A FRAMEWORK FOR DISASTER MANAGEMENT FOR COMMUNITY LIBRARIES IN THE NORTH WEST PROVINCE, SOUTH AFRICA

BY

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SUMMARY

A disaster may affect any library at any time. Libraries need to be prepared to mitigate and to recover from disasters. Plans need to be in place before, during and after a disaster to ensure that a library is able to resume operations. Community libraries are important in South Africa, as they provide access to information for the majority of the population, especially in rural communities. This study examined the disaster management practices of community libraries in North West province, South Africa.

The disaster management practices of community libraries is an area that has not received much attention. Community libraries in North West are dispersed across the province; some are located in villages, others in semi-urban and urban areas. Using a multi-method approach, the study utilised a questionnaire, semi-structured interviews and document analysis to examine disaster management practices of individual community libraries and Assistant Directors and the institution that is the custodian of libraries, the North West Department of Culture, Arts and Traditional Affairs (CATA). The participants were community librarians and library assistants employed by CATA. The response rate for the quantitative phase was 64%, and 100% for the qualitative phase.

The major results indicate that community librarians believe disaster management is the responsibility of their municipalities, few of the librarians anticipate that a disaster could occur, and CATA does not prioritise disaster management as part of its operations – this is evident from a lack of support and training. Disaster management is affected by misconceptions that a disaster will not occur, or that it was a once-off event, and that the municipality will take care of the responsibility. CATA does not expect community libraries to practice disaster management. Community leaders were highlighted by participants in this study as vital role players in the success of disaster management initiatives in libraries, due to their authority in the community. The study recommends that disaster management should be a key performance area for community librarians, and that partnerships should be established between municipalities, CATA and the community libraries, so that disaster management activities can be a collaborative effort characterised by interaction and communication.

KEYWORDS: Community libraries, North West province, Disaster, Disaster management, Disaster planning, Rural libraries, Community librarians, Disaster management plans, Crisis management, Disaster management lifecycle, Contingency plans, Libraries, Disaster preparedness

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I extend a special thanks to my wife Sibanesihle, and children Sandy and Sipho, for being my source of inspiration and my pillar of strength. I also encourage my family to pursue their dreams and strive to achieve their personal goals.

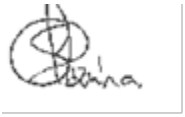
Above all, I exalt the Lord Almighty for travelling with me on the journey to this breakthrough.

DEDICATION

I dedicate this thesis to my family. This work would not have been possible without the support and sacrifice of my loving family.

DECLARATION

I, Sabelo Ransome Chizwina, declare that the research study on “A Framework for Disaster Management for Community Libraries in the North West Province, South Africa” is my original work and that all the sources used or quoted have been indicated and acknowledged as complete references, and that the work has not been submitted before for degree purposes.



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LIST OF ABBREVIATION AND ACRONYMS

BIM	Building information modelling
CATA	North West Department of Culture, Arts and Traditional Affairs
COOP	continuity of operations plans
EFA	Exploratory factor analysis
ICT	information communication technologies
ICT	information communication technology
KMO	Kaiser-Meyer-Olkin
KPA	key performance area
NDMF	National Disaster Management Framework
NWP	North West Province
PADM	protective action decision model
SDI	spatial data infrastructure

CHAPTER 1: ORIENTATION OF THE STUDY

1.1 INTRODUCTION

This chapter will introduce the study, by providing the background to the study, problem statement, a discussion on the originality of the study, research objectives and questions, definitions of key concepts, research methodology, scope and delimitations of the study, as well as an outline of the chapters comprising the study. It is hoped that the study will stimulate further research in the area of disaster management in community libraries. It is, furthermore, hoped that the study will serve as a guideline for policy makers.

Disasters are often unavoidable, and have potential to destroy library infrastructure and resources, as well as society. Disasters include floods, fires, hurricanes, tsunamis, and earthquakes. Over the years, South Africa has experienced several disasters, in particular, the burning of libraries (Bisho 2015). Many service delivery protests in South Africa culminate in the burning of libraries and unprecedented destruction of valuable information infrastructure and resources (Lor 2013).

Libraries are not only destroyed as a result of protest action. Examples of destruction of libraries include the University of Vallabhi, built in the years 475-775 AD, which was destroyed by Arab invaders (Bhade & Aute 2016). Riedlmayer (2007) reports on the destruction of libraries during and after the Balkan Wars of the 1990s. In 2011, the People's Library at Zuccotti Park, with a collection of more than 5 000 donated books of every genre and subject, was destroyed (Scott 2011). Ojala (2014, cited in Hayes, 2016) reports that there have been attempts to destroy 70 public libraries in France between 2010 and 2014. In Zimbabwe, 3 000 books were destroyed by flooding at Bindura University of Science Education (Hayes 2015). In 2016, Mzuzu University Library in Malawi lost 45 000 books in a fire that destroyed the library building (Hayes 2016). Peet (2015) reports that libraries in the coastal areas of United States of America were affected by flooding during Hurricane Sandy in 2012. Consequently, it is imperative that librarians have the ability to respond effectively to disasters. The possibility of destruction of libraries requires that librarians are prepared for disasters.

In recent years, research on disaster management has focused on university libraries and archival institutions. The focus of the studies has been on identifying security measures to protect libraries, and methods for preservation and conservation of library material. Examples of these studies include that of Adetunla and Osunride (2016a), whose study focused on security control and disaster preparedness by university libraries in South-West, Nigeria. Their study found that the fire extinguisher and emergency exit represent the extent of disaster plans of most libraries. They revealed, furthermore, that library personnel have inadequate training in security and disaster management.

In addition, Adetunla and Osunride (2016b) examined preservation and conservation of library materials in university libraries in South-West, Nigeria. Their findings indicate that library security is mostly used as a preservation and conservation practice. Furthermore, the study found that a lack of proper preservation and conservation practices in the universities caused resource loss and deterioration. This study added to the knowledge about the disaster management activities of librarians.

Ishola (2017) found that the majority of academic libraries faced challenges with disaster management. Few libraries have written preservation and disaster management policies. This study recommends that regulatory bodies should be mandated to ensure libraries have disaster management policies that are adhered to. This study sought to explore if community libraries at the site of the study faced similar challenges to those identified by Ishola (2017). It also investigated the reasons for the presence or absence of disaster management policies, which was not discussed by Ishola (2017). Another important aspect in the study by Ishola (2017) is the need to determine if disaster management practices were hindered or enabled by having disaster management policies, as libraries are prone to disasters.

To improve disaster management, Nyanga, Nengomasha and Beukes-Amiss (2018) recommend ensuring staff are aware of the disaster management plan, and training staff, compiling comprehensive lists of stakeholders, keeping updated lists of contacts; purchasing emergency supply kits; developing a security management plan, and reviewing the plan regularly. The study by Nyanga et al. (2018) provides variables that can be used to investigate disaster management practices.

In addition to a security management plan, there is a need to determine the attitudes of library personnel towards disaster management. Oluwatola, Ogbuiyi, Oriogu and Ogbuiyi (2015) found a lack of interest and a carefree attitude among library personnel. In the same vein, a study by Ahenkorah-Marfo and Borteye (2010) at the Kwame Nkrumah University of Technology in Ghana found that library personnel were not fully aware of the location of emergency exits and the location of fire extinguishers. While the studies by Oluwatola et al. (2015) and Ahenkorah-Marfo and Borteye (2010) examined the awareness of library personnel to disaster management equipment, they did not examine the perceptions of librarians of disasters. There is a need to determine the perceptions of library personnel in community libraries of disaster management.

Community libraries in South Africa are prone to natural disasters. Global warming has increased the chances of natural disasters. Southern Africa is regarded as one of the most vulnerable regions in Africa regarding climate change (Kusangaya, Warburton, Van Garderen & Jewitt 2014). In southern Africa, temperatures are rising, minimum temperatures are rising faster than maximum temperatures, and there is a notable decrease in cold extremes and an increase in warm extremes (Kusangaya et al. 2014). This climate change could trigger erratic weather events, such as droughts, floods, rising sea levels and rising temperatures (Lalthapersad-Pillay & Udjo 2014). In addition, Chagutah and Chagutah (2013) report that southern Africa is expected to experience an increase in incidences of floods and more intense droughts as a result of warming temperatures; cyclonic activity was also expected to become more intense, with higher peak wind speeds and heavier rains.

The research findings mentioned above show that disasters are looming, and that there is a need for effective disaster management in South Africa. Ndebele (2017) adds that schools, clinics, trains, buses, libraries and laboratories are the main targets during service delivery protests, with many being burnt. There is a need to identify the factors that affect disaster management, and to determine whether libraries could respond to a disaster in North West province (NWP).

This study sought to establish whether libraries in NWP of South Africa have adopted practical disaster management measures, and to examine if contingency plans for the

resumption of operations after a disaster have been adopted. It is anticipated that the study will stimulate further research in the area of disaster management in community libraries. It is envisaged that the study would serve as a guideline for policy makers who are responsible for ensuring that service delivery, in as far as library services are concerned, is not compromised in times of disaster.

1.2 DEFINITION OF TERMS

This section will define key concepts and terms that are used in this study.

Disaster: When an organisation is confronted with sudden, unpredictable, catastrophic changes, over which it has little or no control (Ritchie 2004:670).

Disaster management: Bisho (2015:5) cites the definition of disaster management from the South African Disaster Management Act No. 57 of 2002, which states that disaster management is:

> *a continuous and integrated multi-sectoral, multi-disciplinary process of planning and implementation of measures aimed at*
>
> *(a) Preventing or reducing the risks of disasters;*
>
> *(b) mitigating the severity or consequences of disasters;*
>
> *(c) emergency preparedness;*
>
> *(d) a rapid and effective response to disasters*
>
> *(e) post-disaster recovery and rehabilitation*

Information communication technologies (ICT): The term is used differently in different contexts (Zuppo 2012). Migiro and Ocholla (2005) describe ICT as ranging from traditional technologies, such as the printed word, to the most modern communications. ICTs include services that can be conducted using the tools and mechanisms for storing and disseminating information and facilitating the performance of information-related human activities (Cohen, Salomon & Nijkamp 2002:34).

1.3 CONCEPTUAL FRAMEWORK

Ngulube (2018) states that a conceptual framework is made up of concepts that form part of a theory, or concepts that are obtained from a number of theories. A conceptual framework is an untested or minimally tested idea of how concepts may be related. It explains, either graphically or in narrative form, the main things to be studied – the key factors, constructs or variables – and the presumed relationships among them. Some of the key models in disaster management are community models, such as the community-based disaster management model that states that communities should be involved in disaster management; the community risk model, which is based on the premise that the community is involved in disaster management; the SDI (spatial data infrastructure) model, which states disaster management should be based on data collected, the building back better libraries model, which advocates for an organisational culture on disaster management; the model for national preparedness, which examines resources available during a disaster within an organisation; and the proposed comprehensive model, which considers environmental effects and stipulates actions that should be taken before, during and after a disaster. From these models the emerging theme is the need for a community and individual institution to have practices and activities that foster disaster management.

Paton (2003) adds that, though there are a number of theories that address disaster management in the literature, common threads are the three determinants, namely, self-efficacy, normative and media effects. For the individual analysis of disaster management practices, this study utilised the three determinants identified by Paton (2003). These determinants focus on an individual's awareness of and motivation to prepare for a disaster. Lastly, the organisation is important, in that it has to establish an enabling environment for the adoption of disaster management practices (Robbins 1993).

Other variables for this study were derived from institutional theory. The reason for choosing this theory is that institutional theory allows researchers to examine the regulative, normative, and cultural-cognitive factors within an organisation (Cook & Hodges 2015). Examining the institution is important, as the organisation could enable or hinder disaster management.

Norris, Stevens, Pfefferbaum, Wyche and Pfefferbaum (2008) and Chen, Liu and Chan (2006) consider communities important for disaster management, as they assist to reduce risk and assist in mitigation, and can enhance as well as protect the social system. If disaster management is to be effective, the individual, institution and community members should engage in certain activities prior to a disaster, during a disaster and after a disaster.

1.4 CONTEXTUAL SETTING

In this section, the contextual setting of disaster management in South Africa and disaster management practices in selected libraries will be presented.

1.4.1 Disaster management in libraries in South Africa

Hartley (2010) reports that, during question time in the South African Parliament in March 2010, the Minister of Arts and Culture of the time, Lulu Xingwana, revealed that almost 30 public and community libraries had been damaged or destroyed due to service delivery protests, storm and weather damage, poor maintenance and burglaries during the preceding 10 years. Lor (2013) reports that, since 2005, at least 15 community and public libraries had been deliberately set alight in South African townships and informal settlements, reportedly by individuals or groups from the communities – which these libraries were intended to serve. Public and community libraries have, thus, been affected by service delivery protests and other forms of disasters.

In 2013 Dick reported that 15 libraries were destroyed because of protests (Dick 2013), while 17 libraries were burned down from 2005 to 2012 during unrests and protests (Van Onselen 2013). In 2015, a library in Malamulele in NWP was burned down. In 2016, the media reported on the burning of a library in the John Taolo Gaetsewe District in Kuruman, in the Northern Cape (South Africa, North West Department of Culture, Arts and Traditional Affairs 2016).

1.4.2 Background of community libraries in the North West province

This study focused on community libraries in the NWP of South Africa. Community libraries in the province fall under the Department of Culture, Arts and Traditional Affairs (CATA), through the Directorate Library, Information and Archive Services. Mainka, Hartmann, Orszullok, Peters, Stallmann and Stock (2013) report that the community library in the knowledge society has two core services: (1) to support citizens with digital services, namely e-resources as well as reference services, and (2) to provide physical spaces for meeting, learning and working. Most community libraries are located in rural areas in NWP.

The National Library of South Africa reports that, in 2013, there were 102 community libraries in NWP (National Library of South Africa 2013). In 2016, four additional libraries were built in the province, and the total number of community libraries in June 2016 was 110 (South Africa, North West Department of Culture, Arts and Traditional Affairs 2016). Most of the librarians were employed on a contractual basis as a result of the conditional grant programme. The Community Libraries Services Conditional Grant was introduced by the government of South Africa to address the funding problem created by the constitutional assignment of libraries to provinces, despite libraries historically being funded from municipal budgets (Stilwell 2011).

The intention behind the grant was to enable provinces to increase allocations to the library service, given its importance, and because, until then, provinces were not prioritising sufficient resources for the library function from their own funds (Stilwell 2011). These funds were allocated through a conditional grant to ensure provinces used the funds for public libraries – they could not legally divert the funds to other areas of spending. The grant seeks to improve the acquisition of resources, “Information, Communications Technology (ICT) connectivity and equipment, building libraries, employing library staff, training programmes for staff and offering outreach programmes” (Mnkeni-Saurombe 2010:93).

CATA Department, which is responsible for libraries in NWP, was allocated R136.5 million under the conditional grant in 2016. As part of the conditional grants, the Directorate

Library, Information and Archive Services bought books for municipalities, built new libraries, paid for seconded staff and provided ICT infrastructure and access to the internet. The province transferred funds to municipalities from its provincial equitable share, which municipalities then used for operational expenditure. Municipalities were expected to cover the bulk of operational expenses.

1.4.3 Legislation governing disaster management in South Africa

Disaster management legislation in South Africa includes the Disaster Management Act 57 of 2002 and the National Disaster Management Framework (NDMF) of 2005, that aim to provide the necessary solutions for preventing and mitigating disasters and their effects.

The government of South Africa developed the NDMF to provide guidelines on how the various sections of the Disaster Management Act should be implemented (Van Niekerk 2014). The NDMF comprises four key performance areas (KPAs), and three enablers. Enablers are support mechanisms designed to achieve the objectives of the KPAs. The KPAs are as follows.

KPA 1 requires the establishment of institutional requirements for effective disaster risk management. The reason for this KPA 1 is to ensure that an integrated and coordinated implementation of disaster risk management policy and legislation exists. The NDMF also requires that all stakeholders are involved in the formulation of disaster management efforts. KPA 2 of the NDMF outlines the requirements for implementing disaster risk assessment and the monitoring function of the organs of state. KPA 3 stipulates that disaster risk management stakeholders must all develop and implement disaster risk management plans. Stakeholders must develop these plans in an integrated fashion. In addition to developing and implementing the plans, KPA 3 also entails identifying and implementing disaster risk reduction programmes in line with the approved frameworks. KPA 4 outlines the implementing priorities relating to recovery and rehabilitation. What this means, is that the KPA describes measures that would be established for effective disaster response, recovery and rehabilitation planning (Van Niekerk 2014).

In order to meet the KPAs, the NDFM proposes three enablers. Enabler 1 focuses on the need to establish an integrated and comprehensive information management and communication system for disaster risk management. It also highlights the information and communication requirements of each KPA (Van Niekerk 2014). Enabler 2 addresses the risk management priorities of education, training, public awareness and research. This enabler also focuses on the need to develop education and training programmes for disaster risk management, and the need to develop programmes for public awareness. Enabler 3 focuses on the mechanisms required to fund disaster risk management in South Africa. The adoption of the legislation by community libraries in South Africa has not been scrutinised by researchers in the library and information science field.

1.5 STATEMENT OF THE PROBLEM

Community libraries in South Africa are of great importance, as they support government goals, such as increasing employment, reducing skills shortages, increasing economic growth and eradicating poverty (Mnkeni-Saurombe 2010). Skarzynski and Nassimbeni (2016a) report that public/community libraries in South Africa are the only source of leisure reading for the majority of the population.

In NWP, risks prevail at all libraries, consequently, they require disaster plans to protect employees, patrons, resources and facilities. Because they are the target of service delivery protests in the province and South Africa, in general, community libraries are compelled to prepare for disasters, mitigate disasters and have a recovery plan to restore operations in the event of a disaster.

The observation that disaster management is not prioritised and given attention by some community libraries in NWP motivated this study. In addition, many librarians apparently misconstrue disaster management to relate to an event that could not occur in their context, and, thus, there was no need to plan for it. However, a number of disasters have occurred in NWP. In addition to flooding due to routine roof leaks, other disasters that have occurred are the following (Personal Communication, De Klerk, 2018):

- Flooding occurred when water was temporarily cut off. Taps were opened, and caused a flood when the water supply was restored in the night or while the library was closed (Tlokweng library and Moses Kotane Municipality library).
- Flooding due to rain occurred at Mphebatho library, where the storm water channel overflowed into the library, which is lower than the road and the water channel.
- Flooding caused by abnormally heavy rain, which caused the gutters to overflow into the library in Schweizer-Reneke.
- Municipal protests led to libraries being set alight:
    - Boitumelong library (Lekwa Teemane Municipality) was burnt down completely during municipal protests.
    - Stella library (Naledi Municipality) was burned down completely during municipal protests.
    - Schweizer-Reneke library (Mamusa Municipality) was burned but the structure remained intact.
- During municipal protests, libraries were vandalised in different ways (De Klerk 2018):
    - In the case of Lichtenburg library (Ditsobotla Municipality), the protesters emptied human waste in the library.
    - At Delareyville library (Tswaing Municipality), the protesters emptied dry powder fire extinguishers in the library, all over the books, furniture and equipment.

This study was undertaken after realising the impact of human-made disasters in NWP and the frequency of service delivery protests, which often target libraries, which makes it necessary for community librarians to be prepared for disasters. Knowing about disasters would enable them to put in place policies and procedures that could mitigate known risks, recover after a disaster and resume operations.

1.6 PURPOSE OF THE STUDY

Based on the foregoing, it was the intention of this research to investigate the disaster management practices of community libraries in NWP, and develop a framework for community librarians regarding the aspects of disasters in NWP.

1.7 OBJECTIVES OF THE STUDY

The specific objectives of this study were as follows:

- To explore how a disaster is conceptualised and perceived by community librarians in NWP;
- To determine the factors that influence disaster management in NWP;
- To establish whether the media influences disaster management in community libraries;
- To determine the institutional factors that influence community librarians' disaster management practices;
- To identify disaster management practices in NWP;
- To establish the role of the community in disaster management in community libraries and
- To develop a framework for disaster management for community libraries in NWP.

1.8 RESEARCH QUESTIONS

The study was guided by the following questions:

- What are the perceptions of the community librarians of disasters?
- What factors influence disaster management practices in NWP?
- Does the media influence disaster management practices of community librarians?
- Are disaster management practices or activities being conducted by community librarians in NWP and if so which?
- What factors influence disaster management practices in NWP?
- What institutional factors affect disaster management practices of community libraries in NWP?

- Are disaster management practices institutionally defined and shaped in NWP and if so how?
- What are the roles of the community and media in disaster management by community libraries?
- What framework can be suggested to embed disaster management in community libraries?

1.8.1 Research dashboard

The research dashboard for the study is presented in Table 1.1.

Figure1.1: Research dashboard

Research objective	Research question	Constructs from conceptual framework	Determinants	Source of data
To explore how a disaster is conceptualised and perceived by community librarians in NWP	What are the perceptions of community librarians of disasters?	Disaster perceptions	Self-efficacy	Interviews Questionnaires
To determine the factors that influence disaster management in NWP	What factors influence disaster management practices in NWP?	Disaster management activities and influences	Normative	Interviews Questionnaires
To establish whether the media influences disaster management in community libraries	Does the media influence disaster management practices of community librarians?	Media effect	Media	Interviews
To determine the institutional factors that influence	What are the institutional factors affecting disaster	Institutional variables – institutional regulations,	Institutional and building back better libraries	Interviews Questionnaires

Research objective	Research question	Constructs from conceptual framework	Determinants	Source of data
community librarians disaster management practices	management practices in community libraries in NWP?	institutional normative and cultural cognitive		Document analysis
To identify disaster management practices in NWP	Are disaster management practices institutional defined and shaped in NWP?	Institutional variables – institutional regulations, institutional normative and cultural cognitive	Institutional, SDI model, proposed comprehensive model	Interviews Questionnaires Document analysis
To establish the role of the community in disaster management in community libraries	What is the role of the community and media in disaster management by the community libraries?	Role of community and involvement of community in disaster management	Community risk model and community based disaster management model	Interviews Questionnaire Document analysis
To develop a framework for disaster management by community librarians	What framework can be suggested to embed disaster management in community libraries?	All constructs of the conceptual framework	Community risk model, community-based disaster management model, building back better libraries, proposed comprehensive model, institutional theory	Interviews Questionnaires Document analysis

1.9 SIGNIFICANCE OF THE STUDY

Bless, Higson-Smith and Sithole (2013) state that a study can be significant through its theoretical, social or practical value. The theoretical value is its importance in terms of theoretical relevance – whether it will contribute to the advancement of knowledge and

how useful this knowledge will be for the further development of that field. Social and practical relevance refers to the relevance of the research results to society.

The study is of considerable significance, because it is the first study to document the disaster management practices of libraries in NWP, South Africa. Thus, it is a valuable addition to library and information science literature, especially on disaster management in community libraries. This study is important, because disaster management is an essential and critical activity, particularly in developing countries. A disaster is a sudden change of situation that requires that planning for the event had been done well ahead of time, so that adequate training can be implemented for the library staff before a disaster, and the response to the disaster can be quick and effective. Apathy, avoidance and lack of resources can be the reasons why institutional disaster plans have not been created. Being prepared and trained to handle the different types of emergency disasters that can befall a library or archive is the best way to ensure that the materials are protected and damage is minimised (Cowick & Cowick 2016).

In South Africa, disaster management, in spite of its importance, has been disregarded. Ngulube and Magazi (2006a:183) note that that there is scant evidence of research in disaster management for libraries. Ngulube and Magazi (2006a:194) demonstrate that public libraries in KwaZulu-Natal are not adequately prepared for disasters, and the situation appears to have persisted since their study was conducted. Few libraries had disaster plans, adequate procedures for disaster response and recovery, or sufficient staff with knowledge and skills to deal with disasters (Ngulube & Magazi 2006b).

Awareness of the disaster management practices of community libraries adds to the knowledge base of the community library management staff, who work directly with librarians and help policy makers to craft policy for disaster management. The study will also contribute to building the theory of disaster management in libraries.

1.10 ORIGINALITY OF THE STUDY

Guetzkow, Lamont and Mallard (2004) propose seven categories of originality for a doctoral study in the social and human sciences and history, namely, original approach,

understudied area, original topic, original theory, original method, original data and original results. Clarke and Lunt (2014:807) postulate that a doctoral study should be able to conceptualise, design and conduct research for the generation of new knowledge, applications or understanding. This study was based on the premise that no previous frameworks had been suggested for community libraries in South Africa, and this study sought to fill this gap. The framework can be duplicated for other community libraries and adapted to suit different contexts.

This study focused on an understudied topic within the South African context. Jones (2016) found that much of the literature on disaster management is on disaster preparedness, and takes the form of guides or handbooks. In addition, studies on disaster management in the African context have focused on public libraries (Ngulube & Magazi 2006a), disaster preparedness of information centres in Botswana (Hlabaangani & Mnjama 2008), disaster management for public records (Ngulube, Modisane & Mnkeni-Saurombe (2011), and disaster management practices of federal universities in Nigeria (Ottong & Ottong 2013). The field of rural community libraries has, therefore, been neglected. In addition, disaster management of community libraries in NWP, which was the site of this study, is an area that has not received much research attention. The results of this study could lead to the identification of new and emerging issues in relation to disaster management by community libraries. The study is, therefore, original, because it is the first evaluation of disaster management by community libraries in a rural setting. There have not been studies of disaster management in community libraries that have targeted, specifically, the individual factors of self-efficacy and normative and media effects, and that makes this particular study original. Furthermore, there has been no detailed and structured research into any aspect of what motivates community librarians to adopt disaster management practices in NWP. This is the first study conducted in the North West context, that investigated the factors that lead to the adoption of disaster management practices.

Not only does this study contribute to the knowledge of disaster management research in libraries, but it also adds to existing literature on the role the community can play in disaster management. Originality in this research, therefore, relates to the study of a

particular case to understand how communities can play a role in preparedness for, mitigation of and recovery after a disaster.

The study utilised existing methods, theories and concepts in disaster management, that have not been used in library and information science studies before. These methods have been used in disaster management studies in other disciplines, but rarely in libraries. Consequently, this study generated substantial shifts in thinking about disaster management in community libraries. This study generated new ideas for how disaster management can be conceptualised in community libraries.

1.11 SCOPE AND LIMITATIONS OF THE STUDY

This study focused only on disaster management practices of community libraries that are located in NWP of South Africa. The focus of this study was on the community librarians who were employed to lead the community library. The study did not focus on all the staff members employed in the community library.

The community libraries that were studied were those that fell under the Directorate Library, Information and Archive Services in the CATA Department of NWP government, located in Mafikeng. All community libraries in NWP fall under the CATA Department.

Community and public libraries are important, as they provide access to reading material for 51% of the South African population who otherwise would not have access (Skarzynski & Nassimbeni 2016). Mahwasane and Mudzielwana (2016) add that community libraries act as community information centres that provide access to educational, recreational, informational and cultural information for the majority of the population in South Africa. The study, thus, only focused on community libraries that are in NWP.

1.12 RESEARCH METHODOLOGY

Research methodology is defined as the highly intellectual activity used in the investigation of nature and matter, and deals specifically with the manner in which data is collected, analysed and interpreted (Vargas-Hernández, Valdez & Los Belenes 2012).

Yin (2009) defines research methodology as a plan that guides the investigator in the process of collecting, analysing and interpreting observations.

1.12.1 Research strategy

Over the years, the multi-methods research strategy has been described as convergent methodology, multimethod/multitrait (Campbell & Fiske, 1959), convergent validation or triangulation (Webb, Campbell, Schwartz & Sechrest 1966). Leedy and Ormrod (2015:104) define triangulation as the collection of multiple sources of data with the hope that "they will all converge to support a particular hypothesis or theory". Flick (2018) adds that, in triangulation, the researcher takes different perspectives on an issue under study; these perspectives can be substantiated by using several methods and several theoretical approaches. Creswell (2014) stipulates that, by using different sources of information and examining the sources, a researcher can build a coherent justification for themes. The identification of themes based on several sources is a process that can add to the validity of a study. Furthermore, the aim of triangulation is to achieve broader, deeper, more comprehensive understandings of what is being studied, and it often includes looking for discrepancies and contradictions in the findings (Flick 2018). Several strategies can be employed to achieve this outcome, such as spending extensive time conducting fieldwork, analysis of outliers and contradictory instances, thick descriptions, acknowledgement of personal biases, respondent validation and feedback from others (Leedy & Ormrod 2015).

This study triangulated data by combining quantitative methods (questionnaires) and qualitative methods (interviews and document analysis). By combining these methods, different types of data were produced, which enabled the researcher to understand subjective meanings, develop a description of disaster management practices and localise participants' statements within social patterns of interaction. This study cannot be considered a mixed method research inquiry. Mixed methods research involves more than simply collecting two types of data, instead, it also involves integrating two databases from the qualitative and quantitative strands of investigation (Creswell 2016:218).

1.13 ETHICAL CONSIDERATIONS

The study followed the University of South Africa (UNISA 2007) research ethics policy, which protects research participants. The policy emphasises that the rights and interests of human participants should be protected throughout the research. This policy is important when, for example, information that is gathered has the potential to invade the privacy of and cause distress to participants. For instance, a community librarian's lack of disaster management practices could be considered as being reflective of neglect of duty. Research participants were assured that their contributions to the data would be anonymous and that the data would not be shared with CATA. In Chapter 3, a discussion is presented on the ethical considerations of this study, and Appendices C and D refer to relevant ethical clearance given.

1.14 ORGANISATION OF THE THESIS

The thesis is organised into six chapters.

Chapter 1: Introduction

This chapter presented an overview of the study, the research topic, research questions, the aims and objectives of the study and the rationale of the study.

Chapter 2: Literature review

This chapter will present relevant literature on libraries' disaster management, disaster management frameworks and evaluation of different disaster management frameworks. The chapter will also present the theoretical models on which this study was grounded and it will describe how theory led the focus of this study.

Chapter 3: Research methodology and design

The chapter will present the methodology and design processes used in the study, and will refer to the research site, the basis of participants' selection and the data collection, drawing on literature on methodology to justify the methods used. The methods will be explained in detail, so that the reader will be informed about the data that was collected, from where and how it was collected, to enable a reasonable replication of the study.

Chapter 4: Results of the study

The chapter will provide the results of the qualitative and the quantitative phases of the study. Results of data collected via questionnaires, interviews and document analysis will be analysed and presented.

Chapter 5: Analysis and interpretation of the results

The chapter will provide a discussion of the findings and offer a broad interpretation of the results.

Chapter 6: Summary, conclusion and recommendations

This chapter will provide a summary of each chapter, a summary of the results, as well as, finally, recommendations for future studies, disaster management practices by CATA and other community libraries and suggestions for embedding disaster management in community libraries.

1.15 SUMMARY OF THE CHAPTER

Chapter 1 provided an introduction to and discussion of the theoretical background to the study on disaster management, highlighting the significance, objectives and purpose of the study. The researcher provided detailed discussions on the significance and originality of the study. The next chapter will review literature on disaster management. It will also refer to the methodology that was used by previous studies, and discuss the variables in the conceptual framework. The following chapter will also identify the gaps in the literature that were identified.

CHAPTER 2: LITERATURE REVIEW OF DISASTER MANAGEMENT IN LIBRARIES

2.1 INTRODUCTION

Chapter 2 will discuss the definition of disaster management, disaster planning, disaster management tools, and empirical studies on disaster management. The literature review helped the researcher to become knowledgeable about the topic of study. He discovered what had been studied by other scholars, what key issues influence the topic, and the main criticisms associated with it. The researcher consulted several sources of information, among which disaster management manuals, disaster management plans, reports, academic conference papers, journals, and books. A literature research map is used to show the layout of the literature review (see Section 2.5 and Figure 2.1).

2.2 THE ROLE OF THE LITERATURE REVIEW

Kumar (2014:374) postulates that a literature review is the process during which the researcher searches for existing literature relating to the research problem, in order to develop theoretical and conceptual frameworks and to integrate the research findings into what the literature says about them. A literature review also places the study being conducted in perspective of what others have investigated about the issue (Kumar 2014:374; Yin 2016:74). A literature review identifies themes, and each theme that emerges from the literature search is described, compared with others and integrated in a logical manner (Kumar 2014:50).

A literature review differs from a summary of the literature, which is a description of the significant findings of each work that has been consulted in a literature search. Onwuegbuzie and Frels (2016:9) explain that a common myth concerning literature reviews is that it represents only a summary of the existing literature. A literature review should go beyond summarising the literature, and include analysis, evaluation and synthesis (Onwuegbuzie & Frels 2016:11).

Yin (2016:74) adds that, in addition to highlighting what is known on a particular topic, a literature review could possibly highlight controversial or disparate lines of thinking, or even progress over time in cumulating knowledge about a subject. Mavodza and Ngulube (2011:29) state that reading on a topic helps the researcher to clarify matters; these matters could be the controversial or disparate lines, as mentioned by Yin.

In addition to identifying findings from other studies, a literature review can assist the researcher to become familiar with research methodology used by previous research (Onwuegbuzie & Frels 2016:8). A literature review can, therefore, assist a researcher to make decisions on the research methodology to use. Yin (2016:73) adds that, by examining methods used and data presented by earlier studies, a researcher might find that a study has exaggerated its findings or interpretation which affected the study's main conclusion and, therefore, the finding or interpretation should be retested. The goal would be to define a niche in the study, and not just to show how it will differ from one or more individual studies (Yin 2016:73).

In conducting a literature review for this study, it was possible to evaluate a number of sources that were relevant to disaster management. However, few sources were identified on the topic of disaster management in community libraries. This shows that there is a gap in the knowledge base that justifies this study. The researcher had to conduct a search of related topics, for example disaster management in academic libraries, university libraries or college libraries, to find related information.

2.3 REFERENCING

In academic writing, there is a need to show that the ideas that the researcher used have been borrowed from someone else, as the argument must be positioned within a particular discourse (Beekman, Dube, Potgieter & Underhill 2016). This requires that sources are cited and a reference list provided. A reference system is thus required.

There are many types of referencing systems and conventions (Beekman et al. 2016). This study used a Harvard referencing system, known as the author-date system that is prescribed by the School of Interdisciplinary Research and Postgraduate Studies at

UNISA. Welman, Kruger and Mitchell (2007) add that the main reason for using a particular reference method is to enable the reader to locate information sources referred to, if needed.

2.4 SOURCES OF INFORMATION

This literature review took the form of a series of keyword searches in several journal databases that the Universities of South Africa and North-West subscribe to. Keyword searches were chosen as a method for sampling literature, instead of a content analysis, because there are no journals dedicated to disaster management in community libraries, and academic research in the field is quite limited. Relevant keywords were derived from articles and from suggestions provided in the databases. Some of the keywords that were used for the literature review are “disaster management” and “public or community libraries”; “disaster” and “libraries”; “disaster management plans” and “libraries”; “library safety” and “disaster”; “disaster recovery” and “public libraries”; “emergency” and “libraries”; and “crisis” and “community libraries”.

The literature review was gradually expanded by using the reference lists of the articles found, using the keyword search. It was found that most of the references tended to focus on disaster management manuals. In addition to conducting a search of journals, a general internet search was conducted with the same search terms used for the journal search. This search broadened the area in interesting ways, as the researcher found articles and information from several libraries and organisations, as well as institutions and organisations that have taken an interest in the field. Research in the African context focused mainly on disaster management in African countries.

In order to discuss disaster management in community libraries in the South African context effectively, it was necessary to understand clearly what disaster management means and entails, including its theoretical foundations. The next section will provide the map of the literature.

2.5 MAP OF THE LITERATURE

Creswell (2003:39) promotes the creation of a literature map: "a visual summary of the research that has been conducted by others in your area of research". Creswell and Creswell (2018) add that a literature map is a visual picture of the literature that assists the researcher to illustrate how the study will add to existing literature. Creswell (2014:32) explains:

> *As you organize and take notes or abstract articles, you will begin to understand the content of your literature review. In other words, a conceptual picture will begin to emerge. Having a diagram or visual picture of this conceptualization allows you to organize the literature in your mind, identify where your study fits into this literature, and convince others of the importance of your study. This visual picture results in a literature map, literally a map of the literature you have found.*

Boyack (2004) points out that literature mapping techniques can be based on authors, documents, journals, words, and/or indicators. Chigada (2014) adds that subject headings are required to represent the relative connections among elements, and to cite the important sources. The literature map for this study is presented in Figure 2.1.

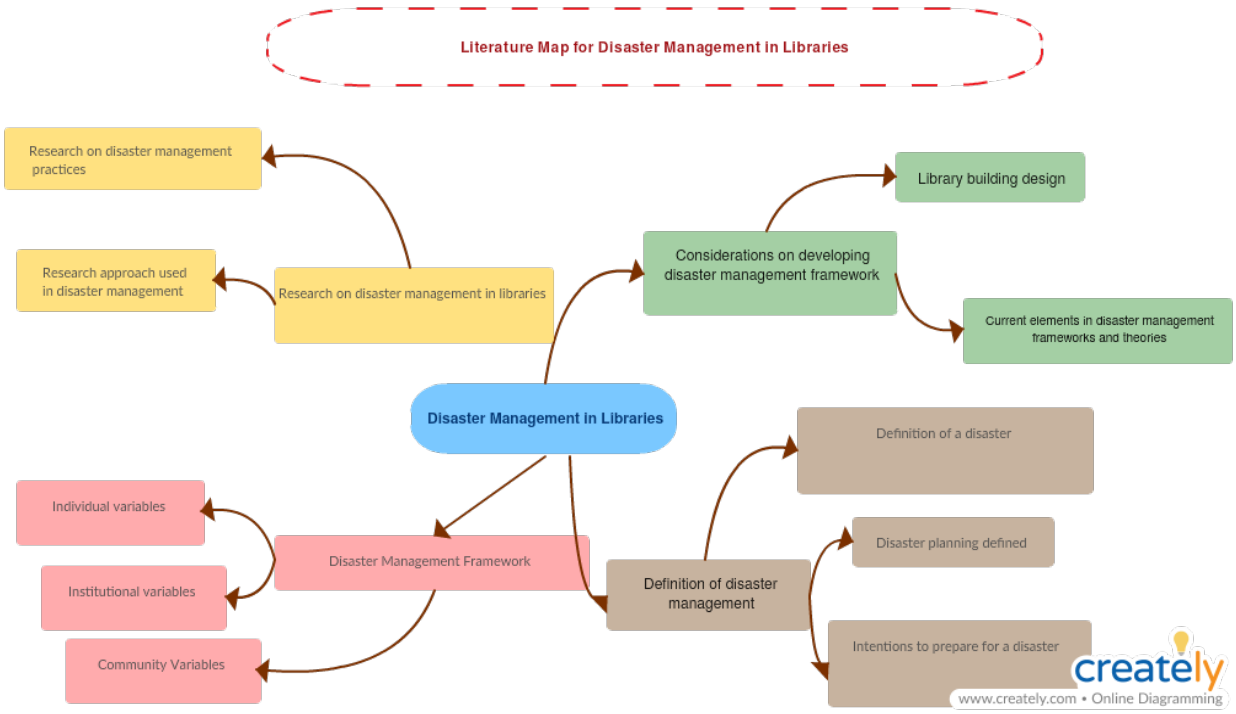

Figure 2.1: Map of the literature, created using Creately Software

2.6 WHAT IS A DISASTER

The field of disaster management is divided between crisis management and disaster management. Faulkner (2001, cited in Ritchie 2004:670) considers the distinction between what can be termed a “crisis” and a “disaster” to be the extent to which the situation is attributable to the organisation itself, or can be described as originating from outside the organisation. A crisis describes a situation “where the root cause of an event is, to some extent, self-inflicted through such problems as inept management structures and practices or a failure to adapt to change”, while a disaster can be defined as “where an enterprise is confronted with sudden unpredictable catastrophic changes over which it has little control” (Ritchie 2004:670).

Numerous studies (see, for example, Caymaz, Akyon & Erenel 2013; Laachemi & Boughaci 2017; Siriporananon & Visuthismajarn 2018; Velasquez, Evans & Kaeding 2016) have found that a disaster could be any incident that threatens to damage a building, collection, or its equipment, that occurs in a community and that affects

inhabitants severely. The common themes identified by these studies are that the event is unexpected, and leads to loss to the community. A disaster is, thus, an event that has an effect on infrastructure, as well as on the community, who may lose, for example, access to buildings, equipment or collections.

However, Abulnour (2014) disagrees that the term disaster should be confined to damage to infrastructure. According to the author, a disaster is not the event or the phenomenon, but its effect on the community. Abulnour (2014) adds that the term disaster can be used to describe a situation resulting from an environmental phenomenon or from an incident leading to human injury and loss, physical property damage and economic disruption. According to Abulnour (2014), the definition of a disaster should not be confined to destruction, but should refer to its effect on a community. This shows that when analysing a disaster, the community aspect should be referenced. Community is an important variable in the study of disasters.

Different types of disaster exist. Over the past decades, new classifications of types of disaster have emerged. Wall (2007:193) classifies disasters into four categories, namely, a) a minor disaster, which affects non-essential components of the library; b) a localised disaster, which involves damage to library materials and collections; c) a major library disaster, which affects or damages more than 25% of the library materials or library facilities; and d) a catastrophic event of the magnitude of Hurricane Katrina, which requires a response totally different from any of the other categories. Another classification lists two types of disasters, which are natural or human-made disasters (Abulnour 2014; Wellington & Ramesh 2017). Examples of natural disasters are earthquakes, volcanic eruptions, floods and droughts. Human-made disasters could be road accidents, chemical leaks and structural damage. Robertson (2016) adds to natural and human-made disasters by including technology-related, security-related and enterprise-related disasters. The disasters in Robertson's classification excludes human-made disasters such as bathrooms overflowing, water taps left running overnight and the consequences of failing to fumigate. Examples of the different types of disasters proposed by Robertson (2016) are presented in Table 2.1.

Table 2.1: Different types of disasters

Disaster type	Examples
Natural disasters	Flooding and water ingress Fire, smoke and fumes Severe weather Earthquakes and tsunamis Pests Pandemics Drought
Technology disasters	Power outages IT failure Data loss Telecommunications disruptions Disruptions caused by malware
Security-related disasters	Theft Fraud and information theft Arson Vandalism
Enterprise-related disasters	Hostile legislation Sudden cuts to operating budgets Sudden postponement of projects or library programmes due to lack of funds Demands from authorities to close branches Loss of essential expertise and leadership Lengthy strike action and other labour action

Source: Robinson (2016)

Recently, the prevailing classification of the types of disasters was challenged by Siriporananon and Visuthismajarn (2018), who say that a disaster can be categorised

according to the cause of the disaster, and they propose three types of disasters, namely, natural disasters such as floods, human-inflicted disasters, and disasters caused by technology failure. Disasters should, thus, no longer be classified as either human-made or natural disasters. Emerging views by authors such as Robertson (2016) and Siriporananon and Visuthismajarn (2018) on the different types of disasters led the author to reconceptualise that disasters should be classified according to the cause of the disaster. This study analysed disasters as either natural disasters, technology-related disasters, security-related disasters, enterprise-related disasters, and human-made disasters.

2.7 DEFINITION OF DISASTER MANAGEMENT

The definition of disaster management has evolved over the years. Barton (2009) defines disaster management as the effective organisation, direction and utilisation of available counter-disaster resources. Barton (2009) adds, furthermore, that disaster management requires pre-disaster preparedness or mitigation measures to avoid or reduce the impact of disasters. In the work of Barton (2009) it is evident that disaster management is a continuous process by which individuals, groups and communities manage hazards in an effort to avoid or ameliorate the impact of disasters. Conversely, other authors maintain that disaster management only occurs when a disaster occurs.

Caymaz et al. (2013) point out that disaster management is a process or strategy that takes effect when any type of catastrophic event takes place. An argument of this study that contrasts with that of Caymaz et al. (2013) is that disaster management is not confined to activities that take place when a disaster has occurred, but includes activities that take place before and after a disaster.

It is well documented that disaster management encompasses a proactive and organised strategy of planning, preventing, preparing for, responding to and recovering from a disaster, whether human-made or natural, before, during and after the occurrence of an event, to combat or reduce risks or overcome its effects (Abulnour 2014; Bisho 2015; Hamilton & Brown 2016; Othman, Beydoun & Sugumaran 2014; Usman 2017; Wellington

& Ramesh 2017). It also includes the management of risks and the consequences of the disaster.

In addition, Carter (2008, cited by Laachemi & Boughaci, 2017:1) add the aspect of the need for systematic observation and analysis of disasters, which could improve measures relating to prevention of, mitigation of, preparedness for, emergency response to and recovery from disaster. Disaster management should, thus, involve systematic observation and analysis, which shows that disaster management should be conceptualised as a process, and not a once-off event. Wellington and Ramesh (2017) propose that systematic observation and analysis involves the creation of plans to decrease the consequences of disasters. From these definitions, it is evident that disaster management requires proper strategies that involve a systematic process of preparing for, and sets out what to do during and after a disaster.

However, some authors question the need to plan before a disaster occurs. Ramudu, Nema and Kumar (2017:1372) claim disasters are rare events. As rare events, the authors argue that it is difficult to gather information to make a plan of rescue, as the rarity of disaster events means little information is available. Ramudu et al. (2017) state people need to be reactive to a disaster, and can only plan for it after it has occurred. Their focus on disaster management excludes pre-planning or pre-preventing. The argument of this study is, however, that even though a disaster is a rare event, it needs planning before it occurs, and after it occurs. For example, there is need for evacuation plans or fire drills, so that library staff are prepared before a disaster occurs. Disaster management should also be focused on decreasing the consequences of disasters. Even though a disaster is termed a rare event, it is necessary that people anticipate the possibility of an event happening, in order to reduce their vulnerability to damage.

