# AWARENESS AND IMPORTANCE OF DEVELOPING BUSINESS CONTINUITY PLANS FOR DISASTER RISKS BY COMPANIES AT BAYHEAD HARBOUR, DURBAN, SOUTH AFRICA

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# Declaration

I, Zukiswa Vallery Poto, declare that the master's degree dissertation that I herewith submit for the master's degree qualification *Master of Disaster Management* at the University of the Free State is my independent work and that I have not previously submitted it for a qualification at another institution of higher education.

I further declare that every source is acknowledged by in-text citing and acknowledged in a comprehensive list of references.

Date: …./…./2019

_____

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# Dedication

*This dissertation is dedicated to my parents,*
*Nzame Poto and Nobuntu Agnes Poto,*
*and my lovely daughter,*
*Babalwa Nontombi Lunathi Poto*

# Abstract

A business continuity plan (BCP) is significant for every company, big or small, and it is also vital for companies to handle their business continuity plan as a proactive instead of reactive measure. The study explored the awareness and importance of business continuity planning by companies in Bayhead Harbour, Durban, to understand participants' perception of a BCP and why so many companies do not have an existing BCP. The research aimed at assessing the perception of BCPs, to check the existence of BCPs, and for those companies with a BCP, to find out how often is the BCP rehearsed and is the plan tested to check the validity thereof.

The study adopted a mixed method approach, using a questionnaire as a tool. Out of one hundred and five existing companies in Bayhead Harbour, Durban, seventy-seven participated in this study. In order to explore the findings from the survey, a questionnaire was used with open-ended questions to allow for a more in-depth discussion of the key findings and possible explanations of the different patterns identified.

The results of the study showed that half of the companies in Bayhead Harbour did not have an existing BCP. The results further showed that 70.1% of the companies with a BCP, did not test or rehearse their BCP. These figures proved that companies in Bayhead Harbour dit not regard BCP as important.

On the basis of these findings, recommendations were made for companies to develop a BCP before a disaster strikes. The recommendations emphasised that companies should start handling BCP as a proactive measure and the BCP must be rehearsed regulary and tested to check the validity of the plan and to also update BCP constantly.

**Keywords**: business continuity plan; Bayhead Harbour; business continuity management, disasters, hazard assessment, key performance areas

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# List of Abbreviations and Acronyms

| | |
|---|---|
| AIG | American International Group |
| BBC | British Broadcasting Corporation |
| BCI | Business Continuity Institution |
| BCP | Business Continuity Plan |
| BIA | Business Impact Analysis |
| BS | Business Standard |
| BSI | British Standards Institution |
| FINRA | Financial Industry Regulatory Authority |
| ISO | International Organization for Standardization |
| IT | Information Technology |
| KPA | Key Performance Area |
| KZN | KwaZulu-Natal |
| NDMF | National Disaster Management Framework |
| OHSAS | Occupational Health and Safety Assessment |
| OIOS | The Office of Internal Oversight Services |
| SPSS | Statistical Package for Social Sciences |
| Stats SA | Statistics South Africa |
| UNDP | United Nations Development Plan |
| UNISDR | United Nations International Strategy for Disaster Reduction |

# Glossary of Terms and Concepts

- **Business continuity plan**

  A business continuity plan is a document consisting of crucial data of the company to continue functioning through an unexpected incident. It contains a strategy and procedures for an organisation to carry on throughout periods of crisis or calamity. A business continuity plan is further a pre-emptive blueprint that avoids and lessens disaster risk linked to an interruption of the business's functions (Capgemini Consulting, 2016).

  A business continuity plan is a central pillar of business continuity management. It contains documented measures and procedures to allow and enable a business to still continue with its essential business activities at a satisfactory predefined level (Posta & Wynes, 2016).The word 'business continuity plan' means a single document with a plan, but in practice, it normally comprises various strategies for the five phases of the business continuity progression which is to respond to emergencies, to manage the crisis, to continue with business functions, to recover as well as to resume business activities (Posta & Wynes, 2011).

- **Business continuity management**

  Business continuity management is defined by the ISO 22301 standard as a complete procedure that detects possible risks to the company and the influences on the business functions that those risks might cause. It gives a framework for developing the company's resilience with the competence for an operative reaction that defends the significance of important stakeholders, the reputation, brand and value-creating activities of the business (Griffith University, 2018).

  Business continuity management is further the advancement, application, and maintenance of policies, strategies, and programmes to support the continuity unit to handle a business interruption incident, as well as build company resilience. It refers to competence to support, to prevent, to prepare management to recover from the influences of a business disturbance incident (Queensland Government, 2009). The key objective of business continuity management is to make sure that the company can to respond to the main disturbances that intimidate its existence (Gneist et al., 2009).

- **Disaster recovery plan**

  As part of their disaster recovery plan, the business should have the capability to reinstate information technology applications that can still run the business when the data centre, servers, or other infrastructure become destroyed. Disaster recovery is a procedure that can be implemented after a disastrous occurrence (American International Group, 2016).

- **Disaster risks**

  Disaster risks refer to any probable harm, loss of life, or damaged or destroyed properties that might happen to a community or society over a certain period, determined on the probability thereof as a function of hazard, exposure, vulnerability, and capacity (United Nations Office for Disaster Risk Reduction, 2017).

- **Disaster risk assessment**

  Disaster risk assessment can discuss as a quantitative or qualitative method to reveal the extent and nature of disaster risk by examining probable hazards and assessing current conditions of exposure, as well as susceptibility that might endanger property, people, livelihoods, services and also their environment. Disaster risk assessments comprise the detection of hazards, an evaluation of the technical features of hazards such as their geographical spot, probability, frequency and severity; the analysis of vulnerability and exposure, including physical health, economic and environmental exposure, and the assessment of the efficiency of predominant and substitute coping capacities with respect to likely risk scenarios (United Nations Office for Disaster Risk Reduction, 2017).

- **Disaster management**

  The South African Disaster Management Act, Act 57 of 2002, defines disaster management as an incessant and incorporated multisectoral, multidisciplinary procedure of planning and implementing of procedures intended to prevent or reduce the disaster risk, to mitigate the intensity or outcomes of disasters, and emergency preparedness. It is a precipitous and operative response to disasters as well as post-disaster recovery and reconstruction.

- **Business impact analysis**

  Business impact analysis is a methodical procedure that determines and assesses the probable effects of disruption to essential business functions as a consequence of a calamity. A business impact analysis is an important element of an organization's business continuity plan; it comprises an exploratory element to uncover any susceptibilities. The outcomes of a business impact analysis report describe the potential risks specific to the organisation being analysed (Sliwa, 2019).

# Chapter 1

# General Introduction to Study

## 1.1 Introduction

Natural and human-induced disasters trigger a substantial number of mortality, morbidity and monetary damages to companies' operations such as activities, products, and services. In order to reduce losses from such disasters, it is important to prepare and implement operational business continuity plans (BCPs) that will assist companies to handle such critical conditions (Momani, 2010). Many companies usually depend on the accessibility and availability of data to operate their daily business functions to make sure that there is an economic benefit that guarantees returns on their investments. Therefore, any disruption that has negative impacts on the success and productivity of doing business destabilises the return rate of investments (Al-Zahrani, 2014).

A disaster is defined by the South African Disaster Management Act, Act 57 of 2002, as *"progressive or sudden widespread or localised natural or human-caused occurrences, which may lead to death, injury or diseases, damage to property, infrastructure or the environment*" (South Africa, 2002). The Act further describes a disaster as *"the significant disruption of the life of a community with a magnitude that exceeds the ability of those affected by disaster to cope with its effects using only their own resources*" (South Africa, 2002).

This definition suggests that a disaster does not only refer to classified natural disasters such as floods, tropical cyclones, volcanos, tsunamis, earthquakes and epidemics such as Ebola and HIV/Aids, but it also refers to any incidents that might negatively impact on daily operations of a community, including businesses. For instance, human error in data entry, or intentional acts such as the 9/11 disaster in September 2001 (Chow & Ha, 2009). Attributes such as technological catastrophes, unrests, human massacre and terrorism created huge disasters that over the past years, should be included and classified as disasters (Bankole & Sambo, 2016).

The term 'disaster' in business language refers to an incident that happens suddenly, and causes disruption to daily operations of the company or society and might lead to harm of a business's competitive situation, which might require an immediate response (Ferguson, 2017). Harris (2001) argued that, in South Africa, companies have the ability to establish a disaster recovery plan, but businesses seldom have any skills or full capability of developing

an implementable BCP. This study illustrates that in South Africa, there is a trending culture or pattern in both the public and private sectors of planning *after* a disaster, instead of planning *before* a disaster strikes (Harris, 2001).

Recently, more companies need to operate 24 hours per day and seven days per week to survive, which means that if the company gets struck by just a single disaster or disruption, it may drastically affect the company's financial gain and lead to financial loss. Many companies in South Africa, especially the small, medium, micro enterprises, do not have an existing BCP; it is currently only big companies such as Eskom and banks that take business continuity planning seriously, but even the latter do not put business continuity planning into full practice (Sector Education and Training Authority, 2015).

The earthquakes and tsunamis that struck Japan and the floods in Australia have demonstrated that information technology (IT) infrastructures are most vulnerable during disasters (Harris, 2001). These catastrophes illustrated that it is vital for companies to have an active BCP in place. Harris (2001) further stated that a few large South African companies, particularly the mining companies and banks, take business continuity planning seriously, and several other businesses regard business continuity planning as a waste of time and money.

Therefore, given the importance of business continuity planning to large and small companies, this study has investigated the awareness by companies regarding business continuity planning in Bayhead Harbour, Durban. Bayhead Harbour is located in an area with a concentration of different companies, operating in different industries with different business functions, This study also investigated the available knowledge or understanding of business continuity planning by company managers. This chapter gives a brief description of the study area, Bayhead Harbour in Durban. This chapter also discusses the research problem, research objectives, research questions, research design and research methodology applied in the study. This chapter also highlights the delimitations and limitations of the study.

## 1.2 Description of the study area

South Africa is located at the bottom of the African continent and is a country without a specific country name, hence it is called 'the Republic of South Africa'. South Africa has six neighbouring countries, namely Namibia, Botswana, Zimbabwe, Lesotho, Swaziland and Mozambique, and the country consists of nine provinces, namely KwaZulu-Natal (KZN), Eastern Cape, Free State, Gauteng, Mpumalanga, Limpopo, North West, Northern Cape and Western Cape (Figure 1.1).

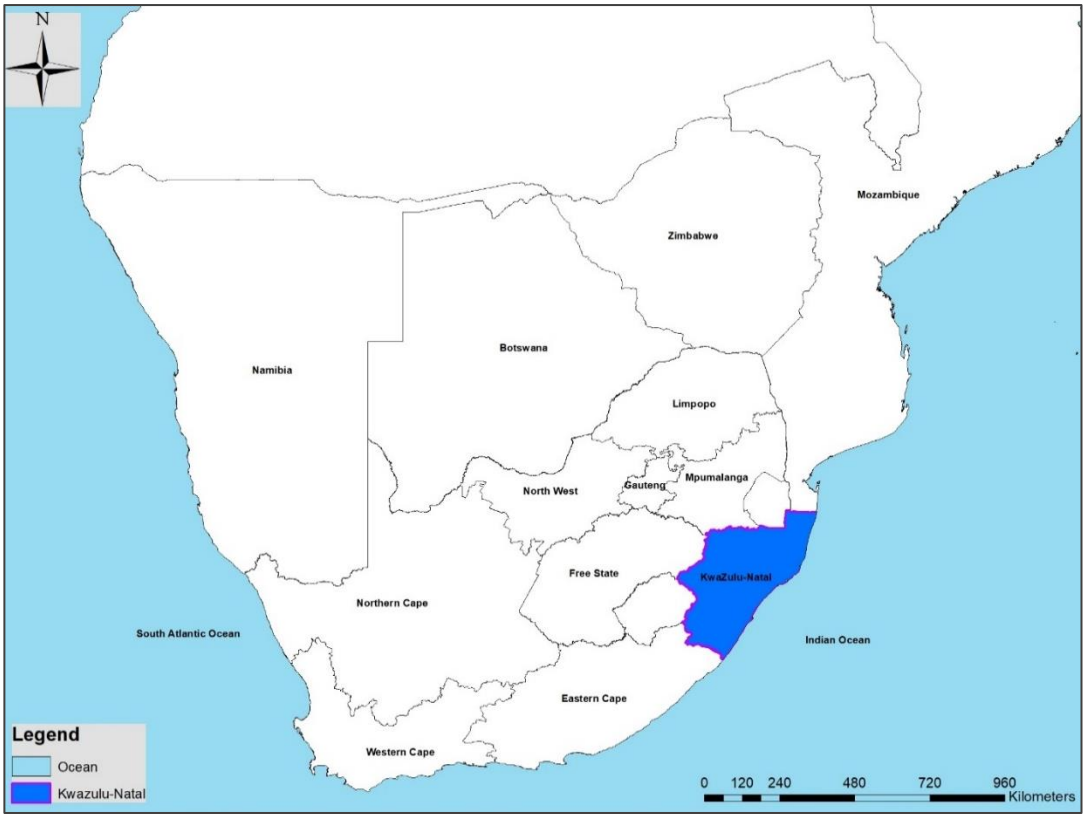


**Figure 1.1: Map of South Africa**
Source: Adopted from Google Maps (2018)

The KZN province popularly referred to as 'Garden Province', is one of the nine South African areas that was established in 1994 when the Zulu Bantustan of KwaZulu ('Place of the Zulu') and the Natal Province were merged. The KZN capital city is Pietermaritzburg and its main economic city is Durban.

KZN is rated as the second most populated province in South Africa, after the Gauteng province, with a population of 1.23 million people (Stats SA, 2018). KZN is made up of 10 districts, namely Amajuba, Harry Gwala, uMzinyathi, King Cetshwayo, uThukela, uMkhanyakude, uMgungundlovu, Zululand, iLembe and one metropolitan municipality, called eThekwini (Stats SA, 2011). KZN is mostly populated by Zulu and Indian people (Stats SA, 2011). Many tourists from different parts of the world visit KZN to learn most about the Zulu history, especially the Zulu people's king by the name of Ushaka Zulu, who is still described as the great warrior and as a king that served the Zulu nation with integrity (Department of Arts and Culture, 2016). The province's economies are sustained mostly by visits made by tourists, especially during summer season (Lishivha, 2019). The province has two harbours; the biggest harbour is the Durban harbour, then follows the harbour situated at Richards Bay where imports and exports of the country take place (Personal interview with EThekwini official, 2018).

The study was conducted in Durban which is famously known as eThekwini. Durban is located on the east coast straddling across an area of about 2 556 $km^2$, which is roughly 2.5% of the land area of the KZN province. Durban is the smallest city in terms of land area but it is the most populated area in KZN (Stats SA, 2018). Durban has a subtropical and moist climate, with very warm summers and enjoyable dry and warm winters, which are snow- and frost-free (South African Weather Service, 2018).

The study area Bayhead Harbour, is an area that is normally referred to as Durban Bay. The Bayhead area is located around the Durban Harbour and predominantly consists of industrial sites with approximately 105 companies operating in various business functions (Transnet, 2017). Bayhead is a natural heritage site consisting of a 20 ha reserve of mangroves forest and coastal grassland within the industrial Bayhead area. The dominant economic activity is exports and imports of goods and services, which use marine transports such as ship vessels as the source of transportation via shipping line companies such as MSC Mediterranean and Maersk. From there, land transportation is used to distribute commodities from different parts of the country to the harbour using trucks, trains and other forms of logistics (Transnet, 2017). Transnet is a parastatal company that is responsible for leasing the business site of the whole harbour and has the authority to lease out the harbour to many different private companies with various business functions. The lease contracts and agreements are handled by a special unit of Transnet, which is the Transnet Property unit (Transnet official, 2018).

The Bayhead Harbour, which is the study area, is illustrated in Figure 1.2. The red line demarcates the whole study area.


**Figure 1.2: Bayhead Harbour, Durban, showing the study area**
Source: Adapted from Google Maps (2018)

It follows that since Bayhead Harbour is mostly an industrial site, only a small number of people permanently reside in this area. Table 1.1 shows the Bayhead statistics according to the Stats SA 2011 population census.

**TABLE 1.1: BAYHEAD STATISTICS**

| **Permanent residence** | **Number** |
|---|---|
| Households | 118 |
| Residents | 366 |
| **Total** | **484** |
| **Gender** | **Number** |
| Males | 170 |
| Females | 195 |
| Unrecorded | 1 |
| **Total** | **366** |
| **Race** | **Number** |
| Black Africans | 262 |
| Coloureds | 5 |
| Indians | 7 |
| Whites | 86 |
| Other races | 8 |
| Unrecorded | 1 |
| **Total** | **369** |
| **Company types** | **Number** |
| Informal sector | 18 |
| Formal sector | 27 |
| Private | 23 |
| Transnet property | 89 |
| **Total** | **139** |
| **Employment status** | **Number** |
| Employed | 67 |
| Unemployed | 9 |
| Discouraged work-seekers | 2 |
| Other, not economically active | 170 |
| **Total** | **248** |

Source: Stats SA (2011)

## 1.3 Research problem

The Hyogo Framework 2005–2015 was established in 2005 for a period of ten years to reduce disaster risks (UNDDR, 2019b). The main emphasis of the Hyogo Framework was that disaster risks are gradually an international problem and many risks increase due to fluctuating demographics, socio-economic situations, and technological issues. The unintended urbanisation, development within high-risk areas, environmental degradation, lack of awareness campaigns, climate unpredictability, climate change extremes, competition for

scarce resources, geological hazards and severe impacts of epidemics such as HIV/Aids and Ebola, are all drivers of disasters (UNDDR, 2019).

After ten years, the Sendai Framework was established to replace the Hyogo Framework. The Sendai Framework is a fifteen-year, voluntary and non-obligatory agreement, which acknowledges that governments have the prime responsibility to lessen disaster risks. The framework also clearly stated that accountability must be collective, including local government, the private sector and other stakeholders (UNDDR, 2019b). The main purpose of the Sendai Framework is *"[t]he substantial reduction of disaster risk and losses in lives, livelihoods, and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries"* (UNDRR, 2019b:). This shows that disasters have the potential of increasing and endangering the world's economy and its population, as well as the sustainable development of countries.

It is evident that disaster risks can happen in everyday life; thus, it is very significant for all companies, big or small, to develop an active and precise BCP for disaster risks that are dominant in the area and disaster risks that companies are mostly exposed to. In current days, climate extremes lead to severe disasters that lead to serious loss of lives and property. Bayhead Harbour is an industrial location housing many companies with different operations and functions (Transnet, 2017). It is therefore important for companies in this area to establish a BCP before a disaster strikes to be prepared during the disaster event. For instance, flash floods in Durban South have edged the Transnet port authority to convert the former Durban International Airport to the railway marshalling yard sites at Bayhead basin, because for every heavy rainfall, the place would flood drastically. This was a big challenge for the airport because some operations had to stop until the crisis was sorted (Dyer, 2014).

Moreover, in March 2015, it was reported that a vegetable oil spill from a refinery company in the area caused a number of mangroves trees to die (Hanekom, 2015). Another incident in 2015 when the chemical explosion of one the gas factories took place in Bayhead and the factory burnt down; not all machinery were reparable so companies had to buy new machinery. There are still oil spills in the area that are hazardous to the environment. If the oil spills are not handled there will be possible fires in the area either caused by one mistake done by a smoker (South Durban Community Environmental Alliance, 2017).

Furthermore, in the past five years many disasters in the area were mainly due to traffic congestion of trucks on their way to deliver commodities from mines to the warehouses in Bayhead port and some to deliver containers to the Transnet port terminal entrance named 'Pier' (Transnet, 2017). In 2015, Ngcobo (2008) stated that trucks caused a lot of congestion, a full packaged shipping line container weighin g 2500 tons fell from one truck during the traffic

congestion, the driver lost control of the back trailor due to limited space he das to turn. The container cause more congestion and it was raining the water could not flow smooth and the area becoame flooded.

There is an estimated number of 105 companies with different economic functions in Bayhead Harbour and most of these companies are warehouses where the mining industry commodities are stored and packaged in shipping line containers (Transnet Property, 2018). Other companies are logistic companies such as shipping lines, aircraft, marine and road transportation. There are also gas and chemical industries, engineering, bed and breakfast facilities, restaurants, construction companies, oil manufacturers and agricultural processing companies, for example food processing (Transnet Official, 2018).

In 2016, the South Africa Weather Service announced that flooding that occurred in September 2016 was one of most severe floods after many years in Durban and many businesses closed down until the flood was cleared. This illustrates that Bayhead Harbour is surrounded by many potential disaster risks that might lead to severe disasters. Therefore, it is significant that companies develop a BCP to equip them in case of a disaster. Every BCP requires risk assessment to identify hazards that lead to disasters. If hazards are identified, companies will be aware of the potential disaster risks that could make the company vulnerable to the hazards and inform the companies about the probability, exposure, and severity of the hazards. Furthermore, conducting a risk assessment assists the companies to develop a BCP that will include relevant disaster risks in the plan. The BCP business impact analysis (BIA) uses the information on risk assessment and a BIA analysis enables the company to quantify the loss and allocate a budget for business continuity planning (South African Qualifications Authority, 2016).

Therefore, this study conducted an investigation to evaluate the level of awareness and the importance of developing BCPs by companies in Bayhead. The level of information and knowledge regarding business continuity planning by executive managers of companies was explored. Developing a BCP as a preparedness tool is important because it serves as a guideline in case of a disaster and enables companies to better prepare themselves prior to a disaster which minimises severe damages and losses of the company’s property, information, and lives of the employees caused by the disaster (British Standards Institution [BSI], 2019).

## 1.4 Research questions

A research question stipulates and plots the aim of the research and also directs the question to focus on data collection (Maree, 2007). Therefore, it is important for a research question to enable the researcher to apply the research question in practice. A good research question

must be open-minded, meaning it should not be prejudiced and it must allow any type of outcomes that develop from the research. A research question must be smart and simple. The following research questions were used as a guideline to formulate questions in the questionnaire (Maree, 2007).

- Are companies aware of the business continuity plan?
- Do the companies have any existing business continuity plan?
- Who is responsible for drafting the company's business continuity plan?
- What components of the business are captured in the business continuity plan?
- Where is the business continuity plan kept?
- Which hazards could severely affect companies at Bayhead Harbour?

## 1.5 Research aim and objectives

### 1.5.1 Main aim

The main aim of this study was to determine the level of awareness and the importance of developing a business continuity plan by companies at Bayhead Harbour in Durban.

### 1.5.2 Objectives

- To do an elementary hazard assessment in the Bayhead Harbour area.
- To assess the perception of companies regarding a business continuity plan.
- To highlight the importance of developing a business continuity plan for companies who have not yet developed such a plan.

## 1.6 Preliminary literature review

A literature review ordinarily sets out an outline of existing topics, and sometimes not current but still adequately relevant and appropriate to the research topic or prominent aspects of the topic (Maree, 2007). A literature review further enables the researcher to go proceed with classifying the difference between what has been written on the topic and what has not been written, as well as flaws in the literature (Maree, 2007).

According to Leedy and Ormrod (2013), a literature review has the following advantages:

- It can assist a researcher to determine whether other research has already been attended to and fulfilled the research problem the researcher is suggesting.
- It gives new perspectives, ideas and methods that may not have happened to the researcher.

- It informs a researcher about other individuals who conducted work in the same study location as that of the research.
- It illustrates to a researcher how others have managed procedural and project issues of related research (Leedy & Ormrod, 2013).
- A literature review reveals sources of data that a researcher may not have known existed and also presents measurement tools that other researchers have established and utilised efficiently.
- A literature reveals approaches of dealing with difficulties regarding a similar research problem as that of the study and can assist a researcher to explain and make sense of findings and, eventually, a researcher will be able to tie outcomes to the work of those who have proceeded before.
- A literature review can also be a bolster of self-assurance that the research topic has value to be studied because the researcher might find that others have devoted considerable time, resources, and efforts in studying the same topic (Leedy & Ormrod, 2013).

Many sources that were selected as part of the literature review for this study were related to the BCPs for companies. BCPs in this research were used to narrate the importance of developing a BCP before a disastrous event, thus emphasising the proactive approach rather than the reactive approach of business continuity planning.

