

Disaster risk identification and business continuity planning in community libraries in the North West Province in South Africa

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Disasters affect access to community libraries that provide essential access to information for citizens in rural South Africa. The purpose of this research was to investigate the identification of disaster risk in community libraries in the Northwest Province in South Africa. Disasters in community libraries have been under-researched in Library and Information Science literature. Using a multi-method approach, data was collected from community libraries that are under the Northwest Department of Culture, Arts and Traditional Affairs (CATA). Participants were community librarians and librarian assistants employed by CATA. The response rate for the quantitative phase was 64% (70) and 100% (4) for the qualitative phase. The main results indicate that risk identification was considered the responsibility of their municipalities and that the CATA for community libraries was used to identify risks or conduct disaster planning. Therefore, risk identification is an area that has been largely neglected, with negative implications for business continuity planning.

Keywords: disasters, disaster risk, business continuity, disaster management, community libraries, South Africa

1 Introduction

Community libraries in South Africa are of great importance as they support South African government goals, for example, by providing information to assist citizens about community development, employment creation, and available entrepreneurship programmes, increasing the economic growth of households by providing access to a variety of information sources, for example, on vocational training (Mnkeni-Saurombe, 2010). Furthermore, Skarzynski and Nassimbeni (2016) report that public/community libraries in South Africa are the only sources of leisure reading for most of the population. The community library has two core services, which are to provide citizens with digital services and to ensure that there is meeting, learning, and working spaces for children and other community groups (Mainka et al. 2013). Providing information about disasters is therefore a core function of community libraries. Examples of the different types of disaster proposed by Robertson (2016) are presented in Table 1.

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Table 1: Different types of disaster proposed by Robertson (2016) are

Disaster types	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 in operating budget 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: Robertson (2016)

Recently, Siriporanon and Visuthismajarn (2018) challenged the dominant classification of disaster types, stating that a disaster can be classified according to the cause of the disaster, and proposed three types of disasters, namely natural disasters such as floods, human-inflicted disasters, and disasters caused by technology failure. Disasters should therefore no longer be classified as human-made or natural disasters. Emerging views by authors such as Robertson (2016) and Siriporanon and Visuthismajarn (2018) on the different types of disasters led the authors to reconceptualise that disasters should be classified according to the cause of the disaster. This study analyzed disasters such as natural disasters, technology-related disasters, security-related disasters, enterprise-related disasters, and human-induced disasters.

Pierard et al. (2016) are of the view that, although all libraries hope to avoid disasters, few succeed. A survey in the United States of America by Pierard et al. (2016) found that up to 75% of library respondents had experienced a disaster. Evidence also suggests that few libraries are prepared for a disaster, with up to 66 to 80% of libraries reporting that they did not have plans such as business continuity plans or that staff were aware and able to implement them (Pierard et al., 2016). Rattan (2013) points out that libraries should have mitigation measures to reduce the probability of a disaster, and if a disaster were to occur, they should be able to activate different mitigation measures. Furthermore, Robertson (2016) expresses the need for a library disaster plan, which should include an emergency preparedness programme. In South Africa, community libraries are mainly found in municipalities, which develop disaster plans according to the National Disaster Management Act. The library is a department within a municipality, so it is required to develop a business continuity plan.

In the NWP, the risk identification practices of community librarians are unknown. Existing practices within community libraries must be identified to minimize risks. Various strategies are discussed in the literature, such as Cerullo and Cerullo's (2004) business continuity plan that includes risk identification, a disaster plan for risk mitigation, and staff training and evaluation of the effectiveness of the plan. Furthermore, Pierard et al. (2016:314) indicate that a risk identification plan includes disaster recovery planning that considers risks to infrastructure, library staff, and service delivery.

This study focused on 110 community libraries in the NWP of South Africa. Community libraries in NWP fall under the Department of Arts, Culture, Sports, and Recreation through the Directorate of Library, Information, and Archive Services. Most of the libraries were in rural areas in the NWP.