This study will examine if community libraries conduct disaster planning, or whether community libraries merely react to disaster. Though some authors view disasters as a rare event, and that planning is unnecessary or impossible, this study is of the view that disaster management must occur before, during and after a disaster. Thus, there is a need for overall organisation, planning and the application of measures to prepare, prevent, respond to and recover from disasters (Brown 2018). Disaster management

should be continuous and have an established strategy. Bisho (2015:5) defines disaster management as a continuous process, and cites the definition of disaster management of the South African Disaster Management Act No. 57 of 2002, which states that disaster management is:

> *a continuous and integrated multi-sectoral, multi-disciplinary process of planning and implementation of measures aimed at*
>
> *(a) Preventing or reducing the risks of disasters;*
>
> *(b) mitigating the severity or consequences of disasters;*
>
> *(c) emergency preparedness;*
>
> *(d) a rapid and effective response to disasters;*
>
> *(e) post-disaster recovery and rehabilitation.*

The rationale for using this definition is that disaster management should be viewed as a process that seeks to reduce or prevent disasters through mitigation and, when a disaster occurs, there needs to be a strategy in place for response and recovery, to enable the library to resume operating. The definition by the South African Disaster Management Act No. 57 of 2002 as cited by Bisho (2015) covers these aspects. The aim of this study was to examine the activities that take place as part of planning for the event of disaster, during a disaster and after a disaster, as well as the policies, procedures and guidelines developed in case a disaster occurs.

2.8 DISASTER PLANNING

In order to prepare for a disaster, a community librarian needs to have knowledge of disaster planning and preparedness. This section will examine the concept of disaster planning.

For an individual to be prepared for disaster, they need to engage in disaster planning (Robertson 2016; Sadiq & Graham 2016). Disaster planning was previously considered to be “a continuous and integrated process resulting from a wide range of activities and

resources rather than a distinct activity by itself“ (Barton 2009:195). Glendon (2013:47) adds that library disaster planning is focused on “provision for an event or circumstance that is possible but cannot be predicted with certainty”. Some of the activities that could be conducted, include a) the development and regular testing of warning systems and plans for evacuation, or other measures to be taken during a disaster; b) the education and training of officials and the population at risk; c) the training of first-aid and emergency response teams; and d) the establishment of emergency response policies, standards, organisational arrangements and operational plans to be followed after a disaster. The activities can be summarised as the development of warning systems, providing education and training, and creating policies and plans. From the work of Glendon (2013), it is evident that the community should be involved in disaster planning. There is a need to investigate how the community is involved in disaster planning.

Recent studies define disaster planning differently, and confines it to developing procedures, policies and guidelines. Disaster planning is defined as written procedures prepared by library staff in order to deal with an unexpected occurrence that can lead to injury to personnel, or damage equipment or collections or the facility itself (Bhade & Aute 2016:178). Similarly, Hamilton and Brown (2016:1) define disaster planning in relation to the need for policies and procedures, such as a continuity of operations plans (COOP).

Hamilton and Brown (2016:3) are of the opinion that, if libraries have COOP, they will be prepared and able to maintain operations throughout and immediately after a disaster. In support of policies, Marks and Owen (2016:339) define disaster planning as an effort to anticipate and put in place policies and procedures for the event of a disaster that protects human life and aids the recovery of collection material.

In contrast, Lyall (2001, as cited in Wani & Ganaie 2017:70) defines planning as including insuring collections, creating and periodically updating contingency plans, allocating salvage priorities and providing training opportunities for staff regarding what would be expected of them in the event of a disaster. Calvert and Calvert (2017:24), on the other hand, state that disaster planning must be built upon risk assessment. Disaster planning involves pre-disaster communication, and building solid relationships before an incident to ensure that, in the event of a disaster, all the people involved know their roles.

In the context of this study, disaster planning was not viewed as only developing policies and practices, but also ensuring that training opportunities were available for staff and the community, determining salvage priorities and ensuring that a library could resume operations in the event of a disaster. As can be seen from the evolution of the concept of disaster management, the common thread in all the definitions is the need to provide training in disaster management.

2.9 DISASTER MANAGEMENT CONCEPTUAL FRAMEWORK

This section will describe the variables that were used to compile the disaster management conceptual framework that was used in this study. These variables include Robbins' (1993) theory, which divides an organisation/community into different individual, group and organisational levels, and introduces different elements that affect behaviour at each level. The organisational behaviour model posits that the disaster management community consists of three tiers, that is, individuals (people), groups (organisations involved in disaster management), and organisational systems (disaster management community) (Mansourian, Rajabifard, Zoej & Williamson 2006). At an individual level, variables relate to an awareness of disasters, the variables that link motivation to intention (self-efficacy beliefs), the intention to prepare and the relationship between intention to prepare and actual preparation (Paton 2003).

From an organisational perspective, the disaster management cycle needs to be considered. Various disaster management cycles have been suggested by different authors, and will be presented. Regulatory, normative and cultural-cognitive factors are institutional factors that can influence disaster management. Chen et al. (2006) and Norris et al. (2008) see a role for the community in community resilience, and suggest that that the community should be capacitated to recover on its own after a disaster (Cook & Hodges 2015; Hamilton & Brown 2016).

The conceptual framework for this study is presented in Figure 2.2.

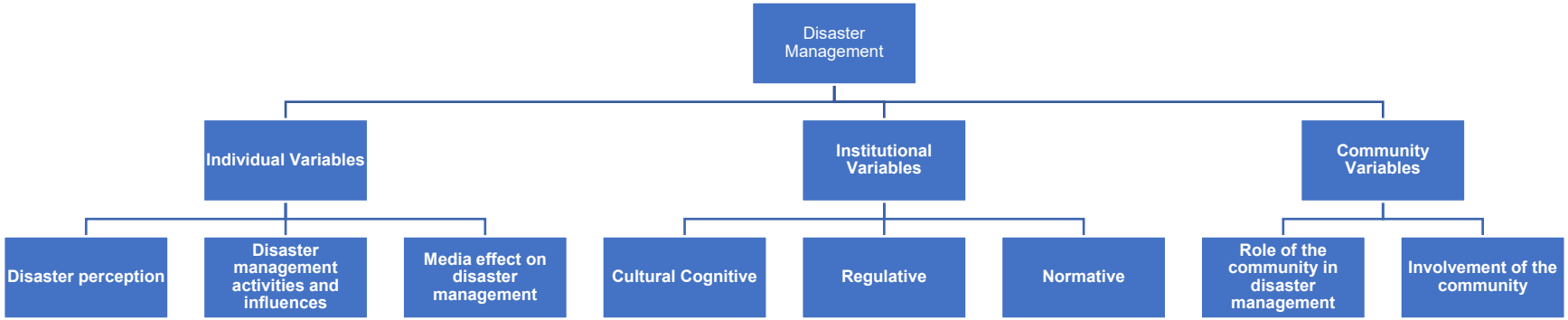

Figure 2.2: Disaster management conceptual framework

2.9.1 Disaster management community

Robbins (1993) divides an organisation/community into different hierarchical levels (individual, group and organisational levels), and introduces different elements that affect the behaviour of each level. Similarly, according to the basic organisational behaviour model, the disaster management community consists of three tiers: individuals (people), groups (organisations involved in disaster management) and organisational systems (disaster management community) (Mansourian et al. 2006). This study focused on the individual level (people) and the organisational system. The organisational system that this study examined is the organisation, CATA. The external organisations involved in disaster management were not incorporated in this study; the rationale being that the study was focused on determining disaster management practices of community libraries. The next section will present the individual variables of the conceptual framework.

2.9.2 Individual variables

Individual variables relate to an awareness of disasters, the variables that link motivation to intention (self-efficacy beliefs), the intention to prepare and the relationship between intention to prepare and actual preparation (Paton 2003). In Paton's model, motivation to prepare for a disaster is considered a function of individuals' cognitive and affective reactions to disasters, including their risk perception, hazard awareness, and anxiety. Lee and Lemyre (2009) explain that, when people are sufficiently motivated to prevent disasters, intentions to prepare are formed on the basis of their outcome expectancies and self-efficacy. Finally, the intention to act depends on social-contextual factors, such as "individuals transfer responsibility for preparedness onto others, whether they have a strong sense of community, whether they trust the sources from which they receive information, and whether they perceive hazard activity to be infrequent" (Lee & Lemyre 2009:1266).

In support of Lee and Lemyre (2009), there is speculation that self-efficacy is related to disaster preparedness (Paek, Hilyard, Freimuth, Barge & Mindlin 2010:431). Self-efficacy involves an individual recognising that a problem exists, and recognising the need to

improve the situation. Thus, when the researcher analysed disaster management, there was a need to determine individuals' perceptions of the problem, in this case, whether a disaster can occur; he had to examine whether they engage in appraisal of their environment and what motivates their behavioural intentions (Paek et al. 2010:431).

Various theories propose individual self-efficacy variables. Appraisal theory advocates for the need to conduct appraisal as part of self-efficacy. Appraisal theory requires positive evaluations of both the primary and secondary appraisals. Mulilis and Duval (1997:1751) point out that Lazarus' appraisal theory is based on the premise that, when an individual is faced with the possible occurrence of a harmful event, the individual engages, simultaneously, in problem-focused coping and emotion-focused coping. The two important elements of the theory are that there is a need to appraise the potentially harmful event, and to appraise personal resources to manage the threat. The appraisal theory makes it evident that there is a need to examine whether community librarians prepare for a disaster because they recognise their library can be at risk.

The PrE theory also provides a self-efficacy variable, which is personal responsibility. Mulilis and Duval (1997) and Mulilis, Duval and Rombach (2001) document that PrE theory states that personal responsibility is important, and it is necessary for individuals to form greater behavioural intentions to prepare for disasters. PrE frames the process of preparing for and responding to a disaster in terms of the interaction between a person variable (appraisals of the coping resources of an individual) and an event variable (appraisals of the magnitude of the particular threat). In addition, individuals will engage in more problem-focused (that is, danger control) coping activities than emotion-focused (that is, fear control) coping activities (Miller, Adame & Moore 2013: 3). This interaction depends on the concept of personal responsibility. PrE is based on the premise that personal responsibility is crucial for preparing and responding to a disaster.

Vested theory adds that, if an individual's perceived stake is high, they are more likely to engage in disaster management (Miller et al. 2013: 3). For example, individuals who have been confronted by disaster before, theoretically perceive disaster differently from people who have not experienced it. Thus, whether an individual takes personal responsibility for their library influences disaster management activities. In this study, it was important to

examine whether past disaster experiences influenced a community librarian's preparation for disaster. The study also sought to establish whether their relationship with the community influences the extent to which community librarians take personal responsibility for the library. If individuals take full responsibility, it is important to explore what activities they engage in.

The protective action decision model, PADM, developed by Lindell and Perry (2012) proposes activities that can be undertaken. PADM borrows from the appraisal theory, as it holds that decisions concerning how one would respond to a disaster begins with a primary appraisal process (Miller et al. 2013:5). At this primary appraisal stage, risks are identified and evaluated on the basis of environmental cues or warning messages from others. These initial appraisals are followed by secondary appraisals concerned with self-efficacious methods for reducing risks, such as identifying options, determining their merits and putting them into effect. PADM theory makes it evident that individuals appraise and evaluate the probability of disaster. A disaster management study should, thus, explore whether individuals perceive disaster as being likely in their context, and whether this would lead to some form of action.

On the basis of the theories analysed above, a disaster management study should examine how individuals perceive disaster can occur, whether they conduct appraisal, whether they take personal responsibility, and what their disaster management practices involve. Criticism of the disaster management theories is that they do not address the general nature of attitudes or threat beliefs that are likely to motivate protective actions (Miller et al. 2013:5). This study sought to address whether attitudes and beliefs lead to action by community librarians. The next section will discuss disaster management practices and activities, which need to be conducted in stages.

2.9.3 Disaster management practices and activities

Brown (2018) notes that disaster management should involve planning, reducing risks and vulnerabilities, and establishing strategies that will enable response and recovery. This section will explain the disaster management practices and activities that have been adopted.

The United Nations Development Programme and United Nations Disaster Relief Organisation (1992, as cited in Parul 2015:231) defines disaster management as “the body of policy and administrative decisions and operational activities which pertain to the various stages of a disaster at all levels”. These administrative and operational activities include “disaster control planning, but also encompasses broader issues such as risk assessment, training, and finance, necessary for its successful implementation” (Matthews & Eden 1996:33). From this, the views that apply to this study are that there needs to be policies and administrative and operational activities that are conducted by a community library.

Other authors add that these activities should be part of a continuous process (Weichselgartner 2001). The author Weichselgartner (2001) proposes a disaster management cycle, of which the premise is the need to assess for possible damage and to plan future actions to reduce possible damage. Weichselgartner (2001) highlights the need to use the disaster management cycle to consider the organisation and planning; system and facilities; and equipment and training needed. The first step in the disaster management cycle is natural hazard analysis. The objectives of this phase are to identify, inventory and assess all natural events in a given area that can potentially damage human life and property. The second step is exposure analysis. The objectives of this analysis are identification, inventory, and assessment of infrastructure, property and individuals in a given area, and both direct and indirect consequences that could result from a hazard occurring. The third step is preparedness analysis. The fourth stage is prevention analysis. The objectives of prevention analysis are the identification, inventory, and assessment of all activities and measures in a given area, to prevent hazards and their effects and to provide permanent protection from their impact. The fifth stage is the response analysis, which is concerned with the identification, inventory, and assessment of all response activities and measures in a given area, to reduce social and economic damage and losses. The last step is a vulnerability analysis.

Asghar, Alahakoon and Churilov (2006) added to the work of Weichselgartner (2001) by developing a model called the proposed comprehensive model for disaster management. It includes six main components: strategic planning, hazard assessment, risk

management, disaster management actions (four fundamental phases of disaster management), monitoring and evaluation, and environmental effects. Within the comprehensive model, these six main components are separated further into activities that should be carried out as part of management operations. The disaster management actions are performed in a sequential manner, in order to mitigate a disaster, and all disaster management measures and actions taken are constantly reviewed and assessed within the context of varying environmental conditions. From this model, it is evident that disaster management should occur in an organised and systematic manner. The diagram in Figure 2.3 presents the comprehensive model.

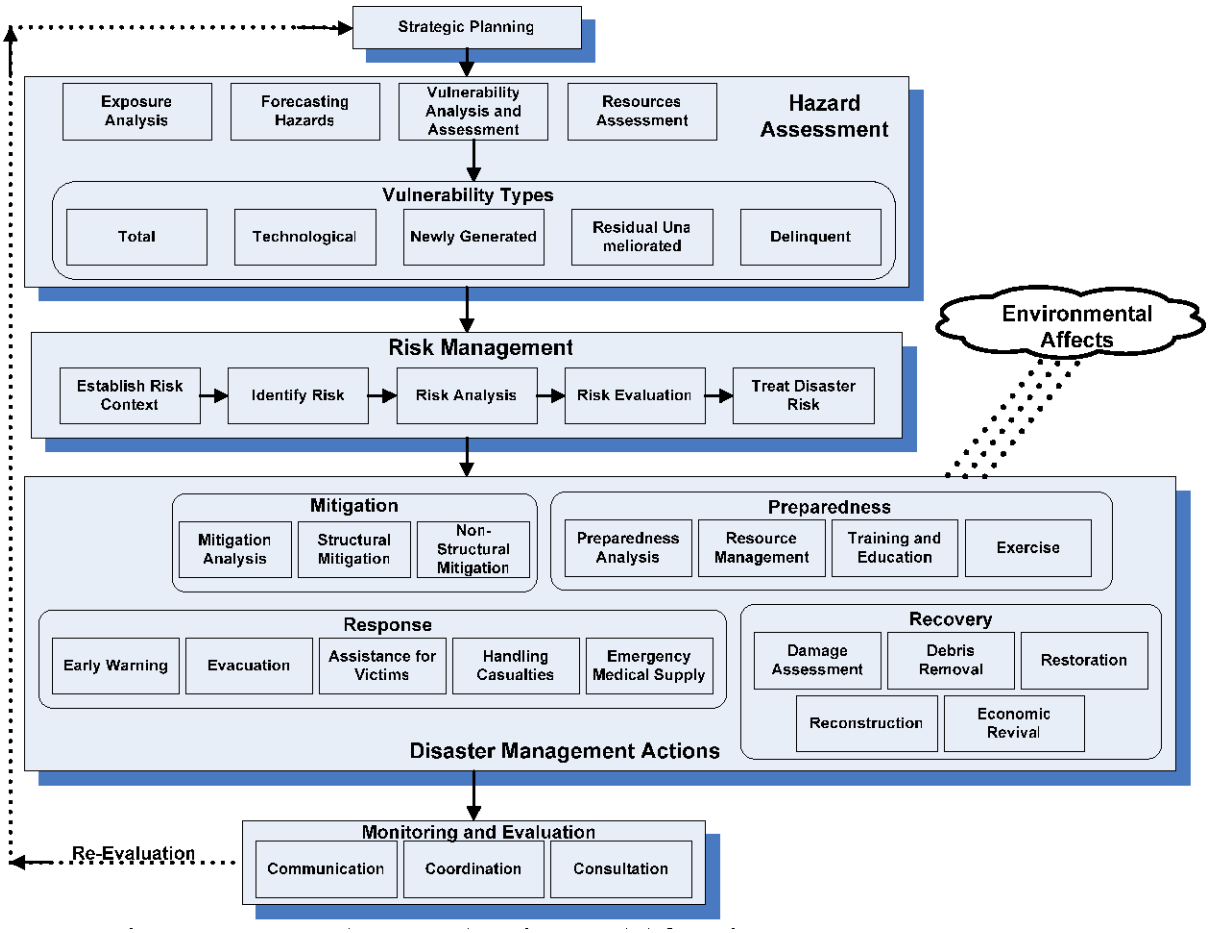

Figure 2.3: Proposed comprehensive model

Source: Asghar et al. (2006:14)

Asghar et al. (2006) explain that existing disaster management models do not cover all the aspects of the disaster management domain, and have some limitations; for example, logical models (category-1) do not go beyond describing disaster stages and only provide conceptual frameworks for the very basic activities of a disaster. The expand-contract model of category-1 does not encapsulate hazard assessment and risk management activities. Similarly, the crunch and release model only identifies the underlying causes of a disaster, and do not identify other major activities of disaster management. The integrated model (category-2) covers most of the activities of the disaster management domain, but does not encapsulate the activities of response and recovery. In addition, it only states the top-level actions of disaster management, rather than providing the detailed activities involved in each phase. In category-3, the models focus on vulnerable conditions that might affect disaster management by identifying the underlying pressure and root causes of a disaster.

Since Weichselgartner (2001) and Asghar et al. (2006) released their theories, it has become acknowledged that a disaster management cycle has four stages in which various activities are performed (Bisho 2015; Bhade & Aute 2016; Cowick & Cowick 2016). Figure 2.5 presents an example of a disaster management cycle. The literature proposes various disaster management cycles for disaster planning, and lists a number of activities that need to be carried out as part of disaster management cycles. It is accepted that the disaster management cycle begins with mitigation, and continues to preparation, response and recovery (Bhade & Aute 2016; Cowick & Cowick 2016; Ortuño, Cristóbal, Ferrer, Martín-Campo, Muñoz, Tirado & Vitoriano 2013).

Figure 2.4: Disaster management cycle

Source : Bhade and Aute (2016:174)

The literature proposes different activities for each stage of the cycle. Table 2.2 presents the different stages and the activities that are suggested by different authors from the literature.

Table 2.2: Comparison of different disaster management cycles

Activity	Hamilton and Brown (2016:7)	Bhade and Aute (2016:172 –174)	Ortuño et al. (2013:20)	Othman et al. (2014:237)	Zaveri (2015:232)
Mitigation	Prevention of crises, safety issues and preservation of assets	Minimising the effects of disasters, for example, building codes	All the middle and long-term actions and decisions aimed at preventing and mitigating the consequences of a future disaster	Reducing or limiting the adverse impact of hazards and related disasters	Long-term preventive measures after risk analysis
Preparation	Development of continuity plan as well as training in its use and testing of the plan	Planning how to respond, for example, preparedness plans	Short-term interventions once an alarm of an upcoming adverse phenomenon is known, for example, evacuation plans	The knowledge and capacities developed by governments, professional response and recovery organisations, communities and individuals who actively anticipate, respond to and recover from the impacts of likely, imminent or current hazard events.	Measures that enable libraries, communities and individuals to respond rapidly and effectively to disaster situations
Response	COOP implemented	Efforts to minimise the hazards created by a disaster, for	Efforts to save lives or equipment	Provision of emergency services and public assistance during or	Measures applied immediately after the disaster

Activity	Hamilton and Brown (2016:7)	Bhade and Aute (2016:172 –174)	Ortuño et al. (2013:20)	Othman et al. (2014:237)	Zaveri (2015:232)
		example, search and rescue		immediately after a disaster	
Recovery	Organisation seeks to return to pre-crisis status	Returning the community to normal	Long-term actions and decisions to resume normal functionality	The restoration and improvement, where appropriate, of facilities	Restore the affected area to its previous state

Disaster management can be seen as starting with mitigation, and continuing to the last stage, which is recovery. The activities to be conducted vary according to the authors, so it can be concluded that the activities cannot be prescriptive. Instead, each organisation should develop its own guidelines according to its needs. The main point is that activities should actually be undertaken.

Some authors have different views of the disaster management cycle. Khan, Vasilescu and Khan (2008) refer to the disaster risk management cycle. They define disaster risk management to include the total of all activities, programmes and measures that can be taken up before, during and after a disaster with the purpose of avoiding a disaster, reducing its impact or recovering from the losses it causes. The three key stages of activities that are taken up within disaster risk management are as follows:

- **Before a disaster (pre-disaster).** Pre-disaster activities are those that are executed to reduce human and property losses caused by a potential hazard. Examples of activities include carrying out awareness campaigns, strengthening weak existing structures, and preparing disaster management plans at household and community levels. Risk reduction measures taken at this stage are called mitigation and preparedness activities.
- **During a disaster (disaster occurrence).** These activities include initiatives taken to ensure that the needs and provisions of victims are met and suffering is minimised. Activities undertaken under this stage are called emergency response activities.
- **After a disaster (post-disaster).** These are initiatives taken in response to a disaster immediately after a disaster strikes with the purpose of achieving early recovery and rehabilitation of affected communities. These activities are called response and recovery activities.

Furthermore, Hamilton and Brown (2016:7) mention, as part of the disaster management cycle, business continuity management, which includes mitigation, preparation, response and recovery. In turn, Ayoung, Boatbil and Baada (2016:1301) propose a disaster management plan instead of a disaster management lifecycle. The plan outlines that the

central construct should be a carefully thought-out design and documentation of a complete disaster management plan. The features of the plan are security and detection protocols, continuous monitoring and evaluation of wear and tear, mock drills and simulations of disaster situations, and recovery protocols provide guidance on how library material should be preserved. Though it is relevant, in that it provides suggestions for what to do before a disaster, the plan by Ayoung et al. (2016) does not suggest activities for before, during or after a disaster.

In contrast to Ayoung et al. (2016), other authors suggest activities of mitigation and preparation (before a disaster), response (during a disaster) and response (after a disaster). Furthermore, except for PADM, what the models appear to miss is the role of the media in each of the stages. The next section will highlight the importance of the media in disaster management.

2.9.4 Media effect on disaster management

Hamilton and Brown (2016) and Velasquez et al. (2016) advocate for using cloud services to easily and economically store and back up data. Hamilton and Brown (2016:19) suggest that libraries store their most important tools for communication in the cloud environment for use during a disaster. Parul (2015) indicates that though librarians are aware of the importance of protecting digital data, they lack knowledge, have to work with poor infrastructure, and in the absence of a digital data protection plans, which hinder their ability to protect data. Given the digital divide that still exists in Africa, this study sought to examine if cloud services were being used by community libraries to store and preserve important records.

The use of social media during times of crisis has been reported by many studies. Simon, Goldberg and Adini (2015) examined the use of social media in emergency situations, and Graham, Avery and Park (2015) explored the adoption and use of social media tools for crisis communication. Lachlan, Spence, Lin, Najarian and Del Greco (2016) analysed the use of Twitter during a winter storm. Simon et al. (2015) support the use of Twitter, due to its technical ability to extract information – a feature that is not available for Facebook, which does not allow searching for information on its pages.

In the present study, issues of the digital divide are considered as barriers to using social media. Nevertheless, even if social media is used by a limited number of people, it could still be used in disaster management, in particular for communicating with library patrons. Omilion-Hodges and McClain (2016) examined a university's use of social media during a campus shooting crisis. Social media was found to offer an interactive, collaborative, conversational, and community-based platform for crisis communication (Spence, Lachlan & Rainear, 2016; Spence, Lachlan, Lin and Del Greco 2015; Yates & Partridge 2015). Whilst studies found social media to be useful in times of crisis, none of them examined its effect on an individual's preparedness for a disaster, as their focus was on the time of crisis. The studies did not investigate what happens before a disaster. This study investigated whether reports of disasters from other community libraries stimulated community librarians to learn about disaster management or to institute steps to mitigate a possible disaster.

Ugwuanyi, Ugwu and Ezema (2015) and Laachemi and Boughaci (2017) allude to use of the Internet as a tool for disaster mitigation communication. The Internet can be used to disseminate disaster-related information relating to weather observations, forecasts by satellites, and other data. Some of the tools that could be used are email, file transfer and communication tools, such as Skype. Laachemi and Boughaci (2017) support using the Internet, in particular, web services. The findings of Laachemi and Boughaci (2017) are that web services are effective for reducing the damage and risks caused by disasters. The Internet is, thus, viewed as a tool that could be used to mitigate disasters.

Though the literature supports using the Internet for mitigation, none of the studies had examined the role of media reports on disasters, and whether such reports influence an individual's disaster self-awareness, and leads to steps being taken to prepare for a disaster.

2.9.5 Institutional variables

The literature identified regulative, normative and cultural-cognitive factors as institutional factors that influence disaster management (Cook & Hodges 2015; Hamilton & Brown 2016). Regulative factors are rules that are set and followed by an organisation in relation

to disaster management, normative factors refer to the degree to which an organisation insists on social norms and values concerning disaster management, and cultural-cognitive factors are those that are achieved through acceptance within the organisational field over time and due to an organisation's tactics (Cook & Hodges 2015). Thus, when analysing an institution, there is a need to consider institutional theory. Miles (2012) explains that institutional theory examines why and how organisations tend to look and act the same over time.

In analysing community librarians' disaster management practices, there was a need to examine the institution of CATA, to establish whether disaster management was being aided or hindered by rules, standard operating procedures and field-tested methods. Eriksson-Zetterquist, Mullern and Styhre (2011) state that norms, values, beliefs, and traditions strongly influence decision-making. Community librarians are bound by the National Disaster Framework, which has been adopted in the public sector. Thus, they are required by the government to have disaster management practices in place. However, because the implementation of the framework has been left to individual departments, this study wanted to establish whether rules and values exist, and what CATA does to ensure compliance. This means the study had to explore regulative, normative, and cultural-cognitive factors. The reason for analysing these factors was influenced by Eriksson-Zetterquist et al. (2011), who are of the opinion that interests are institutionally defined and shaped. The different factors will be discussed in the next section.

2.9.5.1 Regulative factors

Organisations are required to have a set of rules on disaster management; these can be policies, procedures or practices. This section will discuss the regulative factors that are required for disaster management.

Cerullo and Cerullo (2004:71) refer to a business continuity plan, which is "designed to avoid or mitigate risks; to reduce the impact of crisis; and to reduce the time to restore conditions to a state of "business as usual". They add that the elements of a business continuity plan are similar to that of a disaster plan, and involves identification of potential

risks, developing a plan to either reduce or mitigate those risks, and training staff and testing the plan to ensure that is effective. The business continuity plan, however, does not indicate elements such as delegation of authority and a communication plan. These elements are important, as they ensure that responsibility is allocated properly and the plan is communicated to appropriate stakeholders.

In 2006, Mansourian et al. introduced business continuity planning and disaster recovery planning, because the main contingency plans are carried out separately over different time horizons by organisations. Business continuity planning aims to develop appropriate plans pre-disaster, in order to restore key business operations to a minimum acceptable predefined level (for example minimum business continuity objective) immediately after a disruptive event within the so-called maximum tolerable period of disruption. This is done by invoking appropriate business recovery plan(s). In turn, disaster recovery planning strives to ensure the full recovery (restoration) of all disrupted operations to their normal business state post disaster. Jones (2011) and Hamilton & Brown (2016) propose that there should be only a single plan that is referred to as the continuity of operations plan. Having many plans can be cumbersome, and the existing plans may not address the need for keeping vital records.

COOP defines how an organisation would continue to meet the needs of its clients in the midst of a disaster (Hamilton & Brown 2016; Jones 2011). Additionally, Jones (2011:37) identifies five parts of the COOP, which are business impact analysis, a risk mitigation plan, vital records plan, recovery time objective for records and information, and identifying business processes that are critical.

Jones (2011) explains that business impact analysis involves identifying all the business processes and determining what actions should commence immediately and what can be postponed. The risk mitigation plan involves prevention of incidents that have an effect on the organisation. A vital records plan identifies documents and records that are of paramount importance to the organisation (Jones 2011). Finally, an examination of business processes indicates what must be returned to full functionality immediately, and what can be resumed later.

In addition to the work by Jones (2011), Halsted, Clifton and Wilson (2014) highlight elements that are not present in Jones' COOP. Halsted et al. (2014:1) propose the following additional, specific elements of a COOP:

- The COOP should indicate the essential functions of critical activities that are necessary to maintain institutional operations.
- The COOP should identify who assumes authority and responsibility of the organisation, especially if key staff become incapacitated.
- The way authority should be delegated should be present in the COOP. This involves the establishment of who has the right to make key decisions.
- Continuity facilities, that is, alternate facilities where the library could perform essential functions, must be specified.
- A plan for continuity communications, which refers to the availability and redundancy of critical communication systems to internal and external organisations, clients and the public, should be included in the COOP.
- A vital-records management plan that indicates the identification, protection and availability of vital documents in both electronic and paper formats, is required.
- A COOP should include human capital identification of key staff required to maintain operations.
- Training and exercises, to ensure that staff have the proper training needed to know what to do in the event of a disaster, must be specified.
- A COOP should set out devolution of control and direction, which involves the transfer of authority.
- Reconstruction should be discussed. This involves the process of bringing the institutions back to normal operational status.

The work by Halsted et al. (2014) is important, as it ensures that the delegation of authority is clearly specified. This ensures that disaster management is assigned to the responsible authority, and there is someone who is accountable. Further, the need to ensure preservation of an organisation's vital records aids business continuity. However, it is not clear how authority should be delegated, what should be included in

communication and records plans, what training and exercises should involve, or how control should be devolved.

In contrast, instead of a COOP, other authors propose different plans. Othman et al. (2014) allude to the need for an organisation to have a mitigation plan. They define a mitigation plan as a document prepared by an authority, sector, organisation or enterprise that sets out goals and objectives for reducing risks, specifically for the mitigation phase, together with related actions to accomplish these objectives. Dixon and Abashian (2016:125) propose an emergency safety plan that is a document that establishes policies and procedures, and that guides library staff on how to handle different types of disaster and emergency situations from the perspective of personal and public safety. Ifijeh, Idiegbeyan-Ose, Isiakpona and Ilogho (2016:551) developed a disaster plan that is a living document with a risk-assessment checklist that must be "periodically reviewed, its lists must be updated, and its collection priorities revised as needed".

The different plans by the different authors cited in this section are not comprehensive, as they focus only on one aspect of the disaster management lifecycle. For this study, a disaster management plan must consider all four stages of a lifecycle; disaster management was viewed as a continuous process that is not static, like the plan by Othman et al. (2014). Robertson (2016) proposes the need for a library disaster plan that includes parts of the disaster management lifecycle.

Robertson (2016) expresses the need for a library disaster plan, which should include an emergency preparedness programme. A library emergency preparedness programme starts with an analysis that considers regional, local and site-specific risks. The second part of the library's emergency preparedness programme is the mitigation programme whose goals are risk reduction and loss prevention. The aim of the mitigation programme is to prevent a disaster from occurring or, in the case of a large natural disaster, to reduce its effects when it strikes. The mitigation programme should also include preventive maintenance. Another component of the library disaster plan is a library disaster response programme (disaster recovery planning). A practical disaster recovery plan gives library staff site-specific, point-form directions on what they should do in the event of a disaster. The final component of the library disaster plan is the formulation and testing of measures

to restore facilities and to reopen the library. The document developed to ensure operations are restored is the business recovery programme. Though the terms differ, the plan by Robertson (2016) is similar to the business continuity management plan proposed by Hamilton and Brown (2016).

Business continuity management plans include mitigation, preparation, response and recovery (Hamilton & Brown 2016:7). Mitigation refers to prevention of crises, safety issues and proper preservation of assets. Preparation includes the development of a continuity plan, as well as training in its use and testing of the plan. The response phase requires contingency planning and planning for continuity of operations. Finally, the recovery phase is the phase when an organisation is trying to return to pre-crisis status.

From this classification, we can conclude that the development and implementation of business continuity management is important in disaster management. This study supports the need for the business management plans put forward by Hamilton and Brown (2016) and Robertson (2016), as they are comprehensive and focus on all the stages of a disaster management lifecycle, thereby assisting libraries with mitigation, preparation, response and recovery. A library should be able to continue to operate after a disaster, and doing so requires prior planning. It is, thus, important to determine if community libraries have business continuity plans.

2.9.5.2 Cultural-cognitive factors

Rattan (2013) found that the ability to respond to disaster requires some knowledge of what to do and expect, given that response is required under stressful and traumatic circumstances, which are common after disaster has struck. Lack of knowledge and plans are likely to compound the stress of those affected, especially when people are anxious about returning to normality as soon as possible. According to Rattan (2013:3), “libraries and various information centres need to take practical measures to minimize the risk of disaster and be prepared to react quickly and effectively should a disaster occur”. This section will present the cultural-cognitive factors.

Ritchie (2004) highlights the need for strategic management analysis, which includes the pre-event and prodromal stage of a crisis or disaster. At each stage, organisations and

managers can undertake activities to develop strategies and plans to stop or limit the impacts of a crisis or disaster. Although organisations are able to design pre-crisis strategies to help with crisis management, they are often unable to prevent a crisis from occurring; therefore, planning is required to minimise the damage and to restore operations. The framework suggests that the following activities are performed:

> *Strategic forecasting: allowing for predictions based on potential crisis or disaster situations and could include opinion based quantification, extrapolation of trends, simulation and cause and effect methods.*
>
> *Issues analysis: this is similar to contingency planning but it alerts managers to evolving trends in the external environment which can be used in developing strategies to use the trend to its advantage.*
>
> *Scenario analysis: which are detailed attempts to describe a potential end state if certain decisions were made by an organisation (Ritchie 2004:675).*

The work of Ritchie (2004) emphasises that it is the need for planning before and after a disaster that is important.

To strategic management analysis, Ngulube and Magazi (2006a:194) add that trained and knowledgeable staff are important in disaster management. The staff must possess skills to ensure the following is done:

> • *"Awareness is raised of the need to protect documents from disasters;*
>
> • *Preventive steps to minimize damage are taken;*
>
> • *Vulnerability analysis and risk assessment to evaluate the types of emergencies that might affect their institution and its collections are conducted;*
>
> • *Disaster preparedness plans are developed;*
>
> • *Health and safety regulations are adhered to during salvage operations;*
>
> • *Salvaging of collections is prioritised; and*
>
> • *The media is dealt with strategically during and after the disaster".*

From the list above, preservation and conservation skills are important, so that documents can be protected. In addition to the skills suggested by Ngulube and Magazi (2006b), Bisho (2015:7) proposes a number of skills and knowledge that librarians are expected to possess. The skills and knowledge are listed in Table 2.3 and can be achieved over time and through organisational tactics.

Table 2.3: Skills and knowledge for disaster management

Skills	**Knowledge**
Bookbinding	Digital curation
Leadership	Disaster plans
Marketing	Disaster policies and practices
Mitigation	Emergency preparedness
Needs analysis	Good governance
Paper conservation	Literacies
Planning	Post-disaster recovery and rehabilitation
Preservation	Prevention/reduction of risks
Problem-solving	Rapid response
Report writing	Teaching and learning

Source: Adapted from Bisho (2015:7)

The skills and knowledge proposed by Ngulube and Magazi (2006b) and Bisho (2015) could be classified as either theoretical or practical. Some of the skills and knowledge can be acquired through learning, and some can be acquired through practical experience.

From the list by Bisho (2015), ICT skills are absent. There is need for ICT skills in the 21st century. Another feature that should be added to the list by Bisho (2015) is that librarians should be able to review the current emergency safety plan. The review should consider the following:

- Determining if policies are up to date and relevant for current practice;
- Establishing if the policies are understood by staff or patrons;
- Ensuing that policies are uniform for a single location;

- Identifying emergency situations that are absent in the current plan;
- Examining whether staff can get access to the current plan quickly and as required; and
- Examining the form, either print or electronic, that the plan should take (Dixon & Abashian 2016:126).

The review of the emergency safety plans can only be performed if the plans exist, and can only be compiled by someone who has emergency planning skills. In addition to emergency safety plans, emergency planning skills are required. Dixon and Abashian (2016:125) state that emergency planning is concerned with the planning process. The process involves researching current theories, reviewing best practices and reading case studies that document the lessons that have been learnt during actual disaster and emergency events experienced by libraries. A learning culture regarding disaster management is, thus, required in the organisation. What is not evident from the work by Dixon and Abashian (2016:125) is whether the presence of an organisational culture influences emergence of disaster management planning.

The cultural-cognitive factors discussed in this section show that trained and knowledgeable people need to be involved in disaster management. The skills are not only required when a disaster has occurred, but are required before a disaster occurs, so that staff are able to mitigate risks.

2.9.5.3 Normative factors

Risk assessment is a normative factor that is required in an organisation (Halsted et al. 2014:4). Risk assessment is defined as" a process in which library staff, facility experts and outside authorities determine potential events that can cause service interruption" (Halsted et al. 2014:4). Some of the activities involved in risk assessment include conducting a vulnerability analysis, which analyses the probability and potential impact of each type of emergency, an analysis of current capabilities and hazards, and conducting an insurance assessment (Halsted et al. 2014:12–13). Knowledge is required about potential disasters that could occur and which have to be mitigated against, in order to prevent disruption of services. Risk assessment is important, as it ensures that the library

is able to develop ways to avoid certain risks and ways to reduce their impact. The issue of risk assessment has not been adequately covered in library and information science literature (Velasquez et al. 2016:4). The study will examine if risk assessment is being conducted in libraries.

2.9.6 Role of the community

Over the past decade, the debate about the role of the community in disaster management has been ongoing, with the outcome still unclear. What authors agree is that the disaster management community consists of individuals (people), groups (organisations involved in disaster management) and organisational systems (disaster management community) (Chen et al. 2006; Hagar 2015; Norris et al 2008; Ritchie 2004). Thus, the community has a prominent role to play in disaster management. Mansourian et al. (2006) point out that organisations, such as fire, medical and police departments; and utility companies involved in disaster management in the community are the main stakeholders for producing, updating and maintaining required spatial datasets for disaster response. Chen et al. (2006) and Norris et al. (2008), on the other hand, see the role of the community in community resilience. The authors suggest that that the community should be capacitated to recover on its own after a disaster.

Chen et al. (2006) are of the view that community residents learn how to analyse vulnerable conditions, discover problems, develop solutions and establish an organisation to implement disaster management tasks. Chen et al. (2006) propose a phased process, including initiation, assessment, planning and practice. Furthermore, basic response training courses and a disaster scenario should be presented to improve their emergency response capability. Norris et al. (2008) also focus on community resilience and view it as a process linking the myriad of adaptive capacities (such as social capital and economic development) to responses and changes after adverse events. Figure 2.4 presents a model of community resilience.

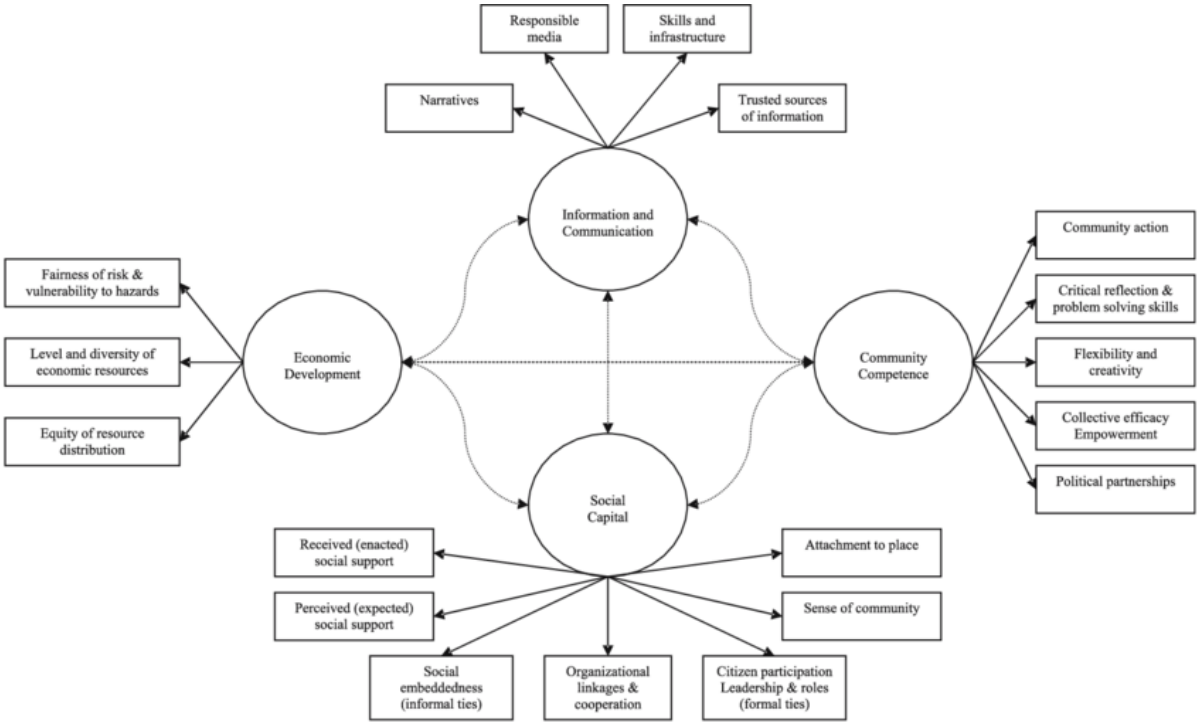

Table 2.4: Community resilience model

Source: Norris et al. (2008:136)

The model by Norris et al. (2008) shows that community resilience is not a singular condition that can be measured or monitored in a straightforward fashion. Furthermore, Norris et al. (2008) point out that community resilience is a multifaceted concept, which includes social, economic, institutional, infrastructural, ecological, and community elements. Chen et al. (2006) and Norris et al. (2008) state that the community should be involved in disaster management before, during and after a disaster.

In contrast to the community resilience model advocated by Chen et al. (2006) and Norris et al. (2008), Hagar (2015) examines how public libraries were involved in community-wide disaster planning. The study sought to explore the types of partnerships that were possible in disaster management, and also to consider new ways to involve libraries in disaster preparedness. Hagar found that libraries were not regarded as potential partners for disaster preparedness and response.

In addition to partnerships, some libraries formed teams or committees with members of different sections of the community. The committee can include staff who are directly responsible for public safety, representatives from technical services, library facility managers and at least one representative from senior library management (Dixon & Abashian 2016:125). The committee should develop an emergency plan that addresses areas of review, resources, staff and experts to consult, roles and responsibilities, and any approval process for newly developed policies and procedures (Dixon & Abashian 2016:125). The issue of a committee is important, though the literature does not indicate where the presence of a committee could improve disaster management efforts. To add to the knowledge, this study explored whether committees would assist community libraries in improving disaster management practices.

Lastly, Chen et al. (2006), Norris et al (2008); and Hagar (2015) state that community resilience should be improved and the community should be involved in initiation, assessment, planning and practise for a disaster. In order to undertake these activities, they should establish partnerships and form committees. Challenges do exist, however, as the library is not treated as a partner in disaster management.

This study seeks to add to the knowledge on the role of the community in disaster management. The study will also explore other important role players in the community, in addition to public safety and emergency services personnel, who can assist in disaster management. There is also need to investigate how awareness of disaster management can be improved, especially in the communities where the libraries are located.

2.10 RESEARCH ON DISASTER MANAGEMENT PRACTICES

Penny (cited in Hamilton & Brown 2016:5) reports myths about disaster management by libraries. The first myth is that the library is not at risk: librarians simply do not think a disaster will ever happen to it. The second myth is that existing plans are adequate, although they have never been tested, and most plans revolve around how to “report a fire or emergency, evacuation procedures, information on how to account for all employees, critical physical plant operations, medical or rescue duties, and names and titles of employees who are in charge” (Hamilton & Brown 2016:5). Thirdly, there is the

assumption that first responders will take care of everything. Fourthly, there is the belief that the organisation is immune to repeat mistakes. Finally, while libraries have plans for weather-related events, most do not anticipate, nor plan for, civil disturbances. Though these myths are specified, they have never been examined in contexts such as community libraries in NWP and, thus, cannot be applied to all libraries. This study sought to determine if the myths applied to community libraries in NWP.