### 1.6.1 The concept of a business continuity plan

Business continuity planning is a procedure utilised to establish an implementable plan for how organisations recover or moderately reinstate essential business activities within a determined time frame after an emergency or catastrophe (Queensland Government, 2014). Tammineedi (2010) stated that a BCP is a document that is planned to function as the centralised source for the business continuity data, responsibilities, roles, tasks, and processes that enable timely response to a disaster that can significant affect business processes. The business manager should own the collection of a BCP.

Business continuity planning is a well-developed key plan in an establishment's risk management procedure. Business continuity planning tallies within the planned resilience element as an established procedure envisioned to enable organisations to handle the impacts of disasters (Hatton et al., 2016). Furthermore, Low et al. (2010) described business continuity planning as the detection and safeguarding of significant organisational processes and reserves needed to sustain an acceptable level of business, safeguarding such resources and

preparing procedures to ensure the endurance of the organisation in times of business interruptions.

### 1.6.2 Benefits of a business continuity plan

The aim of business continuity planning is to reduce operational risks of natural or man-made disasters. Sambo and Bankole (2016) stated that there are three key elements of generating an operative BCP, namely people, substructures, and processes. However, the most significant goals of business continuity planning are making the delivery for continuing business procedures in the case of a disaster while the recovery process is taking place (Bankole & Sambo, 2016). Having a BCP, builds a customer's trust and confidence in the capability of the company to continue with business functions during a disaster and it can be a different competitive benefit.

Sambo and Bankole (2016) argued that business continuity planning is the procedure of examining a company's essential operations, discovering the potential disaster consequences and establish processes that will tackle these concerns. Nickolette and Schmidt (cited by Sambo & Bankole, 2016) emphasised that each organisation is exclusive and as such will have an exclusive BCP, regardless of likenesses within industries and will differ from organisation to organisation.

### 1.6.3 Challenges of a business continuity plan

The difficulties in developing a BCP, according to Chervone (2006), is decision-making. For instance, a power failure might seem as having an absolute effect to the company, but in practice, such collapses may not seem huge due to the nature of power failures that do not last for long. To reiterate this, in the retail industry they may be encountering a power failure at its head office, but this might not affect the day-to-day operations of other branches located throughout the country. Thus, decisions taken during business continuity planning may address a crisis that deviates normal situations when power outages last for a long time or have a least adequate time for recovery (Al-Zahrani, 2014). BCP challenges are a lack of support from top management. Many companies view a BCP as a waste of money, as for a business continuity manager there can be budget restraints. It is difficult to maintain the preparedness culture in the company, especially if management do not see business continuity planning as important. Lack of training and business continuity awareness is a challenge in many companies (Cerullo & Cerullo, 2004). Many companies do not comply with the international ISO 22301 standards which serve as law enforcement of BCPs.

### 1.6.4 Awareness and development of a business continuity plan

Awareness is described as the perception or knowledge of a situation and a concern about the interest in a particular development situation (Webster, 2019). Awareness can further be defined as an understanding of activities of others, which provide a perspective for own activities, and awareness have an impact on the individual's methods of operation as it prompts reflection. Awareness in the case of business continuity planning is more on education and training, especially on awareness campaigns and early warning systems, while development is defined as a procedure that establishes growth, positive change, or the addition of physical, economic, environmental, social, and demographic components (Brobbey, 2010). Development is further described as the logical use of scientific as well as procedural knowledge to meet specific objectives or requirements and as an addition to the theoretical or practical aspects of a design concept, discovery, or invention (Ferguson, 2017). Development is the procedure of economic and social transformation that is constructed for complicated cultural and environmental factors and their relations (Brobbey, 2010). Therefore, business continuity planning is not a solitary strategy but it is a set of specific team strategies recording the backup and continuity plans decided upon by the executive managers, centred on the organisation's needs gathered via BIA or another methodologies (Lucey, 2004).

### 1.6.5 Disaster risks

According to the United Nations International Strategy for Disaster Reduction (UNISDR, 2009), disaster risks are events which have the possibility to cause loss of life and injuries, which could occur to a system, a community, or a society in a certain period, determined populistically as a function of hazards, susceptibility exposure as well as coping capacity. Webber and Wallace (2004) argued that a disaster is an incident that interrupts a critical business function and the potential of a disaster is called a risk. However, the risk is defined to calculate the likelihood of a hazard and how badly it will hurt.

To add, disaster risk reproduces the conception of risky incidents and disasters as a result of the endless causing conditions of risks. Disaster risk includes altered sorts of probable losses, which are not easy to compute. Nonetheless, with information of the dominant hazards and the outlines of population and socio-economic increases, disaster risks can be measured and diagrammed. It is therefore significant to ruminate the social and economic context in which disaster risks happen and that people do not necessarily share the same perception of risk and their causal risk factors (Skinner & Rampersad, 2014).

## 1.7 Significance of the study

Many surveys have been conducted at Bayhead Harbour such as the research on the Bayhead Harbour expansion by Dyer (2014), the research done by Patrick Bond (2015) on "Durban's port-petrochemical complex as a site of economic and environmental violence" in Bayhead, and the study on communication malfunction by Skinner and Rampersad (2014). A study on estuarine ecology impact assessment was also conducted at Bayhead Harbour (Laird & Clark, 2014).

This research is unique because it will be the first study that addresses business continuity planning for companies in Bayhead Harbour. The study is important for this area because the Durban harbour forms an essential part of the South African economy (Transnet, 2017). It is in the interest of the researcher to seek solutions and this survey is to bring awareness on the importance of developing a BCP for disaster risks as well as to outline basic elements of developing a BCP. This study is further important because it will be the first research in the area that concentrates on the awareness and development of BCPs for companies in Bayhead Harbour. Bayhead contributes to the country's economy and many tourists locally and internationally visit the area. Bayhead is famously known for its natural heritage site and mangroves as well as birds and many more species (South Durban Community Environmental Alliance, 2016). Therefore, it is vital for companies to have a BCP to enable them to have an alternative option to continue with its business functions in times of disasters. Business continuity planning assists companies to always be prepared and to plan for any unexpected event and have the capacity to recover within a short time in order to operate.

The companies in Bayhead Harbour and Transnet will benefit from the research because many companies will be aware of BCPs and will see the necessity to develop a BCP and, by so doing, it will enable the business to be well-prepared for any form of catastrophic events. This will eliminate enormous daily capital loss, some equipment and document losses, and even save lives.

## 1.8 Methodology

### 1.8.1 Research design

This survey is of a mixed method nature. A mixed method refers to using both a qualitative and quantitative approach to collect data (Maree, 2007). Furthermore, mixed methods require a researcher to have abilities such as detecting focused as well as helpful research questions, and to also formulate and tactically test assumptions, selecting one or more samples that allow suitable implications about a big population by managing the muddled variables, developing

as well as utilising quantities of tools that have validity and reliability for their purpose. It is further used in performing structured, semi-structured and open-ended interviews, analysing qualitative data, sketching and convincingly disagreeing for the reasonable conclusion from qualitative data, and computing and sketching interpretations from descriptive and inferential statistics (Maree, 2007).

The research design used was the exploratory design, which normally includes two phases (Hofstee, 2006). In Chapter 5, Phase 1 of the research findings presents quantitative data and Phase 2 qualitative data from the open-ended questions asked in the questionnaire.

#### 1.8.1.1 Benefits of using a mixed method approach

- **Completeness**: This allows a researcher to completely tackle a research problem as well as sub-problems by gathering, examining, and decoding both qualitative and quantitative data (Maree, 2007).
- **Complementary**: Quantitative features of the survey can recompense for weaknesses in a qualitative study and vice versa; for instance, the outcomes of unstructured interviews with a small number of individuals (which may raise apprehensions about generalisability) can be simulated by managing a questionnaire to a large and illustrative sample (Maree, 2007).
- **Hypothesis generation and testing**: Qualitative data offer insights that assist a researcher to form assumptions about the effect and cause of the relationship hypotheses that the researcher can successively examine through a measured, quantitative method (Leedy & Ormrod, 2013).
- **Development of appropriate research tools and strategies**: One kind of data notifies and directs the succeeding collection of another type of information, for instance, unstructured interviews can give the structure of suitable questions for a survey (Maree, 2007).
- **Triangulation**: The researcher has the ability to create a persuasive case for a certain conclusion for both qualitative and quantitative data indications to those conclusions (Leedy & Ormrod, 2013).
- **Resolution of puzzling findings**: In a quantitative study, many findings seem to be unpredictable or clashing. Qualitative data might uncover causal shades and meanings which can help the researcher make sense of the numbers (Maree, 2007).

### 1.8.2 Population and sampling

The targeted population for this study were executive managers or directors of companies because they are more involved in the daily functions and have the responsibility of drafting the organisation's strategic plans. Executive management of the company drafts BCPs and it is a standard principle of business continuity planning that the plan must be the responsibility of the executive management (Tammineedi, 2010).

There are about 105 companies in the study area. Questionnaires were sent out to these 105 companies of which only 77 companies participated in this research. Sampling is normally impossible to comprise the whole populace in the research; the two key restrictions being time and cost. It is essential for the sample to be sketched in such a way that it would be acceptable to simplify its results to the population (Maree, 2007). Sampling theory has been created to propose ways of structuring 'scientific' samples. These samples are random illustrations of the population and the findings explain more about the population in general.

There are two main categories of sampling which are probability sampling and non-probability sampling. The differences between probability sampling and non-probability sampling are as follows:

- The origin of probability sampling is randomisation, while in non-probability sampling the randomisation method is not applicable for choosing a sample (Maree, 2007).
- In probability sampling, the sampler selects the demonstrative to be part of the sample randomly, whereas, in non-probability sampling, the subject is selected subjectively, to suit the sample by the researcher (Maree, 2007).
- The probabilities of collection in probability sampling are fixed as well as known. As opposite to non-probability sampling, the assortment probability is zero; either it is specified or not known (Hofstee, 2006).
- Probability sampling is utilised when the survey is decisive in nature. Whereas, when the research is exploratory, non-probability sampling should be used (Hofstee, 2006).
- The outcomes made by probability sampling are free from bias, while the results of non-probability sampling are more or less biased (Hofstee, 2006).
- The researcher using probability sampling selects the subjects randomly, so the point to which it signifies the entire population is higher as paralleled to the non-probability sampling. This is the reason why extrapolation of outcomes to the whole population is probable in the probability sampling but not in non-probability sampling (Maree, 2007).

Therefore, this research used probability sampling methods by selecting a simple random sampling method. The reason for selecting this method was because simple random sampling assists the researcher to have a comprehensive and up-to-date frame available. On this list, each population element was numbered sequentially in such a way that each element could be uniquely identified. Another reason for choosing this method was to avoid biases. The data were collected randomly so that the data could present different companies.

### 1.8.3 Data collection tools

Various methods can be utilised to gather information from the sample of participants. Every approach has disadvantages and advantages whereby some approaches are better in some circumstances than others.

The data collection tools used in the research was the questionnaire. Telephone calls were made to the executive managers or directors before a questionnaire was sent by email. Telephone communication avoided the requirement of traveling to the participants and was carried out more quickly than face-to-face communication. However, the setback was that the researcher could not make use of graphical assistances to clarify questions, and there were no visual clues. For interviewing very busy people, the researcher pre-arranges an appropriate time for the call because contemporary telecommunications technology is making it more and more difficult to talk with an actual person on the phone (Williman, 2011).

A questionnaire was emailed to the 105 participants after the telephone conversation and 77 participants completed the questionnaire and returned it to the researcher, which constituted more than 73% of the target population. Only one questionnaire was sent per company. Twenty-eight participants did not return their questionnaires. Although the target was to sample all 105 companies in the study area, a response rate of more than 73% was considered to be representative of the target population, especially given that the responses were randomly received.

### 1.8.4 Data analysis

To analyse the data, the Statistical Package for Social Sciences (SPSS) software was used and the main reasons for using this statistical software is because of the reasons stated below as advanced by Leedy and Ormrod (2015).

- **Increased user-friendliness**: The SPSS program is rational and easier to follow and the results are presented in an easy to read table format.

- **Range of available statistics**: Numerous of these programs consist of extensive diversity of statistical processes and have the ability to simply handle sizable data sets, multiple variables; also missing data points (Leedy & Ormrod, 2015).
- **Assumption testing**: A usual feature of statistical software packages is to test features that might disrupt the assumption on which parametric statistical procedure is based.
- **Speed of completion**: The main advantage of using the SPSS is the speed with which it achieves duties.
- **Graphics**: Various statistical programs enable the researcher to summarise and show data in tables, pie charts, bar graphs and other graphics (Leedy & Ormrod, 2015).

### 1.8.5 Data reliability and validity

When overall concepts need to be determined, researchers normally choose to use standardised measuring instruments. A standardised measuring instrument entails prudently chosen items that are normally measured on some ordinal scale, such as a five-point Likert scale, that infolds the essential facets of the concept that need to be assessed. For such a measuring tool to be standardised, it must be reliable and valid (Maree, 2007).

- **Reliability** is an instrument utilised at various times or managed to different subjects from the same population, with the findings being the same. In other words, reliability is the extent to which a measuring instrument is repeatable and consistent (Hofstee, 2006). Therefore, this research used internal reliability because this method is articulated to assess a particular construct, whereby there a was a high degree of similarity among the questionnaires since they are understood to assess one common construct (Hofstee, 2006).
- **Validity**: The validity of an instrument refers to the extent to which it measures what it is supposed to measure. Therefore, the researcher used construct validity because this type of validity is needed for standardisation and has to do with how well the constructs covered by the instrument are measured by different groups of related items, for example a standard questionnaire (Hofstee, 2006). Therefore, it is important for an instrument to be examined first and shown to be present before it can be said to be a standardised instrument such as questionnaires, inputs from the supervisor on data collection and consulting a research expert.

## 1.9 Limitations and delimitations of the study

### 1.9.1 Limitations

Due to financial constraint, the data were collected using an email questionnaire and the questionnaire was explained to each participant via telephone to explain the details that the questionnaire entails. After the telephone communication with the participants, the researcher emailed the questionnaire to them so that they could complete the questionnaire. The limitation of sending questionnaires via an email deprived the researcher of having face-to-face contact with participants.

The research area is one of the busiest harbours in Southern Africa, therefore managers are always busy with meetings. This led to a delay because many of them did not take their time to complete the questionnaire and perhaps many executive managers might have asked their personal assistants or receptionist to fill in the questionnaire.

To mitigate all these limitations, the researcher approached the executive managers with respect and humbleness and explained to the executive managers the importance of their participation in the research. The researcher also explained that the research was entirely for academic purposes and their participation was anonymous. All these measures enabled the researcher to get a 73% return rate for the questionnaire.

### 1.9.2 Delimitations

The delimitations of the study are that there was no risk assessment conducted for the companies, there were no awareness campaigns held and there was also no development of an actual or existing and drafted BCP. These are all important but were not included in the study because of time and resources. The target was to sample all the estimated 105 companies, so even with the 77 that completed the questionnaire, the conclusions can only be suggestive and not definite.

## 1.10 Ethical considerations

According to Williman (2011), working with human respondents in research continuously increases ethical issues about how a researcher treats them. Therefore, it is essential to treat people with respect, which refers to how the researcher deals with them before, during and after the research.

In this research, the language used was English because English is a universal language, which made it easier for the researcher to communicate with participants. There was no

language barrier because the targeted population was executive managers of the companies, and they were able to communicate fluently in English because executive managers have the ability to speak, write and read English.

Ethical clearance was applied for at the University of the Free State Ethics Committee before gathering information from the research participants. The researcher ensured that throughout the whole research the participant's identification would be kept anonymous and that all the information obtained would remain confidential. The participation was voluntary and the researcher made sure that there were no biases or being emotional when gathering and reporting data.

The researcher took no bribery to omit information that was of importance to the study. The researcher did not force respondents to participate without their willingness. The researcher did not disturb the daily business operations of the companies; if the researcher called and participants were busy, the researcher arranged to call another day.

The research was conducted in utmost honesty, which provided a level of trust and integrity in the outcomes of the research. The work presented the researcher's own work and the researcher acknowledged all sources used in the study to abide by the university's plagiarism rules.

## 1.11 Chapter summary

This chapter provided an outline of the scientific method that was utilised in the study. The chapter concentrated on the rationale of the research and provided a short overview of the study area by first introducing the KZN province, also by briefly discussing eThekwini 'Durban' and Bayhead Harbour, which is the main study area in this research. The chapter provided a summary of the research problem. Furthermore, the objectives of the study and research questions that guided the data collection and research design of the survey were discussed. The research methodology was discussed to give the procedure of how the data were collected.

In the next chapter, the theoretical frameworks related to business continuity planning will be discussed. The chapter will also illustrate the integration of business continuity planning and the disaster management continuum pre-disaster phase (preparedness).

Chapter 2

# Theoretical and Legislative Frameworks Related to Business Continuity Plans

## 2.1 Introduction

The integrated disciplinary nature of this research has made it in a way that there is no specific model of BCP that exist, which could completely summarise the idea of this study. Different theoretical models of BCPs are therefore selected to explain the conceptual background of business continuity planning. Different aspects from the BCP models are then extracted and integrated with a disaster management continuum pre-disaster phase (preparedness) to better explain the nature of this research. Theoretical frameworks discussed in the study are related to disaster management by specifically concentrating on the pre-disaster phase (preparedness) of the disaster management circle to explain the importance of establishing a BCP before a catastrophe strikes.

The most relevant feature of the continuum is preparedness because when companies are well-prepared before a disaster hits, it minimises the effects of the disaster on the company. Different aspects from various business continuity planning models are extracted and linked to the disaster management continuum pre-disaster phase. The integration of the two models is to give guidance and build a puzzle that provides a clear picture of the objective of this study which is to show the importance of developing a BCP for disaster risks before a disaster strikes.

Grant and Osanloo (2014) defined the theoretical framework as a prevailing theory or theories in the literature that has already been verified and authenticated by others and is contemplated a usually accepted theory in scholarly literature. While a conceptual framework is described, as the researcher's understanding of how the research problem will best be studied, the certain direction the study will have to take, and the relationship between the altered variables in the study. Therefore, it can be confirmed that business continuity planning is a tested and validated theory verified by other scholars. However, the theoretical framework will be addressed through four conceptual models to confirm the business continuity planning theory. The pre-phase disaster management continuum process is discussed, after an integrated model of business continuity planning and disaster management continuum to better explain the aim of the study.

## 2.2 Disaster related frameworks

### 2.2.1 The South African National Disaster Management Framework

The National Disaster Management Framework (South Africa, 2005; hereafter referred to as NDMF, 2005) is a guideline or an implementation procedure of the South African Disaster Management Act, Act 57 of 2002. This framework is essential for this research because it emphasises the importance of planning before a disaster strikes. The NDMF (2005) consists of four key performance areas (KPAs) which are backed up by three enablers of NDMF. These KPAs are used to establish disaster management strategic plans in South Africa for risks such as fires, chemical explosions, pollutions, floods and storm surges which are common in KZN and have an impact on the province's environment.

The NDMF (2005) have effective indicators beneath each KPA that are utilised to give guidance to planning instruments or used as a standard operating procedure for disaster management in South Africa (Belle, 2017). The last main performance area, which is response and recovery, also relates to the BCP. This KPA is also important and is essential in developing business continuity planning but is not included as a core part of this research.

### 2.2.2 Components of a disaster management plan

Figure 2.1 is an explanation of the disaster management plan structure using the four KPAs of the NDMF and also shows how a disaster management plan interrelates with business continuity planning.

#### 2.2.2.1 KPA1: Integrated institutional capacity for disaster risk management

Integrated institutional capacity expresses the administration of disasters to overcome the aftermaths of the disaster occurrence (NDMF, 2005). The institutional capacity is connected to a disaster management strategy and plan, together with the needed infrastructure and skilful personnel to implement such strategies. Therefore, integrated capacity requires internal and external skills to draft a BCP (Ferguson, 2017).

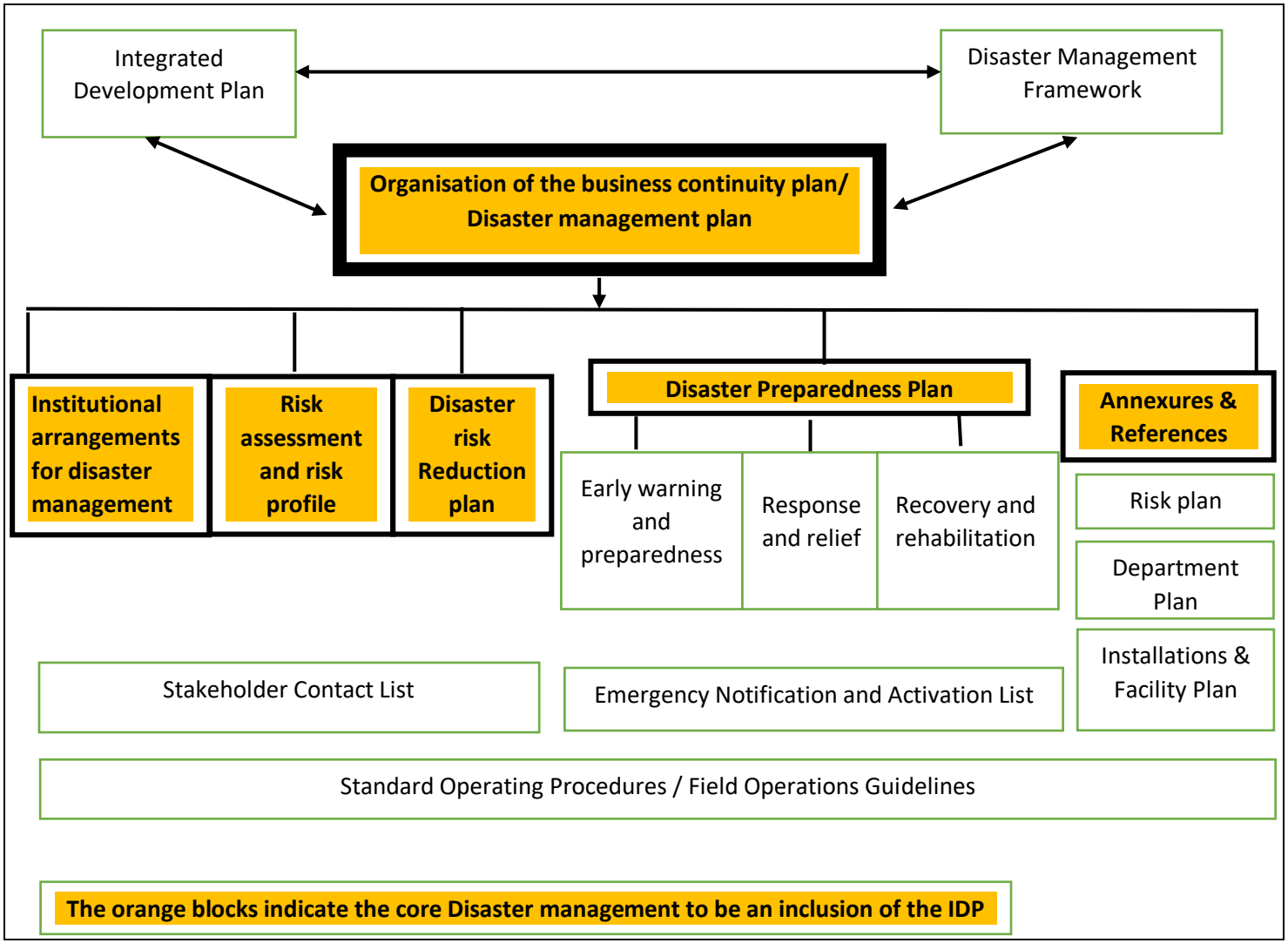


**Figure 2.1: Components of a disaster management plan**
Source: Adapted from Western Cape Provincial Disaster Management Centre (2012:7)

#### 2.2.2.2 KPA2: Disaster risk assessment

A disaster is associated with two risk assessments, which is the proactive evaluation of possible disastrous risks, and a post-disaster impact assessment (NDMF, 2005). The pre-emptive assessment is a proactive layout to give direction for mitigation and preparedness strategies and for the preoccupation of the hazard. This KPA is vital and needs to be conducted before a BCP is drafted because risk assessment gives guidance to the possible ways the organisation can lessen, prepare, and react better to a disaster (Ferguson, 2017).

#### 2.2.2.3 KPA3: Disaster risk reduction

Disaster risk reduction requires an analysis of the pre-emptive disaster risk assessment and is dependent on strategies to make sure that the organisation and business can survive a disaster or a disastrous incident or event (NDMF, 2005). The assessment in KPA2, if done properly, will ensure a very informed foundation for the disaster risk reduction strategy (Ferguson, 2017).