2 Risk identification in libraries

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 to avoid or alleviate the impact of disasters. In contrast, other authors maintain that disaster management only occurs when a disaster occurs.

For example, Caymaz et al. (2013) point out that disaster management is a process or strategy that takes effect when any type of catastrophic event occurs. An argument of this study that contrasts with that of Caymaz et al. (2013) is that disaster management is not confined to activities that occur when a disaster has occurred but includes activities that occur 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 disaster risk 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 the disaster risks and consequences of the disaster.

Disaster management in community libraries is designed to ensure mitigation, preparedness, response, and recovery in the event of a disaster. 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 multisectoral, multidisciplinary 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 of the South African Disaster Management Act No. 57 of 2002 as cited by Bisho (2015) covers these aspects.

Risk identification focuses on determining potential events that could disrupt services (Halsted et al., 2014:4). Some of the activities involved in risk assessment include conducting a vulnerability analysis, an analysis of current capabilities and hazards, and conducting an insurance assessment (Halsted et al. 2014). Ritchie (2004) proposes a strategic management analysis which can include early warnings and after a disaster has occurred. At each stage, there are strategies and or plans of activities. The activities are as follows:

Strategic forecasting: Allows for predictions based on potential crisis or disaster situations and could include opinion-based quantification, extrapolation of trends, simulation, and cause-and-effect methods.

Issue 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).

It is well documented that disaster management encompasses a proactive and organised strategy beginning with planning to recover from a disaster, whether human-made or natural, before, during, and after any 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).

In addition, Carter (2008, cited by Laachemi & Boughaci, 2017:1) adds the need for organised and regular observation and study of potential disasters. Disaster identification in libraries 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 involve 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 setting out what to do before, during, and after a disaster.

However, the issue of risk assessment has not been adequately covered in the library and information science literature (Velasquez, Evans, & Kaeding, 2016:4). Moustafa (2015) elaborates that the literature on the identification of risks in disaster management has focused on what happens after a disaster rather than on the identification and prevention of risks. 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 the conduct of awareness campaigns, strengthening weak existing structures, and preparing disaster management plans at the household and community levels. The 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 at 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 goal of achieving early recovery and rehabilitation of affected communities. These activities are called response and recovery activities.

This study sought to establish whether community libraries in NWP have adopted risk identification measures. According to Rattan (2013:3), libraries should implement measures to identify risks, mitigate risks, minimize damage, and be able to respond to a disaster. The study is expected to be a guide for policy makers who are responsible for ensuring service delivery of library services are not compromised in times of disaster.

3 Literature review

The literature proposes different strategies for risk identification, and there are no uniform activities or plans amongst the different authors. Khan, Vasilescu, and Khan (2008) define disaster risk management to include activities, programmes, and measures which can be implemented before and after a disaster. On the other hand, Ayong, Boatbil and Baada (2016:1301) propose a disaster management plan that includes security and detection protocols, continuous monitoring and evaluation, mock drills, and simulations of disaster situations and recovery protocols required in preparedness, mitigation, response, and recovery. Jones (2011) argues for a risk mitigation plan. The risk mitigation plan involves reducing the impact of damage. In addition to Jones (2011), Halsted, Clifton, and Wilson (2014:1) add continuity of operations plans, which is like a business continuity plan that contains specific elements required for the library to continue operating.

Othman, Beydoun and Sugumaran (2014) state a mitigation plan is a document that indicates goals and objectives for reducing risks and is prepared by an authority or organization. Furthermore, Dixon & Abashian (2016:125) refer to an emergency safety plan, which is a “document that establishes policies and procedures for library staff on how to handle different types of disaster and emergency situations from the perspective of personal and public safety”. From the different authors, disaster risk assessment can be seen as a structured activity based on prior plans that are developed to identify the activities that should be undertaken, the vital plans that should be formulated, and how disaster risks should be mitigated.