The myths reported by Hamilton and Brown (2016) are supported by Velasquez et al. (2016:1), who conducted a study in South Australia to determine whether libraries had risk management and disaster plans for major disasters. The results of the study are that library managers did not rate the risk of a disaster as high, and believed that they were located in a low-risk disaster area. Furthermore, they did not regard any part of their collection as being of great value, and suggested that any loss of a collection was an opportunity to refresh the collection. Finally, the participants did not consider risk management and disaster recovery as an important part of their business. Perceptions of the likelihood of a disaster occurring seem to influence disaster management practices. This study was conducted in South Australia, which has a different context than NWP. This study sought to determine if the same perceptions of disaster exist at the site of the study.

Despite the myths reported by Hamilton and Brown (2016), Pierard, Shoup, Clement, Emmons, Neely and Wilkinson (2016) found that as many as 75% of library participants had experienced a disaster. Evidence suggests that few libraries are prepared, with as many as 66–80% of libraries reporting that they have no emergency plans or staff trained to carry it out (Pierard et al. 2016). Even when plans are in place, the rush to respond to immediate needs following a disaster can overwhelm the ability to pursue effective long-term planning. The need for planning before a disaster was reported by researchers.

As a result of the Florence and Corning floods in 1972 and the devastating fires at the Temple University Law Library in 1972 and the Military Records Center in Saint Louis, Missouri, in the United States of America in 1973, the need for a pre-planning for a disaster is seen as being valuable. The disaster plan should be thought out and drawn up before disaster strikes, and be ready to put into action (Silverman, Nakashima, Hunt &

Tuia 2016). Disaster planning is, thus, important. Libraries require a well-considered document that will guide its disaster management. However, even if a disaster plan exists, it must still be implemented, and all stakeholders should know about its existence.

Thus far, a trend that has emerged in the literature is a preference for examining disaster preparedness in academic libraries – community libraries have received little attention. Furthermore, studies focus on a single aspect of preparedness. Shameenda and Kanyengo (2012) focused on evaluating the disaster preparedness skills of library staff at an academic library in Zambia. Echezona (2012) undertook a study to determine perceptions, problems and strategies in academic libraries in Nigeria. Ayoung et al. (2016) undertook a study to evaluate the preparedness of Ghanaian polytechnic libraries for disasters, with a focus on measures in place to prevent disasters. Lastly, Ugwuanyi et al. (2015) examined the types of disasters that occur in university libraries. Even though these studies were conducted in academic libraries, they provide useful insights on how disaster management can be implemented. They also show that disaster management seems to focus on preparedness.

Similarly, the few studies that have been conducted in public libraries have focused on a single aspect of the disaster management lifecycle. Research into public libraries has focused on one of the four pillars of disaster management (prevention, preparedness, reaction or recovery). Graham and Paul (1996) focused on disaster management training, which they believe to be effective for raising the awareness of all staff regarding everyday safety and security issues, and the steps that can be implemented to reduce the likelihood of a disaster occurring. Muir and Shenton (2002) analysed six cases in KwaZulu-Natal, where libraries were not adequately prepared for disasters. Further, studies by Bhade and Aute (2016) of libraries and archives in the United Kingdom investigated the development and use of disaster plans. These researchers investigated the historical destruction of libraries and what caused their destruction. Other researchers examined disaster preparedness in archives and records management, for example, Ngulube et al. (2011) investigated disaster preparedness for preserving public records. Studies that considered a holistic disaster management cycle are, thus, limited and this study examined all aspects of the disaster management cycle.

Using ICTs for disaster management for libraries is another area that has gaps in knowledge, especially in Africa. Brown (2018) reports that much of the literature on digital disaster management is from international scholars. International studies on using ICT has focused on the loss of digital communication infrastructure (Schmidt 2010), and disaster management of institutional repositories (Robertson & Borchert 2014), while Mallery (2015) investigated technology, disaster response and planning and Rachman and Afidhan (2018) focused on digital disaster preparedness of Indonesian special libraries. The few studies in Africa include that by Kari and Baro (2016), who examined the digital preservation practices of university libraries. Libraries worldwide have adopted ICT tools and Internet access. Except for research into using social media to communicate during a disaster, literature on how ICT could be used by librarians for disaster management, and how digital formats found in the library and be included in disaster management, is limited.

2.11 RESEARCH APPROACHES OF DISASTER MANAGEMENT STUDIES

As reported in previous sections, there is a dearth of research on disaster management in libraries – most of the research has been into disaster preparedness of academic libraries. The research approaches the few studies that used were either quantitative, qualitative or a combination of both approaches. Studies and the approaches they used will be discussed in this section.

Studies that examined disaster management practices of a province, a country or different countries in a region, followed quantitative approaches. Examples are Graham and Paul (1996), who undertook a study in the United Kingdom on disaster preparedness of public libraries, with the emphasis on disaster plans. The study by Garnett, Arbon, Howard and Ingham (2018) was on current preparedness and knowledge levels in Australia. The study utilised a quantitative approach, and a survey was distributed to public libraries. In Nigeria, Owolabi, Lawal, Olukayode, Pelemo, and Odenigbo (2014) examined the disaster awareness and preparedness of Nigerian polytechnic libraries, and used a survey research design. Parul (2015) examined digital data protection of libraries in India, with the aim of investigating the perceptions of librarians about the probability of digital

disasters happening in their libraries, and to assess the level of digital disaster preparedness among libraries, using a quantitative approach. In South Africa, Ngulube and Magazi (2006b) conducted a study on disaster preparedness and security control in public libraries of the province of KwaZulu-Natal. Other researchers preferred a qualitative approach, depending on the objectives of their studies.

Research that explored individuals' meanings and interpretations of disaster management followed a qualitative paradigm. Ayoung et al. (2016) explored the preparedness of Ghanaian polytechnic libraries for disasters, and the measures they put in place, using a qualitative approach. Brown (2018) investigated disaster preparedness in Australian national, state and territory libraries, to gauge what areas might be common, and different, in disaster management of physical and digital collections. The study used practitioner interviews, analysis and quality assurance. In Namibia, Nyanga et al. (2018) undertook a study to investigate whether the National Archives and National Library of Namibia had considered the topics of prevention, preparedness, response and recovery in their disaster management plan. The study used interviews, focus group discussions, direct observations, and document analysis. In South Africa, no studies using qualitative approaches have been conducted on disaster management.

Studies that had examined the level of preparedness for and awareness of libraries of an aspect of the disaster management lifecycle used a combination of data collection instruments, such as questionnaires, interviews and personal observation. In Indonesia, Rachman and Afidha (2018) investigated the data on digital disaster preparedness activities undertaken by selected special libraries in Indonesia, to identify awareness of Indonesian librarians about digital data protection measures. The study used quantitative and descriptive qualitative approaches as data collection methods, employing a questionnaire with open-ended questions. Nwokedi, Panle & Samuel (2017) examined the level of staff preparedness for fire disaster at University of Jos Library in Nigeria. The measuring instruments comprised a questionnaire (quantitative) and interviews (qualitative). In South Africa, no study has combined qualitative and quantitative approaches. Furthermore, multi-methods have not been used in disaster management

studies that have focused on community libraries. The multi-methods approach was used by this study.

2.12 CONSIDERATIONS FOR DEVELOPING A DISASTER MANAGEMENT FRAMEWORK FOR LIBRARIES

2.12.1 Library building design

One of the most important considerations is the way library buildings can be designed to mitigate risks. Yew, Ramli Sulong, Yew, Amalina and Johan (2015) found that intumescent flame-retardant coatings can be used to provide passive fire protection. The coatings are used to reduce the devastating costs of fires – both life hazard and property damage. The findings of Yew et al. (2015) were that intumescent flame-retardant coatings with eggshells were effective for fire protection, with good water resistance, thermal stability and adhesion strength. In addition, the coating E (with CES) was found to be effective in protecting plywood against fire. Pilz, Poliquin and Sesma (2016) propose a fire-rated wall-and-ceiling system, the components of which are aimed at preventing fire, and preventing heat and smoke from leaving one portion of the building and entering another.

Other authors, such as Sun and Zhou (2016), point out the need for fire-proof sealing. Fire-proof sealing has the advantage of high temperature resistance and aging resistance, and fire-proof sealing sheets can be used to produce fire-resistant cable trays. In addition, it is fire-proof and smoke-proof. Though fire-proof sealing increased the construction budget, Sun and Zhou (2016) report that it has been found to be effective for engineering fire protection.

Muhammad, Ahmad and Baik (2018) propose using visual-sensor-based fire detection systems. The advantages of this system is that cost is low, response time is fast, a large coverage of surveillance area is possible and it requires less human intervention, thus, avoiding the need to visit the location where the fire alert has been triggered.

In addition to sensors, Djimesah, Okine and Kissi Mireku (2018) suggest early warning systems, which they define as “an integrated platform of data collection and transmission kit, forecasting models, response plans and techniques and human resources working together” (Djimesah et al. 2018:320). Early warning systems enable preparation for danger and trigger appropriate actions that will mitigate the threat or enable the people at risk to avoid it.

Besides early warning systems, Cheng, Chiu, Hsieh, Yang, Chou and Wu (2017) suggest that buildings invest in building information modelling (BIM) to improve building disaster prevention and management. The results of the study by Cheng et al. (2017:29) is that BIM could improve fire safety management processes. The BIM-based Intelligent Fire Prevention and Disaster Relief System was found to greatly enhance the accuracy of fire alarms and improve decision-making. The system was found to be effective for early warning detection and warning, real-time evacuation/rescue route planning, and guidance.

The use of intumescent flame-retardant coatings, fire-proof sealing, early warning systems and sensors is well documented in the literature. However, the use of these coatings and warning systems in libraries is a field that has not been examined by the literature. In addition, not much has been recommended regarding systems, instruments, and equipment for disaster mitigation in libraries.

2.12.2 Current elements of disaster management frameworks and theory

A disaster model points out critical elements, compares actual conditions with a theoretical model, enables a researcher to quantify a disaster and enables a common base of understanding to be developed. Kelly (1998, cited by Asghar et al. 2006) gives the following reasons for having a model:

- A model can assist in distinguishing between critical elements, and be of use when responding to disasters with severe time constraints.

- Comparing actual conditions with a theoretical model can lead to a better understanding of the current situation and can, thus, facilitate the planning process and the comprehensive completion of disaster management plans.
- The availability of a disaster management model is essential in quantifying disaster events.
- A documented disaster management model ensures that everyone who is involved is aware of what needs to be done, and the model enables better integration of relief and recovery efforts.

2.12.3 EVALUATION OF MODELS AND THEORIES OF DISASTER MANAGEMENT

This section will examine models and theories of disaster management and show how models and theories were applied in this study. The theories and models provided the analytical lens for examining the conceptual framework. Table 2.5 presents the evaluation. From Table 2.5, disaster management models tend not to focus on the before, during and after a disaster. This shows that most of the models are not holistic. This was supported by Asghar et al. (2006) and Morchain, Prati, Kelsey & Ravon (2015:482) who found that 1) there is no single model that encapsulates most of the major activities of disaster management within a single framework; 2) some models fail to present a comprehensive description of disaster management activities within a single model. Furthermore, the arrangement of activities in the model was not in a logical sequence; and 3) the existing models do not consider evaluation and analysis.

Table 2.5: Evaluation of disaster management models and theories

Model	Disaster management focus	Similarities with other models	Differences from other models	Uniqueness	Relevance in this study	How it support the conceptual framework
Norris et al. (2008) Community risk model	What happens after a disaster	Emphasis on risk assessment	The community risk model is based on the premise that the community is involved in disaster management	Interventions and policies were developed to help enhance a community's ability to respond and recover from a disaster	In this study, there was a need to determine what role the community plays in disaster management	The community is part of the disaster management community. To determine the role of the community the following questions was asked: *What role can the community perform in disaster management?*
Mansourian et al. (2006) SDI model	What happens before a disaster?	Risk assessment	Disaster management should be based on data collected	The disaster management community should produce, update and maintain datasets	Disaster management should be a collaborative approach between the organisation, the community and other organisations	To determine if there is collaboration between CATA and other role players in the community in disaster management, the following question was asked: *Is the library considered a potential partner for disaster preparedness and response by local disaster management structures in the community?*
Community-based disaster	Preparing before a disaster	Risk assessment	The community is trained to analyse vulnerable	Strengthening community resistance through	To ascertain the involvement of the community in	To ascertain whether there was a belief among community librarians that the community could assist in preserving the library before,

Model	Disaster management focus	Similarities with other models	Differences from other models	Uniqueness	Relevance in this study	How it support the conceptual framework
management model			conditions, discover problems and develop solutions	planning and practise	disaster management	during or after a disaster. To determine the role of the community, the following question was asked: *How do I work with the community to reduce disaster risks and to prepare their response mechanisms to address disasters?*
Building back better libraries	Before and after a disaster	Risk assessment, risk identification and risk recovery	Regeneration, implemen-tation and monitoring and evaluation	Need to establish a library planning team	To identify if monitoring and evaluation of disaster management took place	The model introduces the need for the organisation to develop a disaster management culture, which should be monitored and evaluated. The following question was used: *Does a learning culture on disaster management exist within the organisation?*

Model	Disaster management focus	Similarities with other models	Differences from other models	Uniqueness	Relevance in this study	How it support the conceptual framework
Caneva (2008) Model of national preparedness	Before a disaster	Risk assessment and risk vulnerability	Deployment of resources	The model makes analyses and optimal deployment of resources after a disaster possible	This model is relevant, as it focuses on the distribution of resources after a disaster	Two of the main components of a disaster cycle is response and recovery. There is a need to examine if the organisation has plans in place to resume operations after a disaster. The following question was posed to participants: *Are contingency plans in place in the event of a disaster in my library?*
Asghar et al. (2006) Proposed comprehen-sive model	Before and after a disaster	Risk assessment	Considers environmental effects and stipulates actions that should be implemented	Stipulates disaster management actions	Provides risk management actions that libraries should perform, evaluate and analyse	The model emphasises the need for risk assessment to be conducted. The following questions were posed: *What activities are undertaken to assess risk of disasters in the libraries?*

2.13 SUMMARY OF THE LITERATURE REVIEW

This chapter reviewed the literature pertaining to various aspects of disaster management. The main points of this chapter were how disaster management is defined, disaster management planning, disaster management activities and practices, self-efficacy factors, institutional factors, the effect of the media, the role of the community, various disaster management models and frameworks and current approaches to disaster management research for libraries.

Emphasis was on the following areas, which are part of this study's objectives: how a disaster is perceived, disaster management practices of community libraries, individual, institutional and community factors that influence disaster management, the role of the media and community in disaster management and other empirical studies done on disaster management by libraries.

One of the objectives of this study was to examine how a disaster should be perceived. A disaster is describes as being any incident that threatens to damage a building, collection, or its equipment, that occurs in a community and affects inhabitants severely. In addition, a disaster is classified according to its cause, which can be natural or technology, security, enterprise or human-made. It was important for this study to determine what community libraries constitute to be a disaster.

The review also showed that disaster management should be a continuous process that involves activities relating to preparedness, mitigation, response and recovery. It should not be considered a once-off event, but a continuous process. This notion was supported by four studies that were reviewed (Bhade & Aute 2016; Hamilton & Brown 2016; Ortuño et al 2013; Othman et al. 2014), and which show that disaster management should focus on the time before a disaster, during a disaster and after a disaster. The literature also highlights the role of the individual, the institution and the community in the disaster management lifecycle. The disaster management community was emphasised as comprising individuals, the institution and the community – each stakeholder has a role to play in disaster management (Paton 2003).

In analysing the role of individuals, the most important variable identified by the literature on disaster management is self-efficacy. Self-efficacy is an important consideration in examining disaster management beliefs, practices or actions (Paton 2003), because there is a need to determine whether individuals perceive that a disaster is likely to occur. Their perceptions of the probability of a disaster was highlighted by Adame and Miller (2015) and Miller et al. (2013) as having an effect on preparedness. In addition to perceptions, the literature showed the need to examine whether an individual takes personal responsibility for a disaster and conducts appraisals, and what disaster practices and activities they undertake if they perceive that a disaster could occur. Gaps existed with regard to the salient beliefs about disasters in community libraries. There is, thus, a need to investigate the beliefs of community librarians with regard to disaster management preparedness. The role of the institution should also be examined.

The role of the institution is important in disaster management. The regulative, normative, and cultural-cognitive factors within an organisation affect disaster management (Cook & Hodges 2015). Though the literature shows that authors view disaster planning differently, institutions should develop policies, procedures and guidelines on disaster management to manage libraries too. One such example is the COOP, that can ensure that a library is able to restore operations within a given time. In addition to policies, the literature identifies the need for a disaster management study to explore an institution's business continuity planning. Other factors that are identified in the literature are the need to explore if the organisational culture supports or hinders disaster management, and whether risk assessment is conducted. One of the objectives of this study was to identify the institutional factors that aid or hinder disaster management. From the literature it is evident that the policies, the organisational culture and the risk assessment of the institution must be examined. This could be achieved through examining the regulative, normative, and cultural-cognitive factors of an institution. This study, thus, identified the regulative, normative, and cultural-cognitive factors at CATA, to establish their effect on disaster management practices.

The literature highlights the need for a community to be involved in disaster management. The literature focuses on developing community resilience to disasters by involving the

community in risk assessment, and providing training (Norris et al. 2006). It should be noted that the different community resilience models are not specific to libraries or the information science field, but to the broad field of disaster management; however, they were useful, in that they indicate the need for the community to be involved in the disaster management lifecycle, and for building capacity in communities to assist during a disaster. The community resilience models assisted this study to identify community variables that could be examined to establish the role of the community. In terms of community libraries, the literature alludes to the need for emergency response personnel, representing the community, to be involved in the disaster management activities. However, the role of the community with regard to libraries is not specified in the literature, indicating a gap in current literature. The objective of this study was to examine if the community is involved in disaster management, and to investigate how the community should be involved in disaster management. The intention was to add to existing knowledge on the possible role that the community could perform.

The literature also refers to using ICT in disaster management, for preserving digital formats, to address the challenges of preserving digital material, for promoting preservation and conservation skills, using cloud services to back up data, and using social media during a disaster. The question that remained was whether media reports influenced disaster preparedness. One of the areas that was investigated by this study that has not been examined by previous studies, is whether reports in newspapers or social media promote disaster awareness and influence disaster preparedness of community libraries.

The analysis of the literature shows that research on disaster management by public or community libraries is limited, with recent studies focusing mainly on academic libraries. The research that has been undertaken, was mostly undertaken in the 1990s, and studied public libraries. Most the research on disaster management focused on academic libraries. There is, thus, a need to add to knowledge of disaster management as it relates to community libraries. Community libraries are important, as they provide library services to the majority of the population, while the academic library’s services are limited to the academic community.

Research on disaster management has focused on the following: a) identifying the current activities and expertise of those practicing in the field of disaster management; b) determining criteria for the effective assessment of disaster control plans, generally; and c) obtaining an overview of current disaster management practices.

The literature does not present blueprints or suggestions for disaster management frameworks that can be adopted by community libraries. The literature does, however, refer to elements such as activities that should be conducted, the need for different plans, such as COOP, and the need for establishing different disaster management structures. One the objectives of this study was to develop a framework for community libraries in NWP, and these elements were included in the framework that was developed. One of the key areas that needed to be addressed was the issue of the skills and knowledge of community librarians in relation to disaster management, as it has been found to influence disaster management practices.

2.14 SUMMARY OF THE CHAPTER

This chapter presented the literature review. The chapter examined the key definitions, concepts and findings of previous studies that examined disaster management by different libraries. A dearth of studies on the South African and African context is evident. The next chapter will present the research methodology used in this study.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

In Chapter 2, the concepts of disaster and disaster management, together with different models of disaster management, were presented. The literature review established that, while disaster management is not prioritised by libraries, because of the belief that a disaster cannot occur, various planning, mitigation and recovery practices should be in place should a disaster occur. This chapter will present the research design and methodology that was followed to answer the research questions. This chapter will describe population and sampling, and validity and reliability and ethical considerations applied. The chapter will also discuss the data analysis that was done to determine the disaster management beliefs and practices of community librarians in NWP. A case study design that used interviews and a questionnaire as data collection instruments was used in this study, in order to understand the disaster management practices of the population that was studied.

When conducting research, the methodology that is used is important. Ngulube (2015a) states that a methodology is central to the research process, as it provides the lens that guides the researcher to decisions relating to acquiring knowledge about a social phenomenon, and finding answers to the research questions. Furthermore, the methodology specifies the types of research designs and research methods that may be employed to gain knowledge about a phenomenon (Ngulube 2015a). Finally, a methodology is concerned with how “knowledge is understood, described, explained, verified, judged, evaluated, tested, explored, investigated and interpreted” (Ngulube 2015a:132).

Sarantakos (2013) is of the view that the choice of a methodology is influenced by the theoretical paradigm. Jamshed (2014), in turn, states that the choice of research methodology is based upon the type and features of the research problem. These types and features include the need for a variety of thoughts and opinions, whether a new field of study is involved, or whether the researcher intends to ascertain and theorise about prominent issues in a discipline. Similarly, Noor (2008) suggests that the choice of the

methodology is dependent on the nature of the research problem. This refers to how the researcher intends to create knowledge, either through social construction or through research.

This study sought to generate new knowledge about disaster management practices of community libraries in NWP. In this study, quantitative data was gathered, as the primary data collection strategy, and it was supplemented by qualitative data. The rationale for mixing the two types of data is that neither quantitative nor qualitative methods were sufficient by themselves to capture the perceptions about and to identify the disaster management practices of community libraries. The research methodology starts with a research paradigm and concludes with ethical considerations.

3.2 RESEARCH PARADIGM

Bryman and Bell (2007:25) define a paradigm as, “a cluster of beliefs and dictates which for scientists in a particular discipline influence what should be studied, how research should be done, [and] how results should be interpreted”. Kuhn (1970) adds that, in the human and social sciences, paradigms help the researcher to understand phenomena, they assist to advance assumptions about the social world, how science should be conducted and what constitutes original problems, solutions and criteria of proof. Alternatively, Maree (2016) posits that a paradigm is a set of assumptions or beliefs about fundamental aspects of reality, which gives rise to a particular worldview. Further, a paradigm addresses fundamental assumptions taken on faith, such as beliefs about the “nature of reality (ontology), the relationship between knower and known (epistemology) and assumptions about methodologies” (Maree 2016:52). Recently, Ngulube (2019:89) described a paradigm as a theoretical lens that is embedded in a research framework and which provides researchers “with a perspective that enables them to appropriately investigate social phenomena”.

The number of paradigms available differs according to authors. Creswell and Creswell (2018) stipulate that there are four paradigms: postpositivism, constructivism, transformative, and pragmatism. On the other hand, Ngulube (2019) posits that there are two paradigms, namely, positivism, which assumes reality is objective and that universal

truths about reality are known, and interpretivism, which states that social reality is subjectively and socially constructed and co-constructed. These paradigms are based on two ontologies – realism and constructivism (Ngulube 2019). In addition, the ontology of realism is informed by positivism, and that of constructivism is informed by interpretivism. Ngulube (2019) explains that these paradigms have evolved, for example, the positivist paradigm evolved into post-positivism, and scepticism about objectivism-constructivism has led to pragmatism.

Corry, Porter and McKenna (2019) state that authors classify all quantitative research as having its roots in positivism, and qualitative research as having its roots in interpretivism or constructivism, without reference to alternative paradigms. They add that some researchers refer to positivism as the paradigmatic source of quantitative research, but they do not qualify its current position (Corry et al. 2019). Other researchers suggest that quantitative research is a "modified positivist position" (Polit & Beck, 2012:12), and categorise it as positivism. Furthermore, there are a number of authors that label quantitative and qualitative approaches as "paradigms", rather than methodical strategies (LoBiondo-Wood & Haber, 2014). Thus, there is a lack of consistency regarding terminology and the categorisation of approaches.

The four paradigms suggested by Creswell and Creswell (2018) are variants of the two ontologies, positivism and interpretivism. Positivism involves the pursuit of knowledge about the cause-and-effect nature of the world. Atkinson (2012:51) adds that post-positivism is "a 'light' version of positivism – not nearly as relativistic as interpretivism, and more cautious around claims about the nature of knowledge and objective reality". Interpretivism is a paradigm that provides an organised set of assumptions about the nature of reality and how to study that reality with empirical methods (Atkinson 2012). Romm (2015) views postpositivism as being a variant of positivism, and constructivism of interpretivism.

The next section will discuss the emerging paradigms according to the way Ngulube (2019) explains the major tenets of positivism and interpretivism.

3.2.1 Postpositivist paradigm

The emphasis of a postpositivist approach is on the creation of knowledge through research that focuses on the model of natural science (Noor 2008). Postpositivism is also referred to as positivism/postpositivism, empirical or postpositivism. Creswell and Creswell (2018) state that postpositivism is concerned with causes determining effects or outcomes. The problem being studied reflects a need to identify and access the causes that influence outcomes, such as those found in experiments. The problem is reduced to a small, discrete set that is tested, such as variables that comprise the research questions (Creswell & Creswell 2018). The researcher adopts the position of an objective researcher, who then collects facts about the social world and builds up explanations of social life by arranging the facts in a chain of causality (Noor 2008:1602). The researcher starts with a theory, collects data that supports or refutes the theory, and makes the necessary revisions and conducts additional tests.

Positivism is assumed to entail the following principles:

- Only phenomena and, hence, knowledge, confirmed by the senses can genuinely be warranted as knowledge.
- The purpose of theory is to generate hypotheses that can be tested that will thereby allow explanations of laws to be assessed.
- Knowledge is arrived at through the gathering of facts that provide the basis for laws.
- Science must (and presumably can) be conducted in a way that is value-free (that is, objective).
- There is a clear distinction between scientific statements and normative statements and a belief that the former are the true domain of the scientist (Bryman & Bell 2007:16). The knowledge that is developed using the positivist lens is the result of careful observation and measurement of the objective that exists in the world. Guba and Lincoln (1989) point out that the researcher should be independent from what is being researched.

3.2.2 Constructivist paradigm

Constructivism is also known as social constructivism and interpretivism. Social constructivists believe that individuals seek understanding of the world in which they live and work, and they develop different subjective meanings for their experiences (Creswell & Creswell 2018). The researcher is interested in the complexity of individuals' views, rather than in placing the meanings or ideas in categories. In this approach, the goal is to rely on the participants' views of the situation being studied. The meaning is obtained through discussions or interactions using general and broad questions, and the meaning is negotiated socially and historically (Creswell & Creswell 2018). Christ (2014) supports the need to involve participants in a study, as co-construction of knowledge occurs when the researcher and participants work together to create knowledge. The role of the researcher is to listen to what people say and do in their settings, with the intent to make sense or interpret the meaning they have of the world. Unlike the postpositivist, the constructivist does not begin with a theory; instead, the researcher generates or inductively develops a theory or pattern on meaning (Creswell & Creswell 2018). Also, the researcher and participants recognise their bias, and negotiate their shared interpretations and their views about the value of the research (Christ (2014). Lastly, a constructivist paradigm recognises that the views of participants/participants are constructed in relation to the questions that are asked (Romm 2013).

3.2.3 Transformative paradigm

The transformative approach is based on the premise that research inquiry needs to be intertwined with politics and a political change agenda, to confront social oppression at the level it occurs. This notion is supported by Romm (2015), who explains that researchers embracing a transformative paradigm keep social justice issues in mind, so that their inquiries become intertwined with a political agenda and are action-oriented towards generating increased fairness in the social fabric. Mertens (1999:4) adds that, in embracing a transformative paradigm, efforts are made by inquirers to ‘‘link the results of social inquiry to action, and [to] link the results of the inquiry to wider questions of social inequity and social justice’’. Research contains an action agenda to change the lives of

the participants, the institutions in which individuals work or live, and the researcher's own life (Creswell & Creswell 2018). The principles that guide the transformative approach are as follows:

- That the researcher will work collaboratively with participants to avoid marginalising them;
- That participants help to design questions, collect data, analyse the data and reap the rewards of the research; and
- That its premise is providing a voice for these participants, raising their consciousness or advancing an agenda for change to improve their lives.

Cram and Mertens (2015) posits that what is specific about the transformative paradigm is that it might involve quantitative, qualitative, or mixed methods. The main point is that the community that is most impacted by the research needs to be involved to some degree in the methodological decisions.

3.2.4 Pragmatic approach

The aim of the pragmatic approach is to use all approaches available in order to understand a research problem. Pragmatism allows a researcher to be free of mental and practical constraints imposed by the ‘‘forced choice dichotomy between postpositivism and constructivism’’ (Creswell 2007:27). Pragmatism is not limited to one system of philosophy, as the researcher uses both quantitative and qualitative assumptions when undertaking the research (Creswell & Creswell 2018). These studies are referred to as mixed method, multi-method or integrated approaches to research (Creswell 2014). Creswell, Plano Clark, Gutmann and Hanson (2003:212) define mixed method research as the collection or analysis of both quantitative and qualitative data in a single study, which collects data concurrently or sequentially, and involves the integration of the data at one or more stages of the process of research.

Using both forms of data allows researchers to, for example, simultaneously generalise results from a sample to a population and gain a deeper understanding of the

phenomenon of interest (Vetter 2017). It also allows researchers to test theoretical models and to modify them based on participant feedback.

Pragmatism is not intended to find unvarying causal links or truths, but aims to interrogate a particular question, theory, or phenomenon with the most appropriate research method (Feilzer 2010). In the pragmatic approach, instead of the method being dominant, the research problem is viewed as the most important concern (Creswell 2003). Thus, the data collection methods adopted (interview, questionnaires, observation and articulation/documentation), narratives (qualitative and quantitative), and the analysis (descriptive, factor, content, thematic and discourse) are deemed to be the factors most likely to provide deep insight into the research problem (Creswell 2003).

This study used the pragmatic approach. The reasons for doing so were to enable triangulation of the results, and to extend the study's results. This study triangulated data by combining quantitative methods (questionnaires) and qualitative methods (interviews and document analysis). By combining these methods, the researcher could produce different types of data, which helped the researcher to understand the subjective meanings and provide a description of disaster management practices.

3.3 RESEARCH METHODOLOGY

The previous section presented the four research paradigms. This section will discuss the methodologies that informed this study.

3.3.1 Quantitative methodology

Quantitative research is used for testing objective theories by examining the relationships among variables. These variables can be measured, so that the numbered data is analysed using statistical procedures (Creswell and Creswell 2018). Moreover, Ngulube (2015a) states that quantitative research is theory-driven and tends to be confirmatory. Ngulube (2015b) adds that the strength of quantitative research is that it allows the researcher to arrange large amounts of data in a graphical or numerical, summarised form, that assists in answering the research questions. Confirming Ngulube's (2015b)

explanation, Creswell and Creswell (2018:4) highlight that researchers who use a quantitative approach have assumptions about testing theories deductively, building in protections against bias, controlling for alternative or counterfactual explanations, and being able to generalise and replicate findings.

This study required a quantitative approach, as this approach provided measures of beliefs, intentions and behaviours relating to disaster management that could be subjected to statistical analysis.

3.3.2 Qualitative methodology

Denzin and Lincoln (1994) state that qualitative methodology implies an emphasis on processes and meanings that are not rigorously examined, or measured in terms of quantity, amount, intensity or frequency. Moreover, qualitative research is exploratory and inductive (Ngulube 2015a). In terms of usefulness, a qualitative approach is used to explore and understand the meaning individuals or groups ascribe to a social or human problem (Creswell & Creswell 2018).

Further, in a qualitative study, data is collected in the participants' setting (Creswell & Creswell 2018; Ngulube 2009). Data analysis builds inductively, from particulars to general themes, and the researcher interprets the meaning of the data (Creswell & Creswell 2018). Maree (2016) adds that the heart of a qualitative study involves extracting the meaning from data, which refers to the social meaning people attribute to their experiences, circumstances and situations. Finally, the data of a qualitative study can be in the form of field notes and audio or video recordings that were made during in-depth interviews, document and participant observation, and ethnography, which are used to understand the phenomena (Maree 2016; Ngulube 2009).

In this study, the researcher conducted interviews with a few selected library managers in the different districts in NWP, in order to clarify organisational aspects of disaster management, for example, policies and procedures. The library managers were interviewed because they play a key role in the management of libraries at district level. Conducting interviews with library managers gave the researcher the opportunity to

explore how disaster management is conceptualised, and what the beliefs surrounding disaster management are.

3.3.3 Mixed methods research

Mixed method research combines the strengths of qualitative and quantitative methodology in order to produce a broad and comprehensive study (Ngulube 2015b). Mixed method research is a research design that involves philosophical assumptions that guide the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies (Creswell, 2014). The central premise is that, by combining quantitative and qualitative approaches, a better understanding of research problems than either approach could provide alone, is achieved (Creswell 2014). According to Onwuegbuzie, Slate, Leech and Collins (2007), the analytical techniques used in mixed method research involves utilising quantitative and qualitative methods, either concurrently or sequentially, sometime after the data collection process; thereafter, interpretations are made in a parallel, integrated manner.

For this study, mixed method research was not appropriate, because the study did not follow any particular mixed method research design. Instead, the study sought to gather data from more than one research method, which was triangulated to obtain a complete picture. The next section will explain the multi-method approach used by this study.

3.4 Multi-method approach

Triangulation is defined as the “application and combination of multiple (theoretical and methodological) approaches in the study of the same phenomenon” (Flick 2018:318). The effectiveness of triangulation is based on the belief that the weaknesses in each single method will be compensated by the counterbalancing strengths of another (Jick 1979). Using multiple methods and multiple data sources enhances the validity of research findings (Flick 2018). Cohen, Manion and Morrison (2018) claim that triangulation explains the richness and complexity of human behaviour fully from more than one standpoint, by using both quantitative and qualitative data. Qualitative methods can play

a particularly prominent role by eliciting data and suggesting conclusions to which other methods would be blind (Jick 1979).

A number of authors, however, allude to the shortcomings of triangulation, among which that replication is difficult. Jick (1979) and Cohen et al. (2018) state that replication is nearly impossible, especially as qualitative methods are problematic to replicate. Other shortcomings include that, if a research question is not clearly focused, it will not produce the desired outcome, and that triangulation should not be used as a legitimate, dominant preferred method (Jick 1979). Fielding and Fielding (1986) claim that methodological triangulation does not increase validity, reduce bias or bring objectivity to the research. Flick (2018) reports that one of the shortcomings of earlier researchers is that they used triangulation for validation, and that there is a gap in triangulation discourse regarding when it should be used and when it should not be used.

In this study, the researcher ensured that research questions were linked to the conceptual framework and objectives, to ensure that it is focused. To overcome the shortcoming regarding validity, some of the measures adopted include that the researcher chose an appropriate time scale to conduct the research, selected appropriate instruments for gathering the different data required, taking steps to avoid participants failing to return questionnaires, and using respondent validation.

3.4.1 How triangulation was used

The literature presents various type of validation, which are given by Denzin (1978) as:

- Data triangulation that involves combining different data sources, that are examined at different times and places and by different persons;
- Investigator triangulation, which refers to the use of different observers or interviewers to control bias from an individual;
- Theory validation, which refers to approaching data from multiple perspectives and hypotheses; and
- Methodological triangulation, either within method or between methods.

Neuman (2006) and Terre Blanche, Durrheim and Painter (2014) identified four types of triangulation. Their first type proposes measures involving the researcher taking multiple measurements of the same phenomena in order to see all aspects of it. The second type involves the researcher making use of multiple observers in the study, thus, providing different perspectives. The third type is the triangulation of theory that occurs when a researcher uses multiple theoretical perspectives in planning the research or interpreting data. The last type of involves mixing qualitative and quantitative data.

Cohen, Manion and Morrison (2007) posit that there are nine types of triangulation, which include the four types by Neuman (2006). Cohen et al. add time, which considers factors of change and processes, space, which utilises cross-cultural techniques, combining levels, which uses more than one level of analysis, paradigm triangulation, instruments triangulation and sampling triangulation. This study used triangulation of methods, which allows for the collection of rich data, reduces the risk of chance associations and systematic bias, and relies on information collected from diverse ranges using a variety of methods (Maxwell 2016).

To understand disaster management practices in NWP, the researcher used questionnaires, interviews and documents, such as policies he obtained from CATA, and studied. Onwuegbuzie and Frels (2016) define triangulation as seeking consistency or convergence between the quantitative findings and the qualitative findings. Triangulation is not only about comparing data, but to obtain a rich set of data for making valid conclusions (Creswell & Poth 2018). Kumar (2014:286) states that triangulation is based on the belief that using the same set of data that is collected through different approaches to draw conclusions and its examination from different perspectives “will provide a better understanding” of a problem, situation or issue. This study obtained quantitative data through questionnaires completed by community librarians who are responsible for the operations of the library. To eliminate bias and to draw well-sustained conclusions, library assistant directors at district level were interviewed. These assistant directors did not take part in the questionnaire or in the survey. The qualitative data was collected after the quantitative phase, and was used to obtain a rich set of data, to enable the researcher to answer the research question.

3.5 DATA COLLECTION

The previous section presented the research design that was followed in this study. The focus of this section will be to discuss population, sampling and triangulation.

3.5.1 Population

The population of a study is the total universe of units from which the sample to be used is selected (Bryman & Bell 2007). The population is also defined as individuals of interest to the researcher (Marczyk, DeMatteo & Festinger 2005). Saunders, Lewis and Thornhill (2007) add to the work of Marczyk et al. (2005) by stating that a population is a group to which the researcher generalises the research results.

The population of this study consists of all the community libraries in NWP. At the time the study was conducted there were 110 community libraries which was the population for the study. In addition, four assistant directors were purposively selected.. The population also consisted of 10 assistant directors'/deputy directors for community libraries in Ngaka Modiri Molema, Bojanala Platinum, Dr Ruth Segomotsi Mompati and Dr Kenneth Kaunda (Dr K.K) districts. From the 10, 4 assistant directors'/deputy directors were purposively sampled following insights from Etikan, Musa and Alkassim (2016), which reiterate that purposive sampling allows the researcher to concentrate on people with particular characteristics which are helpful to the relevant research. In this case, the researcher wanted to determine the institutional factors that promote or hinder disaster management hence the assistant directors who are policy makers on community libraries would provide as much useful information as possible. To conclude, the whole population of community libraries was considered by the study, whilst a sample of the assistant directors was selected. The assistant directors were sampled.

In research, it is typically not practical to include every member of the population of interest in a research study. Time, money, and resources are three limiting factors that make this unlikely. Therefore, most researchers are forced to study a representative subset, which is a sample of the population of interest. In this study, no sampling was

undertaken in the quantitative phase. Sampling was, however, done in the qualitative phase.

3.5.2 Sampling

Creswell and Poth (2018) define sampling as the process whereby the researcher selects individuals and sites of study because they can inform an understanding of the research problem and central phenomenon of the study. The underlying premise of sampling is that a relatively small number of units, if selected correctly, can provide, with a sufficiently high degree of probability, a true reflection of the sampling population (Kumar 2014). Ngulube (2005:132) states that, “by studying the sample it is possible to draw valid conclusions about the larger group”.

However, there is a need to determine how many participants should be used in a study. Maree (2016) offers an explanation of how many participants should be used in a study. He suggests the number should be dependent on the research questions, the type of research design, the skill and experience of the researcher, and the time and funds available for the research.

According to Kumar (2014), there are three categories of sampling, which are random/probability sampling, non-random/non-probability and mixed sampling design. The type of sampling strategy used can have an effect on the researcher’s ability to generalise the sample findings and the type of statistical tests to apply to the data (Kumar 2014).

Bryman and Bell (2007) describe a probability sample as one that is selected using random sampling, so that each unit in the population has a known chance of being selected. A non-probability sample is not selected using a random selection method, and some units in the population are more likely to be selected than others. Bryman and Bell (2007) and Silverman (2011) are of the view that quite a lot of research is based on non-probability samples. The reasons include the difficulty of obtaining probability samples and time and cost of obtaining a probability sample.

3.5.2.1 Sample frame of quantitative phase

For the quantitative data collection, no sampling technique was used. The study followed the recommendation of Gay, Mills and Airasian (2012:139), that, for smaller populations, for example, symbol N, which represents sample size N=100, there is no point in sampling. The population for this study was community libraries. CATA's community library database at the time the study was conducted comprised 110 community libraries in NWP in four districts. Onwuegbuzie and Collins (as cited in Hesse-Biber 2010) recommend that the minimum size guidelines for a quantitative research design is 64 participants for one-tailed hypotheses.

3.5.2.2 Purposive sampling

Purposive sampling was used for the qualitative data collection of this study. The total number of assistant directors'/deputy directors was 10 which is the population for the qualitative enquiry. Purposive sampling is a "collection of specific informants whom a researcher deems likely to exemplify patterns that he or she seeks to pursue in an in-depth qualitative study" (Hesse-Biber 2010:126). In purposive sampling, the researcher has a specific purpose in mind (Maree 2016). The researcher's judgement on who to include in a sample is evident in purposive sampling (Kumar 2014; Maree 2016).

In this study, the researcher only targeted librarians who were employed at assistant director/deputy director level, and their occupation was used as the means to identify suitability as participants. They were referred to as assistant directors in this study. Hesse-Biber (2010) recommends using three to five participants in a case study. Yin (2016) recommends no more than four or five case studies.

The sample size for the qualitative phase were four assistant directors responsible for community libraries. For the qualitative sample, in order to access the participants, the researcher obtained a list of the location of libraries from the Directorate Library, Information and Archive Services. Due to the vast distribution of the community libraries in NWP, purposive sampling strategies were used. NWP is divided into four districts and 19 sub-districts, namely,

- Ngaka Modiri Molema, which is made up of five sub-districts,
- Bojanala Platinum, which is made up of five sub-districts,
- Dr Ruth Segomotsi Mompati, which is made up of five sub-districts, and
- Dr Kenneth Kaunda, which is made up of four sub-districts.

The total number of assistant directors'/deputy directors at the time the study was conducted was 10. The rationale for using assistant directors involved the need to determine the institutional factors that promote or hinder disaster management. Assistant directors are policy makers and, thus, there was a need to interview them to determine the institutional position with regard to disaster management and to corroborate the information obtained from the community libraries. The participants who were selected from the sample were perceived to be key individuals who would give invaluable insight and more detailed answers to research questions.

3.6 QUESTIONNAIRE

A questionnaire is a written list of questions to which the participants record their answers. Bryman and Bell (2015) define a questionnaire as a collection of questions administered to participants. The participants read the questions, interpret what is expected and then write down the answers (Kumar 2014). Babbie and Mouton (in De Vos 2005:166), add that, although the term questionnaire suggests that a respondent will have to answer a collection of questions, a typical questionnaire probably contains many statements that are posed as questions, especially if the researcher is interested in determining the extent to which the participants hold a particular issue to be true. Some of the questions used in this questionnaire were adapted from the questionnaire developed by Varlamoff and Plassard (2004), who conducted a survey on disaster planning in national libraries.

Kumar (2014) recommends that questions should be clear and easy to understand, the layout of the questionnaire should be such that it is easy to read, the sequence of the questions should be easy to follow, the question should be developed in an interactive style, and participants should feel as if someone is talking to them. The questionnaire can be administered as either a mailed questionnaire, collective administration, online or in a public space. Maree (2016) recommends that, when designing a questionnaire, the

researcher considers the appearance of the questionnaire, question sequence, wording of questions and response categories. The choice of questions should bear in mind the statistical techniques that will be used to analyse it (Maree 2016).

Questionnaires have their advantages and disadvantages. The advantages of questionnaires include fast gathering of data (Powell & Connaway 2004), that it is cheap to administer, interviewer effects are absent, there is no interviewer variability and it is convenient for participants (Bryman & Bell 2015).

The disadvantages of questionnaires include that the researcher cannot prompt, the researcher cannot probe for participants to elaborate on an answer, cannot ask many questions, even though they may be salient to the participants, as this may cause them to lose interest, the difficulty of asking other kinds of questions, that the researcher cannot collect additional data, and that it is difficult to ask questions that are not appropriate for some kinds of participants, and has a relatively lower response rate (Bryman & Bell 2015).

To ensure that the questionnaire was able to collect the data, the researcher ensured that the questions were clear and unambiguous, so that it would be easy for participants to complete it without prompts, and the researcher ensured that questions were salient, so that the questionnaire was not boring. Shorter questions were used, and clear instructions and attractive layout was used to increase the response rate. In addition, the questionnaire was accompanied by a covering letter explaining the reasons for the research, why it was important and why the participants had been selected.

3.6.1 Structure of the questionnaire

The questionnaire that was used in this study is shown in Appendix A. The questionnaire that was used in this study was developed using Google Forms. The rationale of using a web-based survey was that the community librarians or library assistants were scattered all over NWP and the costs involved in administering a physical paper questionnaire would have been excessive. Also, every community librarian has access to a CATA email address. All the community librarians, assistant librarians and library assistants had email

addresses at the time the study was conducted. However, not all community libraries had Internet access, although they all had access to telephones and cell phones.

The researcher sent an email with the survey link to the email addresses of the community librarians who were employed at the time the study was conducted. A cover page was included to explain the purpose of the questionnaire; it also provided information stating that participation was voluntary and explained ethical aspects, such as anonymity and how the results would be used. Other advantages of using an online questionnaire are faster response time, attractive formats and fewer unanswered questions (Bryman & Bell 2015). The disadvantages of an online survey include a low response rate, that the survey is restricted to online populations, that multiple replies can be given and concern among participants about their anonymity.