#### 2.2.2.4 KPA4: Response and recovery

The success of a disaster recovery plan lies in the participation and ability of the organisation to exercise or implement a plan in the event of a disaster, which forms part of one of the components of a BCP, which is rehearsal. If a BCP is rehearsed regularly an organisation will better respond and recover from a disaster (NDMF, 2005). The organisation's response to a disaster is indicative of its business continuity and disaster management plans. Unless the incident is managed properly according to the plan, one can expect recovery to be slow and or even stop; hence, the study emphasises that companies need to be strong on the pre-disaster phase of the disaster management continuum to enable the organisation to draft a precise BCP before a disaster strikes (Ferguson, 2017).

### 2.2.3 Disaster preparedness plan

Disaster preparedness normally begins with a vulnerability assessment. The plan is to identify a specific geographical area or societies that are probably under threat from a hazard. The data collected from identifying hazards enable the strategic management teams to develop better and precise strategic plans such as a BCP (Castillo, 2005).

The preparedness core function is planning which is referred to as the theme of the entire disaster preparedness practice. The main purpose of planning is to have agreed-upon, implementable strategies in place for which commitments and supplies are comparatively assured. Also, the institutional framework which involves an organised disaster preparedness

and response system is a crucial condition of any disaster preparedness plan. Every plan depends on the traditions and governmental structures of the country or company under examination (United Nations Development Plan [UNDP], 2008).

**Early warning systems** such as telephones, computers, warning signs and sirens should be in place. It is important for planners to take into consideration the public perception of cautions, education correlated to responding to warnings, and local circumstances, stances, and encounters. The most suitable means of collecting and distributing early warning information must be assessed carefully and be precisely detailed in the disaster preparedness plan (UNDP, 2008).

It is essential that the people for whom they are issued understand early warning messages. For instance, a company that has many departments or units must make sure that all employees understand the emergency signs and sirens so that they can be able to respond or act responsibly and not pose to their own endangerment out of panic of the disastrous event. The UNDP support to preparedness and early warning is directly associated with Priority 4 of the Sendai Framework on Disaster Risk Reduction on improving disaster preparedness for operative response in order to bounce back better in recovery, rehabilitation, and reconstruction. To add, the UNDP has 96 effective early warning and preparedness projects (UNDP, 2008).

**Response and relief** should be pondered on, depending upon the nature of the hazard. When an operative disaster preparedness plan is in place, the response mechanism must be acquainted to probable recipients or to those with the duties of applying such processes. The classifications of response for a diversity of risks include evacuations, searches, and rescues, securities of affected locations, evaluation teams, stimulating special connections such as emergency hospital facilities, activating distribution systems, preparing emergency reception gallops and shelters, and triggering emergency programmes for land transport and harbours (UNDP, 2008).

According to the UNDP (2008), relief can also be referred to as resource base for a disaster preparedness plan. Resources that are required are normally disaster relief funds and insurance for those resources that cannot be stockpiled or reserved. Disaster preparedness funding is used to practice the actions of the development procedures. The process includes special studies, public awareness, and training, a mechanism for aid coordination to make sure a coordinated, beneficial, and opportune response from the international community if and when its help is needed, and with stockpiling considering the types and amounts of materials needed, whether they can be stockpiled and where (UNDP, 2008).

**Public and training** is a vital section of a disaster preparedness plan to train those endangered in a disaster. Education forms include public education in schools, special training courses, extension programmes, and public information. For this study, it means education for personnel in companies, including the owners as well as stakeholders. Training of those who will apply a portion of the disaster preparedness plan is crucial. Those accountable for distributing warnings should be trained and those who will have direct relief functions. Training cannot be a one-time event. It is critical to perform regular evacuation drills (UNDP, 1997).

It is vital to rehearse the preparedness plan because the rehearsal reemphasises the fact made in distinct training programmes and tests the entire structure. Rehearsals consistently uncover the loopholes that may be disregarded. Rehearsals must be an accomplished system taken seriously. Rehearsal is also the only way to keep plans updated, exclusively during extended periods without experiencing a disaster (UNDP, 2008).

## 2.3 Business continuity plan framework

Business continuity planning originates from disaster recovery planning, which began in organisations in the 1950s and 1960s. The word ‘disaster’ comes from the Latin for word ‘bad star’ (dis+Astro). Disasters were formerly seen as punishment from malicious astrophysical influence. The main objective of ‘disaster recovery’ is to react to catastrophic incidents regularly through the planning of emergency strategies, not to seek to avoid them (Garrett, 2012).

Over the years, disaster recovery has proceeded into business continuity planning and then on to business continuity management. The business continuity planning method was wider than that of disaster recovery planning and was observed to arrange for events that could interrupt all business functions of the company (Herbane, 2010).

Business continuity planning assisted to detect and comprehend complicated reasons of business interruption and it was prominent that companies obtain competitive benefit as an outcome of holding business continuity planning as a fundamental process of the business. The evolution from disaster recovery to business continuity planning was explained by Herbane et al. (1997) as being part of a continuum that permitted companies to judge their own position. This continuum is illustrated in Figure 2.2.

The purpose of business continuity planning is to ensure the safety of people first, to reduce the financial losses to the company, and resume member service with only slight disruption and lessen negative consequences of interruption on functions. This refers to resolutions that contain termination, resilience, fail over, practical documentation, and guidebook alternative

processes and prioritise the application of solutions (Federal Financial Institutions Examination Council, 2012).

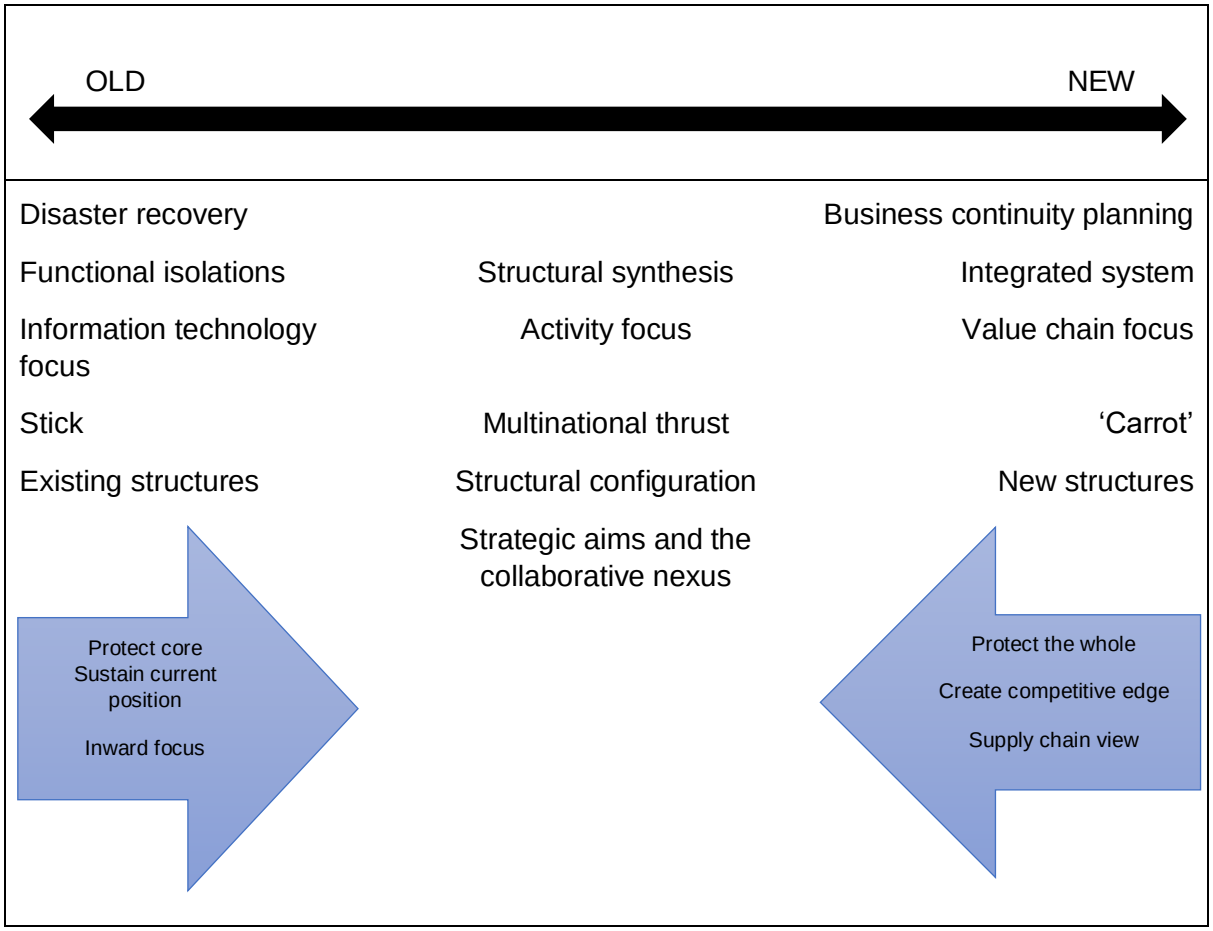


**Figure 2.2:** **Disaster recovery and business continuity approaches compared**
Source: Adapted from Herbane et al. (1997)

Business continuity planning did not have a specific framework in the past years. It was only in 2011 when the United Nations Children's Fund (UNICEF) sent a proposal for business continuity of twelve United Nations organisations to be reviewed. The Joint Inspection Unit in the United Nations (Office of Internal Oversight Services [OIOS], 2011) guided the review of business continuity. The review was prompted by the 8.8 magnitude earthquake that happened in Chile in February 2010 and a disaster that took place in Cairo, in the Egyptian 'Arab Spring' where the mobile phone communication was destroyed from 28 to 29 January and internet communication was cut off from 28 January to 2 February 2011. Personnel of the organisation were not able to go to their offices because of the restriction and the security situation that happened in the area (OIOS, 2011).

Another matter that triggered the review to take place was the severe flood of 14-15 August 2011 that was more serious than the previous two years which corresponded to more than one month's rainfall that fell in two hours. This instigated a serious leakage on the roof of the

United Nations offices, that caused flooding of two floors. The magnitude of the flooding was bad to the extent that the disaster management company evaluated that it would take two years to resume work in the offices (OIOS, 2011).

The heavy rains also caused constant sewage floods and it had an impact the United Nations Europe office located in a different building. To decrease the effect of interruptions, in current years, several United Nations institutions have begun to develop BCPs for their head offices, including country offices. These plans were intended to ensure that United Nations funds, programmes, specialised agencies, and the International Atomic Energy Agency would be able to operate and fulfil their own mandates in all situations (OIOS, 2011).

The purpose was to review the reality of business continuity policies and strategies and plans within the United Nations system organisations, classifying unities, to examine the encounters and best exercises of their applications. The assessment checked the cooperation as well as the coordination systems among the United Nations organisations in the field of emergency preparedness and business continuity, and lastly the operative and staffing of specialised preparedness and business continuity units for emergency management, including their employment funding frameworks and finance processes for their operation (OIOS, 2011).

### 2.3.1 Business continuity model of the British Broadcasting Corporation

The BCP model of the British Broadcasting Corporation (BBC) emphasised in ensuring that the audience receives programmes and services as intended during the occurrence of a disaster. The model stipulates that the chief operating officer has the responsibility for business continuity planning. The business continuity unit reports to the chief operating officer who is accountable for making sure that the right framework is in place across the supply chain to ensure the safety of staff and others at the BBC, maintaining output as ascertained by the output services prioritisation matrix and uphold business as determined by the local priorities. The BBC model of BCP is aligned with the principles of BS 25999, which is the British Standard for Business Continuity. BS 25999 requires that before a BCP is drafted a board committee must have a meeting and have an agreement to execute the plan. The director would have overall responsibilities for business continuity, and the BBC model requires overall responsibilities by the chief operating officer (BBC, 2008).

Figure 2.3 shows the business continuity model of the BBC.

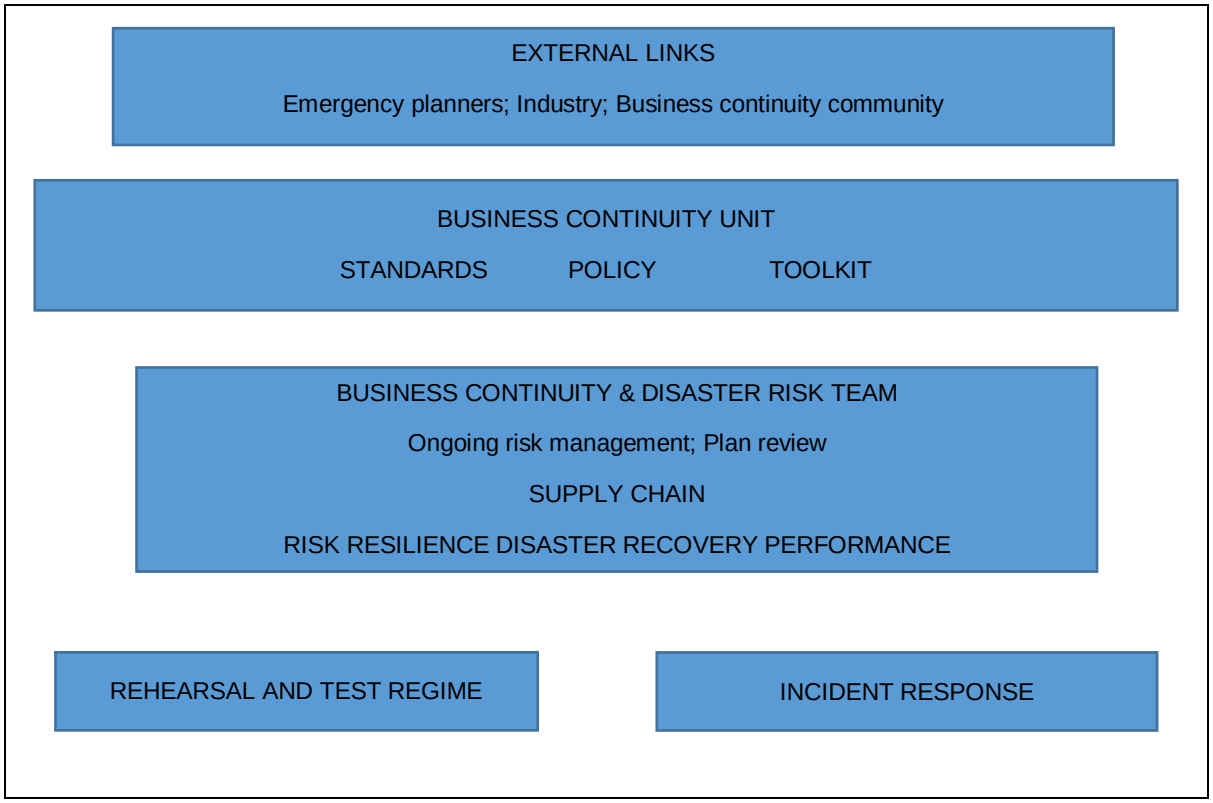


**Figure 2.3:** **BBC business continuity model**
Source: BBC (2008)

### 2.3.2 Major activities of business continuity plan model

Business continuity is the overall programme to make sure that crucial business functions are accessible and obtainable to consumers, merchants, regulators and other entities that should have access to business activities (BBC, 2008). Disaster recovery is the process of responding to a natural or human-caused disaster and returning to business functions. Disaster recovery is usually handled by IT workforce and concentrations primarily on systems, information or network data. Work area recovery is the procedure of giving alternative workspace to conduct business activities during the occurrence of a disaster. This strategy is the general authority of the facility management organisation.

Data backup is an everyday procedure planned and applied by IT employees to make sure that all sets information are recorded and saved, either incrementally or to enable database recovery in the event of a disaster. Project management is a vital function within the business continuity programme to make sure that all important developments are undertaken by the companies to tackle any business continuity obligation as part of the project. The changing management is the set of standards and processes a company puts in place to make sure that any change of outcomes to the business environment or IT environment also tackle business continuity (BBC, 2008).

Recovery testing is the procedures of exercising episodic exercises or dress rehearsals to make sure the BCP and the disaster recovery plan work correctly when necessitated. A configuration plan is executed by the IT personnel to make sure that network computing platforms back-up and underpin the BCP. Succession planning in the BBC model refers to the BCP unit, making sure that human resources are needed to function, that a BCP is in place and replaced, or alternatives are in place in case of a disaster that makes the principal resources not available (BBC, 2008).

As shown in Figure 2.4, the establishment of business continuity is based on the standards, supporting policies and procedures of the organisation. They give the context for the BCP, making sure that crucial activities of the company can continue without stopping operations.

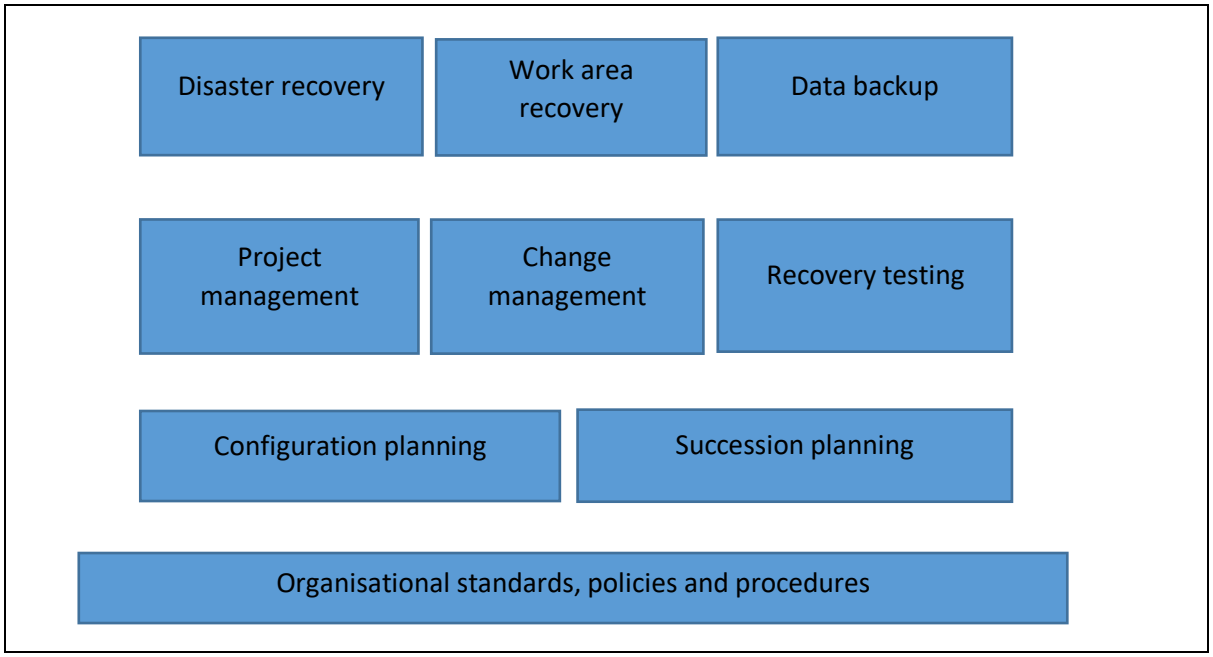


**Figure 2.4: Major activities of a business continuity plan**
Source: Computer Economics (2014)

### 2.3.3 Business continuity planning process model

Business disruptions cost money and any loss in profits plus extra expenditures mean decreased profits for companies. Many insurances do not cover all costs and cannot exchange customers moving to the competitors (Computer Economics, 2014).

Figure 2.5 shows the business continuity planning process diagram. Each of the items are described in detail following the diagram.

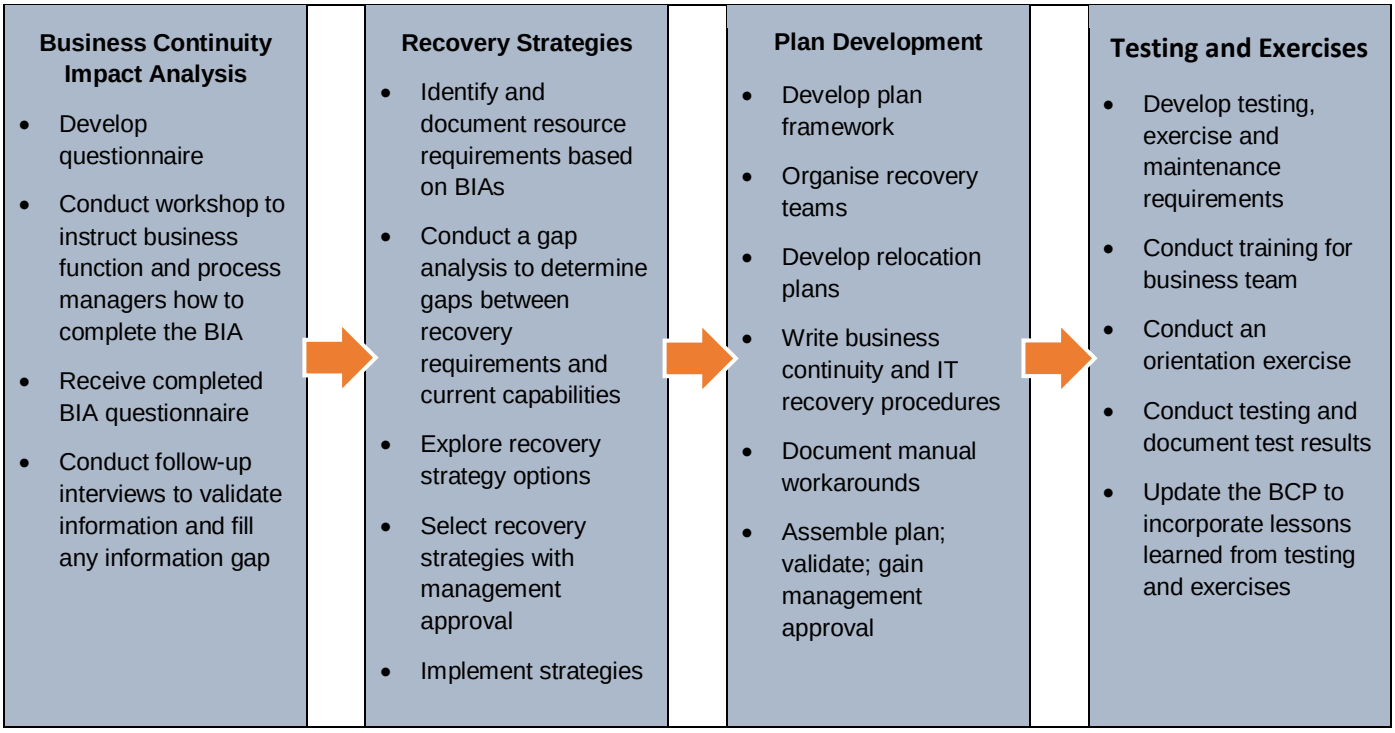


**Figure 2.5:** **Business continuity planning process diagram**
Source: Department of Homeland Security (2016)

- **Business continuity impact analysis**: The business continuity planning process model describes the business continuity impact analysis as a tool that identifies the effects resulting from a disruption of business functions and processes. It also uses the information to make decisions about recovery priorities and strategies (Computer Economics, 2014).
- **Recovery strategies:** Recovery strategies in this model are identified and documented requirements based on the BIAs. The key function of the recovery plan is to apply and recover crucial business functions and procedures (Computer Economics, 2014).
- **Plan development**: The executive team specialising with business continuity are responsible to draft a BCP. The plan is to handle a business interruption. The plan normally serves as guidelines that assist the business in case of an adversity (Department of Homeland Security, 2016).
- **Testing and exercise**: A business continuity planning process model illustrates that it is important to manage training for the business continuity team and testing and exercise to assess recovery strategies and the plan (Department of Homeland Security, 2016).

### 2.3.4 The four R's business continuity plan model

The emergency management plan sets out what procedures and resources are in place to respond to a critical event. The business continuity conceptual model complements the plan by delegating continuity planning ownership and responsibilities to organisational units to determine their priorities and the mechanisms by which they will ensure that the resources identified are secured (University of Canterbury, 2017). The University of Canterbury (2017) adopted the 4 R's – Readiness, Response, Recovery, and Reduction – from the New Zealand National and Regional Framework, and incorporated them into their emergency management plan which is aligned to the university's 2017–2018 plan. Elsewhere in Australia, the 4 R's may also be called the '2 P's and 2 R's' – Prevention, Preparedness, Response, and Recovery.

