutional documents and Disaster-related events	Reference	Name/type of documents and page number	Date	Quote
Response Mechanisms				
Institutional Documents	7A	Plans: "Disaster Management Plan," p.6.	-	"Any emergency at the University will be handled as per the University Emergency Plan until it is declared a Disaster by the University Emergency Controller."
	7B	Plans: "Disaster Management Plan," p.6.	-	"A control point will be set up near the emergency where planning can be discussed and decisions can be made."
	7C	Plans: "Disaster Management Plan," p.6.	-	"The Emergency Coordinators will continuously keep the [Emergency Medical Technician] EMT informed of the following through the Emergency Controller: nature of the disaster, damage to property, casualties, potential risks, resources required, assistance required (external and UFS)."
Drought	7D	UFS webpage: "University of the Free State strives towards going 'green'," p.1	7 August 2017	"Eight provinces, including the Free State, were declared disaster areas last year due to ongoing drought…A total of thirty water storage tanks, varying in size from 5 000 to 20 000 litres, were installed at various buildings on the Bloemfontein Campus. As a pilot phase, these tanks were specifically installed at residences and buildings with high traffic volumes."
Past Protests	7E	Email: "State of our campuses #3: UFS campuses closed until Friday 23 September 2016," p.1.	20 September 2016, 13:14PM	"The decision to suspend academic and administrative services for the rest of this week was taken with caution, as it will ensure the safety of staff, students and university property."
Public Education and Training				
Institutional Documents	8A	Emergency Management Committee Minutes of Meeting, p.1.	28 May 2018	"Training for EMT Members: Get 2 to 3 days from Prof… office, which can be used for training. Members requested the training to be scheduled in two half days. Members were advised to wear comfortable clothes for this training."
	8B	Emergency Management Committee Minutes of Meeting, p.4.	28 May 2018	"Safety Campaign (deaf and blind students): To inform the campus community in general to look out for the safety or deaf and blind students."
Drought	8C	Email: "Water use on campus," p.1.	17 November 2015, 09:21AM	"It is therefore very important that the UFS community will use water sparingly – both where you live and in the workplace…Tips to save water in the workplace:..."

Institutional documents and Disaster-related events	Reference	Name/type of documents and page number	Date	Quote
COVID-19	8D	Email: "Update: UFS suspends academic programme from 17 March 2020 to 13 April 2020," p.1.	16 March 2020, 20:03PM	"Students and staff are reminded of previous communication about preventative steps that can be taken to avoid contracting the [COVID-19] virus: Wash your hands often with soap and water for at least 20 seconds, regularly use an alcohol-based sanitiser, avoid touching your eyes, nose and mouth with unwashed hands, avoid close contact with people who are sick, stay at home when you are sick and immediately call a medical professional, cover your mouth and nose with a tissue when you cough or sneeze, then throw the tissue in the trash, clean and disinfect frequently touched objects and surfaces."
	8E	Email: "Message from Prof Francis Petersen, UFS Rector and Vice-Chancellor regarding the return of students to the campuses from 1 June 2020," p.3.	29 May 2020, 22:23PM	"During the past two months, more than 1000 staff members have been trained so far in the university's remote online strategy."
Rehearsals				
Institutional Documents	9G	Emergency Management Committee Minutes of Meeting, p.2.	28 May 2018	"Mock EMT exercise: To be done after training is completed."
Protests	9H	Status of our campuses #8: Situation on the UFS Bloemfontein Campus under control after disruptions	23 February 2016, 13:49PM	"The safety of students in residences on campus is the major concern for the senior leadership of the university and extra care in being taken to ensure their safety. In one case a residence has to be vacated and alternative accommodation was arranged for the students."

APPENDIX F: GENERAL HINTS REGARDING SAFETY



APPENDIX G: STUDENT RESOURCES

Figure G.1: Poster for #UFSLearnOn

Figure G.2: Poster for #WellbeingWarriors

APPENDIX H: LANGUAGE EDITING CERTIFICATE

To whom it may concern

3 November 2020

I, Mariette Nortjé, am a qualified language practitioner.

I completed a BA Law degree and a postgraduate diploma in translating and editing, *cum laude* at Stellenbosch University and my home language is Afrikaans. I have also completed specific short courses in academic editing hosted by Stellenbosch University.

Before I started working as a freelance language practitioner, I worked as communications manager and brand manager in the advertising and financial services industry for 11 years.

I have been doing freelance editing and translating for the past 20 years, mainly research assignments and theses for students of Stellenbosch University. I have also edited numerous journal articles, reports, course notes and children's stories for clients across the globe.

Since 2016, I have edited 12 PhD dissertations and 27 master's degree theses.

I acknowledge that I have edited all technical and language aspects of the dissertation by **Sara-Jane Jansen** and that complete feedback was given to the student. The quality of the final report, in terms of language, references and technical aspects, remains the student's responsibility.

The title of the thesis submitted in partial fulfilment of the requirements for the degree Masters in Disaster Management is: ***An evaluation of the organisational preparedness of the University of the Free State to respond to hazards or disasters within its environment***.

You are welcome to contact me if you have any queries.

Kind regards

Mariette Nortjé

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APPENDIX I: PLAGIARISM REPORT

Turnitin Originality Report

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Research final draft By Sara-Jane Jansen

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