The questionnaire was designed according to the four design guidelines suggested by Maree (2016). The instructions for the participants were simple, clear and concise. The appearance of the questionnaire was prioritised with a legible font, clear instructions and consideration of the background, and it was user-friendly. Maree (2016) also suggests that a questionnaire should be completed in less than 30 minutes. In addition, the sequence of the questions kicked off with easy-to-answer, non-threatening questions, like biographical data. Questions on the same topic were grouped together and the topics followed a logical order.

The questionnaire contained a variety of questions. A questionnaire should contain open-ended or closed-ended questions (Powell & Connaway 2004), and the one for this study contained both. Bryman and Bell (2015) lists seven types of questions, which can be divided into open (unstructured) and closed (structured) questions. Open questions have a space for the participants to answer by writing a word, phrase or a comment (Maree 2016). Hopkins (as cited in Maree 2016:180) maintains “open questions are used to generate research hypotheses and closed questions are used to test research hypotheses”. The advantages of using open questions are that participants can give honest answers and detail, they can answer complex questions, and a researcher can conduct thematic analysis of responses, which will yield information categories and subcategories (Maree 2016). Disadvantages include that coding of answers may be

difficult, statistical analysis is difficult and participants may need time to think and write down their responses. In this study, open-ended questions were used for their ability to yield rich and detailed data that has been elaborated on. The answers provided to open-ended questions enabled the researcher to use the information obtained in the qualitative phase. Closed questions provide the respondent with a set of responses from which the respondent has to choose one response. The data from closed questions is easier to analyse than that from open questions (Maree 2016).

Closed questions were also used in this study's questionnaire. The advantages of closed questions are they are easy and quick to answer, coding and statistical analysis is easy, and sensitive questions are easily answered (Maree 2016). The disadvantages of closed questions are that participants' answers are limited to the options provided, it is easy to answer any question and participants may answer even if they have no knowledge or opinions.

Short questionnaires have been found to have higher response rates (Bryman & Bell 2015; Maree 2016). They explain that long questions tend to bore participants, who quickly lose interest in completing the questionnaire. This study avoided using long questions.

Pre-testing a questionnaire has the role of ensuring that the data collection instrument functions well (Bryman & Bell 2015). Pre-testing is of importance when a questionnaire is self-administered, as the researcher will not be available to clear up confusion. Pre-testing also enables the identification of questions to which everyone replies in the same way, and which, therefore, is of no interest, "because they do not form a variable" (Bryman & Bell 2015:260). Pre-testing can be used to refine questions (Powell & Connaway 2004), or to determine how the questions flow and whether some will need to be moved around.

Bryman and Bell (2015) points out that the pre-test or pilot should not be carried out on people who might be part of the sample that will be used in the study, as this will affect the representativeness of the sample. The authors recommend using a small set of participants who are comparable to members of the population from which the sample for the main study will be taken. The researcher used librarians employed at universities for

the pre-test, as they are comparable to the sample of the study. Chigada (2014) mentions that the literature does not specify the number of individuals required for the pre-testing, but that the exact size should depend on the aims of the researcher planning a pre-test. Pre-testing allowed the researcher to finalise questionnaire.

3.7 INTERVIEWS

For the qualitative phase, the interview method was used. An interview is a two-way conversation in which the "interviewer asks the participants questions to collect data and learn about the ideas, beliefs, views, opinions and behaviours of the participant" (Maree 2016:92). Ary, Jacobs and Razavieh (2006:480) report that interviews provide information that cannot be obtained from surveys. An interview is a preferred tactic to explore people's views and report findings in their own words. Creswell (2014) states that the researcher uses the interview to pose broad, general questions to allow the participants to explain their ideas.

The advantage of using interviews is that they provide insight on participants' perspectives and provide information on unanticipated issues (Ary et al. 2006:480), they allow participants to provide historical information and give the researcher control over the line of questioning (Creswell 2014:191). Interviews also have disadvantages. Some of the disadvantages are that they provide indirect information filtered through the views of participants, they provide information in a setting that is not the natural field setting, the researcher's presence may bias responses, and "not all people are equally articulate and perceptive" (Creswell 2014:191).

There are three different types of interviews: open-ended (also referred to as unstructured), semi-structured and structured interviews. An open-ended or structured interview takes the form of a conversation that has the intention to explore with the participants. Open-ended questions are spread over a period of time and the main focus is on participants' perceptions of an event or phenomenon (Maree 2016). Creswell (2014) advocates for the use of open-ended questions in a qualitative study.

In a structured interview, the questions are detailed and developed in advance. The interview is controlled by the researcher, who asks all the participants the same questions, presented in the same order or sequence by the same interviewer (Maree 2016). There is little flexibility in the way the questions are probed or answered in a structured interview.

A semi-structured, face-to-face interview is used in research where the aim is to corroborate data emerging from other data sources. It does not take place over a period of time and the line of inquiry is developed by the researcher in advance of the interview (Lewis 2015). This means that a set of open questions are developed and are followed by additional probing and clarification (Maree 2016). In addition, a semi-structured interview is flexible, and responds to the direction the interviewees take in the interview. The drawback of a semi-structured interview is that it is easy to lose the focus of the interview and, instead, focus on trivial issues. This study used semi-structured questions. The researcher developed a common set of questions relating to disaster management practices of community libraries. As the community librarians operated in different conditions, the researcher used common questions and probed for clarity and further understanding. A semi-structured interview was useful in this study, as it enabled the researcher to gain an understanding of assistant directors' perspectives on disaster management in NWP.

A semi-structured interview protocol (Appendix B) with open-ended questions was used in this study. The questions are based on the research questions. The interviews started with the researcher explaining the objectives of the study. The interviews were held in the districts where the interviewees were based where possible but some interviews were conducted telephonically. To ensure anonymity, the names and other personal details of participants were not recorded. The interview responses were recorded and used to explore the patterns identified in the questionnaire. The names of the interviewees are not published. The interviews were conducted in November 2018.

When conducting an interview, the researcher is required to develop an interview protocol. An interview protocol is used for asking questions and recording answers during

a qualitative interview (Creswell 2014). The interview protocol includes the following components:

- A heading, which includes, for example, the date and place;
- Instructions for the interviewer to follow, so that standard procedures are replicated from one interview to another;
- The questions;
- Probes for the four to five questions, to follow up and asking individuals to explain their ideas in more detail, or to elaborate on what they said; and
- Spaces between the questions to record responses.

Researchers must develop a log to keep records of documents collected for analysis in a qualitative study (Creswell 2014:194).

3.7.1 Pre-testing the interview protocol

The interview protocol for this study was pre-tested. The questions for the interview focused on the values, beliefs, behaviour, formal and informal roles, relationships, encounters and stories regarding disaster management. The interview protocol was pre-tested on four university librarians who were not part of the questionnaire pre-test. The feedback received included the following:

> *You may need to qualify acronyms.*
>
> *The longest period is 10 years, are not there some participants who have a longer period? If they are there, then adjust the responses accordingly.*
>
> *There is a possibility of multiple disasters. You limited the choices to just one. Give provisions for participants to make multiple selections here.*
>
> *You have switched from first person (I, me, my) to second person (you, your, etc). You may want to consider consistency.*
>
> *Some questions include negatives for example, do you agree with the view that community librarians should not plan for a disaster*

3.8 DATA QUALITY

This section will focus on the validity and reliability of the data collected for the study. The two terms, validity and reliability, have different meanings (Babbie 2016; Bryman & Bell 2015). Validity refers to whether "an indicator (or set of indicators) that is devised to gauge a concept really measures that concept" (Bryman & Bell 2016:158). Reliability refers to the consistency of a measure of a concept. Babbie (2016) points out that reliability focuses on whether the same data would have been collected each time in repeated observations of the same phenomenon. When conducting a study, a researcher should incorporate steps to ensure trustworthiness and credibility of the study (Maree 2016). A researcher is required to use certain procedures to check for accuracy of the findings and is required to be consistent across all participants (Creswell 2014). Ngulube (2005:132) suggests asking the following question when discussing validity and reliability: Has the research measured the phenomenon of interest in a manner that accurately reflects its characteristics? Hesse-Biber (2010:85) states that validity asks: Do the instruments measure the phenomenon that they are supposed to? Reliability asks: If I use the same measure today and repeat it again on the same population shortly thereafter, will I obtain the same results? The validity and reliability of this study will be discussed in the next section.

3.8.1 Validity

Validity is based on the need to determine whether the findings are accurate from the standpoint of the researcher, the participant or the readers, and terms such as trustworthiness, authenticity and credibility are often used to discuss validity (Creswell 2014). Similarly, Hesse-Biber (2010) posits that validity should not focus only on having used the correct research method design, having the right method elements, and whether or not the research findings are valid. Validity in mixed method study should answer the following questions (Hesse-Biber 2010:87):

- How well do the researcher's findings fit the problem? In other words, do the findings capture the issue (problem) at hand?
- How well does the researcher answer her or his research question(s)?

- Did the research capture an understanding of the issue?

Kvale (1996 as cited in Hesse-Biber 2010:88) suggests three criteria of validation for a qualitative approach. These are, validity of the quality of craftsmanship, validity as communication, and pragmatic validity as action.

Validity as craftsmanship involves the researcher assessing the study for a high degree of credibility. This involves the researcher examining his or her action throughout the research process (Hesse-Biber 2010; Sandelowski 2000). Examples of actions that the researcher can take include double-checking findings, ensuring that important questions and concerns have not been omitted, and determining whether the researcher has been flexible in their point of view in relation to the findings. These crosschecks have been found to increase the reliability of a mixed methods study (Hesse-Biber 2010; Lewis 2015). In this study, the researcher formulated the objectives before the research questions. The research questions were linked to the objectives. The research instruments were tested, to ensure that they measured what they were supposed to measure. Triangulation was applied, which involved different sources of information being examined and using the evidence from the sources to build the justification for themes. Creswell and Creswell (2018) suggests that, if themes are established as a result of converging sources and perspectives from participants, then the process can add validity to the study.

Another important validation check involves exploring and entertaining alternative theoretical explanations of findings. This involves the researcher examining their findings to determine strengths and weaknesses, and offering alternative explanations for the research results. The research findings for this study were critically examined and alternative explanations were offered.

Another form of validation involves communicative validity. This involves using experts of a particular research problem to evaluate, debate and dialogue the findings of the study (Hesse-Biber 2010). The challenge of this type of validation is determining who are experts on the research problem. Respondent validation, which is also known as member checking, was used to overcome the challenge of communicative validity. This involves

a process of soliciting feedback about the data and conclusions from the participants of the study. Maxwell (2013:126) states that this is the most important way of

> *ruling out the possibility of misinterpreting the meaning of what participants say and do and the perspective they have on what is going on, as well as being important way of identifying your biases and understandings of what you observed.*

After the interviews had been transcribed, they were sent to the participants for verification. The participants were also sent the results of the study.

The last form of validation is pragmatic validity, which examines the extent to which the research findings affect both the participants and the wider context within which the study was conducted (Hesse-Biber 2010). The author adds that the researcher has certain "action" outcomes.

Reactivity refers to the "influence of the researcher on the setting or individuals studied" (Maxwell 2013:124). The influence of the researcher is removed from the research process, nevertheless, the influence should be understood and could be used productively (Maxwell 2013:125). In order to deal with reactivity in this study, the researcher emphasised to the participants that the researcher supports them and that the study was interested in learning more about their views about and experiences of disaster management in community libraries.

Researcher bias is linked to the selection of data that fits the researcher's existing theory, goals or preconceptions, and the selection of data that "stand out" to the researcher (Miles & Huberman 1994 as cited in Maxwell 2013:124). Bias relates to the subjectivity of the researcher. Bias was expressed by the librarians in this study, who were trying to protect their libraries by revealing only data that portrayed them in a positive light, as a result of the researcher seeking data that could expose community librarians as having no knowledge of disaster management. To deal with bias, the researcher exercised extensive reflection and reflexivity in data collection. In addition, the researcher avoided asking leading questions.

The next section will present the way reliability was ensured by the study.

3.8.2 Reliability

Maree (2016) defines the reliability of an instrument as its ability to present similar findings if the same instrument is used at different times or administered to different participants from the same population. Bryman and Bell (2015) refer to three main factors that are involved when considering whether a measure is reliable, namely, stability, internal reliability and inter-rater reliability. Maree (2016) proposes using test-retest reliability, equivalent form reliability, split-half or split-halves reliability and internal reliability, or the Bryman and Bell (2015) stability test, which Maree (2016) describes as a test-retest that involves administering the instrument to the same participants on two or more occasions. The first set of scores obtained is then compared with the second set by calculating a correlation coefficient. This test is appropriate for a longitudinal study that seeks to identify social change and its correlates. In this study, test-retest was not used, as the objective of the study was to determine the disaster management practices that have been adopted by community librarians, and inter-rater reliability applies when there is more than one rater in the recording of observations and translation of data into categories.

In this study, internal reliability, also known as internal consistency (Maree 2016), was ensured. Cronbach's Alpha was used to test internal reliability, based on the inter-item correlations (Bryman & Bell 2015; Maree 2016). If the items are strongly correlated with each other, their internal consistency is high and the Alpha coefficient will be close to one.

3.9 DOCUMENTS AS SOURCES OF EVIDENCE

Bryman and Bell (2015) state that documents that an organisation generates, for example, newsletters or policies, can be viewed as representations of the reality of that organisation. These documents can tell the researcher something about what goes on in that organisation and will help to uncover information, such as culture. Creswell (2014) recommends that, in a multi-method study, interviews, observations and the analysis of documents can be used for data collection. The researcher requested CATA to supply documents relating to disaster management, among which policies, reports, programmes and operating manuals.

3.10 DATA ANALYSIS AND PRESENTATION

The analysis stage relies on theoretical propositions and other strategies, considers and employs analytical techniques, explores rival explanations, and displays data (facts) separate from interpretations (Yin 2009). Yin (2016) points out that data analysis consists of a number of stages: examining, categorising and tabulating or recombining the evidence, in order to address the research goals. Furthermore, data analysis should revolve around the research questions or theoretical frameworks identified from the literature (Ngulube 2015b). The next section will explain how the data was analysed.

3.10.1 Quantitative data analysis

All the completed questionnaires were reviewed, to ensure that they were all completed. As Google Forms was used to compile a web-based survey, the answers to the questions were retrieved from Google Drive. The results where then tabulated in Microsoft Excel 2016. The Microsoft Excel spreadsheet was then uploaded to IBM (SPSS) Version 25, which was used to analyse quantitative data. The completed questionnaires were manually coded and numbered, recaptured, cleaned and analysed using SPSS Version 25.0 software. Quantitative data cleaning was done by checking and deleting duplicate data entries.

Descriptive statistics were also performed to determine whether the scores (data) in the spreadsheet were within the accepted ranges specified by the code book (Creswell, 2014). The descriptive statistics were done through generating (using SPSS 25.0) frequency tables for categorical variables, histograms for Likert variables, and scatter plots for write-in continuous variables, to check for duplicate entries, outliers and missing values (Merson & MacHale 2010). Missing data arising from unanswered sections or subsections of the research instruments were accounted for by assigning missing response codes (Creswell 2014) to unanswered sections and subsections. In addition, trial runs of data analysis, to check whether responses tally with items and sub-items of the research instruments, were done using SPSS 25.0, while continuously comparing originally completed questionnaires (Merson & MacHale 2010).

Validity (Pearson's product moment correlations) and reliability (Cronbach's Alpha) analyses were done to assess the validity of the data collection instrument and to assess whether items in the instrument (questionnaire) measured the same construct that it was supposed to measure. Pearson's correlation analysis, exploratory factor analysis (EFA) and descriptive statistical analysis, cross tabulations, and bar and pie charts (Ali & Bhaskar 2016) were used to analyse data.

Creswell (2016) describes descriptive statistics as a form of statistics concerned with organising and summarising data to render it comprehensible through the use of univariate and bivariate analysis. The analysis can be used to interpret and analyse the ratings provided by the participants to each statement presented to them. Nick (2007) notes the commonly used techniques of descriptive statistics as the arithmetic mean, the median, the standard deviation and interquartile range.

3.10.2 Qualitative data analysis

After the interviews were completed, the first step involved transcribing the interviews. Once transcribed, each interview had been transformed into around 35 pages of text. These texts were checked against the voice recordings for accuracy. The researcher was interested in the content of the interview, so, checking the accuracy of the transcripts was crucial. Because a researcher needs to decide what is to be included in and excluded from a transcription, and become familiar with the content of the interview, transcribing can be seen as the initial step of data analysis (Kvale & Brinkmann 2009; Miles & Huberman 1994).

Once transcribing was completed, the researcher considered ethical concerns about anonymity and confidentiality. All information that could identify assistant directors or the community libraries they represent was omitted and they were identified by a specific code, for example, Interviewee A.

After the data was anonymised, the research questions were used to guide the process of separating the collected texts into pieces, and logically recombining them. This translation process from raw data to findings required the interpretation of empirical data.

In this study, the researcher analysed the data from qualitative methodology using thematic analysis, which involves data codes being clustered into superordinate themes with the aid of qualitative data analysis software Atlas-ti. Thematic analysis is a method for identifying, analysing, and reporting patterns (themes) within data (Braun & Clarke 2006). According to Braun and Clarke (2006:82), “a theme captures something important about the data in relation to the research question and represents some level of patterned response or meaning within the data set”. During the thematic analysis of the data, responses provided by the participants were analysed for themes (patterns) that relate to the data (Alhojailan 2012). It is important that a theme is a coherent and meaningful pattern in the verbatim text, that it is relevant to the research question, captures important issues and represents some sort of response pattern in the data set (Braun & Clarke 2006:82). Thematic analysis was chosen over other qualitative analysis methods, such as discourse analysis, interpretive phenomenological and grounded theory, because thematic analysis,

- Is theoretically flexible and applicable to a range of theoretical and epistemological approaches (Braun & Clarke 2006),
- Works with a wide range of research questions, including those relating people’s experiences or understandings, and about representation and construction of phenomena in particular contexts (Clarke & Braun 2013),
- Can be used to analyse different types of data from secondary sources, such as media and transcripts of focus groups or interviews, and
- Can, using large and small data-sets, be applied to produce data-driven or theory-driven analyses (Clarke & Braun 2013).

Coding refers to assigning a code representing the core topic of each category of data (Boeije 2010). In this study, open coding was done by dismantling texts and distinguishing different themes and concepts found in the data. These pieces of data were then regrouped, based on their relevant content, into categories. Finally, the researcher looked for emerging themes and recurring explanations and categorised them. The themes and patterns emerging from interviews were grouped together, which made it easier to analyse the data.

Documents were also used in the qualitative phase, through a document study approach. A document study approach involves analysing any written material that contains information on the phenomenon being studied (Ruhode 2016). This study used official documents that are formal and structured and maintained by CATA. The documents that were studied in this inquiry are CATA documents that are available in the public domain. The thematic analysis method was then used to analyse the documents.

Textual data presented in CATA documents was analysed using thematic analysis. In analysing these documents, this study interrogated the data with the aim of answering the research questions.

With regard to presentation of results, narrative passages are used to convey the findings of the analysis. This includes themes, subthemes, specific illustrations, multiple perspectives from the interviewees and relevant quotes.

In the current study, questionnaires were used in conjunction with interviews and document analysis. The triangulation of data implies that the interpretation of data was sourced from various points to build a complete picture of the story. Triangulation was also used in this study to compare the findings of the questionnaires, interviews and document analysis. The researcher interpreted the responses of librarians or library assistants provided on the questionnaires, as well as that of assistant directors in their interviews, to identify recurrent and common themes.

3.11 ETHICAL CONSIDERATIONS

According to Cohen et al. (2007:1), ethical considerations are an essential aspect of any research. The researcher applied for ethical clearance from the Department of Information Science Research Ethics Review, which reviewed the application in compliance with the UNISA Policy on Research Ethics (2007). The ethical clearance reference number 2016_IS58556257_056 is attached as Appendix D. Furthermore, permission to conduct the study was sought from CATA, and provided. The permission letter is attached as Appendix C.

For the questionnaire and the interviews, a consent form was included. The consent form provided information on the purpose of the study, advised participants that participation in the study was voluntary, and informed them about the withdrawal procedure, potential benefits of participating in the study, the negative consequences of participating, how the data would be stored, the security of the data as well as how the results would be disseminated. The questionnaire included a compulsory question through which participants gave their consent to participate in the study by selecting either the Yes or No option. For the interviews, the interviewees had to sign the consent form.

Steps were taken to protect and ensure the dignity of participants as well as anyone else who could be affected by the results of the study. These steps involved participants not disclosing their names or the community libraries where they were based. For the interviews, the interviewees were labelled Interviewee 1, Interviewee 2, Interviewee 3 and Interviewee 4, to ensure anonymity. They were also requested to avoid providing information that could lead to their identities being disclosed. The researcher disclosed no personal information and did not share the responses with any third parties. All the responses were stored in a locked safe and the online responses were kept in a password-protected file. The interviews were conducted in environments suggested by the interviewees.

According to UNISA research ethics policy (2007), researchers need to maintain the dignity and welfare of their participants. This entails protecting participants from harm, unnecessary risk, and mental or physical discomfort that may be inherent in the research procedure. The researcher ensured that participants' dignity and anonymity were protected.

The research was conducted in an honest, fair and transparent manner and the participants were informed of the purpose and benefits of the study. The participants were randomly selected to eliminate bias during the interview stage.

3.12 EVALUATION OF RESEARCH METHODOLOGY

The study used a multi-methods approach, which collected both quantitative and qualitative data. Questionnaires were used to collect quantitative data. An interview protocol and document analysis were used to collect qualitative data. The researcher used data that was obtained from multiple sources and obtained at different times. The use of the multi-methods approach enabled the researcher to triangulate data, resulting in rich data sets and improving the reliability and validity of the research findings. Mokwatlo, Ndwandwe and Ngulube (2009) point out that triangulation, completeness and complementarity are some of the reasons for using multi-methods approaches. Stoker (2011) adds that triangulation is valuable for what it reveals about the validity of a descriptive or causal inference, and triangulation is valuable for how it enriches the perspective one gains on the question under investigation. In this study, triangulation enriched the researcher's perspective on disaster management practices of community librarians. Bryman and Bell (2015) state that using multi-methods enhances confidence in the ensuing findings. Morris (2017) confirms that triangulation is used to increase confidence in findings, for both the researcher and the audience, and is a strategy that adds rigor and depth to the methodology portion of a research study.

Romm and Ngulube (2015) posit that multi-methods research, as conceptualised by Campbell and Fiske (1959), was designed to guarantee the reliability and validity of quantitative measures, although they may be used in qualitative traditions too. Denzin (1978 as cited by Tetnowski and Damico 2014), supports the idea that triangulation guarantees reliability, as it provides corroborating evidence collected through any of the four different types of triangulation, and the data interpretation is more valid, since multiple forms of evidence are provided, rather than singular data points. By using a multi-methods strategy, the researcher was able collect data from multiple sources. Explanations and meanings that are provided would not have been possible had a single source of data been relied upon. Therefore, the use of multi-methods provided the researcher with the possibility of addressing issues from a variety of perspectives. Also, each version of a particular data type has its own strengths and weaknesses, and triangulation exploited

the strengths and neutralise its weaknesses (Tetnowski & Damico 2014). Doing so enriched and enhanced the research findings.

In addition to complementarity, completeness and corroboration, this study focused on multiple cases that were unique; therefore, the use of multi-methods was ideal to help the researcher understand the disaster management practices of community librarians.

3.13 SUMMARY OF THE CHAPTER

The focus of this chapter was to present the research methods and the methodology used by this study. The reason for selecting a multi-methods approach, instead of mixed method research, was also presented. The case study approach was used in order to examine the disaster management practices of community librarians in NWP. The research instruments that were used in the study were presented, together with how they were administered to the participants. The method of data analysis was explained: Quantitative approaches to data analysis were used for the questionnaire and the interviews, and documents were used for the qualitative analysis.

CHAPTER 4: FINDINGS AND PRESENTATION OF RESULTS

4.1 INTRODUCTION

The previous chapter presented how the study was conducted and the methods that were used to collect data to address the research questions. The research methodology chapter is important, as it makes it possible for another researcher to replicate the entire study independently. Babbie (2016) adds that a single study cannot prove a point – only a series of studies can do so, and unless studies are replicated there can be no meaningful series of studies.

This chapter will present data analysis results for the data that was obtained from community librarians in NWP. The chapter will present the raw data, an analysis of the data and the findings of the study. In this study, quantitative and qualitative approaches were used so that the researcher could present a picture of disaster management in community libraries in NWP. Statistics will be used to present the quantitative findings; descriptive analysis will be used to explain the qualitative findings. The presentation of the findings was guided by the following research questions:

- What are the perceptions of the community librarians of disasters?
- What factors influence disaster management practices in NWP?
- Does the media influence disaster management practices of community librarians?
- Are disaster management practices or activities being conducted by community librarians in NWP and if so which?
- What factors influence disaster management practices in NWP?
- What institutional factors affect disaster management practices of community libraries in NWP?
- Are disaster management practices institutionally defined and shaped in NWP and if so how?

- What are the roles of the community and media in disaster management by community libraries?

The results will not necessarily be presented following the sequence of the questions in the questionnaire or the interview protocol. The analysis results will be presented in two main sections, which are, Section 4.2, quantitative findings, and Section 4.3, qualitative findings. In this survey, of the 110 questionnaires that were distributed, 80 questionnaires were returned. However, only 70 questionnaires (64%) were completed, and 10 questionnaires were incomplete. Possible reasons why not all the questionnaires were returned include lack of access to the Internet at all community libraries, and changes in the contact details of some community librarians and library assistants. It is also possible that some potential participants had left the organisation by the time of the study, or that some participants were not interested in participating.

4.2 QUANTITATIVE FINDINGS

Kiess and Bloomquist (1985) recommend a response rate of 60% is acceptable for a quantitative study. Truell, Bartlett and Alexander (2002) found that Internet-based and mail survey distribution methods achieved similar return rates: 51% and 53% respectively. Their finding was, thus, that, for all practical purposes, there is no difference in the return rates of Internet-based and mail-distributed surveys. Similarly, Babbie and Mouton (2002) note that 50% is regarded as an acceptable response rate for social research surveys. In 2016, McGuirk and O'Neill reported that response rates of 30 to 40 percent are considered adequate for data analysis. This study considered the response rate as the completed questionnaires, which was, therefore, adequate, at 64% – which was percentage of completed questionnaires.

Quantitative findings are presented in four subsections, which are Section 4.2.1, validity and reliability analysis, Section 4.2.2, exploratory factor analysis and Section 4.2.3, descriptive statistical analysis results.

4.2.1 Validity and reliability analysis

Validity testing was undertaken using Pearson's product moment correlations, by correlating questionnaire items by total score. The decision criterion used for this method was that, when a questionnaire item score correlates significantly with the total score, the item is considered to be valid. Items 8 and 18 were omitted from the analysis, because the variables' variances were almost zero, which means responses for these items were constant. According to this study, a total of 18 of 33 (55%) of the questionnaire items were valid (Table 4.1). Valid items (items that significantly correlated with the total score) are highlighted in yellow in Table 4.1. Since more than 50% of the items tested as valid, the researcher proceeded with reliability analysis.

Table 4.1: Pearson's product moment correlations (two-tailed)

Correlations

	Q1	Q2	Q3	Q4	Q5	Q7.1	Q7.2	Q7.3	Q7.4	Q7.5	Q6.	Q8.	Q9.	Q10.	Q11	Q12.	Q13.	Q14	Q15.	Q16.	Q17.	Q18	Q19.	Q20.	Q21.	Q22.	Q23.	Q24.	Q25.	Q26.	Q27	Q28.	Q29.	Total
Q1.	1	.109	-.147	-.129	-.059	-.009	.057	-.097	.067	-.014	.092	-.145	-.087	.228	-.169	.068	-.136	.157	.145	.110	-.070	-.011	-.024	.060	.122	-.004	.071	.148	.201	.159	-.152	.142	.061	**.170**
Q2.	.109	1	.159	-.125	-.149	-.029	-.130	-.118	-.018	.030	.125	-.133	.032	.184	-.223	-.125	.022	-.154	-.140	-.237*	.122	-.346**	-.018	-.120	-.057	-.113	.041	-.062	-.033	-.170	-.091	-.216	.061	**-.135**
Q3.	-.147	.159	1	.557**	.501**	-.028	-.085	.070	-.067	.107	.145	-.122	.067	.097	-.001	.166	.089	-.064	-.130	-.069	-.219	-.120	.100	.029	.023	.055	.118	.137	-.027	-.211	.040	-.098	-.219	**.197**
Q4.	-.129	-.125	.557**	1	.483**	.016	.052	.193	.010	-.002	.091	.076	-.181	.001	-.033	.150	.152	.001	-.092	.068	-.126	.154	.059	.068	.067	.149	.170	.252*	.021	-.318*	-.199	.011	-.254*	**.236***
Q5.	-.059	-.149	.501**	.483**	1	-.116	.034	.132	-.030	.087	.159	-.039	-.023	-.027	.042	.185	-.098	-.102	-.073	.070	-.066	.023	.092	-.046	-.066	-.090	.151	.234	.060	-.112	.041	-.143	-.052	**.238**
Q7.1	-.009	-.029	-.028	.016	-.116	1	.300*	-.083	.189	-.442**	-.211	.433**	-.117	-.232	-.022	.013	-.035	-.085	.068	-.154	.148	.042	-.143	-.073	-.167	-.216	-.088	-.182	-.227	-.308*	-.248*	-.151	.055	**-.199**
Q7.2	.057	-.130	-.085	.052	.034	.300*	1	.207	-.141	-.442**	-.242*	.464**	-.031	-.164	.029	.076	.046	-.110	.168	.008	-.135	-.120	.107	.061	-.144	-.023	.004	.004	.057	.003	-.153	-.101	.022	**-.029**
Q7.3	-.097	-.118	.070	.193	.132	-.083	.207	1	.175	-.412**	-.124	.294*	.020	-.181	.006	-.056	-.130	-.002	.144	.090	-.262*	.230	.154	.146	.145	.009	.199	.078	.012	-.094	.047	-.005	-.217	**.127**
Q7.4	.067	-.018	-.067	.010	-.030	.189	-.141	.175	1	-.521**	-.172	.332**	.239*	.034	.070	-.110	-.009	.017	.121	.085	.108	.013	.133	-.067	.014	.087	.100	-.052	.201	.025	-.130	-.024	-.113	**.109**
Q7.5	-.014	.030	.107	-.002	.087	-.442**	-.442**	-.412**	-.521**	1	.481**	-.690**	-.082	.156	-.048	.095	.085	.001	-.242*	.008	-.004	-.121	-.064	.008	.024	.026	-.104	-.035	-.085	.082	.127	.019	.049	**-.029**
Q6.	.092	.125	.145	.091	.159	-.211	-.242*	-.124	-.172	.481**	1	-.505**	-.015	.170	-.148	-.006	.027	.027	-.292*	-.081	-.066	-.139	-.091	-.135	.084	-.011	-.036	-.078	-.038	.227	-.085	-.078	.210	**.104**
Q8.	-.145	-.133	-.122	.076	-.039	.433**	.464**	.294*	.332**	-.690**	-.505**	1	.029	-.234	.165	-.009	-.262*	-.049	.052	-.089	.053	.228	-.142	-.191	-.220	-.154	-.050	-.219	-.112	-.187	-.015	-.129	-.087	**-.129**
Q9.	-.087	.032	.067	-.181	-.023	-.117	-.031	.020	.239*	-.082	-.015	.029	1	.077	.184	.008	.052	.168	-.038	.035	.045	-.015	.196	.118	.038	-.038	-.024	-.165	-.004	.124	.147	.196	.077	**.245***
Q10.	.228	.184	.097	.001	-.027	-.232	-.164	-.181	.034	.156	.170	-.234	.077	1	.035	.167	.065	.194	-.094	-.121	-.176	-.068	.140	.064	.001	.034	.043	.233	.078	-.092	.155	.220	-.025	**.295***
Q11.	-.169	-.223	-.001	-.033	.042	-.022	.029	.006	.070	-.048	-.148	.165	.184	.035	1	.417**	-.034	.085	.302*	.322**	.047	.048	.349**	.088	.119	.006	.049	.024	-.176	.202	.302*	.189	-.159	**.388****
Q12.	.068	-.125	.166	.150	.185	.013	.076	-.056	-.110	.095	-.006	-.009	.008	.167	.417**	1	.260*	.221	.209	.294*	-.260*	-.199	.277*	.162	.078	.107	.093	.223	.089	-.002	.084	.214	.056	**.469****
Q13.	-.136	.022	.089	.152	-.098	-.035	.046	-.130	-.009	.085	.027	-.262*	.052	.065	-.034	.260*	1	.269*	.105	.267*	-.133	-.248	.329**	.453**	.174	.375**	.262*	.255*	.373**	.044	-.167	.350**	-.070	**.412****
Q14.	.157	-.154	-.064	.001	-.102	-.085	-.110	-.002	.017	.001	.027	-.049	.168	.194	.085	.221	.269*	1	.417**	.506**	-.183	.065	.353**	.544**	.546**	.367**	.213	.140	.227	-.059	-.211	.714**	.000	**.672****
Q15.	.145	-.140	-.130	-.092	-.073	.068	.168	.144	.121	-.242*	-.292*	.052	-.038	-.094	.302*	.209	.105	.417**	1	.634**	-.060	.004	.303*	.384**	.387**	.241*	.257*	.229	.205	.193	-.273*	.363**	-.237*	**.457****
Q16.	.110	-.237*	-.069	.068	.070	-.154	.008	.090	.085	.008	-.081	-.089	.035	-.121	.322**	.294*	.267*	.506**	.634**	1	-.186	.171	.317**	.546**	.494**	.167	.220	.172	.160	.337*	-.140	.525**	-.083	**.617****
Q17	-.070	.122	-.219	-.126	-.066	.148	-.135	-.262*	.108	-.004	-.066	.053	.045	-.176	.047	-.260*	-.133	-.183	-.060	-.186	1	.c	-.194	-.367**	-.311**	-.288*	-.088	-.051	-.257*	.208	.066	-.183	.153	**-.200**
Q18.	-.011	-.346**	-.120	.154	.023	.042	-.120	.230	.013	-.121	-.139	.228	-.015	-.068	.048	-.199	-.248	.065	.004	.171	.c	1	-.278*	.040	.060	-.177	-.230	-.024	-.250	.185	.197	.166	-.124	**.084**
Q19	-.024	-.018	.100	.059	.092	-.143	.107	.154	.133	-.064	-.091	-.142	.196	.140	.349**	.277*	.329**	.353**	.303*	.317**	-.194	-.278*	1	.434**	.305*	.450**	.370**	.214	.416**	.111	-.053	.357**	-.236*	**.578****
Q20.	.060	-.120	.029	.068	-.046	-.073	.061	.146	-.067	.008	-.135	-.191	.118	.064	.088	.162	.453**	.544**	.384**	.546**	-.367**	.040	.434**	1	.485**	.266*	.279*	.284*	.204	.108	-.195	.612**	-.102	**.576****
Q21.	.122	-.057	.023	.067	-.066	-.167	-.144	.145	.014	.024	.084	-.220	.038	.001	.119	.078	.174	.546**	.387**	.494**	-.311**	.060	.305*	.485**	1	.344**	.261*	.125	.218	.050	-.211	.575**	-.182	**.535****
Q22.	-.004	-.113	.055	.149	-.090	-.216	-.023	.009	.087	.026	-.011	-.154	-.038	.034	.006	.107	.375**	.367**	.241*	.167	-.288*	-.177	.450**	.266*	.344**	1	.434**	.322**	.460**	.160	-.338**	.328**	-.300*	**.398****
Q23.	.071	.041	.118	.170	.151	-.088	.004	.199	.100	-.104	-.036	-.050	-.024	.043	.049	.093	.262*	.213	.257*	.220	-.088	-.230	.370**	.279*	.261*	.434**	1	.468**	.344**	.003	-.321**	.087	-.194	**.420****
Q24.	.148	-.062	.137	.252*	.234	-.182	.004	.078	-.052	-.035	-.078	-.219	-.165	.233	.024	.223	.255*	.140	.229	.172	-.051	-.024	.214	.284*	.125	.322**	.468**	1	.255*	-.033	-.231	.290*	-.038	**.468****
Q25.	.201	-.033	-.027	.021	.060	-.227	.057	.012	.201	-.085	-.038	-.112	-.004	.078	-.176	.089	.373**	.227	.205	.160	-.257*	-.250	.416**	.204	.218	.460**	.344**	.255*	1	.086	-.250*	.167	-.205	**.315****
Q26.	.159	-.170	-.211	-.318*	-.112	-.308*	.003	-.094	.025	.082	.227	-.187	.124	-.092	.202	-.002	.044	-.059	.193	.337*	.208	.185	.111	.108	.050	.160	.003	-.033	.086	1	.041	.096	-.057	**.225**
Q27.	-.152	-.091	.040	-.199	.041	-.248*	-.153	.047	-.130	.127	-.085	-.015	.147	.155	.302*	.084	-.167	-.211	-.273*	-.140	.066	.197	-.053	-.195	-.211	-.338**	-.321**	-.231	-.250*	.041	1	-.075	.000	**-.049**
Q28.	.142	-.216	-.098	.011	-.143	-.151	-.101	-.005	-.024	.019	-.078	-.129	.196	.220	.189	.214	.350**	.714**	.363**	.525**	-.183	.166	.357**	.612**	.575**	.328**	.087	.290*	.167	.096	-.075	1	.028	**.714****
Q29	.061	.061	-.219	-.254*	-.052	.055	.022	-.217	-.113	.049	.210	-.087	.077	-.025	-.159	.056	-.070	.000	-.237*	-.083	.153	-.124	-.236*	-.102	-.182	-.300*	-.194	-.038	-.205	-.057	.000	.028	1	**-.041**
Total	**.170**	**-.135**	**.197**	**.236***	**.238***	**-.199**	**-.029**	**.127**	**.109**	**-.029**	**.104**	**-.129**	**.245***	**.295***	**.388****	**.469****	**.412****	**.672****	**.457****	**.617****	**-.200**	**.084**	**.578****	**.576****	**.535****	**.398****	**.420****	**.468****	**.315****	**.225**	**-.049**	**.714****	**-.041**	**1**

*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed). c. Cannot be computed because at least one of the variables is constant.

Reliability analysis was used to assess the degree of internal consistency of scores from a set of indicators (questionnaire items). Firstly, Corrected item-Total correlation (Table 4.2) was checked to determine the level of internal consistency of one item's scores with the composite scores of all other items designed to measure the same construct. Table 4.2 shows the results.

Table 4.2: Reliability analysis: Item-Total score statistics

Question	Scale mean if item deleted	Scale variance if item deleted	Corrected item-Total correlation	Squared multiple correlation	Cronbach's Alpha if item deleted
Q1	75.26	105.05	0.21	0.62	0.67
Q2	75.06	104.30	0.13	0.61	0.67
Q3	73.96	102.98	0.13	0.74	0.67
Q4	72.90	106.09	0.04	0.81	0.68
Q5	73.62	104.16	0.10	0.61	0.68
Q7.1	76.40	110.65	-0.37	0.83	0.69
Q7.2	76.38	107.38	-0.02	0.77	0.68
Q7.3	76.34	107.82	-0.06	0.77	0.68
Q7.4	76.28	107.59	-0.04	0.82	0.68
Q7.5	76.38	106.24	0.10	0.87	0.67
Q6	73.44	98.33	0.13	0.78	0.68
Q9	74.44	107.03	-0.01	0.68	0.68
Q10	73.28	97.76	0.30	0.67	0.66
Q11	73.36	102.85	0.13	0.73	0.68
Q12	73.08	97.14	0.45	0.69	0.65
Q13	73.90	93.64	0.46	0.69	0.64

Question	Scale mean if item deleted	Scale variance if item deleted	Corrected item-Total correlation	Squared multiple correlation	Cronbach's Alpha if item deleted
Q14	73.24	94.27	0.51	0.82	0.64
Q15	73.62	98.32	0.31	0.80	0.66
Q16	73.64	94.32	0.53	0.82	0.64
Q17	74.84	109.69	-0.30	0.82	0.69
Q19	73.74	92.52	0.62	0.70	0.63
Q20.	73.62	92.32	0.58	0.84	0.64
Q21	73.36	95.21	0.39	0.78	0.65
Q22	74.02	100.39	0.30	0.83	0.66
Q23	74.10	99.48	0.32	0.62	0.66
Q24	73.78	95.77	0.41	0.80	0.65
Q25	73.92	98.48	0.32	0.78	0.66
Q26	74.52	105.81	0.11	0.80	0.67
Q27	72.72	115.19	-0.35	0.80	0.71
Q28	72.96	93.88	0.55	0.80	0.64
Q29	73.64	107.46	-0.10	0.64	0.71

Results of analysis (Table 4.2) shows that correlations between each item and the total score of the questionnaire was very weak (corr <.3) for items highlighted in Table 4.2. These items do not correlate with the overall score from the scale. The rest of the items (those not highlighted) correlate well (corr >.3) with the overall score from the scale. Items with lower correlation may have to be excluded from the questionnaire, because they are not internally consistent with the other items. These items seemed to fail to measure the construct that they are purposed to measure. Before considering excluding them, the researcher checked whether excluding each of those items would increase Cronbach's

Alpha (Table 4.3) and it was observed that excluding none of the items increased Cronbach's Alpha significantly. However, the overall Cronbach's Alpha (Alpha = 0.68) (Table 4.3) shows that there was a moderately high internal consistency (reliability) of scores from this set of indicators and, therefore, the research instrument (questionnaire) can be relied on for meaningful inferences and conclusions in this research.

Table 4.3: Reliability analysis: Cronbach's Alpha statistics

Cronbach's Alpha	Cronbach's Alpha, based on standardised items	N of items
.676	.608	31

4.2.2 Exploratory factor analysis

EFA was done to simplify, in an orderly fashion, some interrelated measures and to explore a possible underlying factor structure of a set of the researcher's observed variables (items), without imposing a preconceived structure on the outcome. In the process, the underlying factor structure of the observed variables (items) could be unearthed.

Factor analysis of the data was performed using the principal components analysis method of extraction. Bartlett's test of sphericity, which tests the overall significance of all the correlations within the correlation matrix, was statistically significant ($p < .05$), indicating that it was appropriate to use the factor analytic model on this data set. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy indicated that the strength of the relationships among variables was moderately high (KMO = .564), thus, it was acceptable to proceed with the analysis. Table 4.4 presents the results.

Table 4.4: KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		0.564
Bartlett's test of sphericity	Approx. Chi-square	747.755
	Df	351
	Sig.	0.000

Initially, 11 factors with eigenvalues greater than 1 were extruded. After adjusting the cut-off criterion, and removing the demographic items, seven factors with eigenvalues greater than 1.2, as shown in Table 4.5, were extracted, and the seven factors gave the most interpretable solution.

Table 4.5: Total variance explained

Component	Initial Eigenvalues			Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.196	22.949	22.949	6.196	22.949	22.949	4.621	17.116	17.116
2	3.019	11.182	34.131	3.019	11.182	34.131	3.426	12.689	29.805
3	2.452	9.082	43.214	2.452	9.082	43.214	2.836	10.503	40.308
4	1.876	6.949	50.162	1.876	6.949	50.162	2.156	7.984	48.291
5	1.672	6.193	56.355	1.672	6.193	56.355	1.787	6.620	54.912
6	1.551	5.743	62.098	1.551	5.743	62.098	1.787	6.618	61.530
7	1.397	5.175	67.274	1.397	5.175	67.274	1.551	5.744	67.274
8	1.179	4.365	71.639						
9	1.094	4.052	75.691						
10	.993	3.677	79.367						
11	.855	3.165	82.533						
12	.786	2.910	85.443						
13	.675	2.498	87.941						
14	.542	2.009	89.950						
15	.471	1.746	91.696						
16	.451	1.672	93.368						
17	.338	1.253	94.621						
18	.308	1.141	95.762						
19	.258	.955	96.717						
20	.204	.755	97.472						
21	.158	.583	98.055						
22	.150	.554	98.610						
23	.107	.397	99.007						
24	.094	.347	99.354						
25	.071	.262	99.616						
26	.057	.209	99.825						
27	.047	.175	100.000						

Extraction Method: Principal Component Analysis.

A Varimax with Kaiser normalisation rotation was performed, since factors were expected to be correlated. The pattern matrix obtained is displayed in Table 4.6.

Table 4.6: Rotated component matrix

	Component						
	1	2	3	4	5	6	7
Q7.1			-.666			.338	
Q7.2			-.406		-.584		
Q7.3						-.735	
Q7.4			-.423		.708		
Q7.5			.865				
Q6.			.780				
Q9					.598		
Q10			.392				-.322
Q11				.793			
Q12				.627	-.375		
Q13	.464	.416					
Q14	.811						
Q15	.401		-.332				.405
Q16	.700			.345			.371
Q17	-.330				.348	.512	.339
Q19	.385	.430		.483			
Q20	.864						
Q21	.714					-.324	
Q22		.831					
Q23		.729					
Q24		.693					
Q25		.657					
Q26							.793
Q27		-.592		.335			
Q28	.845						
Q29						.591	
Total	.698	.351		.506			

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization

a. Rotation converged in 8 iterations.

Only items with factor loadings of .32 and above are displayed in Table 4.6. A summary of extracted factors are displayed in Table 4.7.