The University of Canterbury (2017) refers to the 4 R's as follows:

- **Reduction** is referred to as mitigation efforts to reduce the impacts of risks associated with hazards. Before a risk reduction measure is conducted a risk assessment has to be done to identify all hazards and measures such as the hazard's exposure and magnitude, and also to know how vulnerable the company is to the hazard.
- **Readiness** is also referred to as actions taken prior to an emergency to facilitate response and promote readiness. The readiness is to have prepared measures in place before a disaster strikes because disasters such as natural disasters cannot be one hundred percent avoided; therefore, preparedness measures enable the company to be ready and be able to respond better to a disaster.
- **Response** refers to actions taken during a critical incident or an emergency to save lives, assets and the environment. The response measure must be included in business continuity planning within the preparedness strategy or plan. A response plan must be rehearsed often to instil into the minds of all the company's employers and employees what to do in case of a disaster and what roles to play in the midst of a disaster. Therefore, when a response plan is rehearsed more often it assists the company to save lives in time, save equipment and also try to protect the environment. The response plan, when rehearsed, reduces the possibility of confusion during a disaster because everyone will know his or her own role.
- **Recovery** refers to actions taken after an emergency to restore, regenerate, and return to business as usual as soon as possible to bounce back from all damaged or lost equipment, time and customers during the occurrence of a disaster.

Therefore, the BCP ensures critical business functions and activities continue to run uninterrupted or with minimal disruption when an event occurs. The BCP represents a part of effective disaster risk management, as mitigation measures prior to an event to ensure that core business processes are resumed.

This model emphasises the importance of planning before a disaster strikes. This model illustrates that when all strategies – Readiness, Response, Recovery, and Reduction measures – are in place prior to a disaster, companies will have saved capital or profit; the environment and equipment will be saved, though not all depending on the type of disaster that takes place.

To add, the 4 R's model is similar to the disaster management continuum for both the pre-phase and post-phase. The most emphasis is to plan ahead to achieve feasible results. All the measures in the disaster management continuum and 4 R's model illustrate the importance of planning ahead before a disaster strikes and to make sure that the plan is implemented (see Figure 2.6).

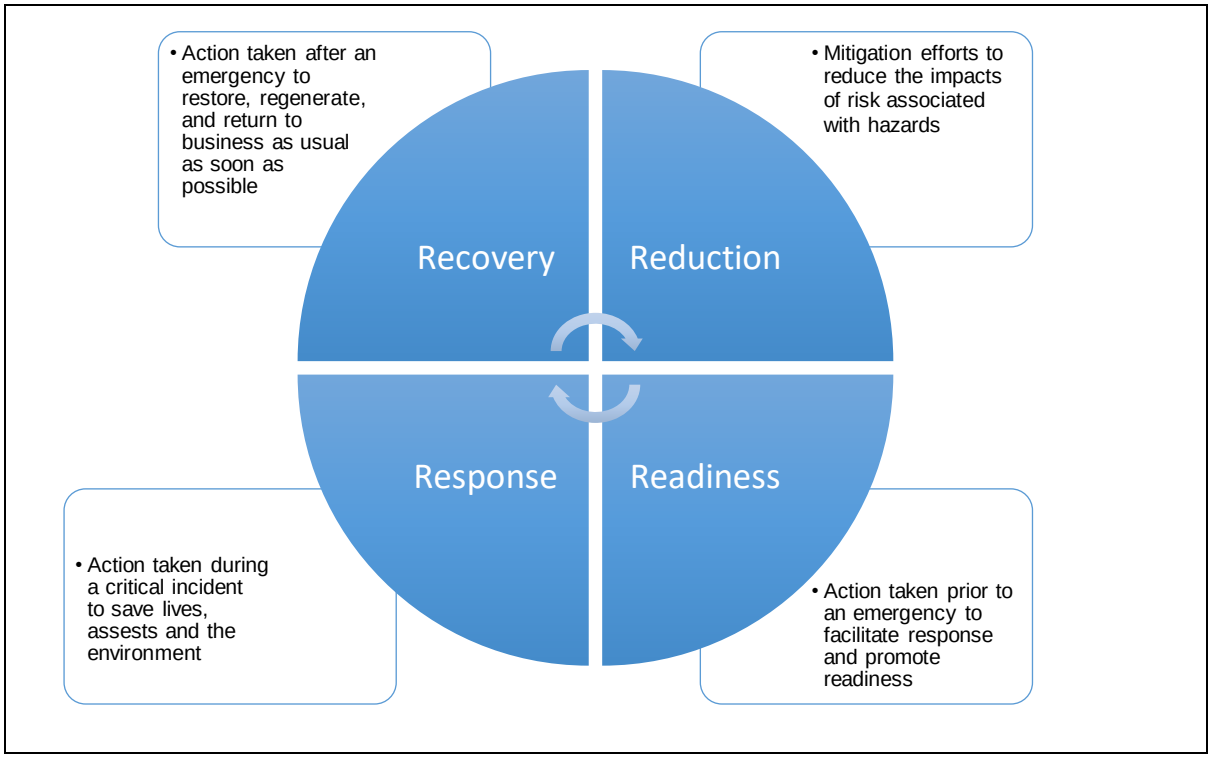


**Figure 2.6:** **4 R's model (Reduction, Readiness, Response and Recovery)**
Source: University of Canterbury (2011)

## 2.4 Disaster management continuum

The UNPD (2008) stated that disasters have two phases on a time continuum to identify and understand the phases; this is to describe disaster-related needs to conceptualise appropriate disaster management functions. In this study, the suitable activity is on the pre-disaster phase focused on preparedness measures because many countries and companies are more reactive than proactive. The literature starts with the post-disaster phase as shown in Figure 2.7:

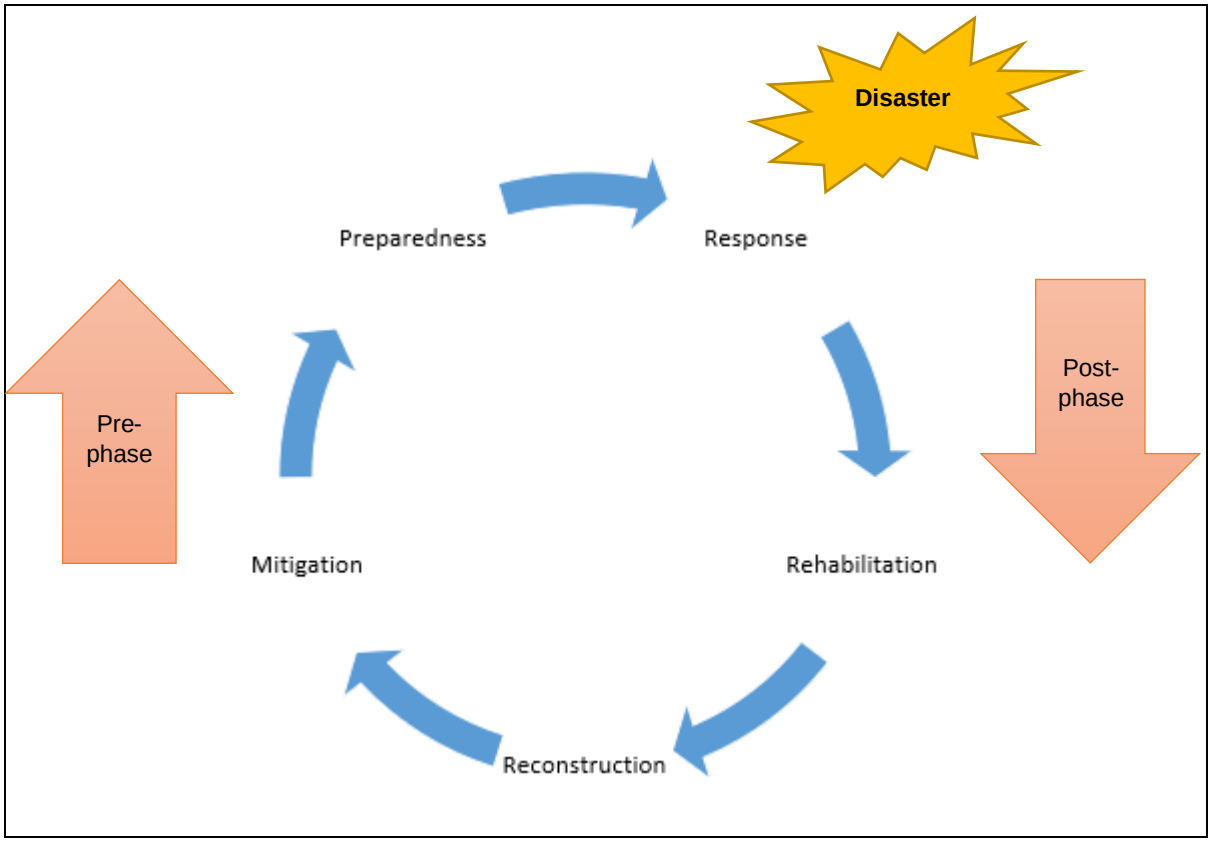


**Figure 2.7:** **Disaster management continuum**
Source: Adapted from UNDP (2008)

The UNDP (2008) describes the components of the disaster management continuum as follows:

- **Response**: Relief is the period immediately following the occurrence of a sudden disaster when exceptional measures have to be taken to search and find the survivors, as well as to meet their basic needs for shelter, water, food, and medical care. It is important to first save lives and property before anything else.
- **Rehabilitation**: Rehabilitation is the process and decisions taken after a catastrophe with a view to reinstating the society to its previous living conditions, while encouraging and

facilitating the necessary modifications to the changes caused by the disaster. For instance, companies need to have an alternative place to continue doing their business.

- **Reconstruction**: Reconstruction is the action taken to re-establish a society or a business after a period of rehabilitation consequent to a disaster. Actions would comprise the building of permanent housing, full refurbishment of all services and complete resumption of the pre-disaster state.
- **Mitigation**: Mitigation is the cooperative term used to include all actions taken before the incidence of a disaster (pre-disaster measures). Mitigation refers to the decreasing and inadequacy of contrary impacts of hazards and the long-term risk to decrease measures (UNISDR, 2009).
- **Preparedness**: Preparedness refers to actions and procedures before a disaster to make sure that an operative response to the impact of hazards is in place, including the issuance of timely and effective early warnings and the provisional removal of people and property from threatened locations (UNISDR, 2009).

The model is separated into two sections: the pre-disaster phase and post-disaster phase. The pre-disaster phase is when strategies and plans are drafted to mitigate and prepare for disaster risk or hazards. In the business context, the pre-phase of the disaster management continuum falls under risk management, which means a measure that assists companies to manage or minimise the severity of the disaster risk prior to a disaster incident. The post-phase comprises strategies that are put in place to enable organisations and communities to bounce back from a disaster.

## 2.5 Integration of the business continuity model and disaster management continuum pre-disaster phase

In South Africa, there is a cultural tendency in both public and private sectors to use BCP as a response and recovery plan rather than as a preparedness or mitigation plan (Nemzow, 1997). Therefore, in this section, some aspects from the above-mentioned business continuity planning models are extracted and are linked to a disaster management continuum pre-disaster phase to better explain the importance of developing a BCP before a disaster strikes.

### 2.5.1 Management approval for business continuity planning

The senior management committee in charge of business continuity planning is accountable for the oversight, initiation, planning, approval, testing, and auditing of the BCP. Therefore, before business continuity planning is conducted, the executive management committee of

the company must have a formal board meeting with their stakeholders. For this study, these are Transnet and the eThekwini Metropolitan Municipality, especially the Small Medium Micro Enterprise and disaster management departments of the municipality. In this meeting, the board must make sure a consensus and memorandum of understanding are reached before the risk management unit can continue.

### 2.5.2 Risk assessment

According to the NDMF (2005), KPA2 disaster risk assessment is the first step in planning an operative disaster risk reduction programme; therefore, in this study disaster risk assessment is also referred to as the first step in planning an effective BCP. It is essential that companies carry out disaster risk assessments to identify priority disaster risks relevant to their functional area to detect the probability and effects of expected disaster events. This includes examining interrelated hazards and conditions of vulnerability, exposure, and severity that increase the chances of loss.

### 2.5.3 Readiness/preparedness

Readiness/preparedness includes actions planned to minimise loss of life and damage, organise the temporary removal of people and property from a threatened location and facilitate the timely and effective rescue, relief and rehabilitation. These measures need to be in place before a disaster strike to better respond to a disaster. Preparedness includes an effective early warning system to minimise risk. It is therefore vital for companies to include a preparedness measure in business continuity planning.

### 2.5.4 Business impact analysis

Business impact analysis is a tool that detects the effects resulting from the interruption of business function and processes. It also utilises the information to make decisions about recovery priorities and strategies. The BIA is a measure that enables companies to quantify the anticipated losses that were identified in the risk assessment. The BIA allows the company's finance unit to include business continuity planning in the budget so that the company can be able to insure the assets of the company and all personnel from the disaster. BIA allows companies to plan ahead financially (Momani, 2010).

### 2.5.5 Development of a business continuity plan

An executive team specialising with business continuity is responsible for drafting a BCP. Many BCPs are drafted by the risk management department of companies. The BCP serves as a guideline document that assists companies to manage and prevent disaster risks. The

development of a BCP requires a collective effort from teams in the organisation and allows teams to make sound and achievable decisions.

### 2.5.6 Testing of business continuity plan

It is significant to conduct training for the business continuity team as well as testing and exercises to assess the plan and its recovery strategies. The BCP also needs to be updated consistently to make sure of its efficiency in the occurrence of a disaster and its continuing significance to the business (American International Group [AIG], 2016). A BCP is reviewed by auditing the BCP. The plan review includes the business continuity planning team to discuss the plan to verify if any components are incomplete or incoherent in the plan. Reviewing the plan is very helpful for training new members of the business continuity planning team.

A simple business continuity planning test includes testing the instigation of the employees, checking of consumers or suppliers' information and other contacts. This type of test makes sure that all applicable details are kept up to date. A BCP desktop testing includes the crisis management team and examiner(s) being grouped together in a meeting room, where they are given a specific disaster scenario and questioned to use the BCP to pretend to deal with the current disaster situation. The situations of the scenario can be unintentionally changed during the test as the team's responses establish to assess how they respond and adjust to a changing situation. Desktop tests allow an organisation to ascertain if the business continuity planning members know their duties or whether further training is required. It also allows the efficiency of the BCP to be evaluated and assists to detect any inconsistencies or errors (AIG, 2016).

### 2.5.7 Rehearsal of a business continuity plan

Rehearsals are the simulation test which is the closest to the real incantation of the BCP and are the most active or precise in verifying if BCP works as anticipated in real situations. In simulation tests, the teams are given a situation and have to essentially follow the processes established in the BCP and utilise the resources assigned to handle a disastrous event, for instance, utilising a separate disaster recovery site, use of alternate equipment, use of services from a third party or buddy site. The simulation test involves sending teams to other locations, for example to restart technology or business functions. This type of test must pinpoint any staff concerns with regard to their role, any incomplete or unavailable resources, and any omissions or errors (Remines, 2012).Rehearsing a BCP assists companies to avoid small mistakes caused by confusion during a disastrous event. Rehearsals must be conducted regularly.. There should be a rehearsal at least every three months that all members of the

company are aware of and participate because business continuity planning involves all personnel of the company. Companies must make it a culture that the BCP rehearsal takes place and make it everybody's business because rehearsal is a constant reminder to every one of the roles they should take during a disaster (AIG, 2016).

The integrated model illustrates the combination of BCP aspects and the disaster +management continuum pre-phase (preparedness). This model was developed by the researcher to emphasise that it is important to develop a BCP prior to a disaster. It is the principle that before a BCP is developed, the executive management has to have a formal meeting to agree and have an understanding before a BCP can be developed (see Figure 2.8). After the agreement comes a preparedness plan; in the preparedness plan a risk assessment is done to identify all hazard and disaster risks. The risk assessment measures the magnitude and severity of the hazard (AIG, 2016).

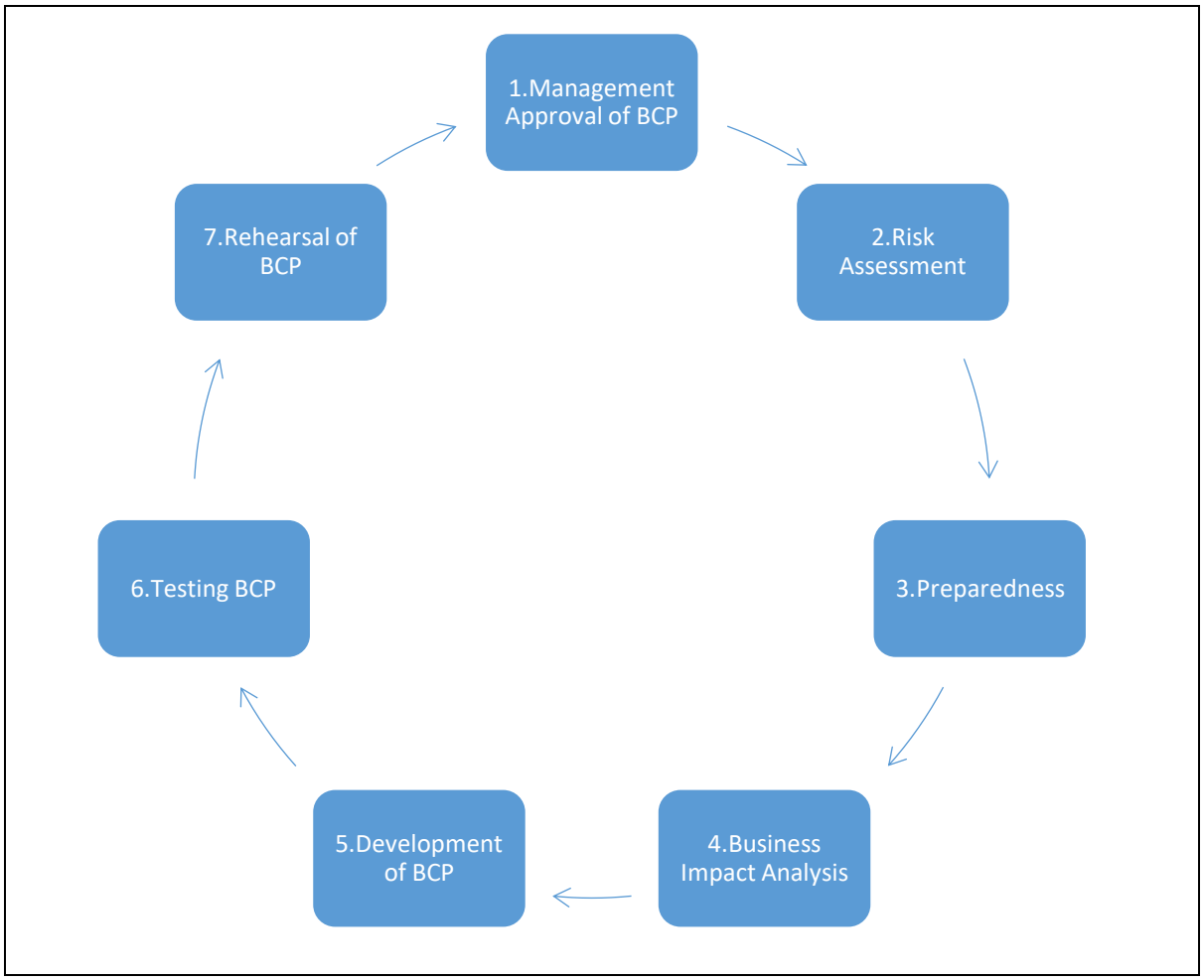


**Figure 2.8: Integration of business continuity model and disaster management continuum pre-phase**

Source: Adapted from the business continuity planning models and disaster management continuum

Remines (2012) believed that risk assessment assists the BIA to quantify the risk so that the company will allocate a budget for all the identified risks. After the risk assessment and BIA, a BCP can be crafted. It is important to test the plan in order to check the validity and reliability of the plan. It is vital that companies, after developing and testing the BCP, rehearse the plan constantly so that all employees know what to do in case of a disaster. This will minimise mistakes when responding to a disaster.

## 2.6 Legislation and acts for business continuity plans

Business continuity planning does not have an existing act for companies to use worldwide. Instead, there are standardised legislations called the BS 25999 and ISO 22301.12 standards, which are used as guidelines for business continuity management. These standards assist companies to draft a BCP that complies with both the international standards (BSI, 2012).

The International Organization for Standardization (ISO) is an international standard-setting body composed of representatives from various national standards organisations. Since it was founded on 23 February 1947, the organisation promotes worldwide proprietary, industrial and commercial standards. Its headquarters are in Geneva, Switzerland, and they operate in 164 countries. The ISO is the world's largest developer of voluntary international standards and facilitates world trade by providing common standards between nations. Over twenty thousand standards have been set, covering everything from manufactured products and technology to food safety, agriculture and health care. The standards aids in the creation of products and services that are safe, reliable and of good quality (BSI, 2012).

The standards help businesses increase productivity while minimising errors and waste. By enabling products from different markets to be directly compared, they facilitate companies in entering new markets and assist in the development of global trade on a fair basis. The standards also serve to safeguard consumers and the end-users of products and services, ensuring that certified products conform to the minimum standards set internationally. The International Securities Industry Association of the Business Continuity Planning Committee was established to set good practice from both BS 25999 and ISO 22301 legislative standards to formulate BCPs (Business Continuity Institution, 2019).

The UNPD (2018) stated that business continuity planning is based on a risk assessment and BIAs. They build on existing enterprise risk management policies and country-specific security risk assessments, while considering the overall organisational mandate and continuation of businesses.

The South African Disaster Management Act (2002) is an integrated and coordinated disaster management policy that focuses on preventing or reducing the risk of disasters, mitigating the severity of disasters, emergency preparedness, rapid and effective response to disasters and post-disaster recovery. The Act also deals with the establishment of national, provincial and municipal disaster management centres and disaster management volunteers (Business Continuity Institute, 2017). The South African Disaster Management Act, Amended, section (19), (33) and (47) emphasise that all spheres of government in disaster management should give guidance to organs of state, non-governmental organisations, the private sector, communities, and individuals to assess, prevent, or reduce disaster risks by evaluating the magnitude of a risk, vulnerability towards hazards, probability of disasters, and encourage capacity to reduce the severity of a disaster. All these sections are pre-phase and disaster risk reduction measures. Business continuity planners should therefore use the Disaster Management Act as one of the regulations; although it seems to be designed for government spheres only, companies need to also incorporate disaster management to best suit the company needs.

### 2.6.1 South African National Treasury Act

According to the South African National Treasury Act, it is essential for government departments and state-owned enterprises to make business continuity planning an essential part of their administrative function. The National Treasury risk management unit endeavours to ensure that mitigation strategies in business units are accurately monitored and implemented. A template was developed for business units to populate their strategic risk registers, following risk assessments, thereby allowing the risk committee to monitor the implementation of risk mitigation strategies in prescribed time frames (South Africa, National Treasury, 2018).

### 2.6.2 Occupational Health and Safety Act

Organisations worldwide recognise the need to control and improve health and safety performance and do so with occupational health and safety management systems. However, before 1999 there was an increase of national standards and proprietary certification schemes to choose from. This caused confusion and fragmentation in the market and undermined the credibility of individual schemes (Occupational Safety and Health Administration, 2018).

Supporters of occupational health and safety management systems claim that these systems promote a safe and healthy work environment by providing a framework that helps organisations to identify and control health and safety risks, reduce the potential for accidents, aid legal compliance, and improve overall performance (Reference?). The occupational health

and safety standards further provide organisations with the elements of an effective safety management system which can be integrated with other management systems and help organisations achieve better occupational health and safety performance and economic objectives.

The Occupational Health and Safety Assessment Series (OHSAS 18000 standard) help an organisation to develop and implement a policy and objectives, which take into account legal requirements and information about occupational health and safety risks. It applies to all types and sizes of organisations and accommodates diverse geographical, cultural, and social conditions. OHSAS 18000 requires that all businesses with more than 10 employees have a written emergency contingency plan and a disaster preparedness plan (Business Continuity Institution, 2017).

### 2.6.3 Financial Industry Regulatory Authority legislation

Business continuity planning is the process whereby financial institutions ensure the maintenance or recovery of operations, including services to customers, when confronted with adverse events such as natural disasters, technological failures, human error, or terrorism. The objectives of business continuity planning are to minimise financial loss to the institution; continue to serve customers and financial market participants; and mitigate the negative effects disruptions can have on an institution's strategic plans, reputation, operations, liquidity, credit quality, market position, and ability to remain in compliance with applicable laws and regulations. Changing business processes (internally to the institution and externally among interdependent financial services companies) and new threat scenarios require financial institutions to maintain updated and viable BCPs (Financial Industry Regulatory Authority [FINRA], 2012).