A disaster management cycle has four stages, namely mitigation, preparation, response, and recovery, in which various activities are performed (Bisho 2015; Cowick & Cowick 2016). The literature proposes various disaster management cycles for disaster planning and lists several activities that need to be carried out as part of disaster management cycles, as presented in Table 2.

Table 2: Comparison of disaster management activities from different authors

Activity	Hamilton and Brown (2016:7)	Bhade and Aute (2016:172-174)	Ortuño et al. (2013:20)	Othman et al. (2014:237)
Mitigation	Prevention of crises, safety issues, and preservation of assets	Minimising the effects of disasters, for example, building codes	All mid- 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
Preparation	Development of the 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.
Response	COOP implemented	Efforts to minimise the hazards created by a disaster, for example, search and rescue	Efforts to save lives or equipment	Provision of emergency services and public assistance during or 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	Restoration and improvement, where appropriate, of facilities

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 be carried out.

The literature also focuses on building resilience within communities by identifying risks (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 are useful in that they indicate the need for community involvement in the disaster management lifecycle and for building capacity in communities to assist during a disaster.

Studies on the identification of disaster risks in libraries are limited, particularly in community libraries. The few studies conducted include Velasquez et al. (2016:1), who conducted a study in South Australia to evaluate risk management and disaster plans. The results of the study are that library managers did not view the risk of a disaster as high. Furthermore, library managers did not consider risk management and disaster recovery as important for their libraries. Shameenda and Kanyengo (2012) focus on evaluating the disaster preparedness skills of library staff in an academic library in Zambia, and Ayoung et al. (2016) explored the preparedness of polytechnic libraries in Ghana, with a focus on measures in place to prevent disasters.

4 Methods

In this study, quantitative data was collected as the primary data collection strategy and was supplemented by qualitative data. The need to mix the two types of data was that neither quantitative nor qualitative methods could adequately capture perceptions of and identify the risk identification practices of community libraries.

The study used a questionnaire, semi-structured interviews and document analysis to examine the disaster management practices of individual community libraries, Head Librarians and the institution that is the custodian of libraries, the North West Department of Culture, Arts, and Traditional Affairs (CATA). The total number of libraries was 110 community libraries. Five interviews were conducted, and documents were requested from the libraries. In this study, a pragmatic approach was followed, as the research problem was considered the most important concern.

For 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, the symbol N, which represents the sample size N=100, there was no point in sampling. The number of community libraries at the time the study was conducted was 110. Purposive sampling was used for the qualitative data collection. The researchers only targeted librarians who were employed at the Head Librarian level or higher in the different districts, and their occupation was used to identify the suitability of participants. 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 was four.

The graphic and tabular presentation, as a summary of the findings, was used to analyse the findings. The discussion of significant points in this study was based on the analysis of questionnaires and interviews with participants in different community libraries, and the review of the literature related to disaster management in community libraries. Therefore, the researchers compared the differences and similarities between the quantitative and qualitative data.

5 Results and Discussions

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.

The results in Table 3 show that 27.1% (19) of the participants strongly agreed that there was a probability that a disaster would occur in their libraries, and the same number of participants 27.1% (19) were neutral (not sure) that the probability of a disaster would occur. A smaller number of participants, 15.7% (11) disagreed that a disaster was likely to occur, and the same number 15.7% (11) agreed with the statement, while 10 participants (14.3%) strongly agreed with the statement. This shows that there was a belief that a disaster could occur in most libraries.

Table 3: Probability of a disaster occurring in the library (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

Participants were asked to indicate whether they were aware of potential disaster risks in their library. In total, 40% (28) and 12.9% (9) of the participants strongly agreed that they were aware of the potential risks of disaster that could affect individual libraries. A minority indicated that they were unaware: 17.1% (12) of the participants disagreed and only 2.9% (2) strongly disagreed. However, 27.1% (19) were neutral about their awareness of potential disaster risks. The interviews supported the finding that the community librarians were aware of the risks that could affect their libraries. Interviewees also reported that they were eager to know and participate in disaster management practices that could affect their libraries. The indication is that community libraries are involved in the risk identification of their individual libraries. This is consistent with Halsted et al. (2014), who recommend that library staff determine potential events that can cause interruptions.