Table 4.7: Summary of extracted factors

Factor	Factor description	Number of items	Items included
1	Readiness to deal with disasters	6	Q13, Q14, Q16, Q20, Q21, Q28
2	Learning and knowledge about disaster management	5	Q22, Q23, Q24, Q25, Q27
3	Prevalence of disasters	4	Q7.1, Q7.5, Q6, Q10
4	Knowledge of potential disaster risks	3	Q11, Q12, Q19
5	Types of disasters in the area	4	Q7.2, Q7.4, Q9
6	Plans in place to deal with disasters	3	Q7.3, Q17, Q29
7	Disaster occurrence influences on individual actions	2	Q15, Q26
Overall		27	27

It was interpreted from Table 4.5 that eigenvalues greater than 1.2 showed that seven factors represented 67.27% of the variance, which is considered good (Akram, Kiran & Ilğan 2016). The extracted factors (Table 4.5) were, therefore, labelled as follows: 1) Readiness to deal with disasters was the first factor, it was the most robust, with the highest eigenvalue of 6.2, and accounted for 22.95 % of the variance in data; 2) Learning and knowledge about disaster management had an eigenvalue value of 3.0 and accounted for 11.18% of the variance in data; 3) Prevalence of disasters was third; 4) Knowledge of potential disaster risks was fourth; 5) Types of disasters in the area was fifth; 6) Plans in place to deal with disasters was sixth; and 7) seventh was Disaster occurrence influences on individual actions.

4.2.3 Descriptive statistical analysis results: Demographic data

Graphical and tabular presentation, as a way of summarising the findings, was used to analyse findings in this subsection. The demographic information of participants will be presented. Findings on the distribution of gender, age, occupation, work experience and previous employment occupation will be presented in the following sections.

4.2.3.1 Gender distribution

Results of the analysis (Table 4.8) show that most of the participants were women (N = 45, 64.3%), and a minority were men (N = 25, 35.7%). This is an indication that most of the participants in this study were female employees.

Table 4.8: Gender distribution (N = 70)

Gender	Frequency	Percent	Valid percent
Female	45	64.3	64.3
Male	25	35.7	35.7
Total	**70**	**100.0**	**100.0**

4.2.3.2 Current occupation

Analysis of occupation distribution of participants (Table 4.9) shows that most of the participants (N = 42, 60%) were employed as librarians. A smaller number (N = 24, 34.3%) were employed as library assistants, and the smallest number (N = 4, 5.7%) as assistant librarians. Though the study was aimed at librarians, the researcher was advised by CATA that some of the libraries in NWP were being managed by assistant librarians or library assistants, hence, useful information could be obtained from them.

Table 4.9: Current designations of participants (N = 70)

Designation	Frequency	Percent	Valid percent
Librarian	42	60.0	60.0
Assistant librarian	4	5.7	5.7
Library assistant	24	34.3	34.3
Total	**70**	**100.0**	**100.0**

4.2.3.3 Length of service

Results presented in Table 4.10 report the distribution of work experience of the participants and shows that the majority of the participants (N = 25, 35.7%) had worked in their respective libraries for more than eight years. Furthermore, a number of participants (N = 24, 34.3%), had been employed for between 3 and 5 years, a smaller number of employees (N = 11, 15.7%) indicated that they had been working at their respective libraries for less than 2 years. It was also observed that a smaller number of participants indicated that they had worked in their respective libraries for 6 to 7 years (N = 10, 14.3%). This implies that more than 80% of the participants had worked in their respective libraries for at least 3 years, which is quite a good distribution of experience and was expected to give the researcher useful information.

Table 4.10: Length of service in the library (N = 70)

Years of service	Frequency	Percent	Valid percent
<2	11	15.7	15.7
3 – 5	24	34.3	34.3
6 – 7	10	14.3	14.3
8+	25	35.7	35.7
Total	**70**	**100.0**	**100.0**

4.2.3.4 Age distribution

On analysing the age distribution of participants (Table 4.11) in the survey sample, it was observed that most of the participants (N = 34, 48.6%) were in the age range of between 35 and 44 years, while 30% of participants (N = 21) were in the age range of 25 to 34 years. A few participants (N = 9, 12.9%) were in the age range of 44 to 55 years, and very few (N = 3, 4.3%) participants were older than 55 years. There were very few (N = 3, 4.3%) participants in the youngest age category (18–24 years).

Table 4.11: Age of participants (N = 70)

Age of participants	Frequency	Percent	Valid percent
18 to 24	3	4.3	4.3
25 to 34	21	30.0	30.0
35 to 44	34	48.6	48.6
44 to 55	9	12.9	12.9
Above 55	3	4.3	4.3
Total	**70**	**100.0**	**100.0**

4.2.3.5 Years of experience as librarian/library assistant

On analysing responses for this questionnaire item (Table 4.12), it was found that half the participants (N = 35, 50%) in the survey had been employed as either librarians, assistant librarians or library assistants for more than 8 years. A number of participants (N = 22, 31.4%) said that they had been employed for 3 to 5 years, and quite a few (N = 8, 11.4%) indicated that they had been in employment at the library for 6 to 7 years. Very few (N = 5, 7.1%) indicated that they had been employed for at most 2 years in their respective positions. Table 4.12 presents the results.

Table 4.12: Years of experience on designated post (N = 70)

Years of experience	Frequency	Percent	Valid Percent
<2	5	7.1	7.1
3–5	22	31.4	31.4
6–7	8	11.4	11.4
8+	35	50.0	50.0
Total	70	100.0	100.0

4.2.4 Prevalence of disasters

In this section, the study will report on the participants' views on prevalence of disasters and the locations where most of the disasters had occurred in the past five years.

4.2.4.1 Occurrence of disasters in last five years

Most of the participants (N = 21, 30%) reported that they had not experienced a disaster during the last five years. However, a number of participants (N = 19, 27.1%) indicated that they had experienced a disaster in the past one year, and a few (N = 10, 14.3%) indicated that they had suffered disasters in the past two years. Very few (N = 11, 15.7%) indicated that they had experienced disasters within the past three years, and even fewer (N = 3, 4.3% and N = 6, 8.6%) reported that they had suffered disasters in the past four and five years respectively. This shows that 70% of the libraries in NWP that participated in the study had suffered a disaster in the past five years. Table 4.13 presents the results.

Table 4.13: Occurrence of disasters in the past five years (N = 70)

Period	Frequency	Percent	Valid percent
1 Year	19	27.1	27.1
2 Years	10	14.3	14.3
3 Years	11	15.7	15.7
4 Years	3	4.3	4.3
5 Years	6	8.6	8.6
No	21	30.0	30.0
Total	**70**	**100.0**	**100.0**

4.2.4.2 Types of disasters

Participants were provided with a list of different types of disasters and were required to select the disasters that had affected their library. Figure 4.1 shows the results.

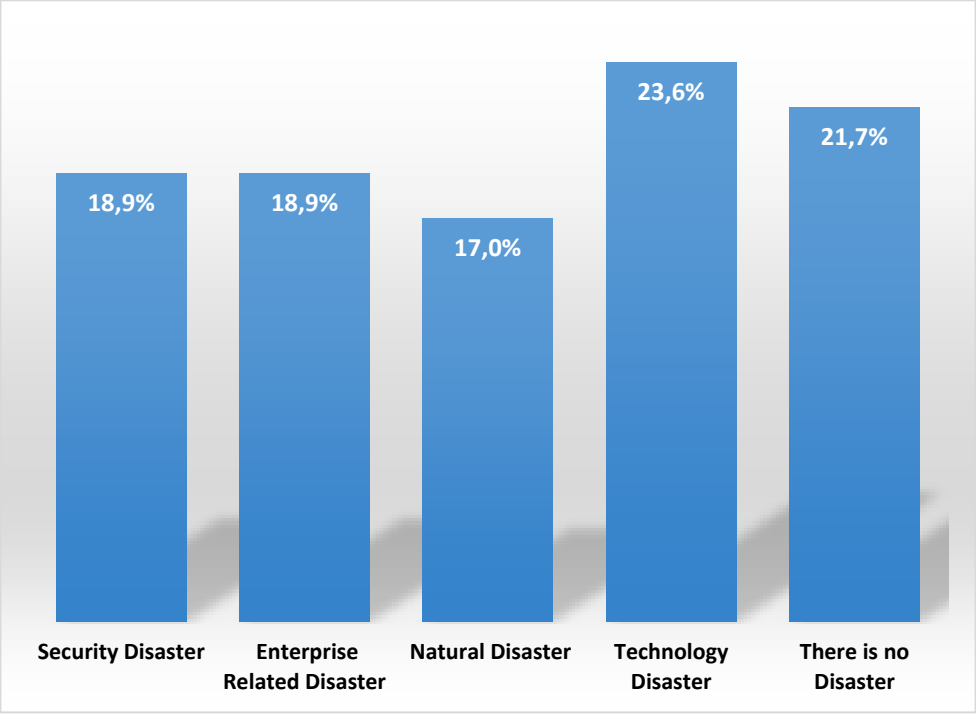

Figure 4.1: Types of disasters

Of all the possible disasters identified in this study, the most common disaster as indicated by participants was technology-related disasters (N = 20, 23.6%), followed by security and enterprise-related disasters (N = 20, 18.9%). Natural disasters were indicated by a few participants (N = 18, 17%) – the researcher concludes that natural disasters are the least common type. A number of participants (N = 23, 21.7%) reported that no disasters had occurred, however, the researcher established during the interviews that the Internet contract between CATA and the service provider had lapsed at the start of 2018, and all participants would have been expected to indicate that enterprise-related disasters had occurred at their libraries.

4.2.4.3 Number of disasters in the past 10 years

To establish how frequent the disasters were in the past 10 years, participants were asked to indicate the number of disasters that their respective libraries had experienced in the past 10 years. The results of the analysis are shown in Figure 4.2.

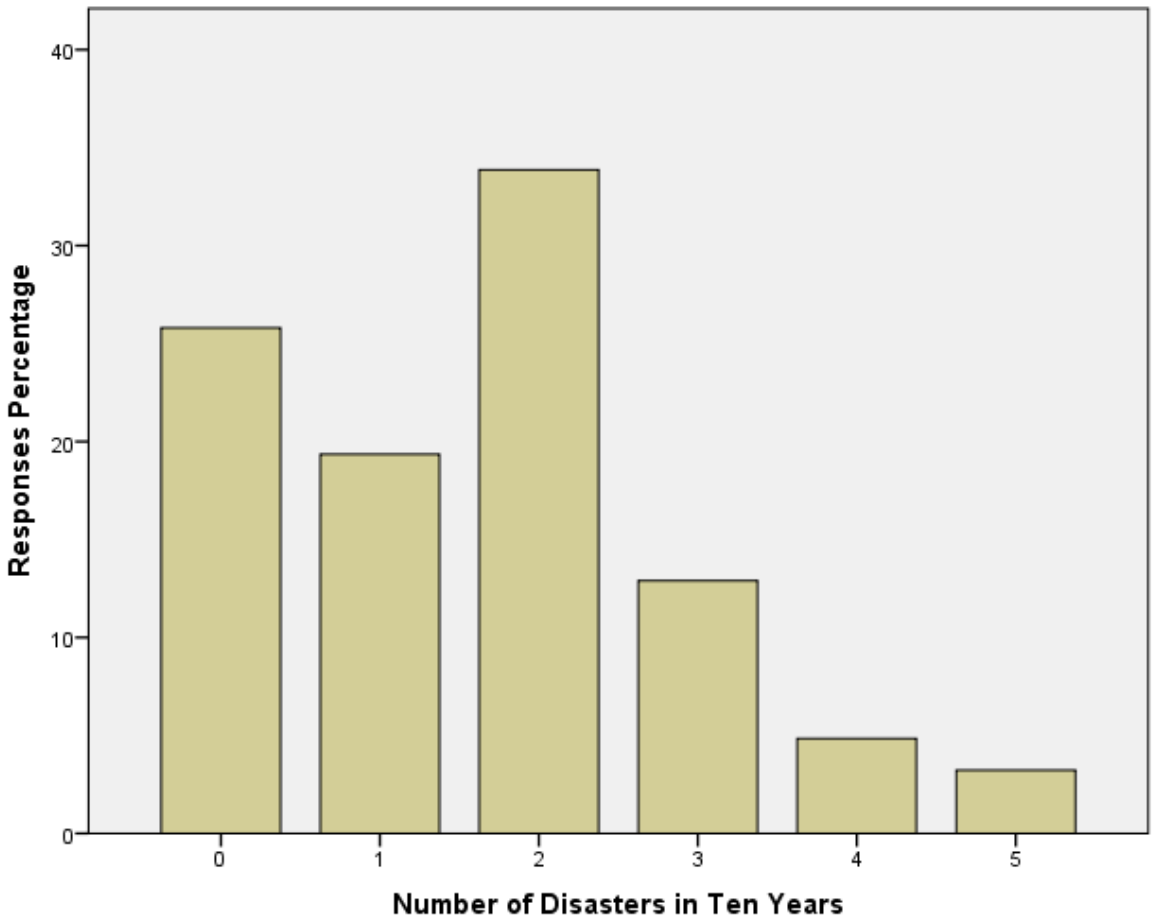

Figure 4.2: Frequency of disasters experienced in the past 10 years

The largest number of participants (N = 21, 30%) indicated that they had experienced 2 disasters in the past 10 years, fewer participants (N = 12, 17.1%) indicated that they had experienced a single disaster, fewer (N = 8, 11.4%) said they had experienced 3 disasters, and very few (N = 3, 4.3% and N = 2, 2.9%) reported 4, and 5 or more disasters respectively. However, quite a number (N=16, 22.9%) of the participants indicated that they had not experienced a disaster in the past 10 years, even though, as mentioned in Section 4.2.4.2, libraries' Internet access had been a problem in the past year. This indicates that the concept of a disaster might have not been well understood by participants.

4.2.4.4 Location of the community library and exposure to risk

Questionnaire item, Question 9 explored whether any of the libraries were located in natural disaster regions or places that experienced threats. Results displayed in Figure 4.3 shows the distribution of the opinions of the participants (N = 70).

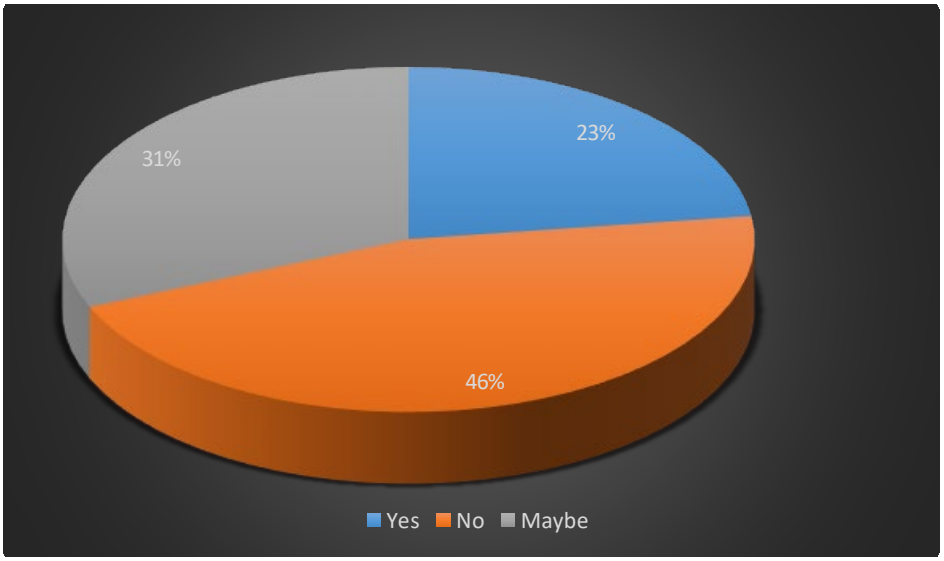

Figure 4.3: Library location and its exposure to risk of disaster

The results show that quite a large number of participants (N = 32, 45.7%) do not believe that their individual library is located in a region or place threatened by a disaster. The smallest number of participants (N = 16, 22.9%) reported that their library is located in a region or place threatened by a disaster. Lastly, some participants (N = 22, 31.4%) were unsure about the location of their library in relation to disaster risks.

4.2.4.5 Probability of a disaster occurring at libraries

Results in Table 4.14 show that most participants (N = 19, 27.1%) agreed strongly that there was a probability of a disaster happening at their libraries, and the same number of participants (N = 19, 27.1%) were neutral (were not sure) of the probability of a disaster occurring. A smaller number of participants (N =11, 15.7%) disagreed with the statement that a disaster was likely to occur, and the same number (N = 11, 15.7%) agreed with the statement, while 10 participants (14.3%) strongly agreed with the statement. In total, a

larger number of participants (N = 30, 42.8%) either agreed or strongly agreed that the possibility of a disaster occurring at their library was low, while 21 (30%) either strongly disagreed or disagreed with the statement.

Table 4.14: Probability of a disaster occurring in the libraries (N = 70)

Responses	Frequency	Percent	Valid percent
Strongly disagree	10	14.3	14.3
Disagree	11	15.7	15.7
Neutral	19	27.1	27.1
Agree	11	15.7	15.7
Strongly agree	19	27.1	27.1
Total	**70**	**100.0**	**100.0**

4.2.4.6 Perceptions of potential risks in the community

Participants were asked to indicate if they perceived potential risks in the community that were capable of posing a threat to their library. Results of responses are displayed in Table 4.15. From the table, it can be observed that most of the participants (N = 25, 35.7%) either strongly agreed or agreed with the statement, while a smaller number of participants (N=24, 34.3%) had no idea (were neutral). The fewest participants (N = 21, 30%) either disagreed or strongly disagreed with the statement. This might be an indication that risks in the community had the potential to pose a threat to the libraries.

Table 4.15: Perceptions of potential risks in the community (N = 70)

Responses	Frequency	Percent	Valid percent
Strongly disagree	11	15.7	15.7
Disagree	10	14.3	14.3
Neutral	24	34.3	34.3
Agree	15	21.4	21.4
Strongly agree	10	14.3	14.3
Total	**70**	**100.0**	**100.0**

4.2.5 Disaster management practices by community librarians in NWP

The study sought to determine if participants there performing or were aware of disaster management practices and activities. A summary of the responses will be presented in the form of tables in the sections that follow.

4.2.5.1 Emergency plans, evacuation procedures and similar functions

Participants were asked to indicate whether they were able to implement emergency plans, evacuation procedures and similar functions. Results (Table 4.16) show that most of the participants (N = 26, 37.1%) agreed that they were able, and quite a number (N = 9, 12.9%) strongly agreed with the statement. There were some (N = 14, 20%) who were neutral about their ability. Fewer participants did not agree with the statement: 11 (15.7%) strongly disagreed and 10 (14.3%) disagreed. As shown in Table 4.16, participants were generally confident about their ability to implement emergency plans, evacuation procedures and similar functions.

Table 4.16: Confidence about ability to implement emergency plans and evacuation procedures (N = 70)

Responses	Frequency	Percent	Valid percent
Strongly disagree	11	15.7	15.7
Disagree	10	14.3	14.3
Neutral	14	20.0	20.0
Agree	26	37.1	37.1
Strongly agree	9	12.9	12.9
Total	**70**	**100.0**	**100.0**

4.2.5.2 Existence of contacts for use during disaster occurrences

The study participants were requested to indicate whether they had or whether they would use contacts to help them in the case of a disaster. The results in Table 4.17 show that many participants (N = 27, 38.6%) agreed that they had contacts, while a smaller number (N = 26, 37.1%) disagreed and said that they had no contacts. Few participants (N = 9, 12.9%) strongly disagreed about having contacts; a smaller number indicated that they (N = 5, 7.1%) were undecided on the issue and 3 (4.3%) strongly agreed. In total, 35 (50%) participants either strongly disagreed or disagreed that they had contacts in the community, compared to 30 (42.9%) who either agreed or strongly agreed that they had contacts. From Table 4.17, it is clear that the majority of the participants did not have contacts they could call for emergency services in the event of a disaster.

Table 4.17: Existence of contacts for use during disaster occurrences (N = 70)

Responses	Frequency	Percent	Valid percent
Strongly disagree	9	12.9	12.9
Disagree	26	37.1	37.1
Neutral	5	7.1	7.1
Agree	27	38.6	38.6
Strongly agree	3	4.3	4.3
Total	**70**	**100.0**	**100.0**

4.2.6 Institutional regulative, normative and cultural-cognitive factors that affect disaster management practices in community libraries in NWP

This section will present responses regarding the regulative, normative and cultural-cognitive factors that affect community libraries.

4.2.6.1 Regulative factors

Participants were asked to indicate whether it was a requirement for the library to have a disaster plan. Most (N = 25, 35.7%) disagreed that it was a requirement for them to have disaster plans, while 18 (25.7%) strongly agreed, and 16 (22.9%) agreed that it was a requirement to have disaster plans. Very few (N= 6, 8.6%) strongly disagreed and the fewest (N = 5, 7.1%) were neutral. This general picture of this analysis (Figure 4.4) is that the majority of the participants agreed (N = 34, 48.6%) that it was a requirement for them to have disaster plans.

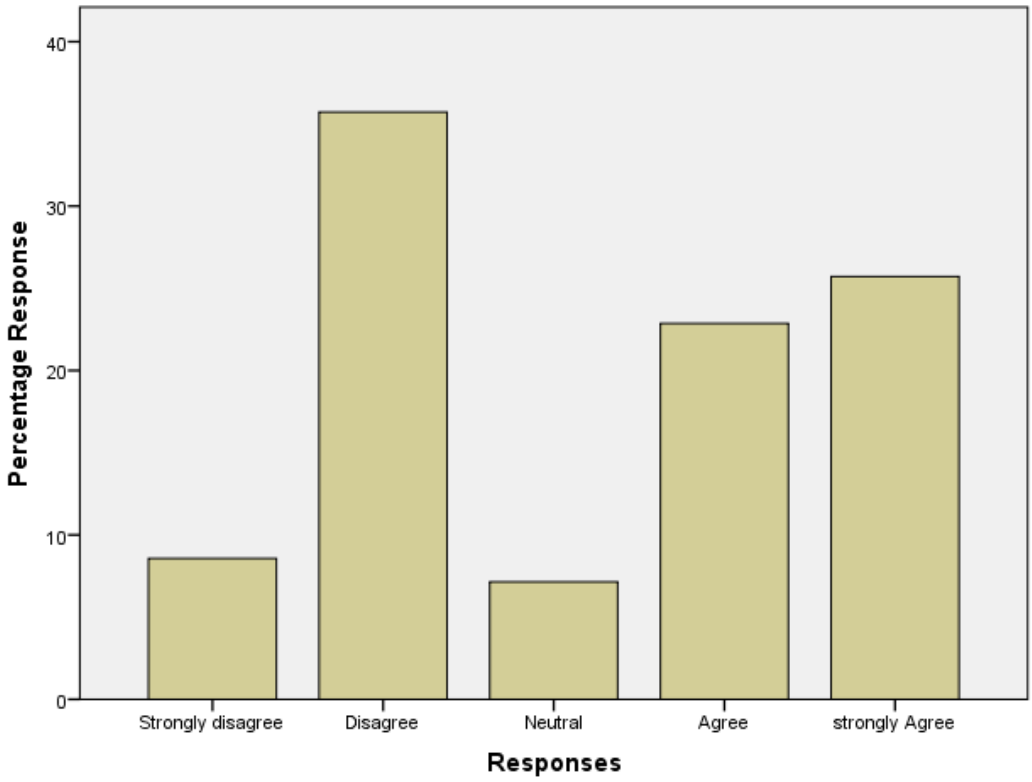

Figure 4.4: Requirement for the library to have a disaster plan

To explore whether libraries would be able to function after a disaster, a question (Item 22) was formulated to enquire from the participants whether contingency plans were in place for the event of a disaster happening. Results from the participants (Figure 4.5) showed that quite a large number (N= 33, 47.1%) disagreed, and a small number of participants strongly disagreed (N = 9, 12.9%) that contingency plans were in place. In addition, a small number of participants (N = 14, 20%) did not reveal their opinion on this matter, and very few (N = 13, 18.6% agreed and N = 1, 1.4% strongly agreed) were positive that contingency plans were in place in the event of a disaster happening. Only 13 (18.6%) and 1 (1.4%) of the participants strongly agreed that contingency plans were in place. These results show (Figure 4.5) that, in general, more than half (N = 42, 60%) of the people (the majority) who responded to this question were of the opinion that contingency plans were not in place in the event of a disaster happening at their libraries.

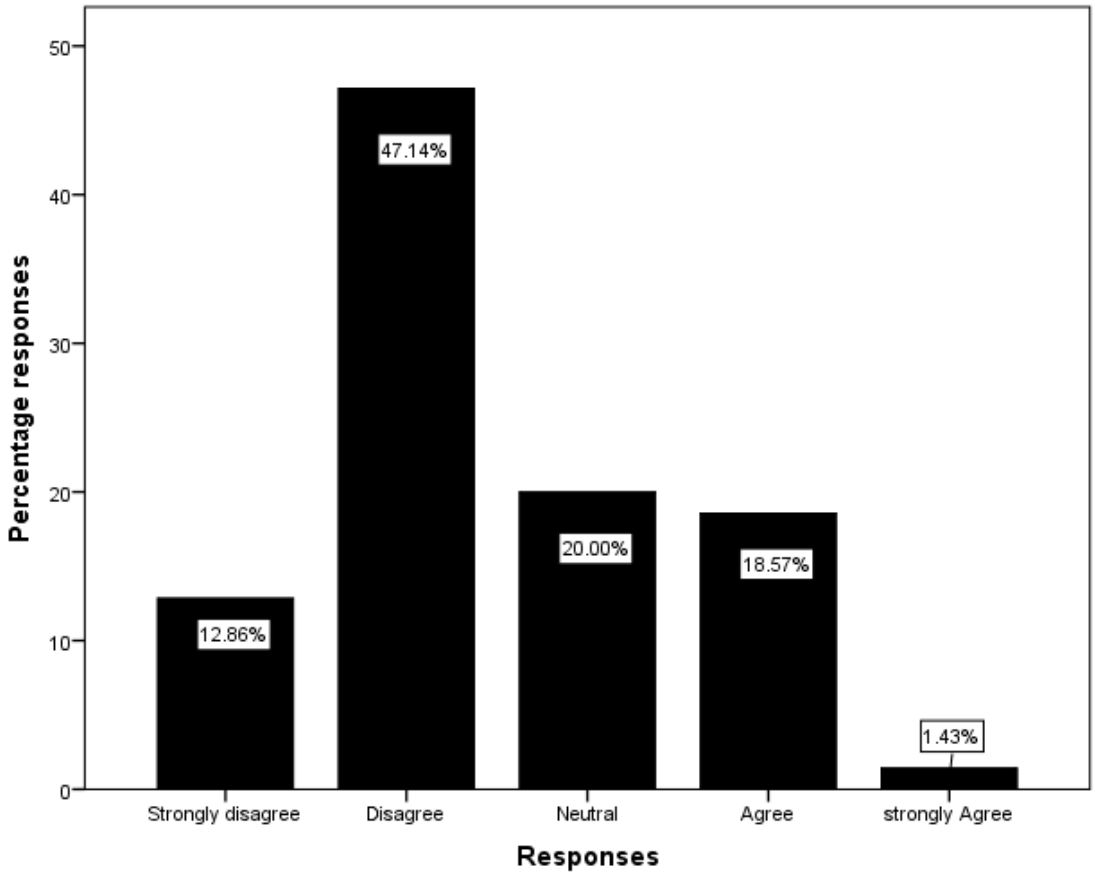

Figure 4.5: Existence of contingency plans for a library

4.2.6.2 Normative factors

Participants were requested to indicate whether they were aware of potential disaster risks at their library. Most of the participants agreed (N = 28, 40%) and some (N = 9, 12.9%) of the participants strongly agreed that they were aware of potential disaster risks that could affect individual libraries (refer to Figure 4.6). A minority indicated that they were not aware: 12 (17.1%) participants disagreed and only 2 (2.9%) strongly disagreed. However, a few (N =19, 27.1%) were neutral about their awareness of potential disaster risks. Overall, 52.9% of the participants in this survey were aware of the potential disaster risks that could affect individual libraries.

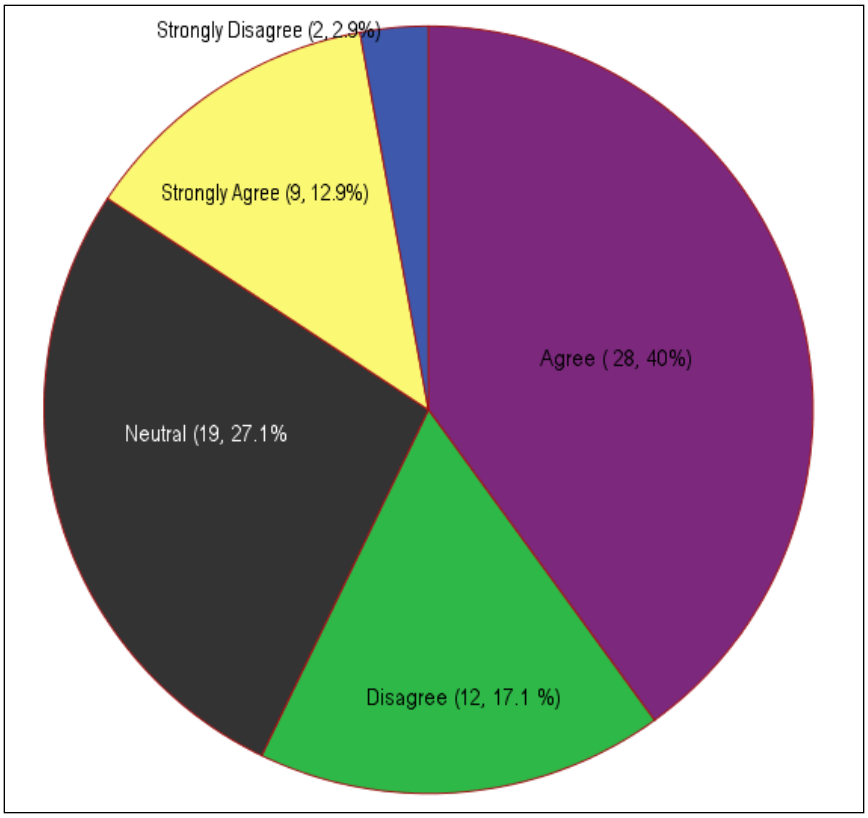

Figure 4.6: Awareness of potential disaster risks

A question in the questionnaire (Question 23) inquired whether the community could assist to reduce disaster risks and prepare the community's response mechanisms to address disasters. Results are shown in Figure 4.7, which indicates that most of the participants (N = 34, 48.6%) disagreed and some (N = 8, 11.4%) strongly disagreed that the community could assist. This was an indication that the majority (42, 60%) of the participants do not work with the community to reduce disaster risks and prepare their response mechanisms to address disasters. Only a few participants were positive that they work with the community: 14 participants (20%) agreed and only 2 (2.9%) strongly agreed. In addition, very few (N = 12, 17.1%) participants had no opinion on the subject being explored. It may be that the majority of the librarians do not work with the community to reduce disaster risks and to prepare their response mechanisms to address disasters. Figure 4.7 shows the answers to this question.

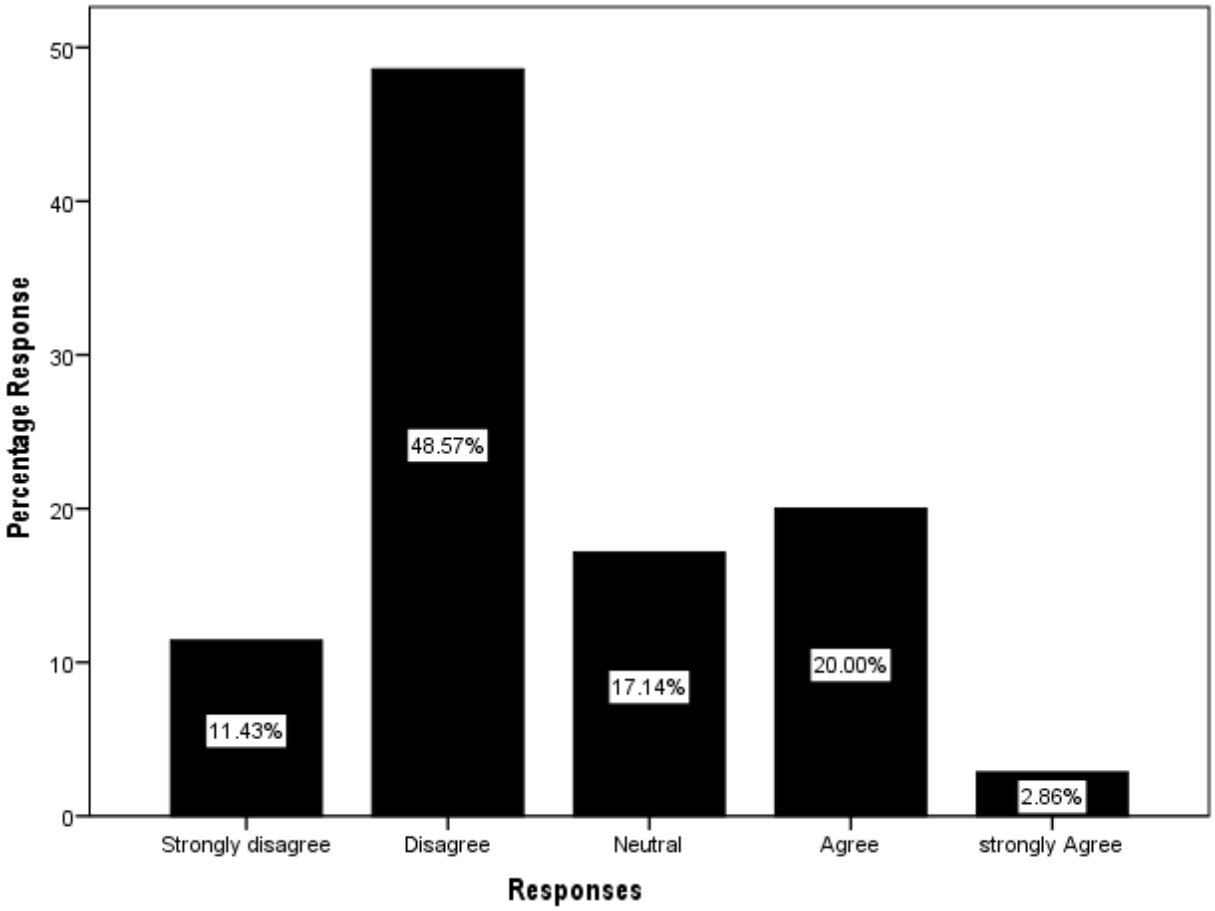

Figure 4.7: Whether librarians work with the community

A question (Question 26) sought to explore whether the cases that had been reported in the media about libraries being destroyed had motivated participants to learn more about disaster management. The response rate to this question was relatively low (N = 50, 71%), might be an indication that not all participants were aware of the media reports. Of those who responded, 33 (47.1%) gave a No response, whereas 12 (17.1%) were unsure (gave a Maybe response), and only (7.1%) indicated Yes, it had motivated them to learn more. Based on the responses reported in Table 4.18, it could be assumed that cases being reported in the media about libraries being destroyed did not motivate participants to learn about disaster management.

Table 4.18: Whether participants were motivated by reports to learn about disaster management (N = 70)

Responses	Frequency	Percent
Yes	5	7.1
No	53	75.7
Maybe	12	17.1
Total	**70**	**71.4**

4.2.6.3 Cultural-cognitive factors

Cultural-cognitive factors are those factors that are achieved by acceptance and due to an organisation's tactics within the organisational field over time (Cook & Hodges 2015). The participants were asked whether they were required by CATA to engage in disaster planning. The majority (N = 61, 87.1%) of the participants reported that they did not have to conduct disaster planning, while much fewer (N = 9, 12.9%) reported that they were required to conduct disaster planning. Results are shown in Table 4.19.

Table 4.19: Exploring whether CATA requires the library to conduct disaster planning (N = 70)

Responses	Frequency	Percent	Valid percent
Yes	9	12.9	12.9
No	61	87.1	87.1
Total	**70**	**100.0**	**100.0**

A question (Question 29) about training in disaster management was included to determine whether the participants have been trained in disaster management (Table 4.20). The majority responded (N = 33, 47.1%) that they have never attended disaster management training. However, 29 (41.4%) reported that they had attended a disaster management workshop organised by their employer, 6 (8.6%) said they had attended a

short course on disaster management and 2 (2.9%) had been trained in disaster management as part of their undergraduate studies. From Table 4.20 it is evident that not all participants had been trained in disaster management, though CATA did organise a workshop in the past.

Table 4.20: Exploring disaster management training undergone (N = 70)

Responses	Frequency	Percent	Valid Percent
A workshop organised by my employer	29	41.4	41.4
During undergraduate studies	2	2.9	2.9
A short course on disaster management	6	8.6	8.6
Never attended disaster management training	33	47.1	47.1
Total	**70**	**100.0**	**100.0**

4.2.7 Factors that influence disaster management practices in NWP

This section will identify factors that influence disaster management practices in NWP. The responses are presented in the sections that follow.

4.2.7.1 Mitigation of potential risks

A question (Question 13) was posed to participants to find out if potential risks could be mitigated through individual efforts. Many of the participants (N = 22, 31.4%) did not give an opinion. The largest number participants (N = 28, 40%) could not agree; 17 (24.3%) participants disagreed and 11 (15.7%) strongly disagreed that potential risks can be mitigated. A smaller number (N =14, 20%) of participants agreed that potential risks could be mitigated through individual efforts; very few (N = 6, 8.6%) strongly agreed. If the participants who strongly disagreed and disagreed are combined, it is observed that 40% (N = 28) of the participants indicated that mitigation of potential risks through individual efforts did not exist (Table 4.21). This could indicate that disaster management, in particular disaster preparedness, was not well understood by participants.

Table 4.21: Potential risk mitigated through individual efforts (N = 70)

Responses	Frequency	Percent	Valid Percent
Strongly disagree	11	15.7	15.7
Disagree	17	24.3	24.3
Neutral	22	31.4	31.4
Agree	14	20.0	20.0
Strongly agree	6	8.6	8.6
Total	**70**	**100.0**	**100.0**

4.2.7.2 Past disaster experience influences actions to actively prepare for a disaster

When participants were asked (Question 15) to give their opinion on whether past disaster experience influences actions to actively prepare for a disaster, most participants (N = 31, 44.3%) were not in support of the assertion. Among those who did not support the idea, 21 (30%) disagreed with the statement and 10 (14.3%) strongly disagreed. A smaller number (N = 27, 39%) of participants were in support of the statement. Further, 19 (27.1%) agreed with the statement and 8 (11.4%) strongly agreed; a further 12 (17.1%) were neutral. These results (Figure 4.8) is an indication that past disaster experience does not influence action to actively prepare for a disaster.

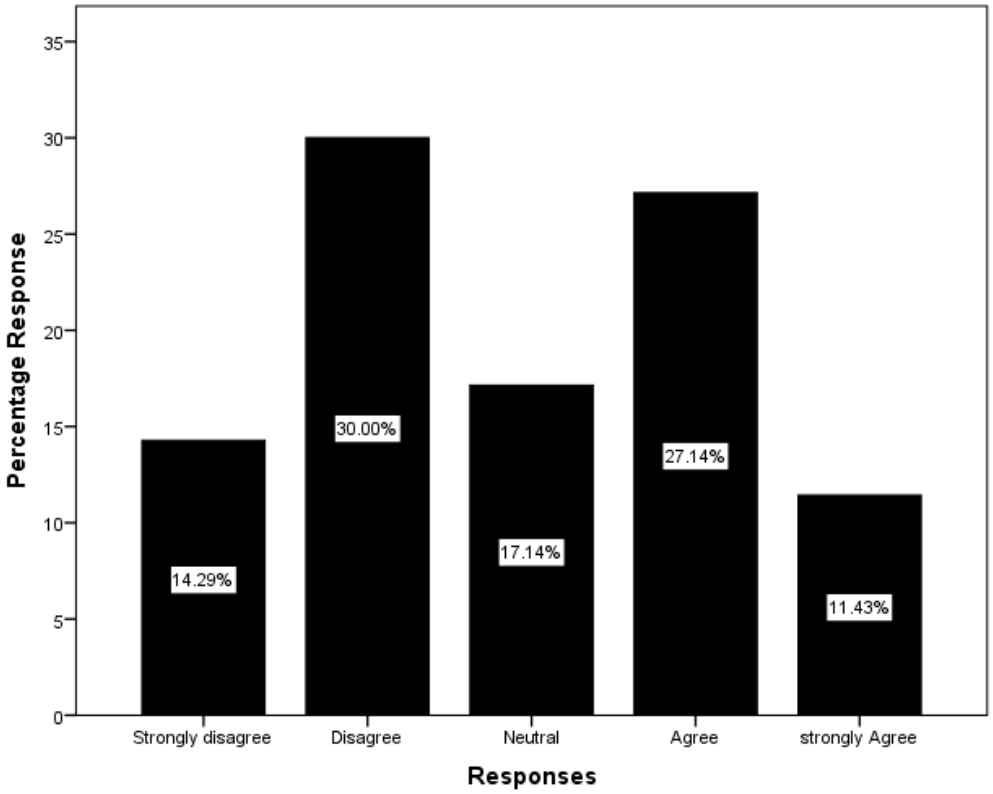

Figure 4.8: Disaster experience influences disaster preparedness

4.2.7.3 Sense of community (relationships)

Participants were asked (Question 16) whether their sense of community (relationships) leads them to actively prepare for a disaster. A number (N = 20, 28.6%) disagreed that their sense of community leads them to actively prepare for a disaster, while 18 (25.7%) were neutral, 17 (24.3%) agreed with the statement and 8 (11.4%) strongly agreed. The lowest number of participants, 7 (10%), strongly disagreed (Figure 4.9). Based on the opinions given by participants, the researcher can assume that a sense of community does not lead community librarians in NWP to actively prepare for a disaster.

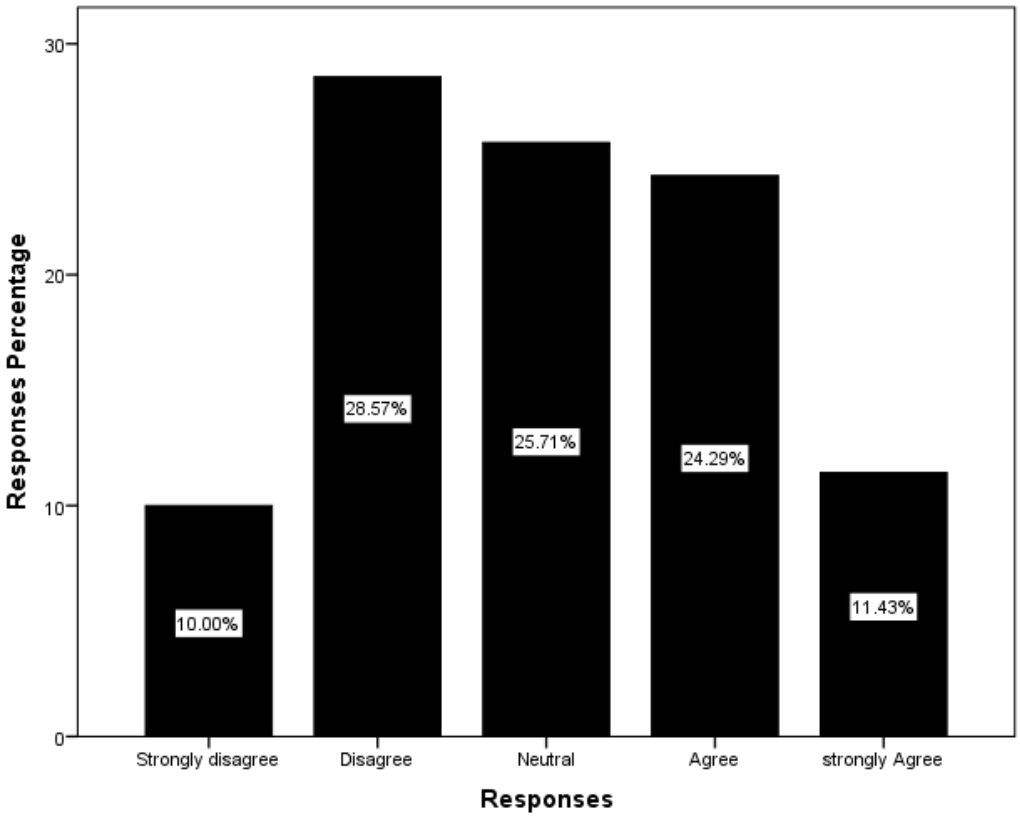

Figure 4.9: Whether sense of community (relationships) leads to active preparation for a disaster

4.2.8 Exploring whether disaster management practices are institutionally defined and shaped

This section will report on whether, in the views of participants, disaster management practices were institutionally defined and shaped.

4.2.8.1 Reason for absence of a disaster plan

In order to determine whether disaster management practices were influenced by the institution's disaster preparedness planning, the participants were probed (Question 18) about the reasons for not having a disaster plan. Different reasons were given; the distribution of responses are shown in Table 4.22. Most of the participants (N = 19, 27.1%) stated that there was no model to base the plan on, whereas 15 (21.4%) indicated that their reason for not having a disaster plan was because they faced few risks. Another 12

(17.1%) participants stated that a disaster plan was not required by the parent organisation, while 7 (10%) indicated that a plan was the responsibility of the local disaster management committee. In addition, 5 participants (7.1%) indicated that their reason for not having a disaster plan was lack of resources to implement it, while 3 (4.3%) indicated that there was no staff available to write and implement it.

Cowick and Cowick (2016) emphasise that a disaster plan is required to prepare for a disaster and to identify resources that will be required during a disaster well ahead of time. As Table 4.22 indicates, a disaster plan, which is essential in disaster planning, was not institutionally defined and shaped.