According to the Federal Deposit Insurance Corporation (2018), senior management and the board of directors are responsible for identifying, assessing, prioritising, managing, and controlling risks. They should ensure the necessary resources are devoted to creating, maintaining, and testing the plan. The board fulfils its business continuity planning responsibilities by setting policy, prioritising critical business functions, allocating sufficient resources and personnel, providing oversight, approving the BCP, reviewing test results, and ensuring the maintenance of a current plan. The effectiveness of business continuity planning depends on management's commitment and ability to clearly identify what makes existing business processes work. Each financial institution must evaluate its own unique circumstances and environment to develop a comprehensive BCP (Federal Deposit Insurance Corporation, 2018).

FINRA is a private self-regulatory organisation that regulates certain aspects of companies. Rule 4370 of FINRA's emergency preparedness standard guideline requires companies to create and maintain BCPs appropriate to the scale and scope of their businesses, and for each to provide FINRA with emergency contact information (FINRA, 2012).

## 2.7 Chapter summary

This chapter examined the South African NDMF and its four KPAs, which are KPA1 – Institutional capacity for disaster risks; KPA2 – Risk assessment; KPA3 – Disaster risk reduction, and KPA4 – Response and recovery. These KPAs were defined in the chapter and linked to business continuity planning. The components of a disaster plan were examined, putting more emphasis on preparedness to display the importance of pre-planning prior to a disaster. A business continuity framework was examined through a global sphere of government which is the United Nations to see how the BCP is conducted on a global context. Business continuity planning was linked more to the American and European countries because in those countries, business continuity planning is mostly implemented. Four commonly used BCP models were examined in the study to show the picture of this BCP concept. A disaster management continuum was also explained to illustrate the relevancy of the pre-phase of the continuum to business continuity planning. Specific aspects were extracted from the four BCP models, which were linked to the disaster management continuum to build an idea of this research to show the importance of having a BCP before a disaster strikes. Lastly, BCP legislation is BS 25999, which regulates all the BCPs through international standards that regulate BCP, which is the international standard (ISO 22301). The chapter further included the South African National Treasury Act which emphasises that all government spheres must have a BCP. The Occupational Health and Safety System also encourages proper implementation of a BCP, and lastly, the chapter included the financial legislation of business continuity planning, which is FINRA, dealing with preparedness measures.

The next chapter focuses on the literature review. The chapter explains in detail the concepts of business continuity planning, the disaster risk, awareness and the development of a BCP. The chapter explores what other researchers have found regarding BCPs. This was necessary to enable the researcher to identify gaps in the literature and complement the gaps with empirical research.

Chapter 3

# Literature Review

## 3.1 Introduction

A literature review serves as a survey of everything that has been written about a particular topic, theory, or a research question. Literature reviews are important for a number of reasons. Primarily, literature reviews force a writer to educate him- or herself on as much information as possible pertaining to the topic chosen. This will assist in the learning process, and it will also help make the writing as strong as possible by knowing what has or has not been both studied and established as knowledge in prior research. Secondly, literature reviews demonstrate to readers that the author has a firm understanding of the topic (Denney & Tewksbury, 2012). Hofstee (2006) recommended that it is important for the literature review to always come after the introduction and before the methodology chapter.This enables the researcher to explore the topic

Therefore, in this chapter, the literature review on BCPs has been structured based on basic components of business continuity planning which consist of risk assessment, BIA, BCP development, recovery strategies, BCP testing, and BCP rehearsal. This chapter also includes an explanation of various types of disaster risks and how disaster risks are transferred by means of insurance to ensure that risks that cannot be avoided are mitigated. The differences between a BCP and disaster recovery plan are addressed to illustrate that the two terms are not the same. Awareness of BCP, the benefits and challenges of BCP and a preparedness plan are discussed to emphasise the importance of developing a BCP before a disaster strikes. The gap is identified by illustrating that BCPs are still used as a reactive measure instead of a proactive measure and emphasis is put more on developing a BCP before a disaster strikes. The history of Bayhead and Transnet are discussed to show how Bayhead Harbour and Transnet interrelate. Finally, the chapter provides an illustration to identify the gap between the risk assessment of Transnet and the disaster management department at the eThekwini Metropolitan municipality.

## 3.2 Business continuity plan – Definition

A BCP is defined as a set of documented procedures, resources and systems that guide organisations to respond, recover, resume and restore their pre-defined level of operation following a disruption (Mapfre, 2015).

Botha and Von Solms (2004) emphasised that business continuity planning involves developing a collection of procedures for various business units that will ensure the continuance of the critical business process, while the data centre is recovering from a disaster. Business continuity planning can further be defined as a complete process of developing measures and procedures to ensure that an organisation's disaster preparedness strategy is implemented. This includes ensuring that an organisation would be able to respond effectively and efficiently to a disaster and that their critical business processes can continue as usual (Botha & Von Solms, 2004).

Low et al. (2010) described business continuity planning as the identification and protection of critical business processes and resources required to maintain an acceptable level of business by protecting such resources and preparing procedures to ensure the survival of the organisations in times of business disruptions. The BCP document is therefore intended to serve as the centralised repository for business continuity information, roles, and responsibilities, tasks and procedures that will facilitate timely response to a disaster interfering with the critical business processes (AIG, 2016). The business continuity management unit must own the BCP.

This study emphasised that BCP must be a proactive strategy and Capgemini Consulting (2016) supported this research by confirming that a BCP is a proactive plan that avoids and mitigates disaster risks associated with a disruption of operations. Capgemini Consulting (2016) further stated that a BCP entails steps that need to be taken before, during and after an event to maintain the financial viability of an organisation.

## 3.3 Business continuity concept

The South African Qualifications Authority (2016) stated that over the past few years, BCP has become a major business management requirement, while the internationally recognised standard ISO 17799 and the BS 7799 require that a managed process be implemented for developing and maintaining business continuity throughout an organisation.

Momani (2010) investigated that it is essential to develop a BCP in advance for companies or institutions before a disaster strikes, to enable organisations to have the ability to respond and recover from several threats that could produce losses to business and prevent business resumption (Momani, 2010). When a disaster occurs, a business can struggle to continue operations and return things to normal. That is why it is so important to have a BCP in place before a catastrophe strikes. For most executives and operations managers, business continuity means finding any available options to reduce impact of the interruption on the organisation and to maintain services or sales to customers.

Many authors describe business continuity planning as the process that involves analysing the possible threats, crisis events, the risk, and the resulting business impact, and from these analysing, developing and implementing strategies are necessary to ensure the critical components of an organisation's function at acceptable levels (Miller & Engemann, 2014). There are two types of organisational effects: primary effects and secondary effects. Primary effects directly impact the organisation itself and result in immediate losses, while secondary effects affect the organisation indirectly, such as a crisis event that effects a critical supply chain partner (Miller & Engemann, 2014). For instance, many companies in the United States of America learned a lesson after Hurricane Katrina and the 9/11 disaster to develop a BCP prior to a disaster. Companies in Japan also learned a lesson after the 11 March tsunami catastrophe about the importance to develop a BCP before a disaster strikes because measures often fail to provide total financial recovery from the catastrophe impact of a large-scale physical disaster (Melton & Trahan, 2009). Hatton et al. (2016) stated that business continuity planning is a well-established a key plan in an organisation's risk management process.

A disaster can result not only in a wide-ranging damage to a company's physical facilities but also in compromised infrastructure, transportation, and supply chain. Disasters frequently damage communication systems, hampers emergency response units and strain civil support services. Another important step is to ensure that risk management is involved from the start in business continuity planning (Zsidisin et al., 2007).

Cerullo and Cerullo (2004) stated that the potential cause of the business interruption is not always from a natural disaster but are also multifaceted, including interruptions caused by human error, utility disruption such as power outages, and malicious threats from outsiders. The risks of business interruption have therefore expanded as companies increasingly depend on IT infrastructure and become more linked to external networks (Cerullo & Cerullo, 2004). Cerullo and Cerullo (2004) illustrated that many companies use BCP as a recovery strategy by depending mostly on IT infrastructure. This is why this study encourages that a BCP must be a proactive strategy and not a reactive strategy.

Business continuity planning fits within the resilience components as a long-established mechanism intended to enable an organisation to manage the impacts of a disaster (Cerullo & Cerullo, 2004). Bhamra et al. (2011) argued that many small business enterprises do not have any BCP to deal with a business interruption. As with any other leading economy, South African should continue to maintain and protect its infrastructure, wealth of resources and essential services. The South African National Treasury annual report (2018) requires each government department to have its own BCP. Most national government departments have

not yet considered the implementation of BCPs which is to say that the quantum of the problem has either not been realised or has not yet been published (Ferguson, 2017).

In South Africa, there seems to be a tendency to comply with the Disaster Management Act, 2002, and its framework, along with related legislation and, hence, prepare to recover from a disaster resulting from both disastrous and non-disastrous incidents, rather than to prevent and manage such incidents. This statement illustrates that there is still a trending culture in South Africa of reactiveness rather than proactiveness. The Disaster Management Act does not have a section that deals directly with business continuity and the Act are drafted to best suit government spheres rather than the private sector.

Usually, business continuity planning only gets the attention it deserves in boardrooms when demanded by customers or regulatory compliance such as the ISO 22301 regulatory standard. In 2005, global surveys showed that 240 corporate executives indicated that more than a quarter of larger companies have no BCP at all (Ernest-Jones, 2005). Ernest-Jones (2005) further stated that the economic unit for AT&T and Cisco made it clear that disasters force companies to suspend key business operations, yet many company executives are still prone to the *'it cannot happen to the company'* approach and are doing little to prepare their companies for the eventuality.

Business continuity ensures that an organisation's entire infrastructure and processes can function in the event of an interruption. An effective BCP addresses a range of issues as well as IT systems, from loss of personnel following a disaster to handling a hostile media. BCP has to be included in business processes rather than added as an afterthought.

Ernest-Jones (2005) identified that companies have focused on designing IT recovery plans, which is not enough because companies need to put BCPs in place to protect the company against disruptions to the business process because BCPs focus on incidents that cause disruption to an organisation's critical business processes and adopts a multi-hazard approach (see also OIOS, 2011). The Joint Inspection Unit from the United Nations established the preparedness mission to respond to a crisis and to maintain continuity of critical business processes at a minimum agreed level following disruptive events.

In South Africa, the BizStrats conference that was held in September 2013, brought together business continuity professionals, risk management executives, and disaster recovery specialists, responders, strategic planning executives and many more from all industry sectors, as well as government departments and state-owned companies such as Transnet and Eskom which are parastatals. All experts came together to increase their knowledge-base and gain insightful information regarding the best BCP practises and strategies. This

conference emphasised that it is vital for the sustainability of a company or organisation to have an ongoing BCP in place to ensure that the necessary steps are taken regularly to identify probable accidents, disasters, emergencies and threats (BizStrats, 2013).

Generally, it is hard to persuade executives to invest in business continuity planning, as it tends not to result in tangible operational benefits. This is a risky approach because the likelihood of having to suspend key business operations because of a disaster is far from remote. The survey done by the intelligence unit of the United States of America illustrated that more than a quarter of companies have experienced a disaster leading to a full shutdown of key business operations (Ernest-Jones, 2005).

At the BizStrats conference, officials emphasised that every company or organisation has an obligation to ensure that it is adequately prepared to deal with unexpected events and those companies or organisations which disregard this obligation face a gauntlet of unacceptable risks (BizStrats, 2013). The Boston College (2018) stressed the point that the purpose of business continuity planning is a tool that assists in preparing for disasters that could leave resources such as personnel, records, information, housing, and physical facilities unavailable for both short-term and extended periods.

Although South Africa has fully adopted the ISO 22301 standard of developing a BCP, there are still challenges in obtaining certification currently in South Africa because the South African National Accreditation Services has not yet decided whether it is viable to accredit local companies who would, in turn, be able to provide certification to local organisations (Melton & Jason, 2009).

Alternatively, this certification can be done via internationally accredited certification companies through the International Accreditation Forum who are partly having multi-lateral agreements currently in place, but this approach is likely to be geographically problematic (Melton & Jason, 2009). Many companies have developed a disaster contingency recovery plan. Although a disaster contingency recovery plan is vital, it is primarily a reactive approach and not a comprehensive plan for risk management (Cerullo & Cerullo, 2004). In contrast, a BCP seeks to eliminate or reduce the impact of a disastrous condition before the condition occurs.

A BCP is designed to avoid or mitigate risk, to reduce the impact of a crisis, and to reduce the time to restore conditions to a state of ‘business as usual’. There is no single recommendation plan for business continuity; instead, every organisation needs to develop a comprehensive BCP based on its unique situation. A BCP should also be dynamic, evolving as the business

environment changes and its dependency on advanced technology changes (Cerullo & Cerullo, 2004).

Business continuity planners should be participants in any strategic risk assessment process and help establish a risk awareness environment (Cerullo & Cerullo, 2004). According to Botha and Von Solms (2004), business continuity planning involves developing a collection of procedures for the various business units that will ensure the continuance of critical business processes while the data centre is recovering from a disaster. For organisations that fall into the category of small and medium, the development of a BCP seldom concentrates on smaller organisations. Although ensuring confidentiality and integrity is important, the available components of information security are of greater importance with respect to BCP (Botha & Von Solms, 2004).

To completely define BCP one has to consider two aspects. First, it should be ensured that an organisation could continue business as usual or on an acceptable level in the wake of the disaster. Second, it should be restored to a state similar to that preceding the disaster (Botha & Von Solms, 2004). BCP is defined as a complete process of developing measures and procedures to ensure an organisation's disaster preparedness. This includes ensuring that the organisation would be able to respond effectively and efficiently to a disaster and that their critical business processes can continue as usual (Botha & Von Solms, 2004). The BCP project is also a non-revenue producing project and does not qualify as a high priority project for an organisation because it does not bring in profits. Myers (2006) stated that the main BCP concerns are telephone communication, computer processing, vital facilities, and critical operations.

## 3.4 Components of a business continuity plan

### 3.4.1 Business impact analysis

Torabi et al. (2014) defines BIA as a process of analysing operational functions and the effects that disruption might have upon the company. The main objective of BIA is gathering and analysing information to codify a report to top managers who are preparing a BCP. Tammineedi (2010) described BIA as the foundation of the BCP. According to the ISO 22302-12 standards, the BIA is the first step towards resilience. It should be understood, however, that the strategy cannot be developed prior to the analysis of the core business. The impact of strategic risks on the core business should indicate a path for the mitigation of disaster-related risks (Ferguson, 2017).

Every business has numerous activities in its overall operations but only a small percentage will be key to its survival. The BIA function is to gather information to determine the basic recovery requirements of a business in the event of a crisis. This will show which parts of the business will be most affected by an incident and what effects it will have upon the business as a whole. Preparedness is all about being proactive and planning. The BIA largely captures the preparedness aspect (State of Queensland, 2009). A BCP should contain information required to ensure that a company is able to resume critical business activities in the event of a crisis. Depending on the function of the business, companies must choose to have separate risk management, BIA, incident response, and recovery plans; or for a small business, a single BCP (Barnes, 2001).

The BIA identifies the critical functions the business must perform to stay in business; identifies risks to critical business functions and rates those risks according to the probability of occurrences and the impact on the business; recommends avoidance, mitigation, or absorption of the risk and identifies ways to avoid or mitigate the risk (Cerullo & Cerullo, 2004). Recently, many leading companies have adopted an enterprise-wide risk assessment strategy and have established a framework or database of risks identified for their companies.

Tammineedi (2010) stated that BIA is the foundation of business continuity planning; therefore, in order to gain a proper perspective on the relative importance of business functions and processes, the BIA should be conducted by assuming the worst-case scenario. BIA focuses on the effects rather that the event that caused the effect.

#### 3.4.1.1 Process of a business impact analysis

The State of Queensland (2009) provided the following process for a Business Impact Analysis:

- **Identify critical business activities**: Companies must take time to identify the operations that are most critical to the success of the business on a day-to-day basis and determine how long the business can go with each of those activities not being.
- **Concentrate on the impact and not the incident**: This is what will be the impact of the loss or interruption to critical business activities. It is vital for companies to spend time in identifying the hazards that will have an impact on the business and have a plan on what the company needs in order to manage the disaster when it occurs.
- **Understand the time frame**: It is necessary to assign a recovery time objective to each activity. The recovery time objective is the time at which the activity must be back in

operation, or impact to the business will result. Once a recovery time objective is established for each activity, a prioritisation of the activities can take place.

- **Use BIA to inform recovery planning**: BIA help companies to determine the strategies or actions needed to be included in the recovery plan.

### 3.4.2 Business continuity plan development

A BCP must be designed and developed based on an organisation's unique requirement and should address the scope, objectives, and limitations of the plan. A well-developed BCP can minimise business disruptions, while safeguarding key business interests, relationships, and assets. Unfortunately, some companies do not place a high value on business continuity planning and fail to institute sustainability efforts (Royds, 2010).

Low et al. (2010) argued that the BCP enables the company to resume operations at the earliest opportunity without any further implication on the company in the event of an encounter with such contingencies. Actions should be taken to reduce or eliminate the likelihood or effects of a disruptive event, as well as developing capabilities to ensure an effective response. BCP is developed in response to threats and hazards identified through risk assessment.

An effective BCP is crucial to every company as it helps to ensure the continuous well-being of the company. Business continuity planning is, however, more than just a simple task of setting out certain contingency plans and avoid risks. It refers to the ability to have focused response management to deal with the situation once the consequences are known. Business continuity planning is the process of developing a roadmap for continuing operations under adverse conditions and during disruptions caused by all types of incidents, emergencies, and crisis.

Gneist et al. (2009) stated that it is important to develop a BCP as it is a process or methodology that documents how the business is conducted during disruption and how essential functions, processes, and resources are optimally recovered and restored after a disruption. BCP focuses on recovering data, information, operations, and processes in every essential organisational function. It is a holistic process that should be applied across the business and operations footprint of the entire entity.

### 3.4.3 Recovery strategies

Many companies have developed a disaster contingency recovery plan, which specifies procedures to enact when a disaster occurs (Cerullo & Cerullo, 2004). Disaster recovery

includes the identification of primary and alternate team members and their specific duties. Disaster recovery includes executive management roles, notification procedures and alternate meeting site locations, and workaround processes to keep the function operational (Nicolette & Schmidt, 2001, cited by Sambo & Bakole, 2016). While equipment damaged by a disaster is restored for a business to continue as usual, a contact list and report forms for all stakeholders must be used to secure the trust of the stakeholders that all things are back to normal (Cerullo & Cerullo, 2004). A disaster recovery plan is, therefore, an integral part of a BCP.

Bronack (2017) illustrated that the BCP is used to describe the business units that will be recovered by following the plan and what recovery actions will be performed in response to business interruption. Reilly (2015) argued that with today's social media increasing the speed of information delivery, the need for all organisations, businesses and government agencies to have a crisis communication plan as part of a BCP is critical.

### 3.4.4 Testing of a business continuity plan

A deceptive and dangerous assumption is the idea that once a plan is written, it is completed. BCP requires constant reappraisal and revision as flaws and omissions in the plan will always be revealed during exercise. At the same time, changes in organisational structures necessitate regular revision and updating of the plan and more training. Plans cannot be considered reliable until they have been tested and proven to be workable (BSI, 2019).

Testing includes validating, rehearsing of the BCP. The frequency of testing will depend on the business, but companies should take into account changes in the business. Not all aspects of the plan can be tested but some elements can, for example, drills of evacuation plans. Another way to test the plan is to have planning meetings to bring staff together to inform them of the plan and their individual responsibilities (AIG, 2013).

The BCP should be examined as a group to identify problems and solutions. This type of exercise is particularly useful for training purposes and provides an important tool for embedding business continuity. Scenario-testing is another useful way of validating plans and rehearsing key staff actions?. A scenario works by simulating a live event and allowing staff to make decisions as the scenario unfolds, in very much the same way they would in the event of a real incident. It is important to think of risks that companies have identified in the risk management plan.

### 3.4.5 Rehearse and maintain a business continuity plan

Exercising is a way to evaluate and confirm the soundness of policies and procedures through in-depth discussions, training, and drills (Tammineedi, 2010). The exercises are conducted with the objective of reviewing the risk profile of the facilities and business processes.

Training and testing include developing a test methodology, doing simultaneous testing, followed by training of BCP revision and simultaneous testing BCP, and training staff again (Cerullo & Cerullo, 2004). As a major component of the BCP, rehearsal is essential to determine whether the BCP is adequate to address critical risks. In addition to ensuring that the disaster recovery team members – both primary and secondary stakeholders know what to do, testing under increasingly realistic conditions helps develop confidence and avoid panic during a disaster event (Cerullo & Cerullo, 2004).

A secondary effect of social media is the speed at which bad news travels and the lack of a factual basis needed for the information to be treated as reliable (Reilly, 2015). Therefore, organisations are at risk of bad publicity should an emergency or disaster result in injury or death to individuals with special needs, regardless of how well the organisation's response was carried out. This places a moral obligation as well as a legal obligation on the organisation to have a good BCP containing an effective crisis communication plan tailored to special needs requirements (Reilly, 2015).

Miller and Engemann (2014) argued that business continuity planning is a process to ensure that an organisation can continue to function effectively and resiliently when faced with crisis events. A key phase of the business continuity planning process is risk analysis, which involves identifying events, determining causes and estimating probabilities and impact.

## 3.5 Benefits of business continuity planning

BCP has the potential to save the lives of employees or consumers. For instance, fire drills and evacuation drills help the company to minimise panic and provide the personnel with training to know what to do in case of an emergency. It is vital for companies to take the time to create a strong emergency and evacuation plan that prepares people in advance. This is not only important for the BCP but it is also a good way to show that the companies care for the well-being of their own personnel (Herrera, 2017).

## 3.6 Disaster risk

A disaster is defined as any unplanned event that results in the inability of the business to support operations in whole or in part (AIG, 2013). Disaster risk is further defined as the

potential disaster losses, in lives, health status, livelihoods, assets, and services, which could occur to a particular community or a society over some specified time in the future. The definition of disaster risk reflects the concept of disasters as the outcome of continuously present conditions of risk. Disaster risk comprises different types of potential losses which are often difficult to quantify. Risk is the combination of the probability of an event and its negative consequences. This definition closely follows the definition of the ISO/IEC Guide 73 (AIG, 2013). The word 'risk' has two distinct connotations: in popular usage the emphasis is usually placed on the concept of chance or possibility, such as in 'the risk of an accident'; whereas, in technical settings, the emphasis is usually placed on the consequences in terms of 'potential losses' for some particular cause, place and period. It can be noted that people do not necessarily share the same perceptions of the significance and underlying causes of different risks (AIG, 2013).

Risk transfer is important in disaster mitigation and preparedness and risk transfer is always strongly encouraged in disaster risk reduction planning. The poor and most vulnerable group, due to either the problem of affordability or that of ignorance (UNDRR, 2019), seldom adhere to the practice of risk transfer. For example, subsistence and small emerging farmers in South Africa are not adequately protected against possible agricultural risks, including those associated with climate change (Jordaan, 2019). Effective education and awareness campaigns, and sometimes state subsidies, to cover items such as insurance premiums could boost risk transfer activities. Well-managed wetlands on private farms can reduce the cost of insurance to the farmers as the risk is reduced.

Nevertheless, with knowledge of the prevailing hazards and the patterns of population and socio-economic development, disaster risks can be assessed and mapped (UNDRR, 2019). There are two types of disaster risk: acceptable risks and residual risks. Disaster risk specifically refers to the likelihood of harm or loss due to the action of natural or other hazards or other external threats on vulnerable structures, services, areas, communities, and households (NDMF, 2005).

### 3.6.1 Acceptable risk

The level of potential losses that a society or community considers acceptable includes existing social, economic, political, cultural, technical and environmental conditions (UNISDR, 2009). In engineering, acceptable risk is used to assess and define the structural and non-structural measures that are needed in order to reduce possible harm to people, property, services and systems (UNISDR, 2009).

### 3.6.2 Residual risk

Residual risk is the disaster risk that remains even when effective disaster risk reduction measures are in place, and for which emergency response and recovery capacities must be maintained. The presence of residual risk implies a continuing need to develop and support effective capacities for emergency services, preparedness, response, and recovery, together with socio-economic policies such as safety nets and risk transfer mechanisms, as part of a holistic approach. Therefore, residual risk is mitigated through risk transfer measures (UNDRR, 2019a).