Additionally, the CATA documents that were analysed indicate that librarians should assess the risk of disaster, implement measures to reduce the risks of disaster and introduce measures to detect the potential of a disaster. Therefore, librarians were expected to mitigate against potential disaster risks. With preparedness, some of the disasters could be avoided, while the impact could be reduced to minimise the damage.

Disaster management in community libraries involves different actors. The disaster management legislation in South Africa includes the Disaster Management Act 57 of 2002 and the National Disaster Management Framework (NDMF) of 2005, which aim to provide the necessary solutions for preventing and mitigating disasters and their effects. Although the legislation exists, compliance is not enforced. Thus, a question was formulated to establish if community libraries could mitigate potential disaster risks through individual efforts where there was no support from the municipality. Of the participants, 31.4% (22) did not give an opinion, 24.3% (17) disagreed, and 15.7% (11) strongly disagreed that potential disaster risks could be mitigated. A smaller number, 20% (14) of participants, agreed that potential disaster risks could be mitigated through individual efforts; and very few, namely 8.6% (6) strongly agreed.

The documents that were analysed show that disaster risk identification should be conducted to identify, quantify and prioritise risks. Furthermore, measures that are proportionate to risk should be taken to protect against accidental or deliberate unauthorised modifications, or disclosure of destruction. The study established that 35.7% (25) of the libraries were unaware of their disaster plans, 47.1% (33) did not have contingency plans, and 87.1% (61) of the participants stated that it was not a requirement of the parent organisation to conduct disaster planning for individual community libraries. This shows that librarians were not conducting mitigation efforts. A possible reason could be that the NWP has Provincial Disaster Management Centres responsible for disaster risk reduction. From the perspective of the librarians who participated in this study, disaster management is considered a once-off event and not a process that is the responsibility of the respective municipality. The findings indicate that the disaster management cycle is not considered important – instead, disasters were viewed as once-off events by participants, although fires, droughts, and pandemics affect communities daily in South Africa.

The South African Disaster Management Act of 2002 makes provision for a parent organisation to develop disaster plans and implement them. Community libraries should have disaster plans developed by the parent organisation and ensure that they are implemented. Cowick and Cowick (2016) state that a disaster plan is required to prepare for a disaster and to timely identify the resources required during a disaster. The study found that community libraries were unaware of their respective disaster plans. Table 4 provides the responses to why they were not aware of the disaster plans.

Table 4: Awareness of Disaster Plans

Responses	Frequency
Few risks	24
Lack of communication	3
Lack of model to write it	19
Lack of resources to implement it	5
It is the responsibility of the local disaster management committee	7
It is the responsibility of CATA organisation	12
Total	70

The main reason was based on the belief that there were few risks, and thus knowing about a disaster plan was not prioritised. Other reasons where it was the responsibility of the local disaster committee or CATA indicate a lack of awareness of the Disaster Management Act. The NDMF provides guidelines on how the various sections of the Disaster Management Act should be implemented (Van Niekerk 2014). The NDMF comprises four key performance areas (KPA) and three enablers. KPA 3 stipulates that disaster risk management stakeholders must develop and implement disaster risk

management plans. The NDMF also stipulates that stakeholders must develop these plans in an integrated manner, which is not the case in NWP community libraries.

A question on whether community libraries were considered a potential partner for disaster preparedness and response revealed that 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. The qualitative inquiry established that there was no formal involvement with disaster management agencies in the community and no meetings were held between the municipality, agencies, and community libraries to discuss disaster management practices.