Table 4.22: Main reason for not having a disaster plan (N = 61)

Responses	Frequency	Percent	Valid percent
Few risks	15	21.4	24.6
No staff available to write and implement it	3	4.3	4.9
Lack of model to write it	19	27.1	31.1
Lack of resources to implement it	5	7.1	8.2
It is the responsibility of the local disaster management committee	7	10.0	11.5
It is not required by the parent organisation	12	17.1	19.7
Total	**61**	**87.1**	**100.0**

4.2.8.2 Learning culture on disaster management

In order to determine whether disaster management practices were institutionally defined and shaped, a question about the learning culture on disaster management within the organisation was included in the questionnaire (Question 25). Many participants disagreed (N = 30, 42.9%) and a smaller number of participants strongly disagreed (N = 8, 11.4%) that a learning culture on disaster management existed within the organisation.

A fewer number of participants (N = 19, 27.1%) agreed and the fewest (N = 3, 4.3%) strongly agreed that a learning culture on disaster management existed within the organisation. Some participants (N = 10, 14.3%) had no idea about the learning culture on disaster management. Figure 4.10 presents the results.

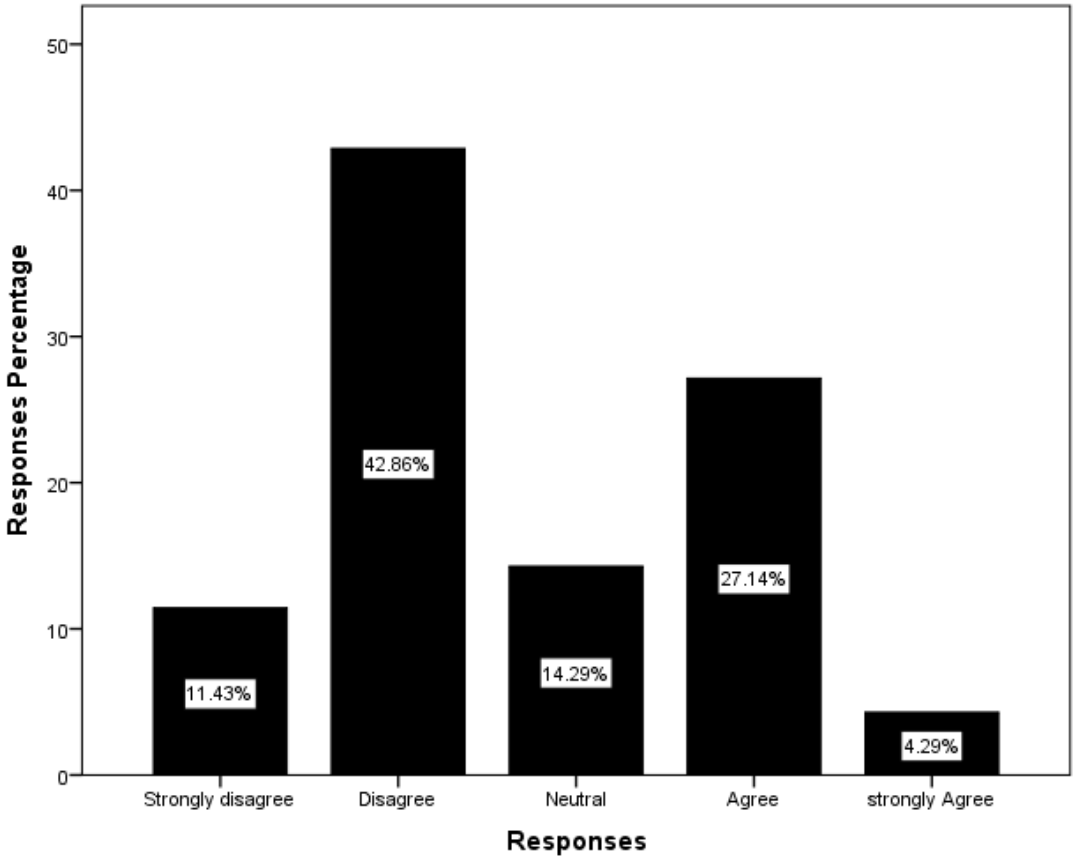

Figure 4.10: Whether a learning culture on disaster management exists within the organisation

4.2.8.3 Organisational culture on disaster management

In order to determine whether disaster management practices were institutionally defined and shaped, a question (Question 27) about the library being considered a potential partner for disaster preparedness was included in the questionnaire. In total, 29 (41.4%) of the participants strongly agreed that the library is not considered a potential partner for disaster preparedness and response by local disaster management units. A further 17 (24.3%) of the participants were neutral, 10 (14.3%) disagreed with the statement, 9

(12.9%) agreed and 5 (7.1%) strongly disagreed about the library with the statement. From Table 4.23 it can be seen that 54.3% strongly agreed or agreed that the library is not considered a potential partner for disaster preparedness and response by local disaster management structures in the community.

Table 4.23: Whether a library is considered a potential partner for disaster preparedness (N = 70)

Responses	Frequency	Percent	Valid percent
Strongly disagree	5	7.1	7.1
Disagree	10	14.3	14.3
Neutral	17	24.3	24.3
Agree	9	12.9	12.9
Strongly agree	29	41.4	41.4
Total	**70**	**100.0**	**100.0**

4.2.8.4 Establishment of a disaster team in each library

Question 28 explored whether establishing a disaster team in each library would improve preparedness and recovery. Results of the exploration (Figure 4.12) showed that quite a large number of participants (N = 18, 25.7%) agreed and strongly agreed (N = 17, 24.3%) that establishing a disaster team in each library would improve preparedness and recovery. Further, it was discovered that a smaller number (N = 12, 17.1%) disagreed and strongly disagreed (N = 6, 8.6%) that the establishment of a disaster team in each library would improve preparedness and recovery. A number of participants (N = 17, 24.3%) were undecided about the issue (neutral). Figure 4.11 shows that participants generally agree about disaster teams being able to improve preparedness and recovery.

It is evident that more participants (N = 35, 50%) agreed (either agreed or strongly agreed) than participants (N = 18, 26%) who disagreed (either disagreed or strongly disagreed) that the establishment of a disaster team in each library would improve preparedness and recovery.

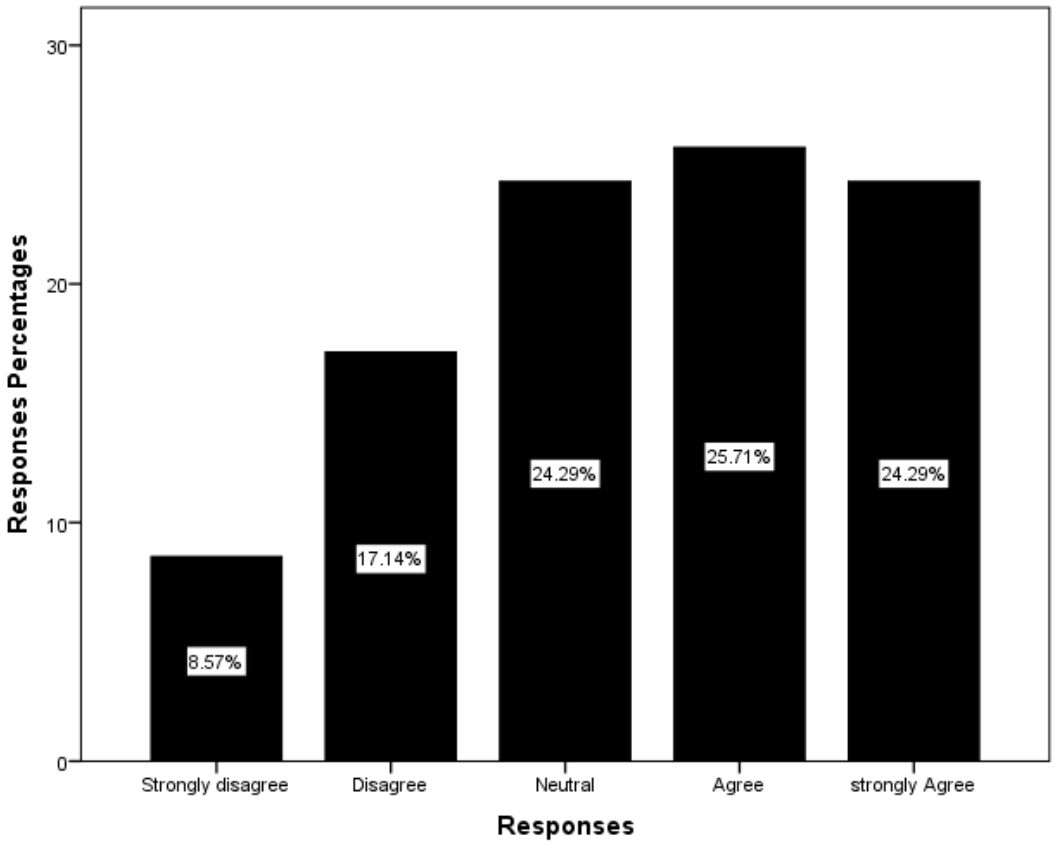

Figure 4.11: Whether establishing a disaster team would improve preparedness and recovery

4.2.9 Role of the community and media in disaster management in community libraries

The study sought to determine the role of the community and the media in disaster management by community libraries. The responses are presented in the next sections.

4.2.9.1 Cloud services are used to back up the data

A questionnaire item (Question 19) was used to explore the use of cloud services. In general, most of the participants (N = 32, 46%) reported that cloud services were not used by their libraries to back up data: 22 (31.4%) participants disagreed and 10 (14.3%) strongly disagreed that cloud services were used to back up data. However, a number of participants (N = 17, 24.3%) had no idea whether cloud services were being used, or not.

In contrast, as many as 21 (30%) were under the impression that cloud services were used to back up data in their libraries. The distribution of those who agreed was that 17 (24.3%) agreed and only four 4 (5.7%) strongly agreed that cloud services are used to backup data as shown in Figure 4.12. Based on these participants, it was observed that the majority of the participants disagreed that cloud services were used in libraries to backup data on cloud.

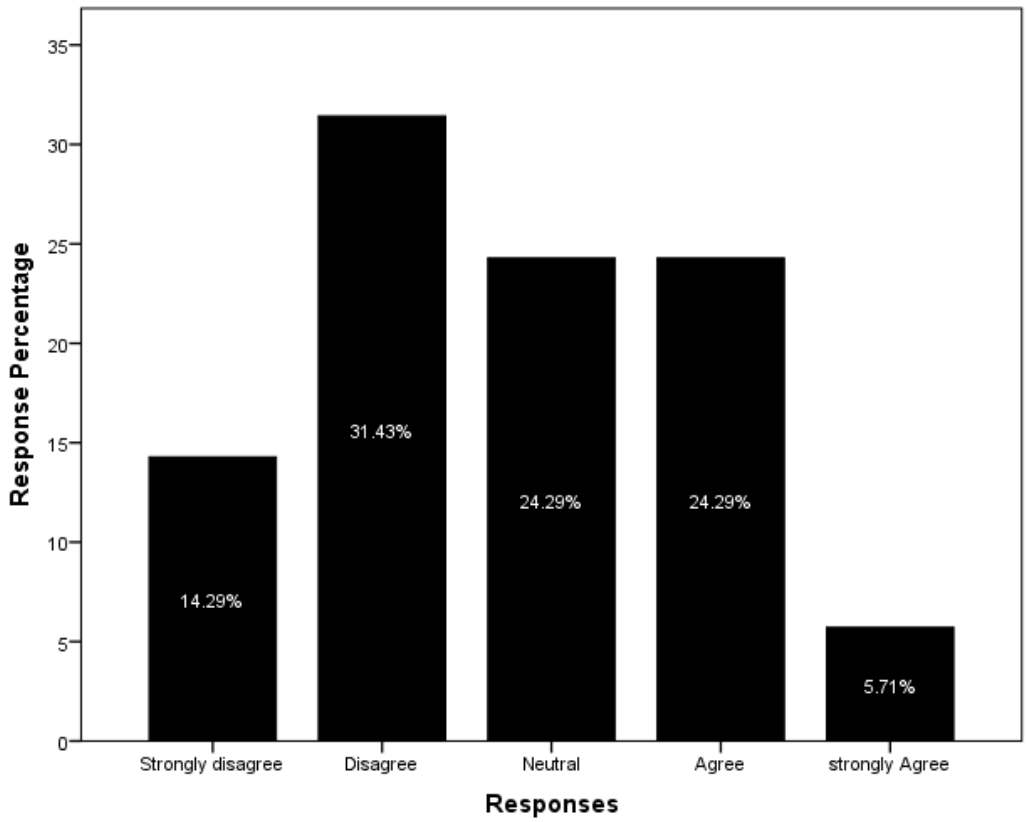

Figure 4.12: Cloud services used to back up data

4.2.9.2 Influence of newspapers, social media and discussions with other librarians on disaster planning

The influence of newspapers, social media and discussions with other librarians was explored using Question 20; the results are displayed in Figure 4.13. The results reveal that as many as 22 (31.4%) participants agreed that information about libraries being destroyed that librarians read about in newspapers and on social media and hear about

in discussions with other librarians, influences disaster planning. However, 19 (27.1%) disagreed with the statement and 15 (21.4%) were neutral. A small number of participants (N = 8, 11.4%) strongly disagreed and very few (N = 6, 8.6%) strongly agreed with the statement. Based on these results (Figure 4.13), the information about libraries being destroyed that librarians read about in newspapers and on social media or hear about in discussions with other librarians, influences disaster planning.

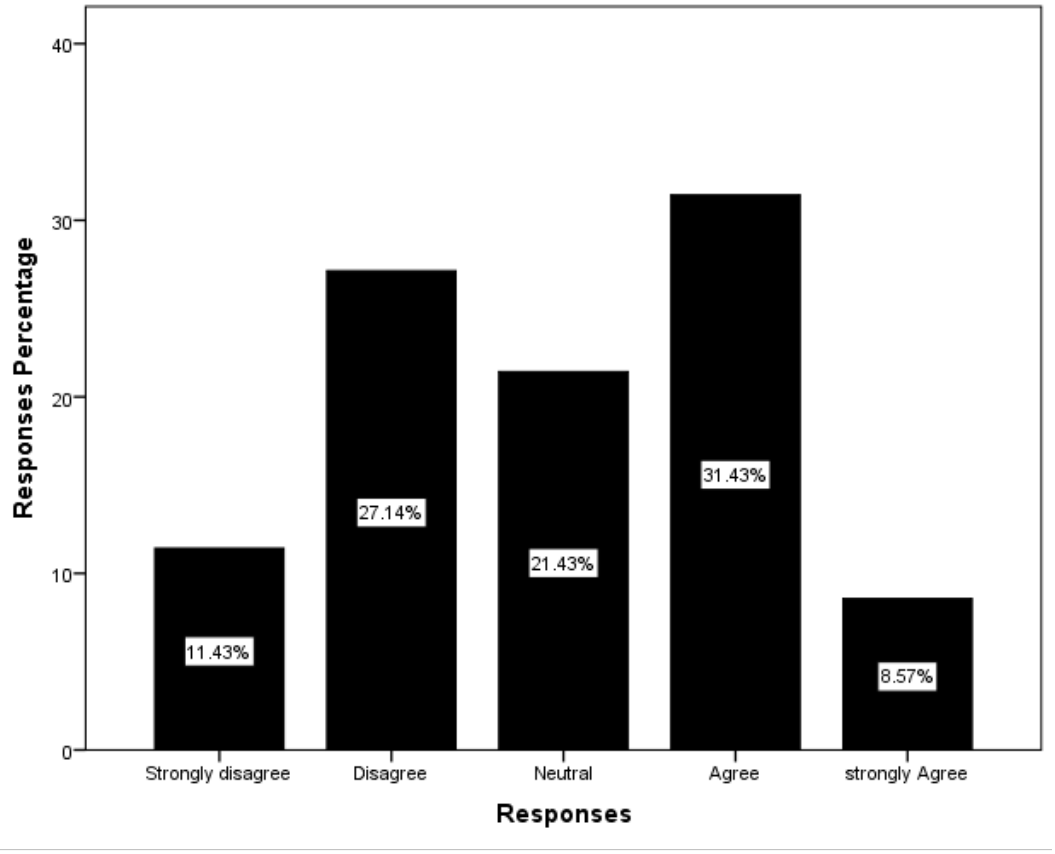

Figure 4.13: Do media and discussions influence disaster planning

4.2.9.3 Participants' suggestions for improving disaster management to CATA

At the end of the questionnaire and the interview protocol, the participants were requested to provide suggestions, recommendations or comments regarding disaster management in NWP. A summary of participants' suggestions is presented next.

Participants suggested that CATA develops policies and procedures on disaster management that should be implemented in each library. Furthermore, the service-level

agreement with municipalities should be revised and each library and municipality should be monitored on how they implement the agreement. CATA should investigate Disaster Management Forums, and possibly implement them.

Participants suggested that the organisation should focus on providing regular training in disaster management to raise awareness on disaster management. Some of the methods suggested for training are short courses, workshops and in-house training. Other suggestions are that the training should include monitoring to ensure that the training is implemented. The training that is proposed should focus on developing disaster management guidelines for each library, doing disaster planning and how to implement disaster management policy.

Participants were of the opinion that municipalities should include libraries in their disaster management programmes. Participants suggested that librarians should be trained on how to perform certain activities, such as risk identification and risk reduction. In addition, municipalities should consider community libraries as equal partners in disaster management, and communication between municipalities and community librarians should be improved. Roles in disaster management needed to be defined, so that librarians know what their responsibilities are and what is expected of them before, during and after a disaster.

In addition to training, participants reported that libraries should be provided with equipment, such as fire alarms and panic buttons. Librarians should also be trained to use the equipment.

Participants suggested that a disaster management budget should be availed to support disaster management. The budget should be used for activities such as regular training and capacity building through engaging professionals to assist in planning safety measures and evacuation procedures.

In addition, participants suggested that CATA should enforce compliance. Compliance on issues such as developing plans, reviewing disaster management plans and policies and monitoring disaster management is important.

Each municipality should have short-term insurance in place to cover the buildings (structures) and the contents (moveable assets) of the libraries (books, computers, furniture, equipment and others).

Various disaster management structures should be established in the library. An example is a disaster management committee that involves library staff and community members, which could ensure that disaster plans and other disaster management activities are executed.

It was also suggested that traditional leaders, due to the influence they have in the community, should be involved in protecting community libraries. Traditional leaders should be used to safeguard community libraries and to raise awareness of the need for libraries to be spared during, for example, service delivery protests. Awareness should be raised so that libraries are not viewed as “soft targets” during service delivery protests and by criminals who target libraries for the computers that are in the library.

4.2.10 Analysis based on extracted factors and objectives

The researcher aligned the following analysis with the factors that were extracted from EFA in Section 4.1.2. EFA extracted seven hypothetical factors, which are presented and summarised in Table 4.7. Items in each of the factors were analysed using the descriptive statistics measures of central tendency to unpack the distribution and recurrence of each of the response levels, thereby unearthing the general perceptions of the participants in this study. The calculated measures of central tendency were summarised and presented in tables for easy reference when discussing the results.

4.2.10.1 Readiness to deal with disasters

Measures of central tendency, namely, mode, median, kurtosis and skewness, were used to examine the distribution of responses to questionnaire items that collectively define the Factor 1, readiness to deal with disasters. Results of the analysis (Table 4.24) show that, overall, there is negative kurtosis for all the response data, which is an indication of the platykurtic distribution of responses (light-tailed distribution) for all items (Question 13, Question 14, Question 16, Question 20, Question 21 and Question 28) that define Factor

1. This means there were very few extremes (strongly disagree or strongly agree) in the responses. The statements in the questions were as follows:

Question 13: The potential risks can be mitigated through individual efforts.

Question 14: I would feel confident implementing emergency plans, evacuation procedures and similar functions.

Question 16: My past disaster experience influences my actions to actively prepare for a disaster.

Question 20: The information about libraries being destroyed that I read in newspapers, on social media and when discussing with other librarians influences my disaster planning.

Question 21: It is a requirement for my library to have a disaster plan.

Question 28: The establishment of a disaster team in each library will improve preparedness and recovery.

Table 4.24: Summary statistics for items defining Factor 1

Statistics	Q13	Q14	Q16	Q20	Q21	Q28
Mean	2.81	3.17	2.99	2.99	3.21	3.40
Median	3	3.5	3	3	3	3.5
Mode	3	4	2	4	2	4
SDEV	1.18	1.29	1.19	1.19	1.39	1.27
Kurtosis	-0.78	-0.95	-0.92	-1.02	-1.50	-0.93
Skewness	0.10	-0.41	0.08	-0.08	0.00	-0.32
Count	70	70	70	70	70	70

It can be observed in Table 4.24 that the most frequent response (modal response) for items Question 14, Question 20 and Question 28 was a 4 (Agree). In addition, the mean and the median for these items were both equal to a response value of 3 (Neutral) and the skewness for this data was almost zero, which is an indication that the data of items Question 14, Question 20 and Question 28 was symmetrically distributed. The response data for items Question 13, Question 16 and Question 21 did not deviate much from that of items Question 14, Question 20 and Question 28 (symmetrically distributed), except that the modal response was a 2 (Disagree) for Question 16 and Question 21. Similarly, for item Question 13, the data was symmetrically distributed, but the modal response differed from that of the other items – 3 (Neutral) meant most participants for this item indicated that they had no idea (Neutral).

A modal response of 2 (Disagree) for Question 16 and Question 21 can be an indication that the participants' sense of community (relationships) does not lead them to actively prepare for a disaster, and that the participants do not believe that having a disaster plan is a requirement for their libraries. In addition, a modal response of 3 (Neutral) for item Question 13 could be an indication that, in general, the participants do not know whether the potential risk of disasters can be mitigated through individual efforts, or not.

In addition, the modal response of 4 (Agree) for items Question 14, Question 20 and Question 28 can be a signal that the participants:

- Were confident about implementing emergency plans, evacuation procedures and similar functions as readiness plans to deal with disasters before they occur,
- Believed that information about libraries being destroyed that they read in newspaper and on social media and heard about during discussions with other librarians influenced their disaster planning, and
- Believed that the establishment of a disaster team in each library would improve preparedness and recovery.

4.2.10.2 Learning and knowledge about disaster management

Factor 2 was defined by the following items: Question 22, Question 23, Question 24, Question 25 and Question 27. The statements of the questions are as follows:

> *Question 22: Contingency plans are in place in the event of a disaster in my library.*
>
> *Question 23: I work with the community to reduce disaster risks and to prepare their response mechanisms to address disasters.*
>
> *Question 24: I have the contacts to help me in the case of a disaster.*
>
> *Question 25: A learning culture on disaster management exists within the organisation.*
>
> *Question 27: The library is not considered a potential partner for disaster preparedness and response by local disaster management structures in the community.*

The statistics of mode, median, kurtosis and skewness are presented in Table 4.25 below. A negative kurtosis for all the responses' data is an indication of the platykurtic distribution of responses (light-tailed distribution) for all items: Question 22, Question 23, Question 24, Question 25 and Question 27. For items Question 22, Question 23 and Question 25, the mean response was slightly greater than the modal and median response, and the

skewness was slightly greater than zero (Table 4.25). The interpretation is that the distribution of response data for these items is positively skewed and light tailed.

The modal response for items Question 22, Question 23 and Question 25 is 2 (Disagree), which can be an indication that the general views of participants were that,

- There are no contingency plans in place for the event of a disaster happening in a library,
- Librarians do not work with the community to reduce disaster risks and to prepare their response mechanisms to address disasters, and
- A learning culture on disaster management does not exist within the organisation (Table 4.25).

Table 4.25: Summary statistics for items defining Factor 2

Statistics	Q22	Q23	Q24	Q25	Q27
Mean	2.49	2.54	2.84	2.70	3.67
Median	2	2	2.5	2	4
Mode	2	2	4	2	5
SDEV	0.99	1.03	1.20	1.12	1.34
Kurtosis	-0.57	-0.55	-1.38	-1.01	-1.03
Skewness	0.46	0.53	0.00	0.31	-0.49
Count	70	70	70	70	70

The general distribution of modal responses for item Question 24 is a 4 (Agree) and that of item Question 27 is a 5 (Strongly agree), which can be an indication that the general perception of the participants was that,

- Contacts to help librarians in the case of a disaster happening are available in some libraries, and

- The library is not considered a potential partner for disaster preparedness and response by local disaster management structures in the community.

4.2.10.3 Prevalence of disasters

Items Question 7.1, Question 7.5, Question 6 and Question 10 are the items that constituted Factor 3, Prevalence of disasters. The questions are as follows:

> *Question 6: Has your library suffered from a disaster during the past year?*
>
> *Question 7.1: If the answer to the previous question is Yes, what kind of disaster or disasters were there? – Enterprise-related Disaster (for example, hostile legislation, lengthy strikes, sudden cuts to operating budget)*
>
> *Question 7.5: If the answer to the previous question is Yes, what kind of disaster or disasters were there? – None*
>
> *Question 10: The probability of a disaster occurring in my library is low.*

In Table 4.26, a negative kurtosis for all the responses' data is observed, meaning that response data for all items followed a positively skewed (positive skewness) and light-tailed distribution. For items Question 7.1 and Question 7.5, modal and median response were both zero (a No response), which is an indication that the perceptions of the participants were that,

- Libraries located in their region or place were not threatened by security disasters, and
- No other types of disasters occurred in libraries located in their region or place.

For items Question 6 and Question 10, the mean and median responses were almost the same, though modal responses were higher than the mean and median response. Modal values were 6 (No) and 5 (Strongly agree) for items Question 6 and Question 10 respectively. This is an indication that, in general, the perceptions of the participants were that;

- Their libraries have not suffered any disasters during the past five years, and
- The probability of a disaster occurring at their library was and is still low.

Table 4.26: Summary statistics for items defining Factor 3

Statistics	Q7.1	Q7.5	Q6	Q10
Mean	0.29	0.33	3.43	3.26
Median	0	0	3	3
Mode	0	0	6	5
SDEV	0.46	0.47	2.05	1.39
Kurtosis	-1.09	-1.49	-1.64	-1.16
Skewness	0.97	0.75	0.14	-0.18
Count	70	70	70	70

4.2.10.4 Knowledge of potential disaster risks

Items Question 11, Question 12 and Question 19 defined Factor 4, which the researcher labelled, Knowledge of potential disaster risks. The questions are as follows:

> *Question 11: I perceive the potential risks in my community as being capable of posing a threat to my library.*
>
> *Question 12: I am aware of the potential disaster risks that can affect my library.*
>
> *Question 19: Cloud services are used to back up the data in my library.*

As shown in Table 4.27, negative kurtosis values were observed for all items: Question 11, Question 12 and Question 19, an indication of another light-tailed distribution. Skewness values for items Question 11 and Question 12 were negative, showing that response data for these two items was slightly negatively skewed, though, for Question 19, the data was slightly positively skewed (median and mean are greater than the mode). The most frequent response is 3 (Neutral opinion) for item Question 11, 4 (Agree) for item Question 12 and 2 (Disagree) for item Question 19. The perceptions portrayed in Table 4.20 suggest that participants,

- Had no idea whether the potential risks in their community were capable of posing a threat to their libraries,
- Were aware of the potential disaster risks that could affect their library, and
- Disagreed over whether cloud services were used to back up the data in their libraries.

Table 4.27: Summary statistics for items defining Factor 4

Statistics	**Q11**	**Q12**	**Q19**
Mean	3.04	3.43	2.76
Median	3	4	3
Mode	3	4	2
SDEV	1.26	1.02	1.15
Kurtosis	-0.83	-0.49	-0.91
Skewness	-0.13	-0.36	0.14
Count	70	70	70

4.2.10.5 Types of disasters in the area

Items Question 7.2, Question 7.4 and Question 9 defined Factor 5 (Types of disasters in the area). The questions are as follows:

> *Question 7.2: If the answer to the previous question is Yes, what kind of disaster or disasters were there? – Security disaster*
>
> *Question 7.4: If the answer to the previous question is Yes, what kind of disaster or disasters were there? – Technology disaster*
>
> *Question 9: Is your library located in a region or place threatened by natural disaster?*

Negative kurtosis for all the responses data is an indication of the platykurtic distribution of responses for items Question 7.2, Question 7.4 and Question 9. Modal, median and

mean responses for each of the three items are almost equal, showing a non-skewed light-tailed distribution. Very-low-valued modal responses are recorded in Table 4.28; 0 (No) for item Question 7.2, 0 (No) for item Question 7.4 and 2 (Disagree) for item Question 9, indicating that, in general, participants,

- Reported no enterprise-related disasters,
- Reported no technology-related disasters, and
- Disagreed that their libraries were located in a region or place threatened by natural disaster.

Table 4.28: Summary statistics for items defining Factor 5

Statistics	**Q7.2**	**Q7.4**	**Q9**
Mean	0.29	0.36	2.09
Median	0	0	2
Mode	0	0	2
SDEV	0.46	0.48	0.74
Kurtosis	-1.09	-1.68	-1.12
Skewness	0.97	0.61	-0.14
Count	70	70	70

4.2.10.6 Plans in place to deal with disasters

Factor 6, labelled, plans to deal with disasters, comprises Items Question 7.3, Question 17 and Question 29. The questions are as follows:

> *Question 7.3: If the answer to the previous question is Yes, what kind of disaster or disasters were there? – Natural disaster*
>
> *Question 17: A disaster plan is a written document which concerns the safety and rescue of the collection and building in the event of a disaster. Do you have a disaster plan for your library?*

Question 29: I have attended disaster management training as part of

- *A workshop organised by my employer*
- *During my undergraduate studies*
- *A short course on disaster management*
- *As part of my postgraduate studies*
- *I have never attended disaster management training*

Question 7.3 and Question 29 had negative kurtosis, showing another light-tailed distribution. In Table 4.29 it is clear that median, modal and mean responses for items Question 7.3 and Question 17 are almost equal, meaning that the data is uniformly distributed around the mean responses.

A modal response of 0, a No response, is an indication that the participants perceived the likelihood of a natural disaster as being low in their libraries. A modal response of 2 (No) for Question 17 represents a perception that, in general, participants said they had no disaster plans for their libraries. Question 29 had a modal response of 5, which, in general, is an indication that the participants unanimously indicated that they had never attended disaster management training.

Table 4.29: Summary statistics for items defining Factor 6

Statistics	**Q7.3**	**Q17**	**Q29**
Mean	0.26	1.87	3.09
Median	0	2	3
Mode	0	2	5
SDEV	0.44	0.34	1.90
Kurtosis	-0.73	3.24	-1.93
Skewness	1.14	-2.27	-0.07
Count	70	70	70

4.2.10.7 Disaster occurrence and influences on individual actions

Question 15 and Question 26 defined Factor 7, which was identified as Disaster occurrence and its influences on individual actions. The questions are as follows:

> *Question 15: My past disaster experience influences my actions to actively prepare for a disaster?*
>
> *Question 26: Cases have been reported in the media about libraries being destroyed. Does this motivate you to learn about disaster management?*

Descriptive statistics presented in Table 4.30 show a light-tailed distribution (negative kurtosis), non-skewed, since there is an almost equal mean, modal and median response for each item. A modal response of 2 for items Question 15 and Question 26 gives the perception that the majority of the participants had the opinion that,

- Their past disaster experience does not influence their actions to actively prepare for disasters, and
- Cases reported in the media of libraries being destroyed does not motivate them to learn about disaster management.

Table 4.30: Summary statistics for items defining Factor 7

Statistics	**Q15**	**Q26**
Mean	2.91	2.15
Median	3	2
Mode	2	2
SDEV	1.27	0.59
Kurtosis	-1.16	-0.11
Skewness	0.08	-0.03
Count	70	47

The next section will present the qualitative findings.

4.3 QUALITATIVE FINDINGS

Qualitative data analysis will be reported in two sections: Section 4.3.1 is a presentation of thematic analysis results from interviews, and Section 4.3.8 presents the results of the document analysis. The thematic analysis identifies themes, codes and common quotes from opinions aired by participants in the interviews. The participants were assistant directors employed in NWP.

4.3.1 Thematic analysis results

In this section, analysis of data involved a thematic approach, with data codes being clustered into superordinate themes by qualitative data analysis software, Atlas-ti 8.0. Emerging themes, sub-themes and recurring explanations were categorised, summarised and interpreted.

4.3.2 Assistant directors' perceptions: Individual factors that influence disaster management practices in NWP

The interview responses regarding the assistant directors' perceptions of individual factors that influence disaster management practices in NWP are presented in Table 4.31. Analysis of the data from the interviews identified the following themes concerning factors that influence disaster management practices:

- Education on disaster management;
- Centralisation of disaster management by the municipality; and
- Prevalence of disasters.

Table 4.31 presents themes, codes and some quotes for the data categorised according to the perceptions of the assistant directors regarding individual factors that influence disaster management practices at NWP community libraries. A discussion based on the themes identified, codes and quotes (Table 4.31) will provide more insight into the findings of the interviews.

4.3.2.1 Education on disaster management

Some of the assistant directors who were interviewed perceived that one of the factors that influences disaster management practices in NWP is lack of proper education on disaster management. The assistant directors perceive that they lack knowledge, yet, no one is available to educate them. One interviewee stated, *we have not been really trained in terms of dealing with disaster management*, and another interviewee stated, *we will have to just try and educate ourselves with regards to it*. The indication is that they are very eager to know about and engage in disaster management practices; this eagerness even lead to them suggesting that they should educate themselves.

4.3.2.2 Centralisation of disaster management by the municipality

One of the factors that was perceived as affecting disaster management, is that the municipality does everything. The assistant directors' view was that they were not involved in disaster management practices, but were excluded by the municipality. An interviewee stated, *the municipality should include the library in disaster management through workshops*. Another interviewee had this to say: *Whatever happens, we just phone the municipality*. These responses indicate that libraries themselves have no action plans for the event of a disaster occurring, except to contact the municipality, which has disaster management plans. This attitude creates a dependence syndrome and affects the need to have disaster management practices negatively.

4.3.2.3 Prevalence of disasters

Prevalence of disasters refers to how often disasters occur in the area. The assistant directors who were interviewed perceived one of the factors that influence disaster management practices in NWP being librarians who lack experience of disaster management practices. The perception was that, since disasters have not occurred yet, many librarians would not be able to manage it when does happen. One of the interviewees had the following to say: *In terms of natural disasters none have happened before… only service delivery strikes*.

Table 4.31 shows the themes, codes and quotes for assistant directors' perceptions on individual factors that influence disaster management practices in NWP.

Table 4.31: Themes, codes and quotes: Individual factors that influence disaster management practices in NWP

Family	Themes	Codes	Some quotes
Perceptions of assistant directors of individual factors that influence disaster management practices in NWP	Education on disaster management	Lack of knowledge	*Librarians… just went to the library and then ran out… into their cars and drove off. Without preventing the library being destroyed. They lack knowledge*
		Education of librarians about disasters	*we will have to just try and educate ourselves with regards to it*
		No training on dealing and managing disasters	*We have not been really trained in terms of dealing with disaster management.*
		Availability of internet	*We can teach ourselves by using the internet to read about disaster management.*
		Awareness	*I think it is a lack of, of awareness, and lack of knowledge about it*
	Centralisation by the municipality of disaster management	Librarians not involved	*Honestly speaking, we are not really involved… they municipality are the ones who are handling everything that has to do with the disaster*
		Municipality does everything	*Municipality, should include the library, in disaster management through workshops* *Whatever happens, we just phone the municipality*
	Prevalence of disasters	Librarians not experienced in disaster	*Natural disasters, none have happened before… no, only service delivery strikes*

4.3.3 Disaster management practices of community libraries in NWP

The interview responses (Table 4.32) report assistant directors' perceptions of disaster management practices of community libraries in NWP. Upon analysing the data from the interviews, the following themes concerning disaster management practices in community libraries were identified:

- Disaster preparedness
- Risk identification
- Emergency safety plans

The themes, codes and some of the quotes for the data, categorised according to the perceptions of assistant directors on disaster management practices of community libraries in NWP, are presented in Table 4.32. A discussion based on the themes identified, codes and quotes (Table 4.32) provides insights on the findings of the interviews.

4.3.3.1 Disaster preparedness

Disaster preparedness refers to how well libraries/librarians are prepared to deal with the disaster when it happens. The assistant directors interviewed perceived that there were no training and workshops to prepare them to deal with disasters. This is evident in the quote, *No workshop nor training program has been conducted since I was here for 5 years now*. In their view, disaster management equipment, such as fire extinguishers, is available in community libraries, but the library personnel had received no training on how to use it, so they are not able to operate it. In addition, the interviewees perceived that their disaster preparedness is hindered by their inability to conduct awareness campaigns in the community about the importance of libraries; such campaigns would discourage protesters from burning libraries during service delivery protests. One participant had this to say: *We have done no community awareness against the burning of libraries during service delivery protests*.

4.3.3.2 Risk identification

Some assistant directors reported that a prevailing risk faced by libraries is the destruction of computers and books. Another risk that was mentioned is sabotage of the library by community members, as explained by the following quote: *They just open the water and then it floods the library and destroys books computers*.

Another emerging theme was the lack of data backup, which could affect library operations. The participants indicated that the absence of data backup facilities could lead to huge loss of records, data and books.

4.3.3.3 Emergency safety plans

If a disaster should happen, assistant directors believe there are emergency safety plans available to follow. In their view, evacuation plans are in place that specify exit routes and assembly points. *Exit routes to assembly points are available in case of fire disaster,* was what one librarian reported. However, regular safety training for all library personnel was not being organised by community libraries. One said: *People are not being told what to do before, during and after disaster occurrence*.

Table 4.32: Themes, codes and quotes: Disaster management practices in community libraries in NWP

Family	Themes	Codes	Some Quotes
Perceptions of assistant directors on disaster management practices in community libraries in NWP	Disaster preparedness	Training and workshops do not exist	*No workshop nor training program that was conducted since I was here for 5 years now*
		Disaster management equipment present	*We have fire extinguishers which do not know how to use*
		No community awareness campaigns	*We have done no community awareness against the burning of libraries during service delivery protests*

Family	Themes	Codes	Some Quotes
	Risk identification	Destruction of computers and books and by sabotage	*They just open the water and then it floods the library and destroys books computers*
	Emergency safety plans	Evacuation plans are in place	*Exit routes to assembly points are available in case of fire disaster*
		Safety training to all personnel	*People are not told what to do before, during and after disaster occurrence*

4.3.4 Disaster management skills and knowledge of community librarians

The interview responses reported in Table 4.33 relate to assistant directors' perceptions of their own disaster management skills and knowledge. Analysis of the data from the interviews identified the following themes concerning disaster management practices in community libraries:

- Knowledge of using disaster equipment;
- Disaster management knowledge;
- Recovery protocols in place; and
- Records storage.

Table 4.33 presents the themes, codes and some of the quotes for the data, categorised according to the perceptions of assistant directors perceptions regarding disaster management skills and knowledge of community librarians possess. A discussion of the identified themes, codes and quotes (Table 4.33) will be conducted to give insight into the findings of the interviews.

4.3.4.1 Knowledge of using disaster equipment

Some assistant directors indicated that they had never received training on how to use some of the disaster equipment, such as fire extinguishers, and, hence did not know how to use it. One interviewee said: I *have never been given any training on how to use fire extinguishers*. In addition, the equipment available in community libraries is not inspected

regularly for functionality. One interviewee said: *Fire equipment has not been checked for that for fitness*.

4.3.4.2 Disaster management knowledge

Interviewees perceived that their disaster management skills and knowledge concentrated on fire disasters, and are, therefore, not holistic. Some of the comments made in this regard are, *Existing measures that are in place does not cover disasters like flooding*, and *We only know about fire disasters.*

4.3.4.3 Recovery protocols in place

The interviewees perceived that the libraries did not have recovery protocols, storage manuals or facilities for cloud storage of important records. Some of the statements by interviewees are the following: *The library does not have any recovery; The books that we have, when they are destroyed that's all; Even the computers, if destroyed that's the end of the story.*

4.3.4.4 Records storage

The views of the assistant directors were that they were not aware of data backup policy, and that libraries seldom have access to the internet for the library management system. One interviewee stated, *In case of fire or floods, we run a risk of losing all the records. There is no internet always and our records are not on the cloud or our library management system is manual*.

Table 4.33: Themes, codes and quotes: Disaster management skills and knowledge that community librarians possess

Family	Themes	Codes	Some quotes
Assistant directors perceptions on disaster management skills and knowledge that community librarians possess	Knowledge of using disaster equipment	Training not provided	*I have never been given any training on how to use fire extinguishers*
		Cannot use fire extinguishers	*I do not know how to use it*
		No regular inspection of equipment	*Fire equipment has not been checked for that for fitness*
	Disaster management knowledge	Focused on fire disaster management	*With fire disaster yes is one that I know we are familiar with*
		Not focused on other disasters management	*Existing measures that are in place does not cover disasters like flooding*
	Recovery protocols in place	The library does not have any recovery measure	*The library does not have any recovery* *The books that we have, when they are destroyed that's all* *Even the computers, if destroyed that's the end of the story*
		Storage is manual, no cloud saving	*It is manual, we use manual data, it is not on the computer*

Family	Themes	Codes	Some quotes
	Records storage	Data backup policy not known	*I don't know of any policy regarding backups*
		No internet for library electronic system	*In case of fire or floods, we run a risk of losing* *No internet always* *Records on cloud or our library management system*

4.3.5 Assistant directors perceptions of the role of the community in disaster management for community libraries

Interview responses (Table 4.34) regarding the assistant directors' perceptions on the role of the community in disaster management for community libraries were analysed and two themes concerning the role of the community in disaster management for community libraries were identified:

- Controlling a disaster as it happens; and
- Keep communication lines open.

The themes, codes and quotes for the data categorised for assistant directors' perceptions on the role of the community in disaster management for the community library family are presented in Table 4.34. To obtain more insight on the findings of the interviews, the identified themes, codes and quotes will follow.

4.3.5.1 Controlling a disaster as it happens

The view of the assistant directors on the role of the community in disaster management for community libraries was that the community actively involve themselves in protecting the library, since they are the first people arriving at the library in case of disaster. One interviewee said: *Community stand as one against people who want to destroy the library*

in their area. In addition, some interviewees had the perception that the community assisted during emergencies, including disasters, by being actively involved in combating the disaster. One interviewee reported, *These community guys… helps to put off the fire when the library was actually burning before the fire brigade comes*.

4.3.5.2 Keep communication lines open

The view regarding this theme was that the best way to reach the community is through their leaders and some community members. The community itself can conduct awareness campaigns concerning the destruction of libraries during strikes and other social upheavals. One interviewee said: *The community leaders conduct awareness campaigns for the community not to burn libraries when striking*.

Table 4.34: Themes, codes and quotes: Assistant Directors' perceptions on the role of the community in disaster management for community libraries

Family	Themes	Codes	Some quotes
Assistant directors' perceptions of the role of the community in disaster management for community libraries	Controlling disaster as it happens	The community actively involved in protecting their library	*Community stand as one against people who want to destroy the library in their area*
		Assist on emergency in case of disaster	*The community assist by being there for the library when a disaster occurs*
	Keep communication lines open	Conducting awareness campaigns	*The community leaders conduct awareness campaigns for the community not to burn libraries when striking*

4.3.6 Assistant directors' perceptions of practices established by CATA for disaster management

Interview response data (Table 4.36) regarding the assistant directors' perceptions of practices established by CATA in relation to disaster management was analysed and two themes concerning practices established by CATA for disaster management were identified:

- Advising on disaster management practices; and
- Emergency safety plans.

The themes, codes and some of the quotes for the data, categorised according to the assistant directors' perceptions of practices established by CATA for the disaster management family, are presented in Table 4.35. A brief discussion of the themes, codes and quotes identified will be presented to give more insight into the findings of the interviews.

4.3.6.1 Advising on disaster management practices

In the assistant directors' view, CATA had conducted neither workshops nor personnel training sessions for disaster management practices and, hence, there is no tangible proof of CATA providing advice on disaster management practices for libraries and their personnel. One interviewee said, *I have never attended or heard about a workshop conducted by CATA*, and another reported, *CATA has done virtually nothing about personnel training about the disaster*.

4.3.6.2 Emergency safety plans

The views of the assistant directors indicate that CATA does not maintain the emergency equipment in community libraries, which indicates a lack of commitment to enforcing emergency safety plans. One assistant director said, *Equipment just lie around, not even know whether working or not*. They do believe, however, that CATA has made efforts to send safety personnel for training on safety: *Once we had someone from CATA on safety*.

Table 4.35: Themes, codes and quotes: Assistant directors' perceptions on practices established by CATA for disaster management

Family	Themes	Codes	Some quotes
Assistant dir*ectors' perceptions of practices e*stablished by CATA for disaster management	Advising on disaster management practices	Workshopping library personnel	*I cannot remember any workshops that were done by CATA*
		Training personnel on disaster management	*CATA has done virtually nothing about personnel training about a disaster*
	Emergency safety plans	Evaluate emergency equipment	*Equipment just lies around, not even know whether working or not*
		Safety training	*Once we had someone from CATA on safety*

4.3.7 Assistant directors' perceptions on the involvement of community librarians in local disaster management agencies

Interview response data (Table 4.36) regarding the involvement of community librarians in local disaster management agencies was analysed and two themes concerning involvement of community librarians in local disaster management agencies were identified:

- Relationships; and
- Engagement.

Themes, codes and some of the quotes for the data, categorised according to the librarians' perceptions on the family, Involvement of community librarians in local disaster management agencies, are presented in Table 4.36. A brief discussion based on the

themes, codes and quotes identified follows, to give more insights on the findings of the interviews.