### 3.6.3 Risk transfer

Risk transfer is the process of formally or informally shifting the financial consequences of residual risks from one party to another whereby a household, community, enterprise, or state authority will obtain resources from the other party after a disaster occurs, in exchange for ongoing or compensatory social or financial benefits provided to that other party (Htay et al., 4014).

Risk transfer can occur informally within the family and community networks where there are reciprocal expectations of mutual aid by means of gifts or credit, as well as formally, where governments, insurers, multilateral banks, and other large risk-bearing entities establish mechanisms to help cope with losses in major events. Such mechanisms include insurance and reinsurance contracts, catastrophe bonds, contingent credit facilities and reserve funds, where premiums, investor contributions, interest rates, and past savings, respectively, cover the costs (Htay et al., 2014).

### 3.6.4 Insurance

Insurance is a well-known form of risk transfer, where coverage of risk is obtained from an insurer in exchange for ongoing premiums paid to the insurer. The insurance of the business assists the company to recover from all lost equipment during the disaster. Insurance is vital for all companies; therefore, insurance details must be included in the BCP. Companies in South Africa such as Sanlam, Old Mutual, and Liberty Life take BCP seriously and always have consultants visiting companies to encourage company owners to ensure their businesses (Htay et al., 2014).

### 3.6.5 Risk assessment

Risk assessment determines the nature and extent of risks by analysing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed

people, properties, services, livelihoods, and the environment on which they depend (Jordaan, 2019). Risk assessments includes an evaluation of the technical features of hazards such as their geographical location, magnitude, occurrence as well as likelihood. Risk assessment also analyse exposure and susceptibility, including the public, health, economic and environmental magnitude. Lastly, risk assessment includes the assessment of the efficiency of predominant and substitute coping capacities with respect to probable risk situations. The following series of activities is known as a risk analysis process (UNDRR, 2019a):

- **BCP also builds confidence among the customers of the company**. Companies that are transparent about their ongoing business continuity efforts are communicating something very powerful to their customers. The fact that the company shows a high level of commitment to business continuity builds confidence among customers. BCP ensures compliance with industry standards and if companies adopt a set of business continuity standards, it assures that the business is compliant with industry mandates. Even if companies do not have regulations to adhere to, compliance with standards provides proof to stakeholders that management or owners run the business responsibly. It also gives companies a blueprint that virtually guarantees the success of their programme and makes it easier to execute.

- **BCP preserves the company's brand value and reputation**. This is so because companies that are not prepared to handle disruption risks appear incompetent to the public should an event arise, possibly stumbling over the next steps and mishandling communication. Therefore, the business continuity programme becomes an engine behind a smooth recovery. business continuity planning cultivates a resilient organisational culture. Employees will be applying business continuity concepts automatically whenever they develop a new product or service, or they will be quicker to adapt when a process goes awry. The concept of continuity starts to apply in everything they do, particularly if there is strong management support for the programme.

- **BCP provides valuable business data**. Business continuity activities produce tons of data, critical business units, critical tasks, recovery time objectives and financial impacts of disruption. It is similar like having an encyclopaedia of valuable data about the company's operations. Smart companies make use of that data in other ways, such as the Arizona utility company that uses its data for process improvement, and to plan strategic activities that will help move the business forward.

- **BCP helps mitigate a company's financial risk**. Among the benefits of business continuity planning is the mitigation of not only business risk, but also financial risk. By creating a more resilient network or putting the right backup processes and procedures in

place, lessening the risk of a data breach, for example, or a substantial power or data loss or system failures, the financial losses associated with such events, or even minor ones, can be avoided with a good business continuity programme in place.

- **BCP protects the company's supply chain**. The company should be familiar with the business impact analysis (BIA) because the BIA details the critical operations that are necessary to recover. Armed with that information and the plans to accompany it, every critical link in the company's supply chain will be protected in the event of a disruption, enabling the company to continue delivering goods or services as promised.
- **BCP gives competitive advantage**. Even if the company has a strong business continuity programme, the business's competitors likely do not have an existing BCP in place. The company can use that to its advantage. In today's world, it is a differentiator to be able to respond, recover, and resume business operations should a disruption occur, making the company more attractive to potential business partners and customers.

## 3.7 Challenges of business continuity planning

Bridging sentence with reference needed here.

- **Lack of management support**: One of the most challenges of a BCP is the lack of management support. It is challenging to perform a cost-benefit analysis for business continuity. Managers and corporate executives may not act based on 'what if' scenarios unless regulations require implementation thereof. Managerial decisions are generally based on concrete financial statements that benefit departments, stockholders, and the bottom line.

  There is a high degree of beneficial uncertainty associated with implementing BCP measures. Benefits resulting from BCP and mitigation efforts are dynamic in nature and are not limited to a single structure, department, or operation. Providing managers and corporate decision-makers a detailed vulnerability and hazard analyses with concrete financial statistics of their effects may garner some support.

- **Budget restraints**: Companies are in the business of making a profit; planning, and mitigation measures are often compromised for other priorities. It may be helpful to estimate the cost of implementation for each critical process in relation to the cost of a critical process breakdown. This exercise may highlight the need for a designated budget. It may also be necessary to prioritise BCP implementation by each critical process with a step-by-step timeline for completion. Companies can identify and rank the most critical business processes and implement BCP and mitigation measures based on those

priorities. While most processes are intertwined, taking small steps to ensure process continuity is a step toward overall business continuity.

- **Lack of training and business continuity awareness**: Managers and employees frequently recognise the limits of their business continuity expertise after identifying the company and process vulnerabilities. Planning and training should address overall business continuity efforts and detailed standard operating procedures for BCP activation. Training should convey procedural flexibility based on continuing assessment of disaster demands and provide options for each scenario. If implementing continuity efforts are beyond the scope of managers, companies should consider hiring consultants who specialise in business continuity planning.
- **Employee turnover**: A review of specific business continuity planning roles and responsibilities should be part of training practices of any new employee. This will ensure continuity of knowledge, standard operating procedures, and emergency, and business continuity procedures. Companies can also benefit from employee turnover. A new employee may have unique business continuity experiences or knowledge that can be used to strengthen the plan.

## 3.8 Awareness of business continuity planning

The importance of gaining an awareness of the enemy before the enemy gains a similar awareness, and devised methods for accomplishing this identified the concept of situational awareness during World War I. This idea of separation between the human operators' understanding of system status and actual system status is at the crux of the definition of situational awareness (Stanton et al., 2001). Public awareness is a key factor in effective disaster risk reduction. Senior public officials and community leaders pursue its development, for example, through the development and dissemination of information through media and educational channels, the establishment of information centres, networks, and community or participation actions, and advocacy.

The ISO launched the ISO 22301 as the first standard for business management (Melton & Jason, 2009). The new ISO 22301 standard was introduced by Continuity SA during a breakfast talk at the Business Continuity Awareness Week 2013 (Bodenstein, 2013). The Business Continuity Awareness Week is an annual global event organised by the Business Continuity Institute (Melton & Jason, 2009). Awareness in BCP serves as the early warning system measure. It assists companies to plan ahead and train and educate the employees of the company and other stakeholders.

## 3.9 Differences and similarities between a business continuity plan and disaster recovery plan

Business continuity planning and disaster recovery are processes that help organisations prepare for disruptive events. Table 3.1 shows the differences and Table 3.2 the similarities between the two plans.

**TABLE 3.1: DIFFERENCES BETWEEN A BUSINESS CONTINUITY PLAN AND A DISASTER RECOVERY PLAN**

| Business Continuity Plan | Disaster Recovery Plan |
|---|---|
| Planning refers to a strategy that lets a business operate with minimal or no downtime or service outages. | The ability to restore the data and applications that run a business should data centres, servers, or other infrastructure get damaged or destroyed. |
| Business continuity planning suggests a more comprehensive approach to ensure that a company can keep making money, not only after a natural calamity but also in the event of smaller disruptions, including illness or departure of key staff, supply chain partner problems or other challenges that businesses face from time to time. | Disaster recovery is the process by which a company can resume business after a disruptive event. |
| The business continuity planning process is far more granular by comparison. Its extensive detail can be seen in its dependence on redundancy: from servers, storage, and networking equipment to customer service representatives, marketing personnel, and security detail. Everything that could possibly disrupt business flow must be stacked in reserves. | A disaster recovery plan outlines how often a company needs to do a backup, where copies are replicated and stored in proximity to the company's data centre, and the selection of recovery destinations. |

Source: Remenyi (2002).

**TABLE 3.2: SIMILARITIES BETWEEN A BUSINESS CONTINUITY PLAN AND A DISASTER RECOVERY PLAN**

| Business Continuity Plan | Disaster Recovery Plan |
|---|---|
| BCPs comprise management policies, processes, and plans for all aspects of a business: sales, service, billing, manufacturing, delivery, supplies, and more. Continuity is further-reaching than immediate recovery, and a healthy BCP provides for the continuation of the business during and after a disaster. | Disaster recovery often involves copying, storing, and recovering business data and systems, usually with the help of cloud-based or off-site digital backup. Depending on the company's needs, the scope may vary from a fully mirrored website to a simple daily backup system. |
| Interdependent BCP describes the process during the disaster and how to maintain the process. | Interdependent disaster recovery is about obtaining the process. |
| Requires yearly consistency through training. | Requires yearly consistency through training of the disaster recovery plan. |

Source: Remenyi (2002).

## 3.10 Transnet risk assessment versus eThekwini risk assessment

The risk assessment of eThekwini Metropolitan Municipality was completed by using hazard, vulnerability and capacity data. From the analysis of the risk assessment conducted by eThekwini Metropolitan Municipality, there was a prioritised risk profile based on the risk assessment conducted. The risk prioritisation for the eThekwini Metropolitan Municipality is shown in Table 3.3.

**TABLE 3.3: PRIORITISED RISKS FOR THE ETHEKWINI METROPOLITAN MUNICIPALITY (2017)**

| No. | Risk | Combined |
|---|---|---|
| 1 | Civil unrest – crime | 1.87 |
| 2 | hydrometeorological hazards – severe storm (wind, hail, snow, lightning, fog) | 1.80 |
| 3 | Hydrometeorological hazards – floods (river, urban, and dam failure) | 1.80 |
| 4 | Disease/health – disease: human | – |
| 5 | Fire hazards – formal and informal settlements/urban area | 1.67 |
| 6 | Infrastructure failure/service delivery failure – electrical | 1.66 |
| 7 | Hazardous materials – fire/explosion (storage and transportation) | 1.63 |
| 8 | Oceanographic – storm surges | 1.61 |
| 9 | Hazardous materials – spill/release (storage and transportation) | 1.59 |
| 10 | Infrastructure failure/service delivery failure – water | 1.56 |
| 11 | Infrastructure failure/service delivery failure – sanitation | 1.54 |
| 12 | Oceanographic – sea level rise (climate change) | 1.53 |
| 13 | Pollution – water pollution (fresh and sea) | 1.52 |
| 14 | Environmental degradation – loss of biodiversity | 1.52 |
| 15 | Transport hazards – road transportation | 1.52 |
| 16 | Pollution – land pollution | 1.46 |
| 17 | Pollution – air pollution | 1.45 |
| 18 | Hydrometeorological hazards – extreme temperatures | 1.45 |
| 19 | Civil unrest – demonstration/riots | 1.42 |
| 20 | Civil unrest – armed conflict (civil/political war) | 1.37 |
| 21 | Environmental degradation – deforestation | 1.36 |
| 22 | Infestation – plant infestation (intruder plants) | 1.35 |
| 23 | Transport hazard – air transportation | 1.27 |
| 24 | Infestations – insect infestation | 1.26 |
| 25 | Environmental degradation – land degradation | 1.25 |
| 26 | Transport hazards – rail transportation | 1.19 |
| 27 | Transport hazards – water transportation (including marine accident) | 1.19 |
| 28 | Civil unrest – refugees/displaced people | 1.18 |
| 29 | Geological hazards – landslides/mud flows | 1.15 |
| 30 | Structural failure – dam failure | 1.15 |
| 31 | Infrastructure failure/service delivery failure – information technology | 1.09 |
| 32 | Environmental degradation – erosion | 1.08 |

| No. | Risk | Combined |
|---|---|---|
| 33 | Infestation – animal infestation/overpopulation | 1.07 |
| 34 | Major event hazard – political | 1.04 |
| 35 | Oceanographic – tsunami | 0.88 |
| 36 | Civil unrest – xenophobic violence | 0.87 |
| 37 | Disease/health – disease: animal | 0.87 |
| 38 | Structural failure – building failure | 0.82 |
| 39 | Civil unrest – terrorism | 0.81 |
| 40 | Infrastructure failure/service delivery failure – transport | 0.77 |
| 41 | Geological hazards – earthquake | 0.55 |
| 42 | Hydrometeorological – drought | 0.58 |
| 43 | Fire hazards – veld/forest | 0.58 |
| 44 | Hydrometeorological hazards – desertification | 0.55 |
| 45 | Major events hazards – cultural/religious | 0.55 |
| 46 | Other – space objects | 0.54 |
| 47 | Structural failure – bridge failure | 0.44 |
| 48 | Geological hazards – subsidence | 0.40 |
| 49 | Disease/health – disease: plants | 0.39 |
| 50 | Major event hazard – sport | 0.35 |
| 51 | Major events hazards – recreational/commercial | 0.34 |
| 52 | Geological hazards – rock fall | 0.32 |
| 53 | Infrastructure failure/service delivery failure – gas | 0.03 |
| 54 | Infestations – algal bloom (red tide) | 0.02 |

Source: eThekwini Metropolitan Municipality (2017).

Figure 3.1 illustrates the top 10 disaster risks for the eThwekwini Metropolitan Municipality.

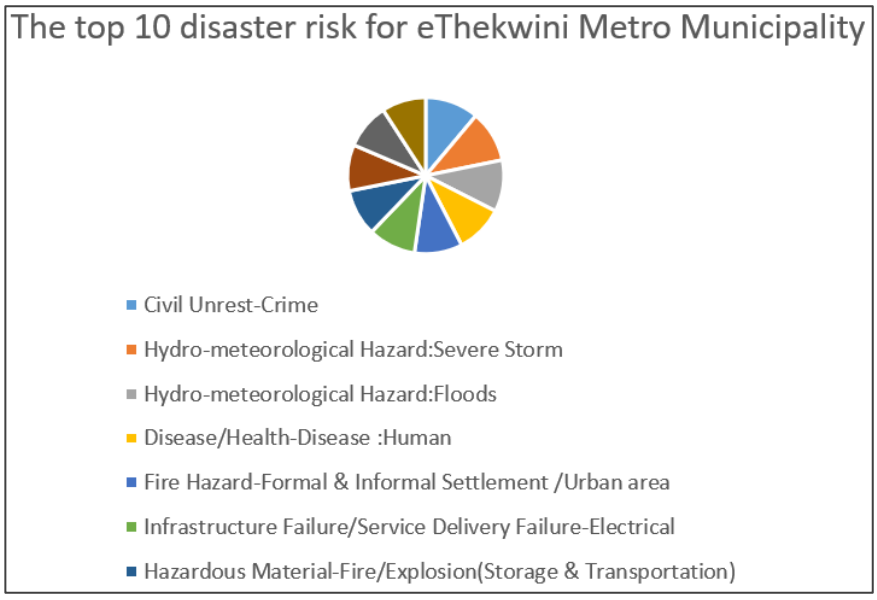

**Figure 3.1:** **The top 10 disaster risks for eThekwini Metropolitan Municipality**
Source: eThekwini Metropolitan Municipality (2017)

- Crime was rated as the highest risk. Durban central is among the highest crime precincts in the country (Stats SA, 2018).
- The high rating of hydrometeorological hazards is consistent with the coastal locality of Durban and the probable impact of climate change.

The Transnet risk assessment is reassessed on an annual basis by considering the best available information on changes in both the internal and external environments of the organisation. Risks are evaluated and assessed on an inherent risk basis before current control are considered. Transnet only does a risk assessment for the company by considering both internal and external factors to understand the interconnectedness of risks and to appreciate the possible impacts. Risks are ranked according to the residual risk rating after considering the adequacy and effectiveness of controls that mitigate the risks (Transnet, 2017).

**TABLE 3.4: PRIORITISED RISKS FOR TRANSNET**

| No. | Risks | Combined |
|---|---|---|
| 1 | Pricing risk – tariff guideline, methodologies and models not supportive of volume growth | 1.90 |
| 2 | Productivity – efficiency risk | 1.88 |
| 3 | Operational readiness risk – rolling stock acquisition | 1.81 |
| 4 | Information and communications technology (ICT) risk – inadequate ICT infrastructure | 1.78 |
| 5 | People management risk – inadequately skilled staff in operations | 1.77 |
| 6 | Capital execution risk – capital investment | 1.66 |
| 7 | Environmental risk – energy supply, water shortage and adverse weather patterns | 1.61 |
| 8 | Macro-economic environmental risk – global economic slowdown and slow recovery, local economic policy uncertainty | 1.59 |
| 9 | Regulatory risk – national policy changes anticipated in economic regulations; National Treasury increasing procurement controls to contain uneconomical expenditure and opportunities for fraud | 1.40 |
| 10 | Volume growth risk – high reserve stock levels of some commodities, current | 1.35 |

Source: Transnet (2017)


**Figure 3.2: The top 10 disaster risks for Transnet**
Source: Transnet (2017)

EThekwini and Transnet both do risk assessments. The identified gap between the two rated top ten risk assessments is that eThekwini included all risks that are possible for the whole Durban, with the inclusion of Durban south where the Transnet harbour is located, as well as Bayhead, whereas Transnet only prioritised risks concerning internal issues that are affecting the company only. Based on their established risk profiles, it can be assumed that there is no working relationship between eThekwini's disaster management and Transnet's risk management unit.

## 3.11 Chapter summary

To summarise, this chapter discussed business continuity planning with different definitions from different authors. The most appropriate definition that supports this study is by Capgemini Consulting (2016) that a BCP is a proactive measure that needs to be drafted prior to a disaster. The chapter further explored the benefits and challenges of BCP. The concept of risks was also discussed.

Chapter 4

# Research Methodology

## 4.1 Introduction

This chapter places the research within its relevant philosophical and methodological context. The chapter further takes into consideration the different perspectives that provide the foundations in the search for knowledge and understanding, and positions this research within this context. The chapter will also detail the approach used when gathering data required to answer the research question, as well as the rationale for the methods selected.

## 4.2 Research overview

Different scholars and researchers, working in different fields, have proposed several research definitions. The Soanes et al (2009), defines research as “systematic investigation undertaken in order to discover new facts, get additional information”. Saunders et al. (2019) defined research as “something that people undertake to find out new things in a systematic way, thereby increasing their knowledge”. From these research definitions, it follows that research is a planned activity, aimed at establishing new facts and information about a particular phenomenon. The research process involves the identification of a particular problem or area of interest, translating that problem into a research problem, collecting data, analysing the data and reporting the findings of the research.

Selecting the correct methodology to gather information assists the researcher to make sure that the data accumulated is robust and valid. A theory or research question is normally tested when research is designed and grounded into a correct research plan and with the use of the correct methodology. Remenyi (2002) highlighted several benefits of a well thought-out research strategy. A well-planned research enables communication and replication between researchers which, in turn, protects against unintentional mistakes. It ensures a logical structure which will have appropriate empirical and reasoning components.

### 4.2.1 The research process

Research is a cyclical process. The research cycle in Figure 4.1, as proposed by Leedy and Ormrod (2015), shows that there has to be a problem in order for research to exist. A researcher must have a goal to provide answers for the detected problem. In answering the unanswered questions, the researcher must divide the questions into sub-questions and

formulate an hypothesis to anticipate the solutions for the detected problem. The hypothesis assists the researcher to have direction in collecting the data. The main focus of the study was to check the perception around BCP by companies and if all the companies in Bayhead Harbour, Durban, know the importance of developing a BCP prior to a disaster.

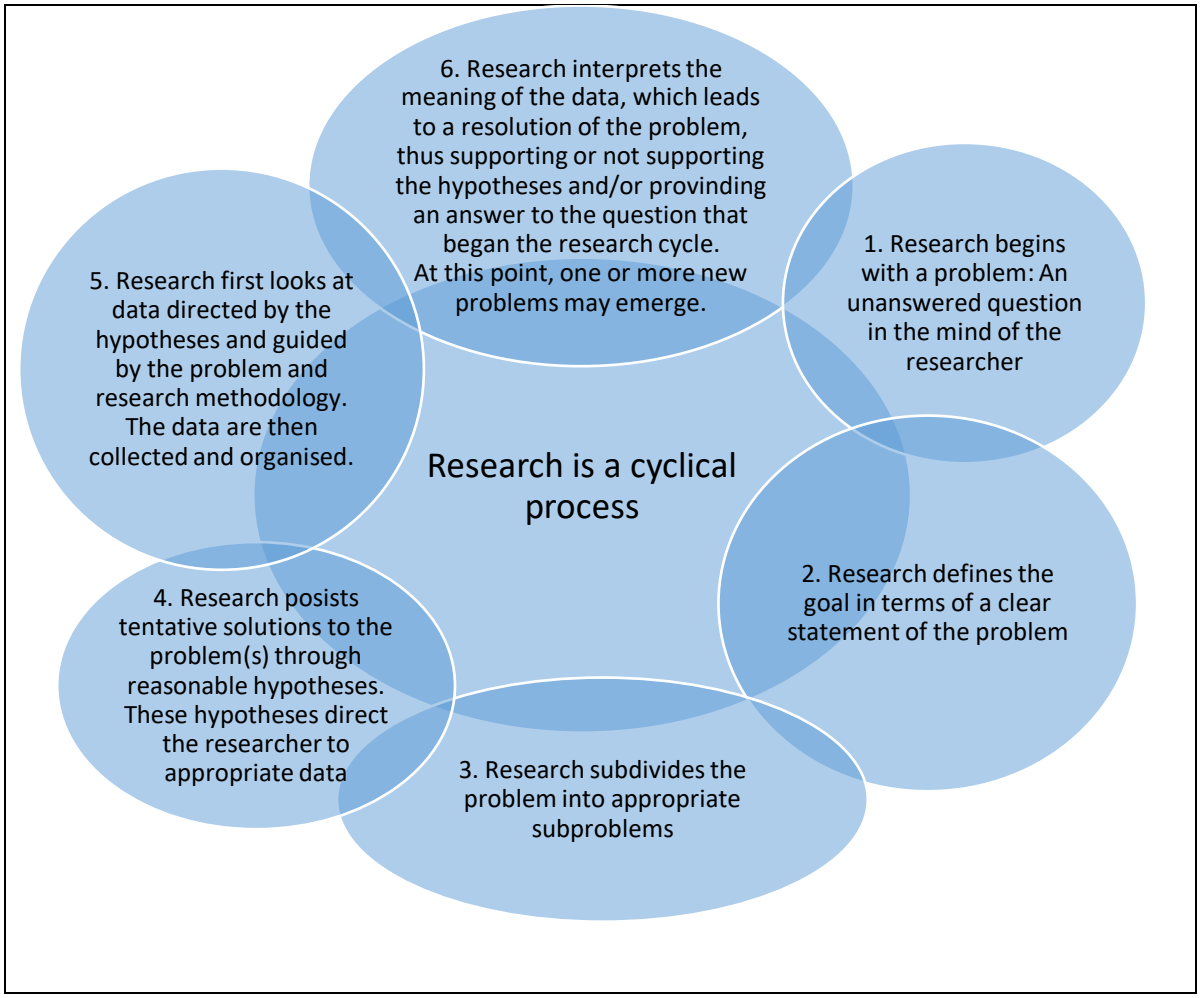


**Figure 4.1: The research process as a cycle**
Source: Adapted from Leedy and Ormrod (2015)

### 4.2.2 Research philosophy

Research philosophy "relates to the development of knowledge and the nature of that knowledge" (Saunders et al., 2019). Galliers (1991) noted that the two major research philosophies identified in science are positivism (sometimes referred to as scientific) and interpretivism (also known as anti-positivist):

- **Positivism**: This stance, according to Khazanchi and Munkvold (2002), assumes that there exists an objective social reality that can be studied independently of the action of the human actors in this reality. Positivism is where data have to be observed; the proof is the hallmark of this approach. This type of research is similar to a natural science approach

where only observable facts will lead to producing of data. Positivism culminates in law-like generalisations. Research is undertaken as far as possible in a value-free way, according to Saunders et al. (2019), to ensure that bias from the stakeholders in the research will be minimised.