Most of the participants, 60% (42) did not work with the community to reduce disaster risks and to prepare their response mechanisms to address disasters. KPA 3 of the NDMF involves identifying and implementing disaster risk reduction programs in accordance with the approved frameworks. The qualitative investigation established that no training and workshops had been arranged to prepare the community for a disaster, although within disaster management centres there are units responsible for awareness, education, and training at all levels, from national, provincial, to local. Disaster preparedness is also hindered by the inability of community libraries to conduct community awareness campaigns about the importance of libraries, which could discourage community members from burning down libraries during service delivery protests. Therefore, the community is not involved in disaster mitigation, disaster planning, or preparation. Chen et al. (2006) and Norris et al. (2008) recommend that the community prepare, mitigate, respond, and recover from a disaster on its own. The training of the community and the need to assign responsibilities are 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.

To explore whether libraries would be able to function after a disaster, participants were asked whether business contingency plans were in place in the event of a disaster. The results showed that 47.1% (33) disagreed, and a small number of participants 12.9% (9) strongly disagreed that business continuity plans were in place. Furthermore, a small number of participants (20%) did not reveal their opinion on this matter, and only 13 (18.6%) and 1 (1.4%) of the participants strongly agreed that business continuity plans were in place. However, in the documents, business continuity management is indicated, 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 library must 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.

6 Conclusion

Although disaster risks were known in community libraries, the findings revealed that there was a sense that disaster risks could be mitigated through individual efforts; that human-induced disasters could be avoided or mitigated by individuals. This research concludes that community libraries do not regard disaster risk identification in community libraries as their responsibility, but that of the municipality, although there are different roles in which community libraries should be involved. Municipalities are required by the Disaster Management Act to develop a disaster management plan, framework, and contingency plan. Community libraries are required to develop business continuity plans to allow them to recover in the event of a disaster. The results generated from this study are expected to help community libraries that fall under NWP to develop a risk identification strategy that incorporates community libraries, including community leadership. It is also important to note the limitations of the study as it focuses on one province in South Africa, that is, the NWP.

This study proposes different methodologies for educating and training community libraries on identification and management. Training should focus on complete disaster management and on how to develop disaster plans and salvage priority lists. Additionally, this research proposes that disaster management platforms, where community libraries can access resources, knowledge portals, and continuous training opportunities, are easier to access as some are available from municipalities, nongovernmental organisations, and universities. Business continuity plans should be prioritised and reviewed annually in all community libraries in the NWP. The Library and Information Departments at South African universities should include the different plans required for libraries in their curriculum. In this way, knowledge of disaster management can be imparted, along with information about the activities that should be undertaken to identify risks.

References

- Abulnour, A. 2014. Towards efficient disaster management in Egypt. *Housing Building Research Centre Journal*, 10(2):117–126. <https://doi.org/10.1016/j.hbrcj.2013.07.004>
- Ayoung, A.D., Boatbil, C.S. & Baada, F.N. 2016. Disaster preparedness of libraries: Insights from polytechnic librarians in Ghana. *Information Development*, 32 (5):1296–1305. <https://doi.org/10.1177/026666691558879>