4.3.7.1 Relationships

The assistant directors perceived that they were not formally associated with disaster management agencies. In their view, communication is only one-way, since librarians only have telephone numbers to phone the agencies when there is a disaster. One assistant director reported: *We just have to call them when we have a disaster. We just have to report*.

4.3.7.2 Engagement

The assistant directors reported that there was no formal engagement with disaster management agencies, and no meetings were held between the agencies and community libraries to discuss disaster management practices. Libraries have to telephone if there is a need for the agency's services, hence, assistant directors perceive the engagement as informal. One librarian said: *No, I can't remember holding any form of meeting with them*.

Figure4.14: Themes, codes and quotes: Assistant directors' perceptions on the involvement of community librarians with local disaster management agencies

Family	Themes	Codes	Some quotes
Assistant directors' perceptions of the involvement of community librarians in local disaster management agencies	Relationships	Informally related	*We do not have any formal relationship regarding that*
		Communication is only one-way	*We just have to call them when we have a disaster. We just have to report*
	Engagement	No meeting to discuss disaster management	*No, I can't remember holding any form of meeting with them*

Family	Themes	Codes	Some quotes
		Informal engagement	*Just have to phone them, when disaster comes… that's all.*

4.3.8 CATA DOCUMENT ANALYSIS

Documents that are related to disaster management were requested from CATA. The aim was to analyse the documents to determine the disaster management practices of the organisation.

Some of the documents that were obtained are the CATA Annual Performance Plan 2018/2019, Approved CATA Records Management Policy 2014, Approved ICT Policy 2017, CATA Strategic Plan 2015–2019, Approved Original Risk Management Policy 2016, Risk Management Policy 2016, Approved Security Policy 2017, Annual Performance Plan 2018/2019 and the Municipal Systems Act 32 of 2000. Reports were sourced from individual libraries. However, the reports did not refer to disaster management, as they reported mainly on upgrading library facilities, the number of libraries providing free Internet access, number of new materials procured and number of Expanded Public Works Programme job opportunities created.

4.3.8.1 Disaster management practices and activities

A summary of disaster management practices/activities ascertained from the document analysis is presented in Table 4.37. From the table it is evident that certain practices and activities should be implemented to mitigate a disaster. Regular inspections are indicated, as is the need to fumigate in order to prevent insect outbreaks.

In addition, from institutional documents readily available, the researcher found that there were specific disaster management activities that should be undertaken. These include that the fire extinguishers should be inspected and serviced regularly, and that all personnel must learn to use fire extinguishers; also, there should be regular inspection of areas, and inspections to find leaks. Fumigation should be done twice a year.

Furthermore, files and documents should be backed up and information technology should be used periodically to perform system-wide backups.

In terms of data backup, CATA requires the implementation of a mechanism to ensure that data that is saved on a computer is backed up on a server or alternative medium. In addition, all officials are required to conduct regular tests to establish if data that is backed up is recoverable. In addition to backup, libraries are required to identify risks. Employees are required to identify information and assets that need to be protected. Other activities that should be carried out include assessing risks based on the adequacy of existing security measures and vulnerabilities.

Table 4.36: Disaster management practices/activities

Document	**Practice/activity**
Approved CATA Records Management Policy 05142015	Strictly forbidding the striking of matches, smoking and storage of flammables in the registries Use of only CO_2 fire extinguishers to extinguish fires in locations where records are stored Fire extinguishers must be installed at strategic and accessible areas. The fire extinguishers must be serviced and inspected regularly Fumigation should be done twice a year; lethal and high-acid sprays must be avoided No records must be exposed to direct sunlight Ensure virus-free records storage and management systems
CATA Records Management Policy 03/2014	Regular inspection of offices and other areas were records are kept Inspection conducted for leaks in pipes and roofs All staff must learn to use fire extinguishers
CATA Information and Communications Technology Security Policy 21/2017	Sufficient measures to protect government data against accidental or deliberate unauthorised modifications, disclosure and/or destruction Ensure that detection, prevention and recovery controls against viruses and malware are implemented

Document	Practice/activity
South Africa Government Gazette No. 40865	Hazard Identification, analysis and prioritisation of hazards Education, training and public awareness Rehearsals Training of officials, volunteers and the community

4.3.8.2 Institutional factors relating to disaster management practices at community libraries in NWP

A summary of institutional factors relating to disaster management practices in community libraries in NWP is presented in Table 4.38. CATA is required to develop policies, practices and guidelines to assist community librarians with disaster management. The policies should be reviewed and monitored regularly to ensure that there is compliance. The documents analysed indicate that there is a need for regular inspection of facilities. Reports of all audits or inspection shall be managed according to the policy.

Table 4.38: Institutional factors for disaster management

Document	Practice/Activity
CATA 2016/17 Risk Management Policy 03/2015	The Department will ensure that a managed process, including documented plans, are in place to enable information and ICT assets to be restored or recovered in the event of a disaster or major security failure
CATA Security Policy 01/2017	Business continuity plans should be developed Threat and risk assessment
South Africa Government Gazette No. 40865	Each municipality to develop a disaster management plan according to the Disaster Management Act, 2002 (Act No. 57 of 2002), which places a legal obligation on all organs of the state and other institutional role players to develop, regularly review, update, coordinate, share and implement disaster management plans Sets out the disaster risk assessment plan and review cycle Strategic planning process to establish the prevention and mitigation of disasters

The documents that were analysed show that risk assessment should be conducted to identify, quantify and prioritise risks. Also, measures commensurate with risk shall be taken to protect against accidental or deliberate unauthorised modifications, or disclosure of destruction. Among the institutional documents readily available, institutional regulations require that ICT service continuity should be embedded in the business continuity plan. This suggests that a disaster management policy for ICT service continuity is available, through the community librarians may not be aware of it. In spite of these plans being in place, the oversight is with the government information technology officer. According to the documents analysed, stakeholder workshops should be conducted throughout the province. Policies exist, but they are applicable to the broad organisation, and not specifically to the Department of Libraries and Archives, which runs community libraries.

Another disaster management plan that should exist is one for business continuity management, of which the aim is to ensure that plans are in place to enable information and ICT assets to be retrieved or recovered in the event of a disaster. Each individual department is required to have a business continuity plan. At CATA, a business continuity plan involves the development of plans, measures, procedures and arrangements to ensure minimal or no interruption of the availability of critical services and assets.

4.3.8.3 Disaster management practices institutionally defined and shaped

The documents analysed show that the organisation was aware that disasters, such as theft, fire, natural disasters, acts of terror and sabotage, can occur. In order to safeguard the organisation, security measures are prescribed. The prescribed security measures in document CATA Security Policy 01/2017 refer to assessing risks based on adequacy of existing security measures and vulnerabilities, implementing supplementary measures that will reduce the risk, and introducing measures to detect attempted or actual unauthorised access, activation of an appropriate response and provision of measures to protect assets and employees. These security measures are required to be applied to curb internal and external security risks. Furthermore, the implementation and monitoring

of plans, such as the business continuity plan, is assigned to one individual. The business continuity plan is the responsibility of the departmental security manager.

Table 4.37: Disaster management practices institutionally defined and shaped

Document	Practice/activity
CATA 2016/17 Risk Management Policy 03/2015	The Department will ensure that a managed process, including documented plans, are in place to enable information and ICT assets to be restored or recovered in the event of a disaster or major security failure
CATA Security Policy 01/2017	Business continuity plans should be developed Threat and risk assessment
South Africa Government Gazette No. 40865	Each municipality to develop a disaster management plans according to the Disaster Management Act, 2002 (Act No. 57 of 2002), which places a legal obligation on all organs of the state and other institutional role-players to develop, regularly review, update, coordinate, share and implement disaster management plans Sets out the disaster risk assessment plan and review cycle Strategic planning process to establish the prevention and mitigation of disasters

The security manager of CATA is also expected to regularly test the business continuity plan with the employees. The line managers' role is to ensure that disciplinary measures are taken against employees who violate the policies. The security manager is expected to hold awareness workshops and briefing sessions, and to send memos and circulars to all employees to inform them about the policy and activities that need to be conducted. The business continuity plans are centralised and the community libraries may not be aware of or have access to them.

The documents that were analysed show that the municipalities should have "applicable disaster plans, such as the Disaster Management Plan" (from document South Africa Government Gazette No. 40865 2017), as part of their integrated development plans. These should be developed within a prescribed period after an elected term of the municipal officials; however, the prescribed term is not specified. Also, a consultation

process needs to be followed before the plans can be developed. The municipalities are required to consult with the community and stakeholders, including community libraries, before they develop the plans. The nature of the consultations is not specified. The compliance and enforcement, as well as the penalties for non-compliance, are not specified.

From institutional documents readily available, the researcher found that that policies, plans and procedures on disaster management are available. These are, however, not specific to community libraries – they tend to be the responsibility of departments other than the library, which probably leads to the perception that it is not the community libraries' responsibility. Neither are the documents specific about all requirements, for example, the review period.

4.4 SUMMARY OF FINDINGS

The summary of findings will be presented in three subsections. First a summary of findings from descriptive statistical analysis will be presented, then findings from interviews (inquiry), and then a summary of findings from document analysis.

4.4.1 Summary of findings from descriptive statistical analysis

A summary of findings from the analysis of questionnaire response data will be presented in bullet form in the following subsections.

4.4.1.1 Validity and reliability analysis

- 18 of 33 (55%) of the questionnaire items were valid.
- More than 50% of the items tested valid.

4.4.1.2 Reliability analysis

- Cronbach's Alpha value, the overall measure of internal consistency of items, was greater than 0.60 ($\alpha = 0.68$).
- This Cronbach's Alpha value shows that there was a moderately high internal consistency (reliability) of scores from the set of indicators analysed.

4.4.1.3 Exploratory factor analysis

- The KMO measure of sampling adequacy indicates that the strength of the relationships among variables is moderately high (KMO = .564).
- A total of seven factors with eigenvalues greater than 1.2 were extracted, and represented 67.27% of the variance. The extracted factors were labelled as follows:
    - Readiness to deal with disasters,
    - Learning and knowledge about disaster management,
    - Prevalence of disasters,
    - Knowledge of potential disaster risks,
    - Types of disasters in the area,
    - Plans in place to deal with disasters, and
    - Disaster occurrence influences on individual actions

4.4.1.4 Prevalence of disasters

- The majority of library personnel in NWP who participated in the study had suffered at least one disaster in the past five years.
- Technology-related disasters and security/enterprise-related disasters were reported to be the most common disasters.
- The majority of participants did not believe that their individual libraries are located in regions or places threatened by certain disasters.
- Most of the library personnel held the view that there is a low probability of disasters occurring in their libraries.
- Most participants believed that risks in the community have the potential to pose threats to the libraries.

4.4.1.5 Disaster management practices by community librarians in NWP

- Most participants expressed that community librarians have confidence in their ability to implement emergency plans, evacuation procedures and similar functions.

- Few participants had contacts they could call to provide emergency services in the event of a disaster.

4.4.1.6 Institutional factors relating to disaster management practices in NWP community libraries

- The general perceptions of the participants regarding regulative factors of disaster management practices in NWP community libraries are the following:
  - It is not a requirement for them to have a disaster plan.
  - In the event of a disaster happening in their libraries, contingency plans were not in place.
- On normative factors of disaster management practices in NWP community libraries, the participants perceived that librarians, in general,
  - Are aware of the potential disaster risks that can affect individual libraries,
  - Do not work with the community to reduce disaster risks and to prepare their response mechanisms to address disasters, and
  - Are not motivated to learn about disaster management by cases reported in the media of libraries being destroyed.
- On cultural-cognitive factors of disaster management practices in NWP community libraries, the prevailing perceptions were that,
  - Not all participants have been trained in disaster management, even though CATA had presented a workshop in the past, and
  - Participants are not required by CATA to engage in disaster planning.

4.4.1.7 Factors influencing disaster management practices in NWP

- Perceptions of librarians of factors influencing disaster management practices in NWP were that,
  - Mitigation of potential risks through individual efforts did not exist,
  - Past disaster experience does not influence action to actively prepare for a disaster, and

- A sense of community does not lead community librarians in NWP to actively prepare for a disaster.

4.4.1.8 Whether disaster management practices are institutionally defined and shaped

- The following reasons were given for not having a disaster plan:
  - There are few risks in community libraries,
  - There is lack of model to write a plan, and
  - It is not required by the parent organisation.
- A learning culture on disaster management did not exist within the organisation.
- The library is not considered to be a potential partner for disaster preparedness and response by local disaster management structures in the community.
- Establishing a disaster team in each library could improve preparedness and recovery.

4.4.1.9 The role of the community and media in disaster management for community libraries

- Cloud services were not used in libraries to back up data on the cloud.
- Information about libraries being destroyed that they read about in newspapers and on social media and hear about in discussions with other librarians influences their disaster planning.

4.4.2 Summary of findings from interviews (inquiry)

The following is a summary of findings of the inquiry on each of the items.

4.4.2.1 Individual factors that influence disaster management in NWP

- Librarians are eager to know and engage in disaster management practices and, hence, they were even willing to educate themselves.
- Libraries lack action plans in the event of a disaster occurring; all they can do is phone the municipality, which has a disaster management plan. This response, on

its own, creates a dependency syndrome and affects the need to have disaster management practices negatively.

- No disaster has occurred during the tenure of most librarians, hence, they would not be able to manage a disaster if it happens for the first time.

4.4.2.2 Disaster management practices in community libraries in NWP

- No training and workshops are available to prepare assistant directors to deal with disaster management equipment, such as fire extinguishers. Furthermore, library personnel have received no training on how to use the equipment, so they are not able to operate it.
- Disaster preparedness of community librarians is hindered by their inability to present awareness campaigns in the community about the importance of libraries; these campaigns would discourage community members from burning libraries during service delivery protests.
- The risks that assistant directors know about are destruction of books and computers and sabotage of libraries by community members when they are on strike, which could result in loss of records, data and books.
- Regarding emergency safety plans, there are evacuation plans in place that specify exit routes and assembly points in the event of a disaster occurring. Community libraries did not organise regular safety training for all library personnel.

4.4.2.3 Disaster management skills and knowledge of community librarians

- Community librarians have never received training on how to use some of the disaster equipment and, hence, cannot use equipment like fire extinguishers.
- Disaster management skills and knowledge concentrate on fire disasters, and are therefore not holistic.
- Community libraries do not have any recovery protocols or storage manuals, and there is no cloud storage of important records.
- There was no Internet to use for the library management system.

4.4.2.4 The role of the community in disaster management for community libraries

- The libraries keep communication lines open by presenting awareness campaigns advocating against the destruction of libraries during strikes and other social upheavals.
- The community controls disaster damage by being actively involved in protecting the library and fighting the disaster in emergencies, because community members are the first people to report to the library in case of a disaster.

4.4.2.5 Practices established by CATA in relation to disaster management

- The assistant director perceived that CATA does not give advice on disaster management practices to libraries and their personnel; neither does it present workshops or personnel training sessions for disaster management practices.
- The assistant directors perceived that CATA does not do any evaluation or maintenance of emergency equipment in community libraries.

4.4.2.6 Involvement of community librarians in local disaster management agencies

- Only one-way communication exists between community librarians and agencies and communication only takes place when there is a disaster.
- No meetings are held by agencies and community libraries to engage librarians in discussing disaster management practices.

4.4.3 Summary of findings of document analysis

4.4.3.1 Disaster management practices and activities

The following disaster management practices and activities should be performed:

- Risks should be identified,
- Regular inspections for leaks,
- Workshops should be held to train staff on security and data protection,

- Data should be backed up regularly,
- Inspections should be done to ensure backed up data is retrievable, and
- Education, training and awareness campaigns should be conducted.

4.4.3.2 Institutional factors of disaster management practices of community libraries in NWP

- The institution requires that the following should be developed and implemented:
    - Documented plans to ensure information and ICT assets can be restored or recovered in the event of a disaster or major security failure,
    - Business continuity plans, and
    - Disaster management plans.
- CATA should have a disaster risk assessment plan and review cycle.
- There should be a strategic planning process to establish the prevention and mitigation of disasters.

4.4.3.3 Disaster management practices institutionally defined and shaped

- Practices that are institutionally defined and shaped are,
    - Assessment of risks, implementing supplementary measures that will reduce the risk and introducing measures to detect attempted or actual unauthorised access, and
    - Activating an appropriate responses and providing measures to protect assets and employees.
- Policies tend to be the responsibility of departments other than the library, which probably leads to the perception that policy is not responsibility of community libraries.

4.5 SUMMARY OF THE CHAPTER

This chapter presented the data collected the community librarians and the assistant directors. A summary of the major findings was organised according to the themes that

emerged in relation to the research questions of the study. The results of this study were obtained from a questionnaire and interviews and from analysing documents. In reporting the questionnaire findings, the use of SPSS software enabled the presentation of results in graphical and tabular forms. The first section of the chapter focused on quantitative findings, whilst the second section focused on findings from interviews; it was followed by document analysis. Chapter 5 will analyse and interpret the data that was presented in this chapter.

CHAPTER 5: ANALYSIS AND INTERPRETATION OF RESULTS

5.1 INTRODUCTION

The previous chapter presented data about the units of analysis being studied. In this chapter, an analysis and interpretation of the study's results will be presented. The analysis and interpretation of data is important, as it enables the researcher to ask questions about the meaning and significance of the data, and to make connections between different components and aspects of the data in order to increase understanding of the data (Flick 2018). Interpretation involves relating the results and findings to existing theoretical frameworks or models, "and showing whether these are supported or falsified by the new interpretation" (Mouton 2012:109). However, Ngulube (2003) states that the results can only describe the "who, what, when, where and how" of the situation, and not what caused it. Therefore, this chapter will present the common and distinctive aspects of the units of analysis.

The findings will be presented according to the themes of the objectives of the study (see Section 1.7). The general purpose of the study was to investigate the disaster management practices of community libraries in NWP. The study also sought to propose a framework for disaster management for community libraries NWP. The specific objectives were:

- To explore how a disaster is perceived by community librarians in NWP;
- To determine if there are practices or activities that could help libraries in NWP prepare for disasters;
- To determine the factors that influence disaster management in NWP;
- To identify disaster management practices in NWP;
- To establish whether the media has an influence on disaster management by community libraries;
- To determine the institutional factors that influence community librarians' disaster management practices;

- To determine the role of the community in disaster management in relation to libraries; and
- To develop a framework for disaster management for community libraries in NWP.

5.2 DATA ANALYSIS

Mouton (2012:108) explains that data analysis involves “breaking up” the data into manageable themes, patterns, trends and relationships, with the aim of understanding data by inspecting the relationships between concepts or variables, and determining whether there are patterns or trends that can be identified, or establishing themes in the data. Miles and Huberman (1994) state that the common denominator for data analysis procedures is that they all involve data reduction, data display, and conclusion-drawing verification.

The discussion of significant points of this study will be based on the questionnaire analysis and interviews with the participants at the different community libraries, and the review of literature related to disaster management for community libraries. In this study, the researcher, first, analysed the different sets of data to obtain separate sets of results and to explore the available information. Second, the researcher identified “overlap” topics within the substantive content of the different sets of results. These overlap areas suggested topics that could be fruitful for comparing different results. Third, the researcher refined the analyses of the overlap areas, based on what had been learnt from the data sets, and what was required to facilitate comparisons. Fourth, the researcher compared the quantitative and qualitative results for a substantive topic directly, and assessed the extent to which, and in what ways the data sets supported or illustrated each other. Finally, the researcher wrote a paragraph that, a) stated specific results from one data set, followed by a paragraph relating to a corresponding result from the other data set, and b) discussed the interpretations of how the result from one data set corroborates, illustrates, or generalises a result from the other data set. The researcher, thus, compared and contrasted the differences and similarities between quantitative and qualitative data. After the data comparison, the researcher integrated data to address the research questions. Integration was required to enhance the depth and clarity of the

research findings. To ensure triangulation was achieved, quantitative and qualitative data were integrated.

5.3 INTERPRETATION OF FINDINGS

As explained in Section 1.5, some community libraries in NWP have been affected by disasters. The disasters are mostly human-made, and some were due to natural disasters. The ability of these community libraries to mitigate risks and do planning to ensure services are restored, is unknown. Disaster management has also been misunderstood as being not the responsibility of individual libraries. However, no documented studies or surveys of disaster management practices by community libraries in NWP have been done to explain the situation and determine what needs to be done to ensure that libraries are prepared for a disaster. The literature review revealed the existence of disaster management models, but apart from the building back better libraries, these models are not specific to libraries. The building back better libraries model is not comprehensive, and does not focus on what should happen before, during and after a disaster. Examples of other models include the community resilience model, proposed comprehensive model for disaster management, and the SDI model.

When this study was proposed, all community libraries in NWP had Internet connectivity, and all community librarians had access to email through the allocated work computer. This situation may have led to the expectation that the response rate of participants would be much higher. This was not a correct assumption, because the contract with the Internet service provider lapsed at the start of 2018. Consequently, the researcher found the interviews to be insightful, as they provided information about certain relevant disaster management practices.

The map of the research literature provided insight into disaster management theories, frameworks and practices. The models, theories and frameworks provided insight into activities that could be instituted for disaster management before, during and after a disaster. In the next section, the disaster management theories that were used in this study will be presented.

5.4 MAJOR FINDINGS REGARDING AND INTERPRETATION OF DISASTER MANAGEMENT THEORIES

Chapter 2 described the body of knowledge regarding the different theories and frameworks on organisational behaviour and disaster management. Theories give researchers different perspectives through which to examine aspects of a phenomenon, and providing a framework that can be used to conduct an analysis. A number of theories were referenced, and this study used a conceptual framework with attributes derived from the body of available theories. The disaster management theories that informed this study will be discussed below.

Robbins' (1993) theory divides organisations/communities into different individual, group and organisational levels, and introduces various elements that affect behaviour on each level. This theory was partially relevant, in that it focuses on the need to examine disaster management from an individual or organisational level. The group level was not utilised in this study, as the aim was to examine disaster management from an individual and organisational level. The individual community librarian and the organisation (CATA) that manages the libraries are the key enablers of disaster management. The study established that participants did not view disaster management as the responsibility of the community librarian or CATA, but of the municipality. The Robbins (1993) theory was applicable to this study, as the community librarian is the custodian of the library and CATA had oversight over the functioning of the libraries.

The organisational behaviour model posits that the disaster management community comprises three tiers, namely, individual (people), group (organisations involved in disaster management) and organisational system (disaster management community) (Mansourian et al. 2006). The individual-level variables relate to an awareness of disasters, the variables that link motivation to intention (self-efficacy beliefs), the intention to prepare, and the relationship between intention preparation and actual preparation (Paton 2003). The individual-level variables were relevant, because they provide the researcher with a lens to examine whether community libraries were aware of disasters, whether they were motivated to prepare for a disaster, and their views on disaster preparedness.

Regulative, normative and cultural-cognitive factors are institutional factors that can influence disaster management. Regulative factors are a set of rules that are set and followed by an organisation, normative factors are the degree to which the organisation insists on social norms and values, and cultural-cognitive factors are those practices followed and accepted within the organisation over time. The three factors are applicable to this study, as they assisted the researcher to examine the organisation through its regulative, normative and cultural-cognitive factors. The study established that the organisation CATA had developed policies and procedures for disaster management, though these were for the entire organisation. The responsibility for different disaster management practices had been identified, but they were not being followed. Institutional regulative practices had been established through the policies and procedures.

Chen et al. (2006) and Norris et al. (2008) see a role for the community in community resilience. The authors suggest that the community should be capacitated to recover on its own after a disaster (Cook & Hodges 2015; Hamilton and Brown 2016). The community resilience models stipulate the need for greater community involvement in disaster management. The involvement of the community is applicable to this study, as community libraries are located within the community and the libraries belong to the community. The study sought to explore the involvement of the community in disaster management. During the course of this study, it was established that the role of the community in disaster management was not one that facilitated disaster management.

5.5 QUANTITATIVE AND QUALITATIVE DATA ANALYSIS, INTERPRETATION AND FINDINGS

In general, the questionnaire, interviews and document analysis that were used in this study to gather data confirm that the majority of the community libraries in NWP (70%) who participated in the study had suffered at least one disaster in the past five years – mainly technology and security/enterprise-related disasters. The majority of the community librarians believed that their individual libraries were located in a region or place threatened by some disasters; though most of the librarians believed that there was low probability of a disaster occurring in their libraries; and they believed that potential

risks in the community were capable of posing a threat to the libraries. Despite this evidence of the need for disaster management practices, and the need to mitigate risks, the research identified indicators of disaster management challenges that face community libraries in NWP, which will be discussed in the ensuing sections.

Though the characteristics of research participants did not form part of the research study objectives, it is worth noting that 80% of the participants had worked in their respective libraries for at least three years. Also, as shown in Table 4.10, most of the participants (48.6%) were within the age group 35 to 44 years. Finally, 50% of the participants had been employed in community libraries for more than eight years. This shows that the research participants were experienced, and possessed knowledge of disasters at their respective libraries.

5.5.1 Perception of disasters by community librarians in NWP

The perceived probability of a disaster occurring rendered mixed results. In total 27.1% of the participants agreed that the probability of a disaster occurring was low; an equal number were unsure about the probability of a disaster occurring (see Table 4.14). Similarly, participants were of the opinion that the libraries located in their region or place were not threatened by security disasters. Figure 4.2 shows that 22.9% of librarians had not experienced disasters in the past 10 years. On the other hand, 70% of the community libraries has experienced a disaster in the past five years. The finding that a high number of libraries had experienced a disaster is consistent with the findings of Pierard et al. (2016), who found that, in the United States of America, as many as 75% of the libraries had experienced a disaster in the past five years. The results indicate that the prevalence of disasters in NWP community libraries is high. During the interviews it became clear that disasters did occur, and there was concern among members of library management. However, the confusion appears to be caused by uncertainty about what constitutes a disaster; this matter will be discussed next.

Robertson (2016) classifies disasters as either natural or human-made disasters; the latter including technology-related, security-related and enterprise-related disasters. Except from the disasters defined by Robertson (2016), the study did not identify other

types of disasters. In this study, 21.7% (see Figure 4.1) of participants indicated that they had not experienced a disaster, even though the organisation CATA's Internet contract with the service provider had lapsed during the period in which this study was conducted. Participants also reported no enterprise-related or technology-related disasters, and claimed that libraries were not located in a region or place threatened by natural disaster. There was no evidence from the survey that indicated the extent to which the locations of the libraries made them prone to experiencing disasters.

During the interviews, it was clear that the absence of Internet services in community libraries was not considered a disaster. The interviewees were of the opinion that the library could still offer services in the absence of Internet services. However, the Internet is required for library patrons to access platforms, such as Mzansi Libraries Online, which was established to meet the information needs of the community. The interviewees' understanding of what constitutes a disaster differs from that of Robertson (2016), who views the absence of technology and its services as a disaster.

Further, the interviewees were of the opinion that the burning of libraries due to service delivery protests should be termed a natural disaster, and the flooding of libraries by community members during protests, human-made disasters. The disasters that the interviewees were familiar with were the destruction of books and computers, and sabotage of the libraries by community members when they were involved in service delivery protests. The description provided by the interviewees suggests that the incidents are crises, which Ritchie (2004:670) describes as an incident of which ''the root cause... is, to some extent, self-inflicted through such problems as inept management structures and practices or a failure to adapt to change''. A crisis is a once-off event. The interpretation of a disaster in NWP by participants is consistent with the findings by Caymaz et al. (2013), that disaster management is a process that takes effect when any type of catastrophic event takes place. There was, thus, a lack of clarity on what a disaster is and what constitutes human-made, natural and technological disasters.

5.5.2 Practices and activities to prepare for a disaster in NWP

Practices or activities need to be established prior to, during and after a disaster. Results shown in Table 4.16 indicate that 50% of the participants were confident about their ability to implement emergency plans, evacuation procedures and similar functions. It suggests that the community libraries have a disaster management plan, and not a disaster management lifecycle plan. This is consistent with Ayoung et al. (2016:101), who propose a disaster management plan instead of a disaster management lifecycle. The features of disaster management, as described by Ayoung et al. (2016), include security and detection protocols, continuous monitoring and evaluation of wear and tear, mock drills and simulations of disaster situations, and recovery protocols.

However, data from the interviews contradict the confidence expressed regarding librarians' ability to implement emergency plans, evacuation procedures and similar functions. Interviewees perceived that there had been no training and workshops to prepare them to deal with disasters. Also, actions, such as risk identification, regular inspections for leaks, and workshops to educate staff and the community, were not being undertaken, despite the existence of CATA policies. Interviewees reported that disaster management equipment, such as fire extinguishers, is available in community libraries, but library personnel had received no training on how to use the equipment, so they are unable to operate it. Also, because no disaster has occurred during the tenure of office of many librarians, they would not be able to manage a disaster if it happens for the first time.

Hamilton and Brown (2016), in their study of library disaster myths, found that there was an assumption that first responders would take care of everything. Analysis results from the quantitative paradigm shows that not all librarians had contacts for the emergency services that they could call in the case of an emergency. Half the participants indicated that they had contacts they could call on for assistance in the case of a disaster. However, the interviewees support the assumption alluded to by Hamilton and Brown (2016), that community libraries are likely to contact the municipality in the event of a disaster and expect the municipality to take care of everything. The implication is that community libraries may not necessarily be fully prepared for a disaster, as they are not able to

execute all the procedures required in the event of a disaster. As the interviewees were members of library management, it would suggest that their expectation was for the community library to contact the municipality, who would then take charge of the disaster and subsequent action.

Past disaster experiences did not seem to influence disaster preparedness. Figure 4.8 shows that the majority of participants did not believe past experiences influence disaster preparedness. This supports the myth cited by Hamilton and Brown (2016), that librarians believe libraries are immune from repeat events. The qualitative inquiry established that past experiences did not lead to an increase in disaster preparedness, as it was viewed as the responsibility of the municipality. The finding that it is not the librarians' responsibility to prepare for disasters, is consistent with the work of Velasquez et al. (2016), who found that librarians did not consider risk management and recovery as an important part of their business.

5.5.3 Factors that influence disaster management

Libraries need to have policies, plans and procedures for disaster management. The general perception of the participants regarding regulative factors (see Figure 4.4) was that the majority (48.6%) believed it was a requirement for community libraries to have disaster plans. A disaster plan is a living document that prioritises what actions should be implemented (Ifijeh et al. 2016). The findings on the necessity of a disaster plan are consistent with the findings of Garnett et al. (2018), Jones (2011) and Ishola (2017), who found that libraries are required to have disaster plans.

According to the documents analysed, CATA was required to develop disaster management plans, which should cascade to the community libraries via municipalities. Yet, the study found during the qualitative inquiry that it was not a requirement by CATA for libraries to have disaster plans. In addition, libraries did not have action plans for the event of a disaster – librarians saw their role as being confined to contacting the municipality, which has a disaster plan. Furthermore, interviewees reported that the issue of the municipalities being the holders of the disaster plans creates a dependency syndrome and affects reaction to the disaster negatively.

Another important document is the contingency plan. For a library to continue operating after a disaster, a contingency plan (COOP) is required. Hamilton and Brown (2016) emphasise that a COOP will enable the library to be prepared and to maintain operations throughout and immediately after a disaster. The findings on the availability of contingency plans show that very few (18.6%, as reported in Figure 4.5) participants admitted that contingency plans were in place, and 50% stated that contingency plans were not in place. This shows that disaster planning is absent in most of the community libraries, despite the CATA Security Policy 01/2017 requiring that contingency plans be developed. Though the policy exists, compliance does not seem to be enforced.

The interviewees agreed that there was no disaster planning in the communities. They reported that community libraries do not have recovery protocols or storage manuals, and that there is no cloud storage of important records. Marks and Owen (2016:339) define disaster planning as an effort to anticipate and put in place policies and procedures for the event of a disaster, to protect human life and recover collection material. Thus, disaster planning is not being conducted by the majority of the libraries. This finding is consistent with Oluwatola et al. (2015) and Ishola (2017), who found that public libraries in Nigeria did not have readily available plans to anticipate and plan for disasters.

In addition to regulative factors, the study examined normative factors. The majority of the participants (52.9%, see Figure 4.6) indicated that they were aware of the potential disaster risks that could affect community libraries. The indication is that community libraries are involved in risk assessment of their individual libraries. The interviews supported the finding that community librarians were aware of the risks that could affect their libraries. Interviewees reported that they were eager to know and engage in disaster management practices that could affect their libraries. This is consistent with Halsted et al. (2014) (see Section 2.9.5.1) who recommends that library staff determine potential events that can cause interruptions. Also, the disaster management cycle conceptualised by Khan et al. (2008) emphasises the need for disaster risk management activities, which should be the total of all activities, programmes and measures that should be conducted before, during and after a disaster with the purpose of avoiding a disaster, reducing its impact or recovering from its effects. However, in NWP, risk assessment was the only

activity being conducted; not all the elements of the disaster management lifecycle were being followed, as contingency plans, mitigation plans and disaster plans, for example, are not available.

Figure 4.8 shows that the majority of the participants (60%) do not work with the community to reduce disaster risks and prepare their response mechanisms to address disasters. The qualitative inquiry established that no training and workshops had been arranged to prepare the community for a disaster. Disaster preparedness is also hindered by the inability of community libraries to conduct awareness campaigns in the community about the importance of libraries, which could discourage community members from setting libraries alight during service delivery protests. The community is, therefore, not involved in disaster mitigation, disaster planning or preparedness. Again, this shows that, though community libraries were aware of the risks they face, they do not engage in preparation to prevent or deal with disasters. Chen et al. (2006) and Norris et al. (2008) recommend that the community should be capacitated to recover from a disaster on its own. This can be done by training the community to analyse vulnerable conditions, discover problems and establish an organisation to implement disaster management tasks. The training of the community and the need to assign responsibilities is stipulated in a document analysed by this study, namely, South Africa Government Gazette No. 40865. Hagar (2015) emphasises the need for community-wide disaster planning for libraries, as doing so could assist to develop partnerships for disaster preparedness.

On cultural-cognitive factors relating to disaster management practices in NWP community libraries, the prevailing perception was librarians were not required by CATA to engage in disaster planning. The results in Table 4.19 show that 87.1% of participants reported that they were not required by CATA to conduct disaster planning. Brown (2018) states that there is a need for overall organisation, planning and application of measures to prepare for, prevent, respond to and recover from disasters.

The qualitative inquiry phase established that community libraries were not required to have disaster plans. In the case of a disaster, community libraries were required to contact the municipality. In addition, they claimed CATA did not advise libraries and their personnel on disaster management practices; however, the document analysis

established that CATA was required to provide workshops on certain aspects of disaster management, such as how to store information remotely. The finding that interviewees did not believe they had to do disaster management shows that CATA has no established disaster planning strategy. The finding diverges from the work of Brown (2018), who states that disaster management should be continuous and take place according to an established strategy that is initiated, monitored and evaluated by the parent organisation. Community libraries under CATA do not have individual strategies for disaster management, despite the libraries being located in remote areas of rural NWP, for example in villages and settlements.

Bisho (2015) identifies the need for libraries to be trained in disaster management. The findings reported in Table 4.20 show that 47.1% of the participants have not been trained in disaster management. Only 41.4% had attended a workshop on disaster management, and 11.5% had attended either a short course or a module on disaster management in their undergraduate studies. The majority of the participants had not received any training in disaster management.

The qualitative inquiry interviewees expressed that CATA had conducted neither workshops nor personnel training for disaster management. In addition, community librarians had not received training on how to use certain disaster equipment, such as fire extinguishers. Furthermore, it was established that disaster management skills and knowledge was limited to fire disasters, and knowledge was, therefore, not holistic. This finding is consistent with that of Bisho (2015) about the lack of training and opportunities available for community librarians in South Africa, and that disaster management has received little attention in libraries.

Wellington and Ramesh (2017) propose that systematic observation and analysis and creation of plans decrease the consequences of disasters. The documents that were analysed indicate that librarians should assess risk, implement measures to reduce the risks and introduce measures to detect the potential of a disaster. Librarians were, thus, expected to mitigate against potential risk. Perceptions of librarians about factors that influence disaster management practices in NWP were that mitigation of potential risks through individual efforts was not possible. The results presented in Table 4.21 show that,

though 31.4% of participants were neutral, 40% either strongly disagreed or disagreed that mitigation of potential risks through individual action did not exist.

The interviewees confirmed that mitigation of potential risks did not exist in libraries. Participants had no idea whether potential risks in their community were capable of posing a threat to their libraries – many interviewees viewed mitigating risks as the responsibility of the municipality. The findings indicate that the disaster management cycle is not considered as important – instead, disasters were viewed as once-off events. The finding that librarians were not conducting mitigation efforts shows that the view of Carter (2008 as cited by Laachemi & Boughaci 2017:1) that disaster management should be involved in systematic observation, and has not been adopted in NWP. It would appear that disaster management is considered to be a once-off event, and not a process. The result is that the activities encouraged by Ayoung et al. (2016) and other authors to mitigate and prepare before a disaster, during a disaster and after a disaster, do not take place.

5.5.4 Media influence on disaster management

Determining whether the media influences disaster planning in NWP was one of the objectives of this study. The findings shown in Table 4.18 indicate that 47.1% did not believe that reports in the media or on social media, or knowledge gained during discussions with colleagues about libraries being destroyed, motivated community librarians to prepare for disaster. Only 7.1% indicated that it motivated them. From the results, 17.1% were unsure, and 20 participants did not answer the question, which may be an indication that they are unaware of such media reports.

In the qualitative inquiry, the interviewees expressed that community librarians were concerned about reports that libraries were being destroyed. They reported that some librarians were eager to know about and engage in disaster management, and some had suggested that they educate themselves. Even though media reports about libraries being destroyed did not lead to disaster preparedness, it could be described as stimulating or raising awareness about the need to be prepared for a disaster. This finding had not been established by previous studies on disaster management in libraries.

5.5.5 Institutional disaster management practices are institutionally defined and shaped

The study sought to establish whether disaster management practices were institutionally defined and shaped. Organisations should have policies, procedures and practices on disaster management, as presented in Section 2.9.5.1. One of the requirements for a library is a disaster plan (Cerullo & Cerullo 2004; Jones 2011; Hamilton & Brown 2016). The participants were asked to provide the reason why they did not have a disaster plan. Different reasons were provided and participants had to select the main reason. Table 4.22 presents the results, which shows that the main reason of 27.1% was the lack of a model to write it from, 21.4% indicated that there were few risks and 17.1% indicated that it was not a requirement of CATA. The lack of model to write it from suggests that there was a lack of knowledge of what should be contained in a disaster plan.

It was also established through the quantitative phase that it was believed that it was not a requirement for libraries to have disaster plans, and participants suggested that the municipalities might have developed these plans. However, the documents analysed indicate that documented plans should be the place for information and ICT assets to be restored, business continuity plans should be developed and implemented and CATA should have a disaster risk assessment plan. As Cowick and Cowick (2016) indicate, when a library does not have a disaster plan, it cannot prepare for a disaster, nor identify resources that will be required during a disaster. The disaster plans are required but the compliance is not being monitored. This finding is consistent with Garnett et al. (2018), who found that many libraries did not have disaster plans, even though they were required by policy to be developed, implemented and reviewed.

An organisation can foster disaster management practices by fostering a learning culture (Nwokedi et al. 2017). The findings presented in Figure 4.10 show that 42.9% disagreed that a learning culture existed, with 14.3% having no idea about the learning culture of the organisation. A learning culture on disaster management, thus, does not exist within the organisation.

The study, through the interviews, affirmed that a learning culture does not exist within the organisation. However, it was established that librarians were eager to know and engage in disaster management practices and, hence, the librarians even suggested that they educate themselves. Also, interviewees were of the opinion that no training and workshops were being conducted to deal with disaster management equipment, such as fire extinguishers in community libraries, but the library personnel received no training on how to use the equipment, so they are not able to operate the fire extinguishers. The lack of training opportunities and lack of disaster plans showed that a learning culture on disaster management did not exist within the organisation. The findings support the assertion in Section 2.9.5.2, on the basis of Bisho (2015) and Ngulube and Magazi (2006b), that disaster management skills and training in South Africa is lacking in many libraries in South Africa. In the case of NWP community libraries, it was evident that individual librarians were educating themselves about disaster management, which is a finding that had not been identified in the literature analysed in this study. As alluded to in Section 2.9.5.2, Rattan (2013) indicates that the ability to respond to a disaster requires some knowledge of what to do and expect when a disaster occurs.

The study established that the community libraries were not considered a potential partner for disaster preparedness and response by local disaster management structures in the community, as evidenced by 54.3% who agreed with the library being not considered a potential partner. This was corroborated by the interviewees who indicated that one-way communication existed between community librarians and the agencies, and that communication happens when there is a disaster. No meetings are held by agencies and community librarians to discuss disaster management practices.

Chen et al. (2006) and Hagar (2015) posit that the formation of disaster management structures, such as committees or a team, would improve disaster preparedness. Establishment of a disaster team in each library would improve preparedness and recovery. The committees or teams should include staff who are directly responsible for public safety, representatives from technical services, library facility managers and at least one representative from senior library management (Dixon & Abashian 2016). Results as shown in Figure 4.11 indicate that 50% of the participants agreed that a

disaster team would improve preparedness and recovery, whilst 24.9% were unsure whether disaster teams would improve disaster preparedness. On the other hand, the qualitative inquiry established that it was not a requirement for community librarians to establish any structures, and that all they had to do was to call the municipality in the event of a disaster. This indicates that, for example, salvage priorities will be the responsibility of the municipality. Some of the libraries are located in remote parts of NWP and some in the villages, which are far from the municipality.

5.5.6 Role of the community in disaster management

The role of the community in assisting in disaster management is an area that has received scant attention in the African context. Section 2.9.6 referred to the work of Ritchie (2004), Chen et al. (2006) and Hagar (2015), who mention that communities should be capacitated to recover on their own after a disaster. The study established that 48.6% disagreed that they worked with the community on disaster management, as shown in Figure 4.7, and only 20% indicated that they worked with the community.

The qualitative inquiry established that the libraries were not working with the community, as no training was provided to equip the community with the skills and knowledge to assist during a disaster. The responsibility for disaster management lay with the municipality, and CATA policies tend to be the responsibility of departments other than the library, which probably lead to the perception that it is not the community libraries' responsibility.

In addition, the study established that a sense of community does not lead community librarians in NWP to actively prepare for a disaster. A total of 28.6% of the participants disagreed that a sense of community leads to community librarians actively preparing for a disaster, and 25.7% of the participants did not have an opinion.

The interviewees agreed that community librarians' sense of community does not lead to active preparation for a disaster. Some of the interviewees mentioned that they were hindered by their inability to hold awareness campaigns about the importance of libraries and, hence, to discourage community members from burning libraries during service delivery protests. From this it is evident that there is a belief that awareness campaigns

will assist to alleviate fire disasters during protests. The finding that a sense of community does not lead to disaster preparedness in NWP is in contrast to the findings of Lee and Lemyre (2009:1266), who found that a sense of community led to increased disaster preparedness.

Utilising the role of traditional leaders in disaster management was proposed by the participants. The traditional leaders could assist with awareness campaigns about the need to safeguard the library during protests, mobilise the community in the event of a disaster or be involved in disaster management committees as the link between the community libraries and the municipalities. The interviewees affirmed the need to involve traditional leaders due to the profile they have in the communities, as there was a belief that the libraries were high risk and “soft targets” during protests. The use of traditional leaders in disaster management is, however, an issue that had not been researched in the literature when this study was conducted.

5.6 SYNTHESIS

The researcher referred to the literature review in order to interpret the findings. The literature assisted the researcher to augment and synthesise the ideas discussed in this study. It was important to refer to Chapter 2, as it enabled the researcher to identify the gaps and build on the arguments by other scholars.

From the interpretation of findings, participants did not understand what constitutes a disaster and disaster management was viewed as not the libraries’ responsibility. Most of the disaster management activities being conducted were not the result of prior disaster experiences, was not cultivated by the parent organisation, but by individual efforts, and the sense of community was not a motivation to prepare for a disaster, despite libraries being soft targets. It was established that the majority of community libraries did not have disaster plans in place.

Using data obtained from questionnaires and the interviews, it was realised that most of the participants agreed that there were factors inhibiting disaster management practices, such as disaster management planning being a requirement, lack of skills to develop

disaster plans and lack interaction between the community libraries and important stakeholders, such as the community and the municipalities. Both the survey responses and interviews agreed that more training should be provided for community libraries with regard to disaster planning. It was also agreed that traditional leaders should be involved in raising awareness about the importance of libraries, so that they would not be “soft targets” during community protests, and that community leaders could be used pre-disaster (raising awareness and being part of disaster management committees for the libraries), during disasters (mobilising resources within the community) and after a disaster (mobilising resources as part of the disaster management committee).

The existence of disaster management plans and contingency plans were not obvious, because there was no documentary proof to show the existence of such plans. The only plans that existed were those developed for the entire organisation and not for individual libraries, where the assumption was that the municipality would develop them. It was unclear if the municipalities themselves had developed disaster plans or contingency plans. Also, it was unclear whether the community libraries were insured or had salvage priorities in the event of a disaster. Furthermore, the responsibility for disaster planning between CATA and the municipalities was based on the community libraries informing the municipality about the disaster when a disaster occurred. The results, therefore, indicate that disaster management was not a systematic process, but a once-off event, as the activities were focused on what happens during a disaster and not what happens before it. This indicates that disaster management was viewed as the responsibility of municipalities, whose staff were not trained in librarianship and would not know, for example, the salvage priorities. The relationship between the community libraries and the municipalities on disaster management needs to be reviewed and improved.