- **Interpretivism**: Khazanchi and Munkvold (2000) argued that this stance assumes that reality and knowledgeable social constructions are incapable of being studied independently of the social actors that construct and make sense of reality. Interpretivism focuses on people rather than definite tangible objects. In this approach, the reviewer should adopt an empathetic stance and should try to understand the world from the perspective of the population being studied. In this study, the population's perception of BCP is evaluated to check if companies are aware of BCP and have an understanding of the importance of developing a BCP.

In summary, Benbasat et al. (1987) observed that no single research methodology is intrinsically better than any other methodology and some authors, for instance Kaplan and Duchon (1988), called for a combination of research methods to improve the quality of research. As noted by Saunders et al. (2019), business and management research is often a mixture between positivism and interpretivism. By its nature, this study tries to avoid what may be characterised as methodological monism, that is the insistence of using a single research method. This is not due to any indecision between the differences of the various alternatives; instead, it is based on the belief that all methods are valuable if used appropriately and that research can include elements of both the positivist and interpretivist approaches if managed carefully.

This research used both the positivism and interpretivism method because the structure of the research is not entirely qualitative or entirely quantitative but it combines the two methods. The use of positivism is relevant to the study because the positivism approach is presented through the quantitative data. On the other hand, the interpretivism approach is also relevant in this study because it explores the population perception of BCP through the qualitative data gathered by means of the questionnaire.

### 4.2.3 Research design and methodology

The two concepts of research design and research methodology need to be clarified first in order to clear the confusion that is often associated with their usage, particularly by emerging researchers. Each of these concepts is presented as a compound word, with the concepts 'design' and' methodology' attached to the noun research.

### 4.2.4 Research design

Leedy and Ormrod (2015) defined research design as a plan for a study, providing the overall framework for collecting data. MacMillan and Schumacher (2001) defined it as a plan for selecting subjects, research sites, and data collection procedures to answer the research question(s). They further indicated that the goal of a sound research design is to provide results that are judged to be credible. Tredoux and Durrheim (2004) stated that research design is a strategic framework for action that serves as a bridge between research questions and the execution or implementation of the research strategy. According to a researcher's point of view, research design refers to a set of approaches and measures utilised to collect and analyse processes of the variables quantified in the research problem and research methodology. The collection of data was done through a questionnaire that included closed and open-ended questions. The researcher compiled a contact list of all 105 companies in Bayhead Harbour. All participants were first called to explain the purpose of the study; thereafter, the questionnaire was sent out via email to the participants. All completed questionnaires were then captured through the SPSS program for analysing the data.

### 4.2.5 Research methodology

Schwardt et al. (2007) defined research methodology as a theory of how an inquiry should proceed. It involves analysis of the assumptions, principles, and procedures in a particular approach to inquire. According to Schwardt et al. (2007), methodologies explicate and define the kinds of problems that are worth investigating; what constitutes a researchable problem; testable hypotheses; how to frame a problem in such a way that it can be investigated using particular designs and procedures; and how to select and develop appropriate means of collecting data.

## 4.3 Mixed methods methodology

This study adopted a mixed methods research approach. Kemper et al. (2003) defined mixed methods design as a method that includes both qualitative and quantitative data collection and analysis in a parallel form, which is the concurrent mixed method design in which two types of data were collected and analysed in sequential form. Bazeley (2009) defined a mixed method as the use of mixed data (numerical and text) and alternative tools (statistics and analysis), but applying the same method. It is a type of research in which a researcher uses the qualitative research paradigm for one phase of a study and a quantitative research paradigm for another phase of the study. Johnson et al. (2007) indicated that mixed methods research is a natural complement to using either of the traditional qualitative or quantitative research

methods in isolation. They view it as the class of research where the researcher combines or mixes qualitative and quantitative research techniques, methods, approaches, concepts or language in a single study. On the philosophical level, according to Johnson et al. (2007), mixed methods research is a third research movement that moves past paradigm wars by offering a logical and practical alternative.

Creswell (2004) argued that mixed methods research is more than simply collecting both qualitative and quantitative data; it implies that data are integrated, related, or mixed at some stage of the research process. They further indicated that the underlying logic to mixing is that neither qualitative nor quantitative methods are sufficient in themselves to capture the trends and details of the situation. When used in combination, both qualitative and quantitative data yield a more complete analysis, and they complement each other. In pursuit of the same argument regarding the logic of mixed methods research, Johnson et al. (2007) indicated that mixed methods research includes the use of induction which refers to the discovery of patterns, deduction which involves testing theories and hypotheses, and abduction which refers to uncovering and relying on the best set of explanations for understanding research results.

There are several viewpoints as to why qualitative and quantitative research methods can be combined. Sale et al. (2002) commented as follows with regard to the combination of the two methods: *"Both approaches can be combined because they share the goal of understanding the world in which we live. They share a unified logic, and the same rules of inference apply to both."*

A combination of both approaches provides a variety of perspectives from which a particular phenomenon can be studied and they share a common commitment to understanding and improving the human condition, a common goal of disseminating knowledge for practical use. Both approaches provide for cross-validation or triangulation by combining two or more theories or sources of data to study the same phenomena in order to gain a more complete understanding of that phenomenon (interdependence of research methods). They also provide for the achievement of complementary results by using the strengths of one method to enhance the other (independence of research methods) (Creswell , 2004).

In support of Sale et al. (2002), Johnson et al. (2007) identified the following rationales for mixing qualitative and quantitative approaches: participant enrichment, instrument fidelity, treatment integrity, and significance enhancement:

- Participant enrichment refers to increasing the number of participants in the research. Johnson et al. (2007) contended that the larger the sample, the more reliable and valid the research findings will be.
- Instrument fidelity refers to maximising the appropriateness and/or utility of the instruments used in the study. For the purpose of this study, one instrument was used, namely questionnaires that cover both qualitative and quantitative data. The questionnaire questions were appropriate and assisted the researcher to ask biographical information about business continuity planning.
- Treatment integrity refers to mixing of qualitative and quantitative research methods in order to assess the fidelity of interventions, treatments, or programmes.
- Significance enhancement refers to maximising the researcher's interpretation of data.

Figure 4.2 shows the steps in the process of conducting a mixed methods study.

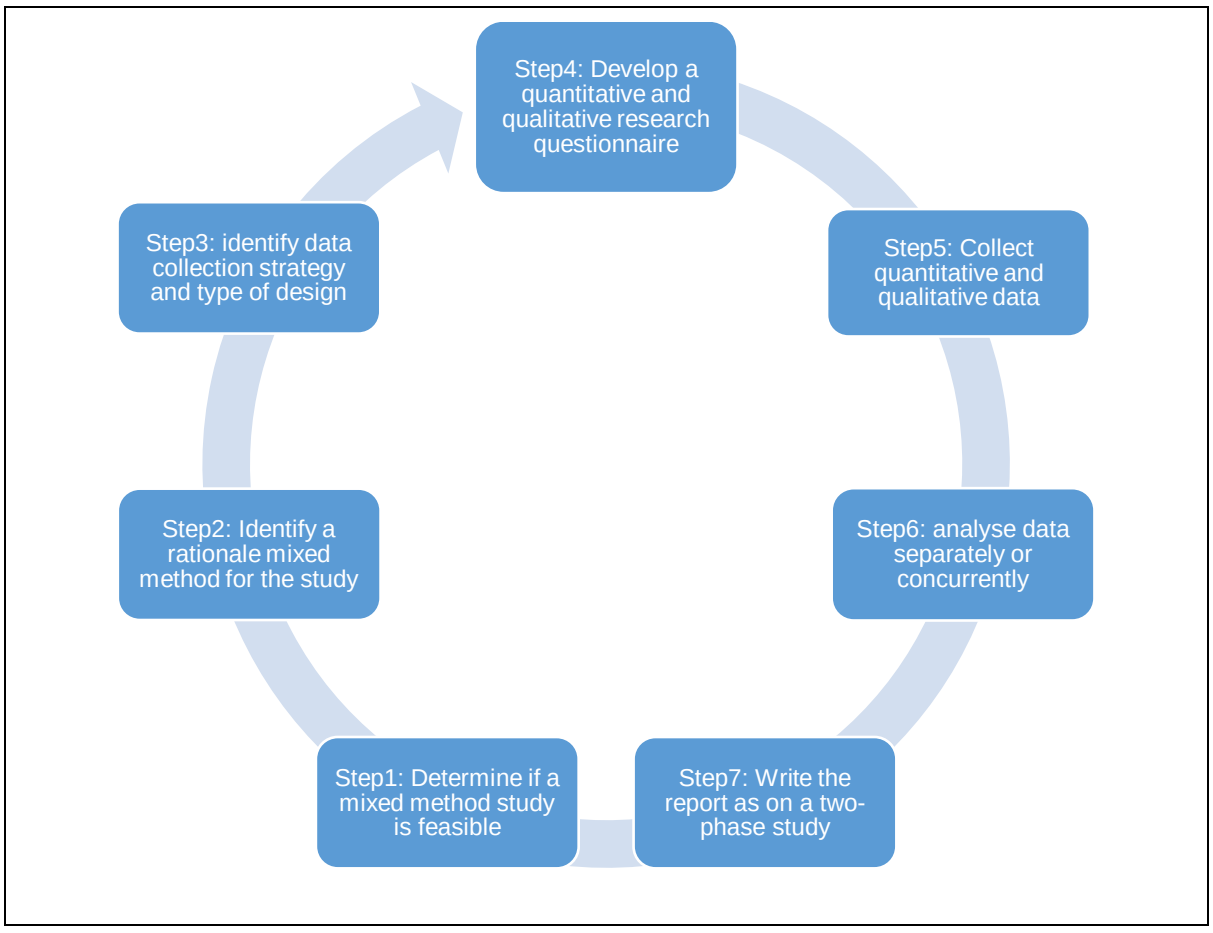


**Figure 4.2:** **Steps in the process of conducting a mixed method research**
Source: Adapted from Hofstee (2006)

### 4.3.1 Process of conducting a mixed method study

The seven steps indicated in Figure 4.2 were observed from the planning stage of this research study through to the data analysis stage. Figure 4.2 emphasises the fact that rather than viewing various research methods as part of an incompatible quantitative/qualitative dichotomy, in this study, the researcher approached them as complementary modes of investigation, resulting in a deeper understanding of the phenomenon being studied (Johnson et al., 2007). The following sections discusses the qualitative and quantitative research methods that were used in this study.

### 4.3.2 Quantitative research methodology

Quantitative research, according to Kotzé and Van der Merwe (2015), is a research approach aimed at testing theories, determining facts, demonstrating relationships between variables, and predicting outcomes. Quantitative research uses methods from the natural sciences that are designed to ensure objectivity, generalisability, and reliability (Weinreich, 2009).

The techniques used in quantitative research include a random selection of research participants from the study population in an unbiased manner, the standardised questionnaire or intervention they receive, and statistical methods used to test predetermined hypotheses regarding the relationship between specific variables. The researcher in quantitative research is considered as being external to the actual research, and results are expected to be replicable, no matter who conducts the research, unlike in the qualitative paradigm where the researcher is regarded as a great research instrument due to his or her active participation in the research process (Leedy & Ormrod, 2015).

As referred to by Saunders et al. (2019), quantitative data in its raw form convey very little meaning to most people. According to O'Leary (2004), quantitative techniques use an investigative approach that results in numerical data and is valuable when highlighting percentages, obtaining measurements, and testing hypotheses. The data need to be processed to make it useful in order to turn it into information. Quantitative techniques such as graphs, charts, and statistics are used to do this to enable the researcher to explore, present, describe, and examine relationships and trends within the data. According to Saunders et al. (2019), the quantitative data returned from this survey can be classed as nominal data. Nominal data are data that involve simply counting the number of occurrences in each category of a variable.

### 4.3.3 Qualitative research methodology

Quantitative research, according to Kotzé and Van der Merwe (2015), is a research approach aimed at the development of theories and understanding. Denzin and Lincoln (2008) defined qualitative research as a situated activity which locates the observer in the world. It involves an interpretive, naturalistic approach to the world, either where qualitative researchers study phenomena in their natural settings, attempting to make sense of the phenomena, or interpreting phenomena in terms of the meanings people bring to them. Qualitative research implies an emphasis on the qualities of entities and on processes and meanings that are not experimentally examined or measured (Denzin & Lincoln, 2008).

Denzin and Lincoln (2008) defined qualitative research as a naturalistic approach, which seeks to understand phenomena in context-specific settings, such as real-world settings, where the researcher does not attempt to manipulate the phenomena of interest. As qualitative, it is any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification, but instead, the kind of research that produces findings derived from real-world settings where the phenomena of interest unfold naturally.

Weinreich (2009) indicated that the purpose of qualitative research is to provide the researcher with the perspective of target audience members through immersion in a culture or situation and direct interaction with the people under study. This implies that in the qualitative paradigm the researcher becomes an instrument of data collection, and results may differ greatly depending on who conducts the research. In this research, a mixed method approach was used because it allowed the researcher to reflect on the participants' point of view and to gather statistical data to make generic outcomes based on the data collected from the participants. The flow of the mixed method approach is shown in Chapter 5.

## 4.4 Population and sampling selection

Business continuity planning is a strategic planning measure, therefore a standard principle for BCP is that executive managers are responsible for constructing the BCP (Tammineedi, 2010). In Bayhead Harbour, Durban, there are a total number of 105 existing companies. Therefore, the target population selected for this study were executive managers from each company. The appropriate sampling procedure for this research was the probability method using the simple random method. The study surveyed the whole sample of 105 participants and randomly selected the companies. For example, the study area consisted of companies with different business functions.

## 4.5 Data collection procedure

The data collection tools used in the research was a questionnaire in electronic format and telephone communication to introduce the researcher to the executive managers before the questionnaire was sent by email. Telephone communication avoids the necessity of traveling to the respondents and is carried out more quickly than face-to-face conversations. Feedback is also provided immediately. However, the setback was that the researcher could not make use of visual aids to explain questions, and there were no visual clues. For interviewing very busy people, the researcher pre-arranged a suitable time to ring because modern communications technology is making it more and more difficult to talk with an actual person on the phone (Williman, 2011).

A number of 105 questionnaires were sent out to each company via an email. Before a questionnaire was sent out, the researcher made a call to explain the study and humbly asked for the participation of the managers. After the participant agreed to partake in answering the questionnaire then the questionnaires were sent individually to each of those participants who were willing to take part. However, only 77 company managers responded positively by sending back a completed questionnaire. A number of 28 companies did not return the questionnaire and claimed that there was no time to complete it.

Therefore, this study used probability sampling methods by selecting a simple random method. The reason for choosing this method was because simple random sampling assists the researcher to have a complete and up-to-date data available. On the SPSS softeware, each population element was numbered sequentially in such a way that each element could be uniquely identified. Both closed and open-ended questions were asked to correspond with the mixed method approach.

## 4.6 Data analysis

To analyse the data, the Statistical Package for Social Sciences (SPSS) software was used. All 77 complete questionnaires were captured individually to do a logical data analysis. The SPSS was only used to capture quantitative data that came from closed-ended questions from the questionnaire. Furthermore, the qualitative data were presented through perceptive answers of the participants form the open-ended questions asked in the questionnaire.

## 4.7 Chapter summary

This chapter presented a discussion on the overview of research. The researcher discussed steps of research through a research process that there has to be an existing problem for

research to be undertaken. The chapter further explored the research philosophy to discuss the positivist approach and interpretivist approach, to show the link between the mixed methods. The discussion of the qualitative and quantitative methods in this chapter was to give support to the reason why the researcher chose to use both methods instead of only one. The use of both methods served as a complementary mode of the investigation to understand the phenomena studied. The chapter also discussed the population and sampling method selected in the study. The selected population was executive managers from the companies.

The chapter included a research design to show the procedure of gathering data and a process of capturing data to have an overall data analysis. Mixed method was also discussed using the seven steps of conducting a research method. The next chapter will outline the results of the survey, which had been undertaken for this research, and will endeavour to show that the conclusions garnered from the literature review are backed up with empirical research.

Chapter 5

# Presentation, Interpretation, and Discussion of the Results

## 5.1 Introduction

This chapter presents the results returned by the participants from different companies in Bayhead Harbour, Durban. The results are interpreted and discussed to bring out the key information from the empirical studies. Tables and graphs are used to present the results from the questionnaires distributed to the participants. According to Hughes (2006), qualitative and quantitative data can be described or interpreted into two phases, which are presented in this chapter as Phase 1 and Phase 2 because quantitative research may be employed to plug the gaps in a qualitative study which arises. For example, the researcher cannot be in more than one place at any one time and not all issues are amenable solely to a quantitative or a qualitative investigation. Therefore, in this study, the quantitative results were presented in Phase 1 mostly in the form of graphs and tables. On the other hand, qualitative data are presented in Phase 2 to handle all open-ended questions and the qualitative results are presented in textual format. The quantitative results are presented in sections, starting with the socio-demographic data, then economic data, followed by awareness and perceptions of BCPs, then the development of BCPs, and lastly on disaster risks that may affect companies at Bayhead Harbour. The qualitative data start with the perception of respondents regarding BCP, to know who has access to their company's BCP document, to try to understand where the BCP document is kept, to explore encounters of disasters by companies within the last five years and how the disaster(s) affected the company, to check if the all-important feature of the BCP is captured to those companies with an existing BCP, and lastly, to get a view from the participant on how to improve BCP perception. The final section of the chapter focuses on interpretation and the discussion of research findings.

## 5.2 Phase 1: Quantitative results

### 5.2.1 Socio-demographics of the respondents

This section of the study comprises of eight questions (Questions 1–8) designed to provide personal details of the respondents (age, gender and language), educational level of the

respondents, the number of years that the respondents have worked in the company and the position that the respondents occupy in the company.

#### 5.2.1.1 Age group of the respondents

Figure 5.1 shows the age group of the targeted population in companies at Bayhead.

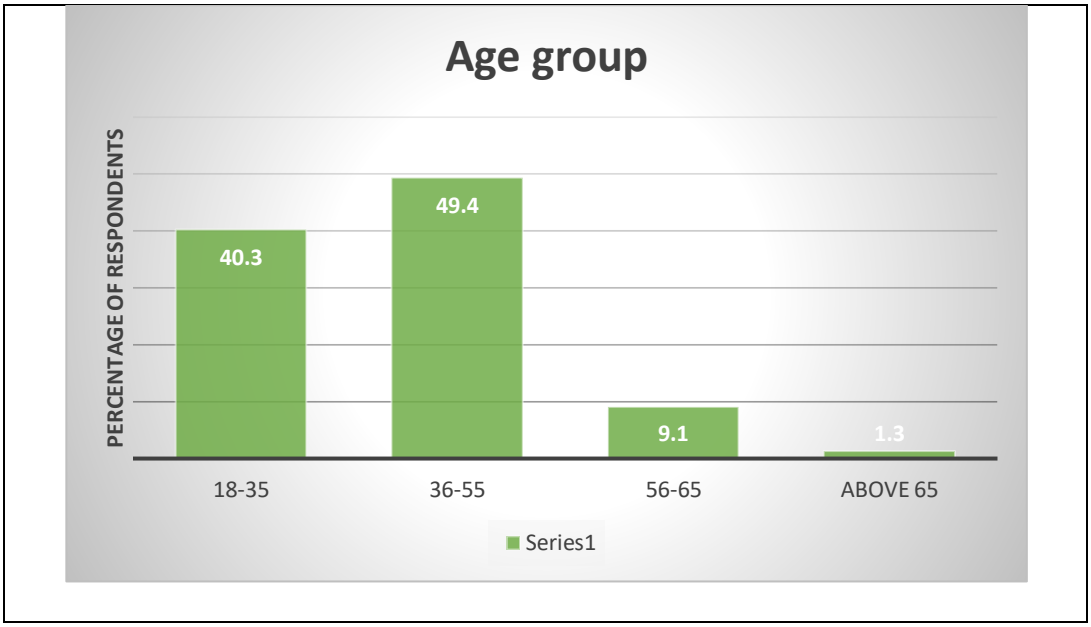


**Figure 5.1:** **Age group of the respondents**
Source: Field survey (2019)

The results revealed that 49.6% of the respondents were between the ages of 36 and 55. The second age group was between the ages of 18 and 35, which account for 40.3%, and, these are employees who probably had work experience in a managerial position for less than 10 years. The third age group was between 56 and 65, with a percentage of 9.1. The percentage may be low because many employees in this age are preparing for retirement and have the responsibility to do succession planning for the upcoming future executive managers or directors. Lastly, the age group above 65 was made up of only 1%. These are mostly retired employees but who may still be working as freelancers or working on contracts to share their experience with the future executive managers.

### 5.2.1.2 Gender of respondents

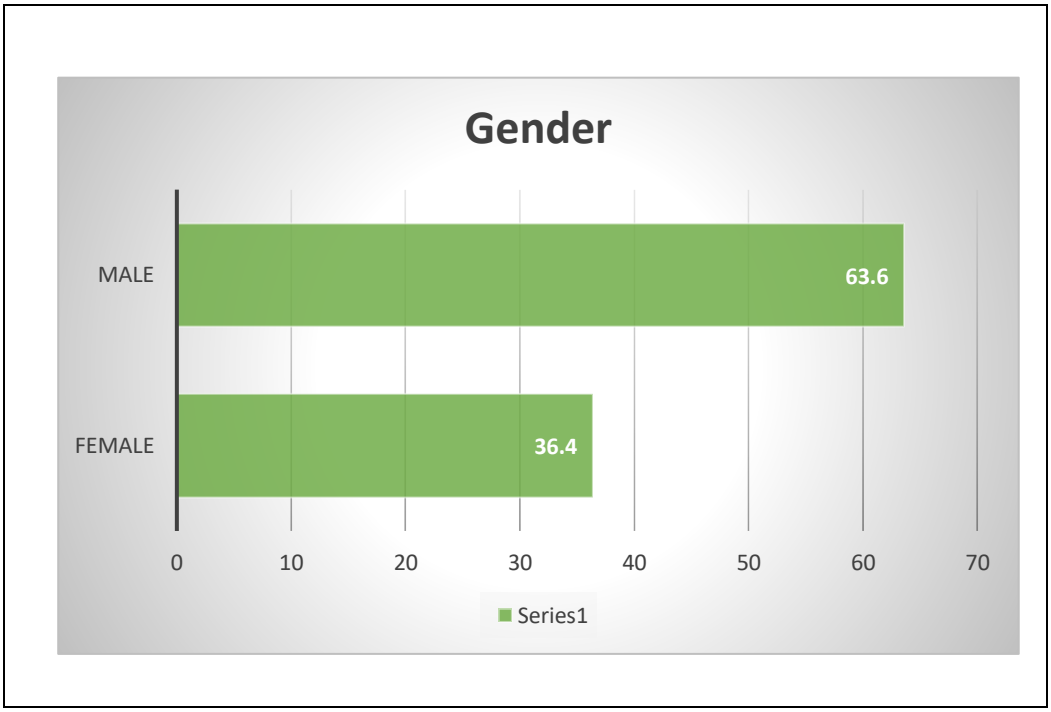


**Figure 5.2: Gender distribution of the respondents**
Source: Field survey (2019).

The results revealed that there were more males in executive positions at Bayhead companies. Males counted for 63.6% of the total respondents. The main reason is that many companies in Bayhead are male dominant. The female percentage is 36.4%, which shows that there were fewer females in leadership, executive and managerial positions in these companies.

**TABLE 5.1: POSITION OF THE RESPONDENTS**

| Position | Percentage |
|---|---|
| General worker | 1.3% |
| Supervisor | 3.9% |
| Manager | 39.0% |
| Director | 45.5% |
| Chief executive officer | 6.5% |
| Accountant | 2.6% |
| Relief-area administrator | 1.3% |

Source: Field survey (2019)

The respondents who completed the questionnaire had the responsibility of drafting the BCP in each of their organisations. The results reveal that most of the respondents were company directors, with an average of 45.5%. As noted by Tammineedi (2010) and BSI (2012), a BCP is drafted by the executive management of different units in the organisation. Other respondents were managers of each company with a percentage of 39% and directors with a percentage of 6.5%. In some of the companies, the supervisor was responsible for drafting the BCP, especially in the case of a small business, and the responses here were 3.6%. The managers who allowed supervisors to fill in the questionnaire argued that supervisors were the implementers of the BCP and therefore they knew the BCPs of their companies in detail, while the other supervisor was from a company that do not have a BCP. The results also revealed that a few companies allowed generals workers to complete the questionnaire (1.3%), and lastly were accountants, also with a percentage of 1.3%.