- Bhade, V.K. & Aute, G. 2016. Disaster management for libraries. *"Knowledge Librarian" An International Peer Reviewed Bilingual E-Journal of Library and Information Science*, 3 (1): 171–180.
- Bisho C. 2015. Towards developing an accredited disaster management training course for LIS professionals in South Africa. Paper presented at: IFLA WLIC 2015 – Cape Town, South Africa in Session 223 – PAC. <http://library.ifla.org/id/eprint/1203> (Accessed 6 June 2018).
- Cerullo, V. & Cerullo, M.J. 2004. Business continuity planning: a comprehensive approach. *Information Systems Management*, 21 (3): 70–78. <https://doi.org/10.1201/1078/44432.21.3.20040601/82480.11>
- Chen, L.C., Liu, Y.C. & Chan, K. 2006. Integrated community-based disaster management program in Taiwan: A case study of Shangan village. *Natural Hazards*, 37 (1-2): 209–223. <https://doi.org/10.1007/s11069-005-4669-5>
- Cowick, C. & Cowick, J. 2016. Planning for a disaster: Effective emergency management in the 21st century. In *Handbook of Research on disaster management and contingency planning in modern libraries*, edited by E. Decker & J.A. Townes. Hershey, PA: IGI Global. pp. 49-69. <https://doi.org/10.4018/978-1-5225-6195-8.ch008>
- Creswell, J. 2003. *Research design: Qualitative, quantitative, and mixed methods approaches*. 2nd ed. Thousand Oaks: Sage.
- Dixon, J. & Abashian, N. 2016. Beyond the collection: Emergency planning for public and staff safety. In *Handbook of Research on disaster management and contingency planning in modern libraries*, edited by E. Decker & J.A. Townes. Hershey, PA: IGI Global. pp. 120–140. <https://doi.org/10.4018/978-1-4666-8624-3.ch006>
- Gay, L.R., Mills, G.E. & Airasian, P.W. 2012. *Educational research: Competencies for analysis and applications*. London: Pearson.
- Halsted, D.D., Clifton, S.C. & Wilson, D.T. 2014. *Library as safe haven: Disaster planning, response, and recovery (A how-to-do-it manual for librarians)*. Chicago: American Library Association.
- Hagar, C. 2015. Public library partnerships with local agencies to meet community disaster preparedness and response needs. In *Proceedings of the Information Systems for Crisis Response and Management (ISCRAM) 2015 Conference*. Kristiansand: ISCRAM. <https://pdfs.semanticscholar.org/48a1/5a056249b7005e699dcb74c0033e4f6cd1b8.pdf> (Accessed 12 March 2017).
- Hamilton, R. & Brown, D. 2016. Disaster management and continuity planning in libraries: Changes since the year 2000. In *Handbook of Research on disaster management and contingency planning in modern libraries*, edited by E. Decker & J.A. Townes. Hershey, PA: IGI Global. pp. 1–24. <https://doi.org/10.4018/978-1-5225-6195-8.ch023>
- Jones, A. 2016. Shortcomings and successes: A small-scale disaster case study. In *Handbook of Research on disaster management and contingency planning in modern libraries*, edited by E. Decker & J.A. Townes. Hershey, PA: IGI Global. pp. 412–435. <https://doi.org/10.4018/978-1-4666-8624-3.ch018>
- Jones, V. A. 2011. How to avoid disaster: RIM's crucial role in business continuity planning. *Information Management Journal*, 45 (6): 36–41.
- Hesse-Biber, S.N. 2010. *Mixed methods research: Merging theory with practice*. New York, NY: Guilford.
- Khan, H., Vasilescu, L.G. & Khan, A. 2008. Disaster management cycle – a theoretical approach. *Journal of Management and Marketing*, 6(1): 43–50. <https://www.semanticscholar.org/paper/Disaster-Management-CYCLE-%E2%80%93-a-theoretical-approach-Khan-Vasilescu/2ca6f4c8106d76d6db38d1e26f062f1758b365cb> (Accessed 17 May 2017).
- Laachemi, A. & Boughaci, D. 2017. Web services classification for disaster management and risk reduction. In *4th International Conference on Information and Communication Technologies for Disaster Management (ICT-DM)*. Münster: University of Münster. pp. 1–6.
- Lor, P.J. 2013. *Burning libraries for the people: Questions and challenges for the library profession in South Africa*. *Libri*, 63 (4): 359–372. <https://doi.org/10.1515/libri-2013-0028>
- Mainka, A., Hartmann, S., Orszulok, L., Peters, I., Stallmann, A. & Stock, W.G. 2013. Public libraries in the knowledge society: Core services of libraries in informational world cities. *Libri*, 63 (4): 295–319. <https://doi.org/10.1515/libri-2013-0024>
- Mnkeni-Saurombe, N. 2010. Impact of the 2009 economic recession on public/community library services in South Africa: perceptions of librarians in the Metropolitan Municipality of Tshwane. *Mousaion*, 28 (1): 89–105.
- Norris, F.H., Stevens, S.P., Pfefferbaum, B., Wyche, K.F. & Pfefferbaum, R.L. 2008. Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology*, 41 (1–2): 127–150. <https://doi.org/10.1007/s10464-007-9156-6>
- Ortuño, M., Cristóbal, P., Ferrer, J., Martín-Campo, F., Muñoz, S., Tirado, G. & Vitoriano, B. 2013. Decision aid models and systems for humanitarian logistics. A survey. In *Decision aid models for disaster management and emergencies*, edited by B. Vitoriano, J. Montero, and D.A. Ruan. Paris: Atlantis Press. pp. 17–44. https://doi.org/10.2991/978-94-91216-74-9_2
- Othman, S.H., Beydoun, G. & Sugumaran, V. 2014. Development and validation of a disaster management metamodel (DMM). *Information Processing & Management*, 50 (2): 235–271. <https://doi.org/10.1016/j.ipm.2013.11.001>
- Pierard, C., Shoup, J., Clement, S., Emmons, M., Neely, T. & Wilkinson, F. 2016. Building back better libraries: Improving planning amidst disasters. In *The future of library spaces (Advances in Library Administration and Organisation)*. London: Emerald. pp. 307–333. <https://doi.org/10.1108/S0732-06712016000036014>
- Rattan, P. 2013. Role of library and information centres in disaster management. *Library Philosophy & Practice e-journal*, February (886). <https://digitalcommons.unl.edu/libphilprac/886>
- Ritchie, B.W. 2004. Chaos, crises and disasters: A strategic approach to crisis management in the tourism industry. *Tourism Management*, 25 (6): 669–683. <https://doi.org/10.1016/j.tourman.2003.09.004>