The disaster management lifecycle discussed by authors such as Hamilton and Brown (2016) and Bhade and Aute (2016) was important in this study. The disaster management lifecycle is a systematic cycle designed to ensure practices and activities relating to disaster mitigation, preparation, response and recovery are continuous and should be undertaken before, during and after a disaster (Bhade & Aute 2016; Cowick & Cowick 2016; Ortuño et al. 2013). The individual desire to learn more about disaster management

by the participants in community libraries in NWP was evident, as the parent organisation did not provide support or guidance on disaster management. It is through learning and training that community libraries could realise their shortcomings in the disaster management lifecycle.

5.7 SUMMARY OF THE CHAPTER

This chapter focused on the analysis and interpretation of results. The analysis was organised according to how that data was combined and integrated. The findings were interpreted according to the existing literature on disaster management. The researcher referred to Chapter 2, the Literature Review, and Chapter 4, the Presentation of the Results. The findings of the study have shown that the concept of what constitutes a disaster is blurred. It was established that, though important disaster planning policies, such as disaster plans, were highlighted as being important, it was not a requirement from the parent organisation to have one, and there was a lack of knowledge on how to develop a disaster plan. The findings show that CATA did not have disaster plans and contingency plans in place for community libraries, as evidenced by surveys and interviews – though the document review showed that they should have been developed. Both the surveys an interviews concurred that activities and practices for mitigation, preparation and recovery in the event of a disaster were overlooked and the focus was on the response. Disaster management was also impeded by several factors. Disaster management was not influenced by a sense of community, past disaster experiences and reports in the media. Finally, the relationship of the municipalities and community libraries was seen as being negatively influencing disaster management practices, leading to the perception that it was the responsibility of the municipality. In Chapter 6, the summary, conclusions and recommendation of the study will be presented

CHAPTER 6: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

In Chapters 4 and 5 the disaster management practices of community libraries in NWP were described and explained. This chapter presented a summary of findings, conclusions and recommendations of the study. Having started the study with no knowledge of disaster management in NWP, findings from this study have given indications that disaster management is neglected in the community libraries, and receives no support from the parent organisation.

6.2 RESEARCH PURPOSE AND RESEARCH QUESTIONS

One of purposes of this study was to investigate the disaster management practices of community libraries in NWP, and the other purpose was to develop a framework for disaster management for the community libraries. In order to fulfil the purposes of the study, the following research questions guided the study:

- What are the perceptions of the community librarians of disasters?
- What factors influence disaster management practices in NWP?
- Does the media influence disaster management practices of community librarians?
- Are disaster management practices or activities being conducted by community librarians in NWP and if so which?
- What factors influence disaster management practices in NWP?
- What institutional factors affect disaster management practices of community libraries in NWP?
- Are disaster management practices institutionally defined and shaped in NWP and if so how?
- What are the roles of the community and media in disaster management by community libraries?

- What framework can be suggested to embed disaster management in community libraries?

6.3 SUMMARY OF CHAPTERS

In Chapter 1, the background of the study focused on pertinent issues relating to the way libraries have been destroyed, and the background of community libraries in NWP. Chapter 1 also covered the conceptual framework that was used. Some of the concepts used were obtained from theories by Paton (2003), the community risk model, SDI (spatial data infrastructure) model and building back better libraries. Other aspects that were discussed in Chapter 1 include the objectives, research questions, originality and the organisation of the thesis.

Chapter 2 of the study focused on the existing literature on disaster management that has been published. The literature review defined the key concepts of what a disaster is, what disaster management is, disaster planning, disaster management lifecycles, the theories of disaster management and an evaluation of the existing disaster management models. The enablers of disaster management, such as the role of the media and the role of the community, were discussed in the literature review. The literature map was also presented in this chapter, as well as research on disaster management practices, the research approach used in disaster management studies, and considerations when developing a disaster management framework for libraries.

Chapter 3 of the study covered the research design and methodology used to collect, analyse and interpret the data that was collected. The survey had a population of 110 community libraries, and there were 70 participants. In addition, four interviews were conducted with interviewees from different districts in NWP. Documents on disaster management were also analysed. The chapter also presented the data analysis procedures that were utilised. SPSS Version 25 was used for quantitative data analysis and Atlas-ti 8.0 was used for the qualitative analysis.

Chapter 4 presented and discussed the quantitative and qualitative data. The quantitative data was presented in tables, pie charts and bar graphs. Qualitative data from interviews and document analysis was also presented in Chapter 4.

Chapter 5 focused on the analysis and interpretation of the results. The discussion was based on the research objectives and questions. The chapter analysed and interpreted the data that had been collected during the data collection process. The discussion of the data was done in relation to other studies and findings in the literature under various themes, namely, conceptualisation of disasters by community librarians in NWP, practices and activities to prepare for a disaster in NWP, factors influencing disaster management, media influence on disaster management, institutional disaster management practices are institutionally defined and shaped, and the role of the community in disaster management.

The final chapter, Chapter 6, will present the conclusion and recommendations of the study. The chapter will present the findings based on the research objectives. After the summary of the findings, recommendations will be made and the proposed framework for disaster management for community libraries in NWP will be presented followed by implications of this study, and suggestions for further research.

6.4 SUMMARY OF FINDINGS

This section will provide a summary of the findings with respect to the objectives set out for the study. The study investigated the disaster management practices of community libraries in NWP. The findings suggest the following answers to the research questions, which were formulated from the objectives that guided this study.

6.4.1 Conceptualisation of disasters by community librarians in NWP

- From questionnaire responses and interviews, it is clear that participants do not understand what constitutes a disaster.
- From the questionnaires and interview responses it is clear that participants had the perception that the probability of a disaster occurring was low, and that many of the community libraries were not located in areas prone to disasters.
- A disaster was regarded as a once-off event, and a disaster would not occur twice at one library.
- From questionnaire responses and interviews, it is clear that librarians do not understand what constitutes a technology-related or enterprise-related disaster.
- The interviews and questionnaires indicated that many community libraries were concerned about fire disasters.

6.4.2 Practices and activities to prepare for a disaster in NWP

- The questionnaire responses indicate that community libraries were confident about implementing emergency plans, evacuation procedures and similar functions; this confidence was disputed by the interviewees, who pointed out that some community libraries have not received training and would not know how to respond in the event of a disaster.
- The interviews established that disaster management was focused on what occurs during a disaster, and not before or after a disaster;
- The interviews revealed that there no training or workshops had been organised to train staff on disaster management.
- Surveys and interview data indicated that, in the event of a disaster, community libraries are only required to contact the municipality, who would take care of the rest.
- Surveys and interviews concurred that past disaster experiences did not influence disaster planning.
- From the interviews, the responsibility for disaster management was perceived to belong to the municipality.

6.4.3 Factors influencing disaster management

- The participants were aware of potential risks that could affect their libraries, but they did not mitigate against the potential risks.
- Participants in both the questionnaire and interviews concurred that it is a requirement for a community library to have a disaster plan, but they did not believe it was a requirement by the parent organisation.
- Interviews indicated that there were no action plans for the event of a disaster, except to contact the municipality.
- There was consensus that community libraries in NWP did not have disaster plans or contingency plans.
- Interviewees indicated that municipalities might have library disaster plans.

6.4.4 Media influence on disaster management

- Questionnaire responses indicated that community libraries were not motivated about reports of libraries being destroyed to plan for the event of a disaster. This belief was disputed by interviewees, who pointed out that community librarians were concerned, and were eager to learn – some had even started to educate themselves about disaster management.
- Questionnaire and interview participants agreed that cloud services were not being used to back up data.

6.4.5 Institutional disaster management practices are institutionally defined and shaped

- Participants to both questionnaires and surveys stated that CATA did not require disaster planning to be conducted.
- The questionnaire and interviews affirmed that there was a lack of knowledge on how to conduct disaster planning and develop appropriate plans in the absence of support from the parent organisation, which merely expects the municipality to be notified in the case of a disaster occurring.

- The document analysis established that it was a requirement for community libraries to have disaster planning, but as CATA was not providing support, some individuals were educating themselves on the matter.
- The document analysis and interviews found that, even though policies guiding disaster planning exist, they are not specific to libraries, but tend to be general.
- The participants of the questionnaire and interviews concurred that a learning culture did not exist, and training opportunities were not available.
- The interviews revealed that disaster management forums had the potential to improve disaster management.

6.4.6 Role of the community in disaster management

- There was overall consensus that the community was not involved in any way in disaster management by community libraries.
- The interviewees and questionnaire participants reported that community librarians' sense of community did not lead to active preparation for a disaster.
- Traditional leaders were needed by community libraries to raise awareness about disaster management, to mobilise the community and be part of the disaster management structures.

6.5 CONCLUSIONS

The conclusions of this study are based on the findings presented in Chapter 4, and are supported by the data presented. The conclusions will be presented according to the research questions, which were presented in Section 1.8. The major findings that were obtained from the study will be discussed.

6.5.1 Conclusions on perceptions of disasters in community libraries in NWP

Personnel in community libraries do not clearly understand the concept of a disaster, and participants could not distinguish a disaster from a crisis. If the definition by Abulnour (2014), that a disaster describes a situation resulting from an environmental phenomenon or from an incident causing human injury and loss, physical property damage and

economic disruption, then the understanding of what a disaster is not clear in NWP, which may hinder disaster management.

The myth that disasters will not occur in community libraries was common. Furthermore, the location of the community libraries are deemed to be in areas not prone to disasters, and the probability of a disaster occurring was considered to be low. It requires a detailed risk assessment of a community library, as well as steps to mitigate for a disaster, for a library to prepare for a disaster, and doing so was a new experience in most of the libraries.

The lack of understanding of what constitutes a disaster and incorrect perceptions of the likelihood of a disaster happening may compromise the ability of community libraries to make informed decisions on disaster management.

6.5.2 Practices and activities to prepare for a disaster in NWP

The study established that 35.7% of libraries did not have disaster plans, 50% did not have contacts that could be called upon in the event of a disaster, 47.1% did not have contingency plans and 87.1% of the participants stated that it was not a requirement of the parent organisation to conduct disaster planning. Participants were, however, aware of potential risks that can arise in the community, and they did not believe that their actions could mitigate the potential disaster. Chapter 2 quoted Cowick and Cowick (2016), who state that a disaster plan is required to prepare for a disaster and identify resources that will be required during a disaster, well ahead of time. The study found that the community libraries were not prepared for the event of a disaster occurring, as they did not have appropriate plans. The parent organisation, CATA, did not expect the community libraries to have disaster management plans. However, individual efforts ensured that some community libraries had at least some knowledge of disaster management, as they had educated themselves.

6.5.3 Factors influencing disaster management

Disaster management in community libraries is aimed at ensuring that there is mitigation, preparedness, response and recovery in the event of a disaster. Certain activities, such as risk assessment, evacuation procedures and identifying priority collections, should be conducted (Hamilton & Brown 2016). These activities can only occur when the community librarian perceives that a disaster can happen at any time. The individual should, thus, have an understanding of disaster management. The study found that there were no stipulated practices for risk identification, disaster planning, or disaster recovery. The expected response activity was to contact the municipality, as librarians had been instructed that, in the event of a disaster, a community library had to inform the respective municipality, which would then coordinate recovery. This research concludes that community libraries do not regard disaster management as their responsibility, but that of the municipality.

The study established that disaster management was not properly managed to facilitate the implementation of appropriate activities and practices to plan for a disaster before a disaster, during a disaster and after a disaster. The majority of the participants had not been trained in disaster management. As custodians of community libraries, community librarians should possess certain skills, which include the ability to identify potential risks, develop disaster plans, identify salvage priorities and put in place strategies to mitigate potential risks.

6.5.4 Media influence on disaster management

The study found that 31% of the participants believed that reading about libraries being destroyed in the media and social media, and discussions with fellow community librarians motivated disaster planning practices. There have been reports in the media about community libraries being destroyed in South Africa over the past few years, especially during service delivery protests (Bisho 2015). Based on these results (Figure 4.13), the information about libraries being destroyed that librarians read about in newspapers and on social media, and hear about when discussing it with other librarians, influences disaster planning.

6.5.5 Disaster management practices are institutionally defined and shaped

One of the most important aspects of disaster management is the support of the parent organisation, whose focus must be on developing a learning culture and an enabling environment that will assist community libraries to plan for a disaster before, during the disaster and what happens after a disaster. Disaster management was impeded by a lack of community-library-specific policies and plans, a lack of support and training opportunities by the parent organisation, lack of interaction between the municipality and community libraries, and the absence of an enabling learning environment for disaster management skills acquisition, adoption of plans and involvement of the community. The challenges contributed to the level of understanding of librarians of the importance of disaster planning. The questionnaire and interviews concurred that there was no support for disaster management from either the municipalities or the parent organisation. The organisational culture on disaster management is highlighted by Pierard et al. (2016) as being an enabler for disaster management. This study found that disaster management practices are not being defined and shaped by the parent organisation. The findings from the study indicate that the successful implementation of disaster management requires support from the parent organisation.

6.5.6 Role of the community in disaster management

According to Norris et al. (2008) and Chen et al. (2006) communities can assist to reduce risk, assist with mitigation and enhance as well as protect the social system. The study found that participants were not involving the community in disaster management, despite the community sometimes assisting with disaster response and recovery. It was established that the traditional leaders were considered vital in disaster management, as they could institute awareness campaigns on the need to safeguard libraries, and could mobilise community resources in the event of a disaster.

6.6 OVERALL CONCLUSIONS ON THE RESEARCH PROBLEM

The aim of the study was to investigate the disaster management practices of community libraries in NWP. The study sought to investigate the factors that influence disaster

management, and to propose a framework of disaster management for community libraries in NWP. Librarians' understanding of what constitutes a disaster was low, and there is a need for clarity regarding what a disaster is. Disaster management was investigated from an individual, organisational and community perspective, as disaster management is influenced by the individual community librarian, the parent organisation, and the community.

In conclusion, the research findings provide indications that challenges facing disaster management include inadequate clarity on what a disaster is, viewing a disaster as a once-off event (which means no planning is required), the absence of disaster management plans and policies, lack of clarity of the role of the community library, belief in the myth that a disaster will not occur, the belief that disaster management is not the responsibility of the community librarian, lack of a conducive disaster management environment, and lack of oversight from CATA and the municipality on disaster management issues.

The findings of the study reveal that there was a dependency syndrome in community libraries in relation to disaster management. Community libraries relied on the municipality to take responsibility for the entire disaster management lifecycle. Also, most of the community libraries lacked disaster management plans and contingency plans. Thus, the study found that policies were not in place for individual libraries. It also established that the parent organisation, CATA, had not created an enabling environment for disaster management, as it did not ensure that policies and practices were in place and did not provide training or support on disaster management. The findings reveal that library personnel were teaching themselves about disaster management, because of a lack of opportunities offered by the parent organisation. The study also found that there was a belief that involving traditional leaders would improve disaster management. Traditional leaders were considered to be important, due to their influence in the community. They could assist with raising awareness about the need for the community library, and they could mobilise resources within the community.

6.7 RECOMMENDATIONS

The study identified various factors that affect disaster management in community libraries in NWP. The study, therefore, makes recommendations to address the disaster management issues identified by the study, in order to ensure that community libraries continue to make their services available in the event of a disaster. The recommendations address each of the research questions of the study.

6.7.1 Recommendations on conceptualisation of disasters by community librarians in NWP

For disaster management to be improved, awareness has to be improve, and this can be done through education and training. Awareness must be raised because the concepts, disaster and disaster management, are concepts that were not fully understood. Also, disaster management has not been a topic that is often discussed in librarianship in South Africa (Bisho 2015).

This research recommends that the parent organisation finds ways of educating and training community libraries about disaster management. The training should focus on the full disaster management lifecycle, and on how to develop disaster plans and salvage priority lists. In addition, this research recommends that CATA develops disaster management platforms, where community libraries can access resources, knowledge portals and continuous training opportunities. In this way, knowledge of disaster management can be imparted, together with information about the activities that should be undertaken to prepare for a disaster before, during and after it happens. This study recommends that CATA provides a budget for continuous training of community librarians in disaster management.

6.7.2 Recommendations on practices and activities to prepare for a disaster in NWP

The study findings reflect an apparent dependency syndrome among community librarians, who rely on the municipality to take control in the event of a disaster; there was

an expectation that the municipality would take care of everything. The study recommends the following for improving practices and activities for disaster management:

- Disaster planning should be viewed as a joint activity between the community library, the municipality and the parent organisation, CATA. The disaster plans and contingency plans should be co-created, written and documented, and should be shared with stakeholders.
- Senior leadership should view libraries as important assets and provide support for disaster management.
- Roles and processes for disaster management by the main stakeholders – the community libraries, municipalities and CATA – should be defined clearly.
- Risk assessment and risk reduction activities should be conducted jointly by the community librarian and the municipality representative.
- A budget for training should be made available.
- By sharing the views of Dixon and Abashian (2016:125), the study recommends that a disaster management committee is established at each library. The committee should address areas of review, resources, staff and experts to consult, roles and responsibilities, and any approval process for newly developed policies and procedures.

6.7.3 Recommendations on factors influencing disaster management

Though disaster management in the field of librarianship is often overlooked, its importance is confirmed by the literature. It was established during data collection that disaster planning was not being prioritised. Though libraries realised the need for disaster plans, and were aware of potential risks in their communities, they did not actively prepare for a disaster.

This study recommends that CATA should develop policies and plans for each individual library – as libraries differ by location, size of the collection and environmental factors. The policies and plans should be implemented, monitored and reviewed annually. For individual libraries, disaster planning and disaster management should be key

performance areas on which community librarians are evaluated. The study recommends that, as part of contingency plans, CATA should arrange, though the municipalities, insurance for libraries.

6.7.4 Recommendations on media influence on disaster management

The study established that reports and discussions of libraries being destroyed did not motivate disaster planning intentions for some of the community librarians and library assistants. However, in the interviews, it was established that some community librarians were concerned about media reports, and were seeking their own information and educating themselves.

The study recommends a community of practice that would facilitate learning as a social process (Wenger 1998:5). Social learning consists of four components that could benefit community librarians. These components are learning as experience (community librarians discussing life experiences); learning as doing (community librarians talking about the disaster activities and guiding principles of what other community librarians do for disaster planning); learning as belonging (forming a disaster management community and librarians' participation in the community leads to other librarians recognising them as being part of the learning); and learning as becoming (learning changes a community librarian on a personal level) (Wenger 1998:5). A community of practice, therefore, provides an opportunity for people with the same interests to meet, discuss, share ideals, share ideas and collaborate. The key to social learning is that people should actively participate in it, not merely absorb information from an "expert" figure. This study recommends that libraries use cloud services to store important records of patrons, and the library holdings, as it was established during the questionnaire and interviews that manual systems were still being used.

6.7.5 Recommendations on institutional disaster management practices

The study established that disaster management planning was inhibited by factors such as planning not being a requirement of the parent organisation, lack of training opportunities, lack of an enabling learning culture for disaster management, and a

perceived lack of support from the parent organisation and the municipality. The study also established that the municipality was seen as the organisation responsible for disaster management for community libraries.

This study recommends that disaster management is allocated to a specific directorate. The directorate should take responsibility for the development of disaster plans, and for establishing and promoting a relationship between the municipality and the community library. In addition, the directorate should take responsibility for monitoring and evaluation of each individual library, and alleviate some of the challenges caused by a lack of disaster plans and policies. The introduction of monitoring and evaluation will ensure that there is oversight and accountability for disaster management from the parent organisation. Another recommendation is in line with suggestion by Yew et al. (2015) and Pilz et al. (2016), that designers consider including, at the design stage of community libraries, intumescent flame-retardant coatings with eggshells, which provide effective fire protection, and have good water resistance, thermal stability and adhesion strength. Pilz et al. (2016) propose a fire-rated wall and ceiling system. The study also recommends the development and implementation of a disaster management sharing culture, though supporting and sustaining the proposed community of practice.

6.7.6 Recommendations regarding the role and involvement of community leaders in community in disaster management

The role of the community leader was viewed as that of an enabler of disaster management by community libraries in NWP. It was established that there was a desire to involve community leaders in disaster management, due to the influence they have in the community. The study recommends integrating community leaders in community libraries' awareness campaigns, to raise awareness in the community of the need to safeguard libraries, and to avoid destroying them during protests; and to mobilise the community to assist during a disaster. Community leaders should be involved in community library disaster committees. Another recommendation, suggested by Chen et al. (2006), is to train community volunteers to assist during a disaster. The training will capacitate community members, so that they assist during a disaster. The communities

should also take ownership of the library, as it provides a service that is important to the community. The next section will present the proposed framework for community libraries.

6.8 PROPOSED FRAMEWORK FOR DISASTER MANAGEMENT FOR COMMUNITY LIBRARIES IN NWP

The proposed framework for disaster management for community libraries in NWP (Figure 6.1) is based on the need for interaction, communication between the role players, and collaboration. Furthermore, the framework provides an environment for engagement, imagination and alignment. The study established that factors that affected disaster management were one-way communication, uncertainty about who was responsible for disaster planning, and perceptions that the municipality would take care of response and recovery. This finding highlights that there was a lack of interaction and communication between different role players. The proposed framework shows how interaction and communication can be fostered between the different role players. The framework proposes that knowledge should be co-created in a collaborative environment. Collaboration can take place through the joint activities of developing policies, practices and disaster plans. The elements of the proposed framework will be discussed in the next sections, and are set out in Figure 6.1.

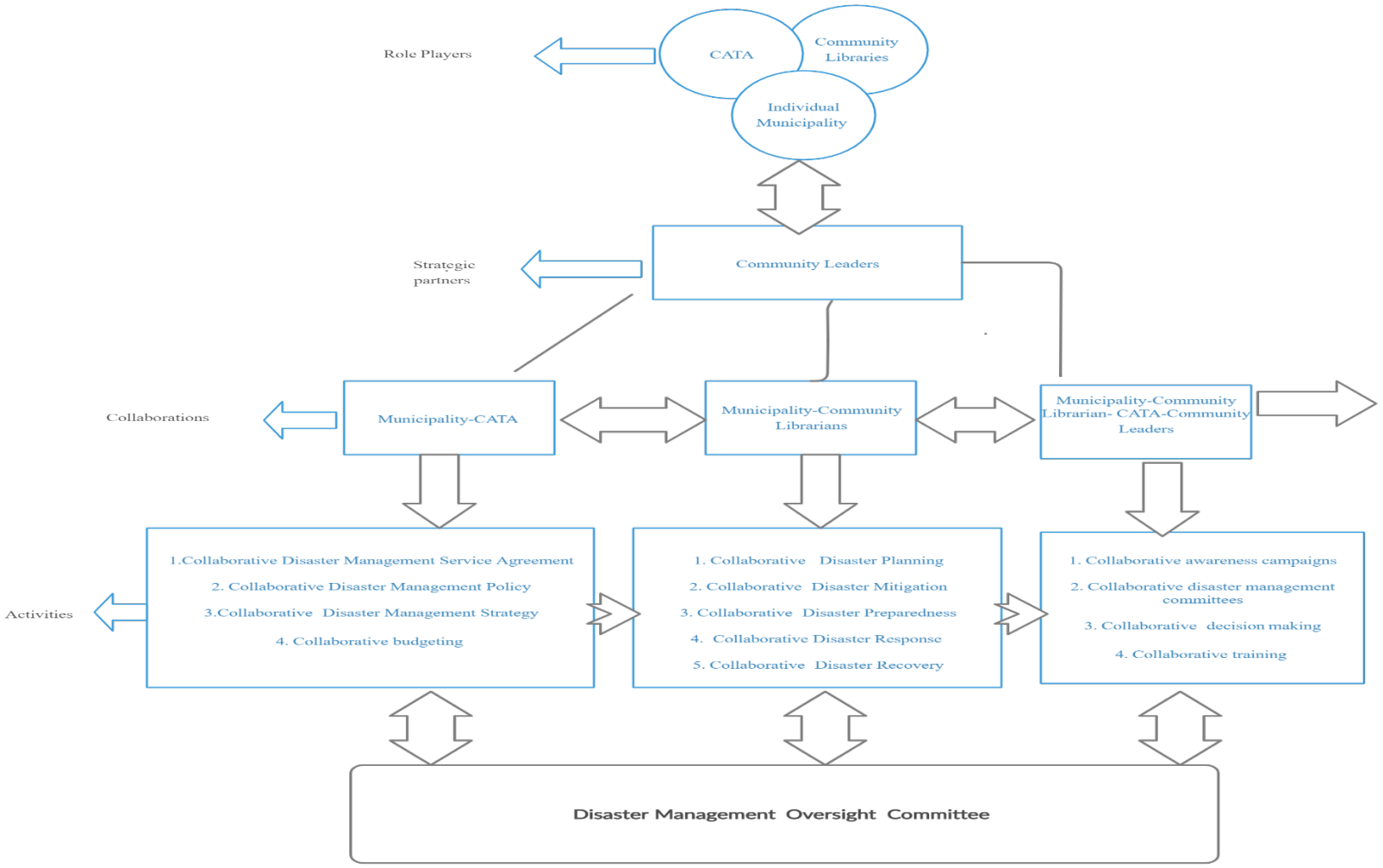

Figure 6.1: Proposed framework for disaster management for community libraries in NWP

6.8.1 Role players

The disaster management community consists of three tiers: individual (people), group (organisations involved in disaster management) and the organisational system (disaster management community) (Mansourian et al. 2006). The study established that the three important role players in disaster management are community librarians, the parent organisation, CATA, and municipalities. For disaster management to be fostered, the three role players need to collaborate and take joint responsibility for the libraries. For these role players to have an impact, they need to work with the community, in particular, community leaders.

6.8.2 Community leaders

The influence that community leaders have within the community make them ideal contributors to strategic plans for disaster management in community libraries, as evident from the findings of this study. Community leaders were identified as being important for raising awareness about safeguarding community libraries. Thus, community leaders should be viewed as strategic partners in disaster management. In rural communities, such as those of the NWP, community leaders are viewed as important elements of the governance structure, and they can, therefore, have an influence on disaster management.

6.8.3 Collaborative partnerships

The study proposes the establishment of the following collaborative partnerships:

- Municipality–CATA
- Municipality–community library
- CATA–municipality–community library–community library

6.8.3.1 Municipality-CATA

There is a need for a collaborative partnership between the various municipalities and CATA. Disaster planning requires that strategies, policy and plans are developed for the entire organisation. Current policies that have been developed, as evident in the documents that were analysed, were not specific to libraries, but applied to all departments that fall under CATA.

The proposed partnership should develop a service-level agreement for disaster management that clearly sets out roles and responsibilities, resources allocated and an operational plan for disaster management. The collaborative partnership should also be responsible for jointly developing a disaster management strategy, disaster policies and a collaborative budget. The municipality–CATA partnership will, thus, develop the strategic plans for disaster management of community libraries. There should also be lateral and horizontal communication with the other partnerships such as the Municipality–community library and CATA–municipality–community library–community library.

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6.8.3.2 Municipality–community library

The findings of the study established that there was no formal communication between community librarians and the municipality. In addition, community libraries were not aware if disaster plans existed in the municipality. Furthermore, activities such as risk identification, risk mitigation and training were not being conducted.

In order to address this shortcoming, the framework proposes a collaborative partnership between the municipality and the community library. This partnership will be responsible to co-create disaster plans, undertake jointly activities for disaster preparedness, disaster mitigation, disaster response and disaster recovery. The partnership between the municipality and the community library should ensure that the strategic disaster management plan is implemented, monitored and evaluated. The rationale for the partnership is based on the need to ensure that disaster management plans and activities

are implemented. Again there should be There should also be lateral and horizontal communication with the other partnerships such as the Municipality–CATA and CATA–municipality–community library–community library.

6.8.3.3 CATA–municipality–community library–community leaders

The proposed framework for disaster management proposes a collaborative partnership between CATA, the individual municipality where the library is located, the community library, and community leaders. This purpose of the partnership would be to raise awareness of disaster management, and to establish a disaster management committee that will plan, monitor and mobilise resources for disaster management, make decisions on potential disaster risks and resources, and ensure that volunteers receive continuous training. The rationale for the proposed partnership is that there is a need for the community to be involved in disaster management. Community leaders will represent the community, and will be required to assist with raising awareness, mobilising resources and identifying the volunteers who will be trained. Regular lateral and horizontal communication process should also be created with the other partnerships in order to discuss and keep all the relevant participants updated.

6.8.4 Collaborative activities to be performed

This section will present the activities that should be performed by the different partnerships.

6.8.4.1 Collaborative activities for the municipality–CATA partnership

The partnership between the municipality and CATA should be responsible for the development of a disaster management policy for libraries. The policy should be developed collaboratively between the municipality and CATA. The rationale is to ensure that there is buy-in from important stakeholders – the municipality and CATA. The policy should develop service-level agreements that will ensure that resources are allocated, joint tasks are agreed upon and monitoring and evaluation take place. Further, a joint

budget should be developed that will ensure that resources are available and training opportunities provided. Finally, a disaster management strategy should be developed jointly. The availability of a strategy will ensure that key performance areas have been identified and key performance indicators included. The strategy would also lead to responsibility being allocated. All these activities require a collaborative approach between CATA and the municipality.

6.8.4.2 Collaborative activities for the municipality–community library

Once the policy, strategy, budget and service-level agreement have been developed by CATA and a municipality, collaborative activities should be developed for the municipality and community library. The main aim of the municipality and community library working together is to ensure that disaster planning is conceptualised and implemented. Disaster planning should involve developing disaster management plans and contingency plans for each library. Also, the activities that are suggested for the disaster management lifecycle should be included in the disaster planning – these should be identified collaboratively and action plans developed. The collaborative activities for the municipality and community library should ensure that disaster management by libraries is operationalised, and the tasks that should be executed are understood and implemented.

6.8.4.3 Collaborative activities for CATA–municipality–community library–community leaders

Once the municipality and community libraries have identified collaborative activities, the final phase is to mobilise all the stakeholders: CATA, municipality, community library, and community leaders. The main aim of this collaboration is to ensure that disaster management awareness is established within communities. As the libraries are so-called soft targets, there is need to involve community leaders in the community library's disaster management activities. Collaborative disaster management awareness campaigns should be implemented, such as disaster management roadshows. Furthermore, community leaders and other members of the community should be part of community library disaster management committees, so that decisions can be made collectively, and not imposed on the community. The rationale of including community representatives is

that they are able to mobilise resources, and to ensure that they take responsibility for safeguarding the community library.

Training should also be conducted for the community library and the community. Volunteers from the community should be recruited from the community. The training should be conducted jointly with community librarians, who should inform community members about salvage priorities and other priority resources that should be safeguarded.

Finally, a disaster management oversight committee should be established that monitors the activities of the partners. All the work that is undertaken by the different partnerships for example Municipality–community library and CATA–municipality–community library–community library should be reported to the committee which should be made up of representatives from the municipality, CATA, community and the community libraries. The committee should also communicate directly with the partners on disaster management and they should provide input. In addition, the committee should report on what is being undertaken with regards to disaster management.

6.9 IMPLICATIONS OF THE RESEARCH FOR THEORY AND PRACTICE

This study investigated the destruction of libraries by human and natural causes, and revealed that disaster management was not seen as the responsibility of community libraries. It was established that community libraries should conduct disaster planning and develop plans for before, during and after a disaster. By applying multi-methods for data collection, the researcher could gain insight into using quantitative and qualitative research approaches.

The study contributes to the existing body of knowledge with regard to integrating the community librarian, the municipality, CATA and community leaders in the co-creation of disaster management practices, policies and plans for each individual library. The study is important, as disaster management cannot be the responsibility of one stakeholder, but should be the responsibility of all the important role players. Municipalities cannot be expected to take sole responsibility for disaster management, as they are not responsible

for daily operations of the libraries, and are not experts on libraries and, thus, cannot develop salvage priorities. The finding that there is a need to have a community-based disaster management framework for disaster management activities may be of use to libraries, disaster management scholars, educators, researchers and other students undertaking studies in disaster management for community libraries.

It is important to make knowledge available on the subject of disaster management, especially on what should be undertaken during each stage of the disaster management lifecycle. Doing so could provide community libraries with a portal to information, and provide them with models they can use to develop their own plans. It is also important for tailor-made training opportunities to be made available, so that community libraries can be educated on disaster management. The parent organisation needs to ensure that librarians understand what a disaster is, and what their responsibilities are.

6.10 SUGGESTIONS FOR FURTHER RESEARCH

The question of how an institution in the library and information field can create an enabling environment for disaster management requires further investigation. This institution is seen as important role player, as it can assist or hinder disaster management through the culture within the organisation. Institutional factors that can aid disaster management need to be identified, and a model for enabling disaster management must be developed.

The usefulness of a community of practice for disaster management needs to be investigated. This can be through the use of an action research methodology. This is important, because a community of practice can provide an environment where community libraries can discuss and acquire knowledge on disaster management. Also, there is need to investigate tools that can be used by a community of practice in a rural environment, such as that of community libraries in NWP. The study recommends that the usefulness of communities of practice for disaster management for community libraries is investigated.

6.11 FINAL CONCLUSION

The study investigated the disaster management practices of community libraries in NWP. It established that disaster planning was not being practiced, and that the responsibility for disaster management was seen as being the responsibility of the municipalities were the libraries are located.

This study established that various challenges that exist in community libraries impede disaster management, and recommendations are made for addressing the challenges. Based on the findings presented in Chapter 4, it was established that community libraries were eager to learn about disaster management, but required training to gain knowledge on disaster management – few of them had received training. A lack of support by the parent organisation was highlighted as a major concern. The study established that disaster planning was not a requirement, even though reports of libraries being destroyed were available. Also, the study established that community leaders were considered to be vital in the safeguarding of community libraries. Recommendations based on the findings of the study were made, and areas for further research were identified.

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PERSONAL COMMUNICATION

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APPENDIX A

QUESTIONNAIRE

A Framework for Disaster Management in Community Libraries

Ethical Clearance Ref #: [2016_IS58556257_056]

Dear participant

My name is Sabelo Chizwina. I am doing research with Professor Patrick Ngulube, professor, in the Department of Information Science towards a Doctoral Degree in Information Science at the

University of South Africa. We are inviting you to participate in a study entitled A Framework for Disaster management for community libraries in the North West Province. I am conducting this research to find out the disaster management practices of community libraries in the North West Province.

By accessing the survey link, you consent to participate in this survey. Please note that you will be known by a code or number in this research project to maintain confidentiality and respect for your privacy. Your name will not be displayed anywhere in the research to make sure your identity remains confidential. Your responses will be treated with highest level of confidentiality. No personal information will be disclosed to any Third Party or CATA. The findings will be used for research purposes only. You may withdraw from this survey at any time.

Should you have concerns about the way in which the research has been conducted, you may contact Professor Patrick Ngulube email: ngulup@unisa.ac.za

If you would like to be informed of the final research findings, please contact Sabelo Chizwina on 0727539065 or sabeloc@yahoo.com. The findings are accessible for 5 years.

Thank you for sparing your valuable time to complete this questionnaire. The questionnaire will take 10–15 min of your time.

You can access via the following web link:

https://forms.gle/kKsv2AWu5wzT7rFv5

Or copy and paste the URL into your internet browser

Kind Regards

Sabelo

Click YES to give consent to participate in the study and complete the questionnaire. If you do not wish to participate in the study, click NO to discontinue

Yes

No

Demographic Information

1. **What is your gender?** * *Mark only one oval.*

- Female
- Male

Other (Specify)____

2. **What is your current occupation?** *Mark only one oval.*

- *Librarian*
- *Library Assistant*

Other (Specify)_____

3. **How long have you been employed at your present library?** *Mark only one oval.*

1	2	3	4	5	6	7	8	9	10

4. What is your age? * *Mark only one oval.*

- Under 18
- 18 – 24 Years
- 25 - 34 Years
- 35 – 44 Years
- 45 – 54 Years
- 55+ Years

5. How long have you been employed as a librarian/library assistant/assistant librarian *Mark only one oval.*

1 2 3 4 5 6 7 8 9 10

Disasters

6. **Has your library suffered from a disaster during the past year** *Mark only one oval.*

- Year
- 2 Years
- 3 Years
- 4 Years
- 5 Years
- No

7. If the Answer to the previous question is Yes, What kind of disaster or disasters were there? *Tick all that apply.*

- Enterprise Related Disaster (for example hostile legislation, lengthy strikes, sudden cuts to operating budget)
- Security Disaster (for example theft, vandalism, arson)
- Natural Disaster (for example drought, fire, pests)
- Technology Disaster (for example Data Loss, IT Outages, Malware)
- None

8. How many disasters have you suffered from these last ten years? *Mark only one oval.*

0 1 2 3 4 5 6 7 8 9 10

9. **Is your library located in a region or place threatened by natural disaster?** *Mark only one oval.*

- Yes
- No
- Maybe

10. **The probability of a disaster occurring in my library is low** *Mark only one oval.*

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

11. **I perceive the potential risks in my community as being capable of posing a threat to my library** *Mark only one oval.*

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

12. **I am aware of the potential disaster risks that can affect my library** *Mark only one oval.*

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

13. **The potential risks can be mitigated through individual efforts** *Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly agree

14. **I would feel confident implementing emergency plans, evacuation procedures and similar functions** *Mark only one oval.*

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Disaster planning

Bhade and Aute (2016:178) define a disaster plan as written procedures prepared by library staff in order to deal with unexpected occurrence that can lead to injury to personnel or damage equipment or collections or the facility itself.

15. **My past disaster experience influences my actions to actively prepare for a disaster?** *Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

16. **My sense of community (relationships) leads me to actively prepare for a disaster** *Mark only one oval.*

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

17. **A disaster plan is a written document which concerns the safety and rescue of the collection and building in the event of a disaster. Do you have a disaster plan for your library** *Mark only one oval.*

- Yes
- No

18. **If the answer to the previous question on disaster plans is no, select the main reason from the list below why you do not have a disaster plan?** *Mark only one oval.*

- Few risks
- No staff available to write and implement it
- Lack of model to write it
- Lack of resources to implement it
- It is the responsibility of the local disaster management is not required by the parent organisation

19. **Cloud services are used to backup the data in my library** *Mark only one oval.*

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

20. **The information about libraries being destroyed that I read in newspapers, on social media and when discussing with other librarians influences my disaster planning** *Mark only one oval.*

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

21. **It is a requirement for my library to have a disaster plan** *Mark only one oval.*

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

22. Contingency plans are in place in the event of a disaster in my library *Mark only one oval.*

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

23. I work with the community to reduce disaster risks and to prepare their response mechanisms to address disasters *Mark only one oval.*

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

24. I have the contacts to help me in the case of a disaster *Mark only one oval.*

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

25. A learning culture on disaster management exists within the organisation *Mark only one oval.*

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

26. **Cases have been reported in the media about libraries being destroyed. Does this motivate you to learn about disaster management** *Mark only one oval.*

- Yes
- No
- Maybe
- _____

27. The library is not considered a potential partner for disaster preparedness and response by local disaster management structures in the community *Mark only one oval.*

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

28. **The establishment of a disaster team in each library will improve preparedness and recovery**
Mark only one oval.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

29. **I have attended disaster management training as part** *Tick all that apply.*

- A workshop organised by my employer
- During my undergraduate studies
- A short course on disaster management
- As part of my postgraduate studies
- I have never attended disaster management train
- Other (Specify above) _____

30. **In what ways can the organisation assist librarians in disaster management?**

_____

_____

_____

_____

_____

31. **How can the community be involved in disaster management to safeguard libraries?**

APPENDIX B

INTERVIEW CONSENT AND QUESTIONS

PARTICIPANT INFORMATION SHEET

11 April 2018

Title: A FRAMEWORK FOR DISASTER MANAGEMENT FOR COMMUNITY LIBRARIES IN THE NORTH WEST PROVINCE

Dear Prospective Participant

My name is Sabelo Chizwina and I am doing research with Professor Patrick Ngulube, professor, in the Department of Information Science towards a Doctoral Degree in Information Science at the University of South Africa. We are inviting you to participate in a study entitled A FRAMEWORK FOR DISASTER MANAGEMENT FOR COMMUNITY LIBRARIES IN THE NORTH WEST PROVINCE.

WHAT IS THE PURPOSE OF THE STUDY?

I am conducting this research to find out the disaster management practices of community librarians in the North-West Province.

WHY AM I BEING INVITED TO PARTICIPATE?

I received your contact details from Ms Sempe the Director of Library Services at CATA. There are five participants for the interview components of this study. You have been selected purposively as you are currently occupying a managerial position at CATA.

The interview will last approximately 45 minutes.

Ethical Clearance Ref #: [2016_IS58556257_056]

ETHICAL CONSIDERATIONS

All ethical issues relating to confidentiality, informed consent, voluntary participation and withdrawal, no harm and accuracy in data interpretation will be observed. You are free to withdraw at any time without giving reason and without cost.

HOW WILL I BE INFORMED OF THE FINDINGS/RESULTS OF THE RESEARCH?

If you would like to be informed of the final research findings, please contact Sabelo Chizwina on 0727539065 or sabeloc@yahoo.com. The findings are accessible for 5 years. Should you require any further information or want to contact the researcher about any aspect of this study, please contact Professor Patrick Ngulube email: ngulup@unisa.ac.za

Should you have concerns about the way in which the research has been conducted, you may contact Professor Patrick Ngulube email ngulup@unisa.ac.za

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

Sabelo Chizwina

Ethical Clearance Ref #: [2016_IS58556257_056]

CONSENT TO PARTICIPATE IN THIS STUDY

I, _____ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty.

I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree to the recording of the interview.

I have received a signed copy of the informed consent agreement.

Participant Name & Surname…… (please print)

Participant Signature……..Date……

Researcher's Name & Surname……(please print)

Researcher's signature……..Date……

Interview Questions

1. What do you understand by the term disaster management?
2. What do you define as a disaster?
3. What kind of disasters have the libraries experienced before?
4. Which factors influence disaster management practices in NW?
5. Do you believe that librarians who are concerned about disaster management are those that have been affected by disaster and what are the possible reasons for them to be concerned?
6. How is disaster preparedness perceived to be?
7. What activities are undertaken to assess risk of disasters by libraries? And by CATA?
8. Which measures have been put in place to mitigate risk?
9. What training is provided for community librarians in disaster management? If so how often and by whom?
10. What resources or training are provided by CATA and the municipality for the community with regards to disaster management?
11. What are the disaster management plans that have been developed? How often are they reviewed?
12. In the case a disaster has to occur what recovery protocols have been established? For example, temporary services or accommodation?
13. In terms of individual libraries what policies and practices are they expected to develop?
14. What insurance do the libraries have?
15. What measures have been put in place to ensure libraries are able to recover after a disaster?

16. What is the nature of the partnerships that have been developed with disaster management stakeholders and what role do libraries play?

17. In what ways is community involved in disaster management in the libraries?

18. In your own opinion does the reports of libraries being destroyed influence disaster planning?

19. What role does the municipality play in disaster management of community libraries?

20. What do you think is necessary or could be done regarding disaster management?

APPENDIX C

CATA APPROVAL LETTER

cata
Department:
Culture, Arts and Traditional Affairs
North West Provincial Government
The Republic of South Africa

2030 NDP

TEL: 018 388 3965/6
FAX: 018 388
EMAIL:msethibe@nwpg.gov.za

LIBRARY, INFORMATION & ARCHIVES

Cnr Albert Luthuli & Univ Driv
Provincial Archives & Library Buildin
Private Bag x90, Mmabatho, 273

Department: Arts and Traditional Affairs

North West Provincial Government

The Republic of South Africa

Mr Sabelo Chizwina

North West University

Private Bag x2046

MMABATHO

2735

Dear Mr Chizwina

PERMISSION TO CONDUCT A STUDY

Permission is granted for you to conduct a study in the community libraries of North West as outline in your letter dated 16 March 2017. We are looking foward to support the study

and to the results thereof, which will of course be of benefit to the libraries in the provinces and other community libraries in the country and or continent.

As you proceed with your study the please allow the Directorate to link you with the libraries and librarians that you will have selected for sampling.

Trust this is in order.

APPENDIX D

UNISA ETHICAL CLEARANCE

DEPARTMENT OF INFORMATION SCIENCE RESEARCH ETHICS REVIEW COMMITTEE

Date: 12 December 2016

Ref #: [2016_IS58556257_056]

Name of applicant: Mr SR Chizwina

Dear Mr SR Chizwina,

Decision: Ethics Approval

Name: Mr SR Chizwina, Northwest University, 072 753 9065, sabelo.chizwina@nwu.ac.za.

Supervisor: Prof P Ngulube, Department of Information Science, Unisa, 012 429 2832, ngulup@unisa.a.c.za.

Proposal: A Framework to assist community libraries in disaster management in the North West Province, South Africa

Qualification: Postgraduate degree Doctoral

Thank you for the application for research ethics clearance by the Department of Information Science Research Ethics Review Committee for the above mentioned research. Final approval is granted for the duration of the project.

For full approval: The application was reviewed in compliance with the Unisa Policy on

Research Ethics by the Department of Information Science RERC on 12 December 2016.

The proposed research may now commence with the proviso that:

1) The researcher/s will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.

2) Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the Department of Information Science Ethics Review Committee. An amended application could be requested if there are substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.

3) The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.

Note:

The reference number 2016_IS58556257_056 should be clearly indicated on all forms of communication [e.g. Webmail, E-mail messages, letters] with the intended research participants, as well as with the Department of Information Science RERC.

Kind regards,

Signature

Prof GV Jiyane

Department of Information Science

012 429 6057