- Robertson, G. 2016. People, paper, data: Disaster planning for libraries. In *Robertson on library security and disaster planning*, edited by G. Robertson. London: Chandos Publishing. pp. 111–119.
- Shameenda, K.L. & Kanyengo, C.W. 2012. An audit of skills and qualifications in preservation and conservation techniques: The case of the University of Zambia libraries. *Journal of Archival Organisation*, 10 (2): 137–149. <https://doi.org/10.1080/15332748.2012.736769>
- Siriporananon, S. & Visuthismajarn, P. 2018. Key success factors of disaster management policy: A case study of the Asian cities climate change resilience network in Hat Yai city, Thailand. *Kasetsart Journal of Social Sciences*, 39 (2): 269–276. <https://doi.org/10.1016/j.kjss.2018.01.005>
- Skarzynski, J. & Nassimbeni, M. 2016. Evaluating the impact of the public library book collection: a case study of two public libraries in Cape Town. *South African Journal of Libraries and Information Science*, 82 (1):26–35. <https://doi.org/10.7553/82-1-1597>
- Usman, A. 2017. Integrated disaster risk management in Indian environment: Prediction, prevention and preparedness. In *2017 Institute of Electrical and Electronics Engineers Global Humanitarian Technology Conference (GHTC)*. San Jose: Institute of Electrical and Electronics Engineers. pp 1–6.
- Van Niekerk, D. 2014. A critical analysis of the South African Disaster Management Act and Policy Framework. *Disasters*, (4): 858–877. <https://doi.org/10.1111/disa.12081>
- Velasquez, D.L., Evans, N. & Kaeding, J. 2016. Risk management and disaster recovery in public libraries in South Australia: a pilot study. *Information Research: An International Electronic Journal*, 21(4):1 - 16.
- Wellington, J.J. & Ramesh, P. 2017. Role of Internet of things in disaster management. In *2017 International Conference on Innovations in Information, Embedded and Communication Systems (ICIIECS)* was organised by Institute of Electrical and Electronics Engineers. Tamilnadu: Institute of Electrical and Electronics Engineers. pp. 1–4.
- Yin, R. 2016. *Qualitative research from start to finish*. 2nd ed. New York: Guilford Press.