#### 5.2.1.3 Respondents' work experience


**Figure 5.3: Average years of work experience of the respondents**
Source: Field survey (2019)

The survey showed that 45.5% of respondents had 6–10 years of work experience in the company and were responsible for the BCP. Other respondents (15.6%) were people with 1−5 years of work experience in the company and had the responsibility for the BCP. About 31.2% of the respondents reported a work experience of 11–15 years in the company and had the responsibility for the BCP. Lastly, 5.2% and 2.6% were people with 16–20 years and above 20 years of work experience, respectively. This illustrate that as the number of work

experience increased, so the number of respondents and this might be a possibility that some were retiring and others have resigned or changed jobs.

#### 5.2.1.4 The educational level of respondents

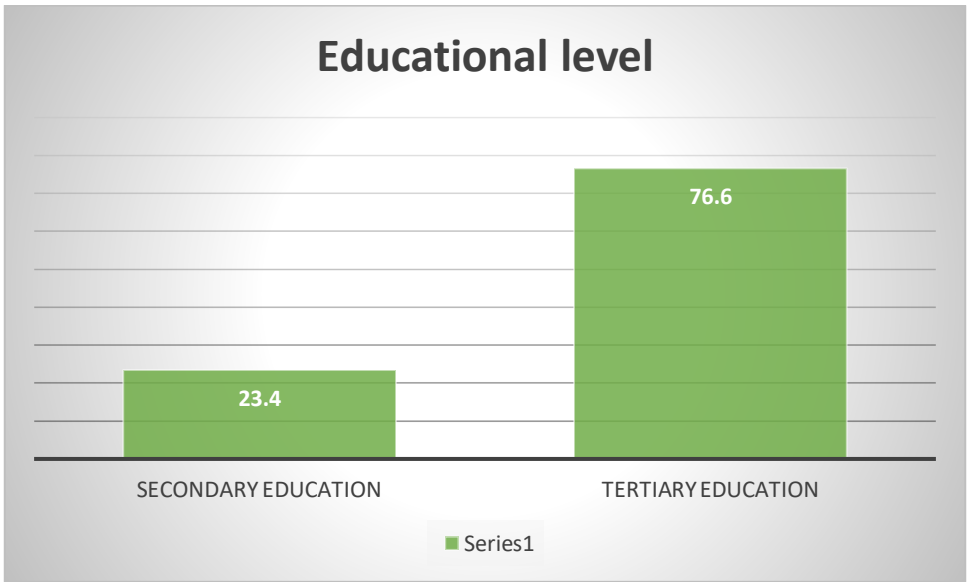


**Figure 5.4: The educational level of respondents**
Sources: Field survey (2019)

The majority of the respondents (76.6%) had tertiary qualifications, meaning that people who were responsible for drafting the BCP have an adequate educational level. A total of 23.4% of the respondents had a secondary education.

#### 5.2.1.5 Number of employees in the company

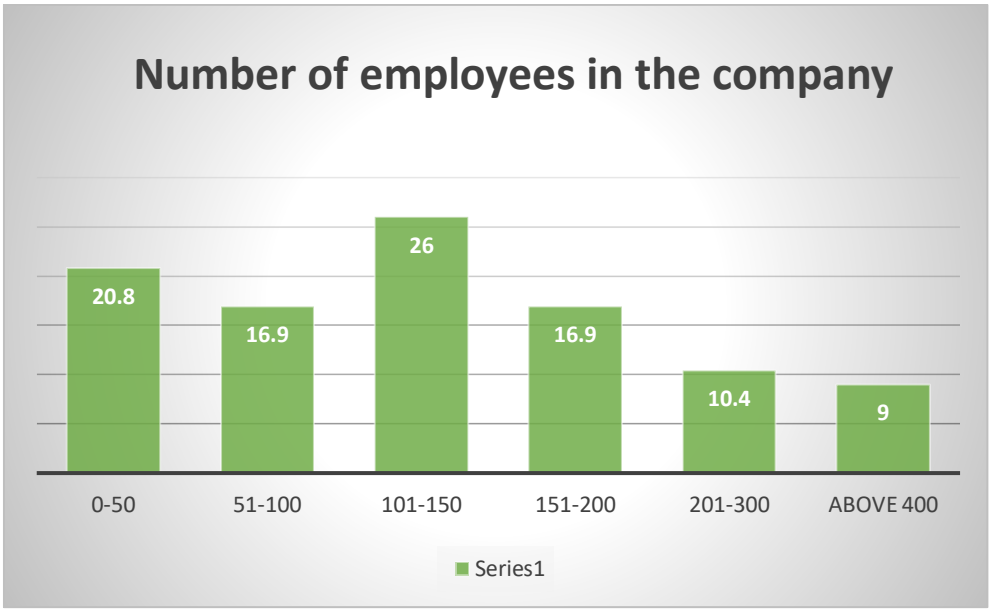


**Figure 5.5: Number of employees in the company**
Source: Field survey (2019)

The sizes of the responding companies in this survey were as follows: About 26% had between 101 and 150 employees in the company; 20.8% had between 1 and 50 employees. Looking at the survey results of a company with 51–100 and one with 151–200 employees, they had the same percentage of 16.9%. The results further illustrated that there was a percentage of 10.4% of large companies employing between 201 and 300 employees and 9% employing more than 400 people.

According to the Sector Education and Training Authority (2015), a large company is an organisation of 300 and more employees with a turnover of R64 million, and small companies have employees from 1 to 200 with an annual turnover of R15 million. The companies who participated in the survey fell under both small and large companies in Bayhead. There are more small companies in Bayhead than large companies.

**TABLE 5.2: EMPLOYEES LIVING WITH A DISABILITY**

| Number of employees | Percentage |
|---|---|
| None | 48.1% |
| 1–2 | 32.5% |
| 3–4 | 10.4% |
| Above 4 | 7.8% |
| I don't know | 1.3% |

Source: Field survey (2019)

The survey illustrates that many of the companies do not have employees living with a disability and there is a percentage of 32.5% that show that companies had between one and two employees living with a disability. The results revealed that 10.4% of the companies had three to four employees with disabilities and 7.8% had more than four employees living with a disability. A percentage of 1.3% are respondents that did not know if there were employees with disabilities. These companies argued that they had no employee with a physical disability but other people do not reveal their disabilities such as epilepsy, which is a disability. The United Nations (2007) defined disability as physical, mental, intellectual, or sensory impairments which, in interaction with various attitudinal and environmental barriers, hinder their full and effective participation in society on an equal basis with others.

#### 5.2.1.6 Respondents home language

The survey results showed that 35.1% of the respondents were English speaking people. The second large number were isiZulu speaking with a percentage of 32.5%. The IsiXhosa speaking respondents ranked third with 15.6% and Afrikaans fourth with 7.8%. The least

ranking languages in the area were Sesotho with a percentage of 3.9%, and Setswana and Tshivenda both had 2.6%.

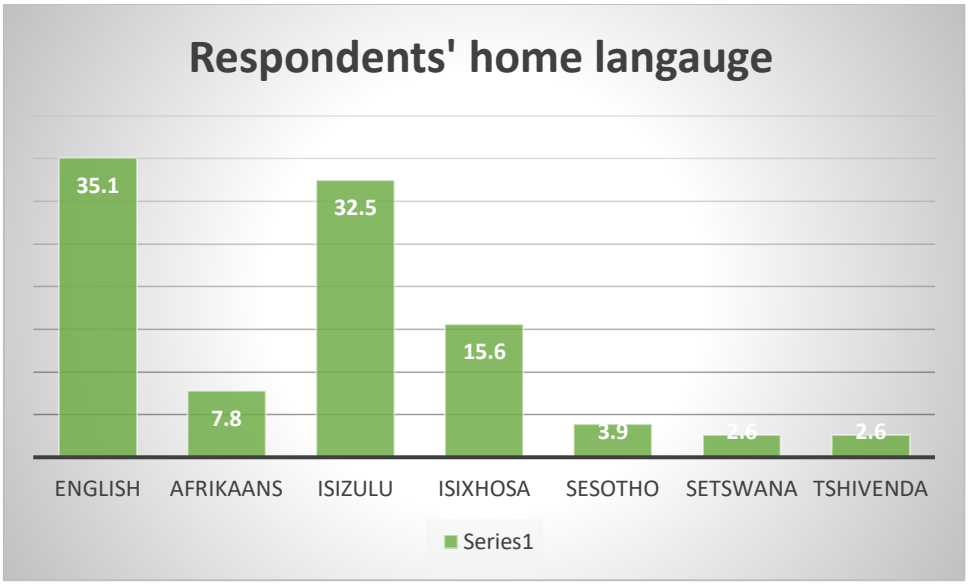


**Figure 5.6: Respondents' home language**
Source: Field survey (2019)

### 5.2.2 Economic profile of respondents

**TABLE 5.3: THE CORE BUSINESS OF THE COMPANY**

| Core business | Percentage |
|---|---|
| Logistics | 20.8% |
| Warehouse and storage | 15.6% |
| Treated timber production | 1.3% |
| Sugar milling | 3.9% |
| Petroleum refining and distribution | 15.6% |
| Mining and quarrying | 1.3% |
| Gas industry | 9.1% |
| Food producers and processors | 1.3% |
| Chemical manufacturers and distributors | 6.5% |
| Building construction | 1.3% |
| Hotel and bed and breakfast | 3.9 |
| Tourism | 2.6% |
| Financial Institution | 1.3% |
| Engineering | 5.2% |
| Testing and sampling | 2.6 |
| Food outlets | 3.9% |
| Shipping line | 1.3% |
| Rail | 1.3% |
| Retail | 3.9% |

Source: Field survey (2019)

The main industrial sector from which responses were received were:

- Logistical companies – 20.8%
- Warehouse and storage – 15.6%
- Petroleum refining and distribution – 15.6%
- Gas industry – 9.1%
- Chemical manufacturers and distributors – 6.5%
- Engineering – 5.2%

Other responses received were:

- Sugar milling – 3.9%
- Hotel and bread and breakfast – 3.9%
- Food outlets – 3.9%
- Retail – 3.9%
- Testing and sampling – 2.6%
- Tourism – 2.6%

Some smaller responses were from mining and quarrying with 1.3%, food producers and processors 1.3%, building and construction 1.3%, financial institution 1.3%, shipping line 1.3% and rail 1.3%. According to the responses from the respondents it is clear that the companies at Bayhead Harbour are diverse.

### 5.2.3 Awareness and perception of business continuity planning

#### 5.2.3.1 Availability of a business continuity plan

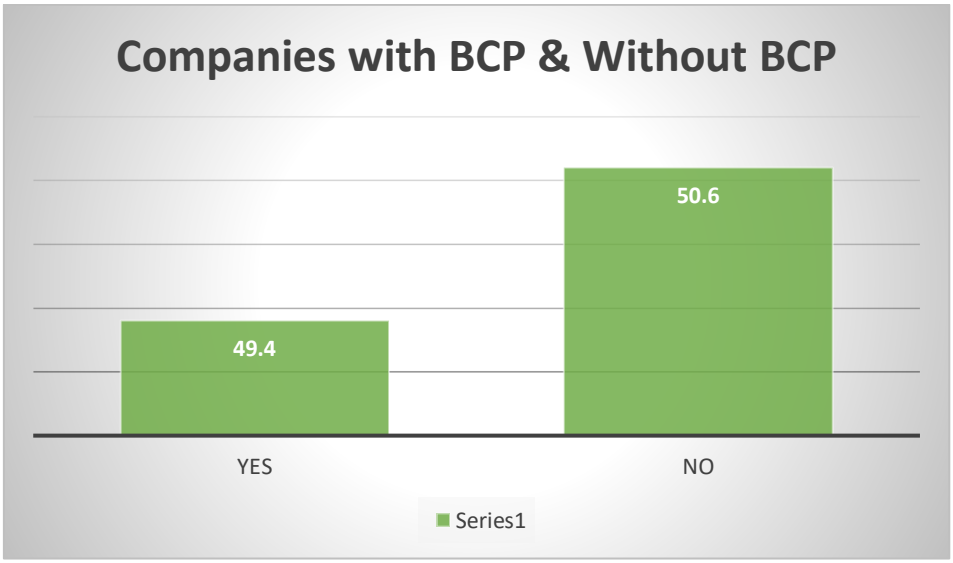


**Figure 5.7: Availability of a business continuity plan in a case of disaster**
Source: Field survey (2019)

The survey results show that slightly above 50% of the companies in Bayhead do not have a BCP, while 49.4% of the respondents indicated that their company had a BCP. There is almost an equal split of companies with and without a BCP. This might be small companies without enough funds or qualified personnel to draft the BCP.

#### 5.2.3.2 Understanding of business continuity planning

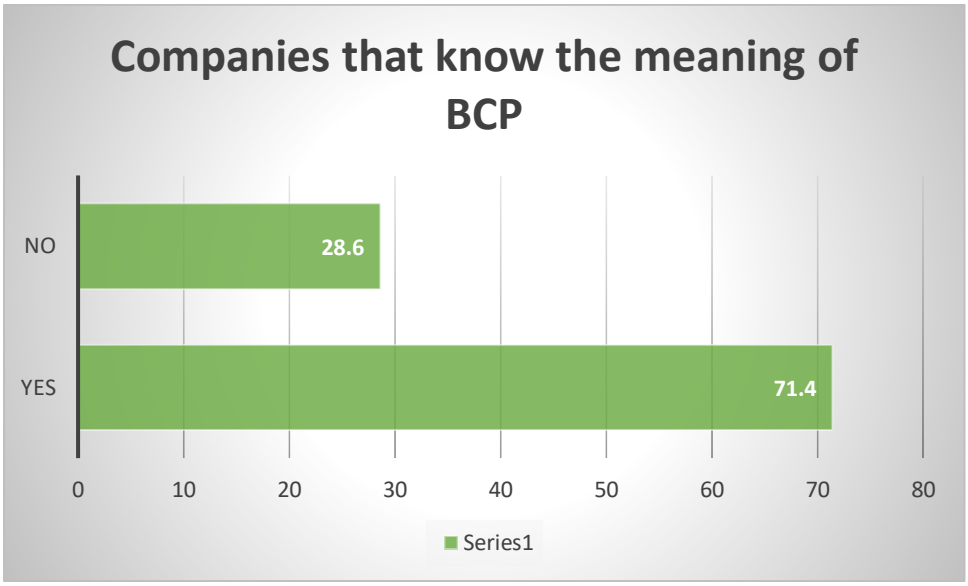


**Figure 5.8:** **Knowledge of business continuity planning**
Source: Field survey (2019)

The results showed that the majority of the respondents knew and understood the meaning of business continuity planning. The results showed that 71.4% of the respondents knew the meaning of BCP and can define the term. Only 28.6% of respondents did not know and understand the meaning of BCP.

#### 5.2.3.3 Perception of business continuity planning

As depicted in Figure 5.9, the majority of the surveyed respondents (85.7%) agreed that it is important to have a BCP in the company. Only 14.3% of the surveyed respondents disagreed that it is not important to have a BCP. Even some companies which did not have a BCP, knew the importance of BCP to a company. The figure differs from the results shown in Figure 5.8 because here the perception on this question was to check if respondents regarded BCP as important or not important.

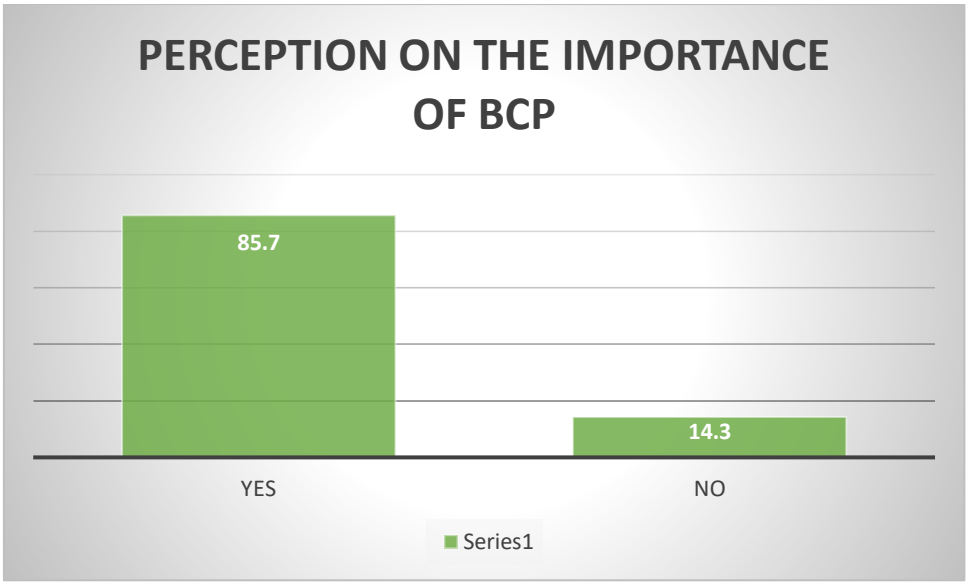


**Figure 5.9: Perception of the importance of a business continuity plan to a company**
Source: Field survey (2019)

### 5.2.4 Development of a business continuity plan

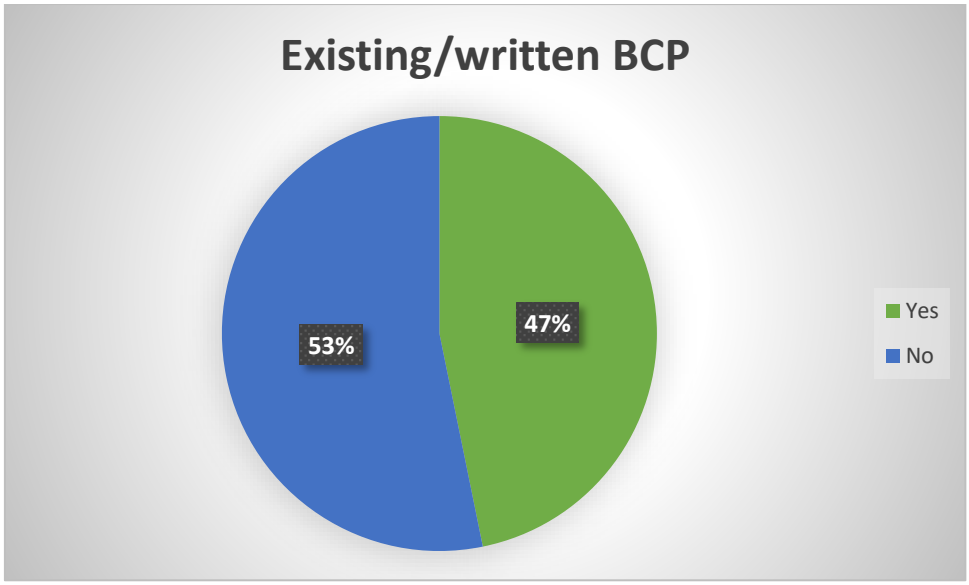


**Figure 5.10: Existing written business continuity plan in the company**
Source: Field survey (2019)

The results revealed that 53% of the companies did have existing and written BCPs, while 47% of respondents indicated that they did not have a BCP in place in the case of a disaster. The results have shown in Figure 5.7 that many companies do not have an existing BCP in place. Therefore, the above figure confirms that there is still a huge gap in convincing the companies to draft a BCP before any disaster strikes. A percentage of 47% shows that there is still a gap that needs to be filled.

### 5.2.4.1 Responsibility for drafting a business continuity plan

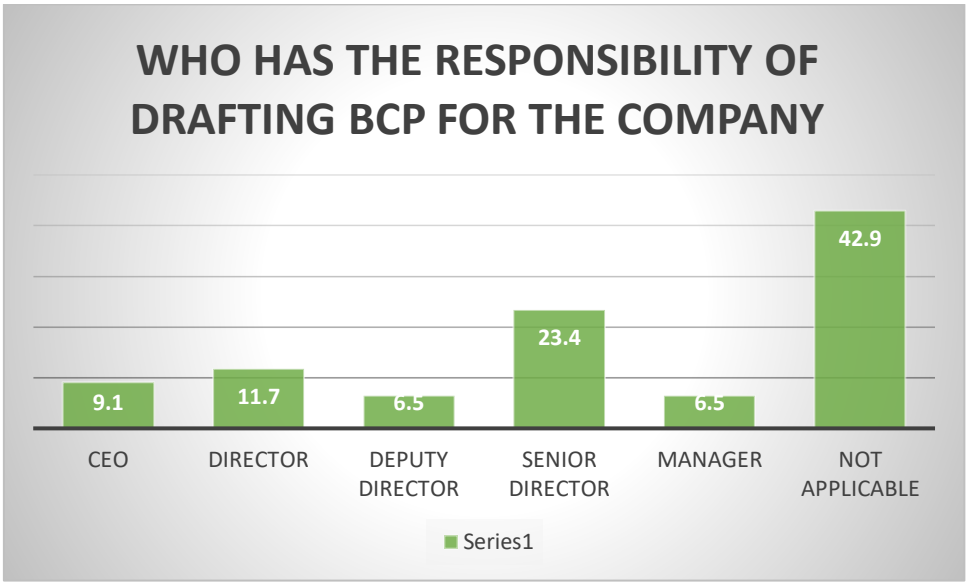


**Figure 5.11: Responsibility for drafting a business continuity plan for the company**
Source: Field survey (2019)

When asked who had the responsibility of drafting a BCP for the company, the responses revealed that in 23.4% of the companies surveyed, the senior directors were responsible for drafting the BCP. The results further showed that 11.7% put the responsibility on directors of the company for drafting a BCP. A small number (9.1%) of respondents reported that the chief executive officers were responsible for drafting a BCP, while 6.5% were the responsibility of deputy directors and managers of companies. The results showed that 42.9% of the respondents indicated 'not applicable', which may indicate that those are respondents from companies with no existing BCP.

### 5.2.4.2 Components of a business continuity plan

Literature by Miller (2011) highlighted that it is vital to understand the company by detecting its main products and services, as well as the resources and activities that aid them to make sure that the company has a business continuity process. It is therefore significant that all components of the company are covered by BCPs.

As indicated in Figure 5.11, on the question whether the BCP captured all important information about the company, 42.9% of the respondents agreed that all the important components of the BCP for the company are included in the BCP, while 15.6% of the respondents did not capture all the important components of BCP, while 41.6% responded that the question was not applicable. Again, the latter group may have indicated companies that had no BCPs.

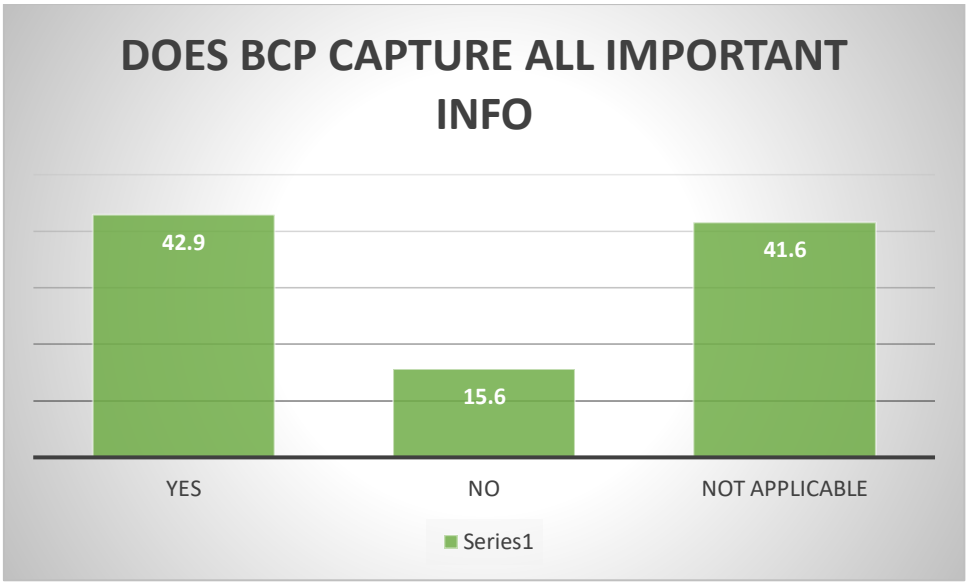


**Figure 5.12: Information content of the business continuity plan**
Source: Field survey (2019)

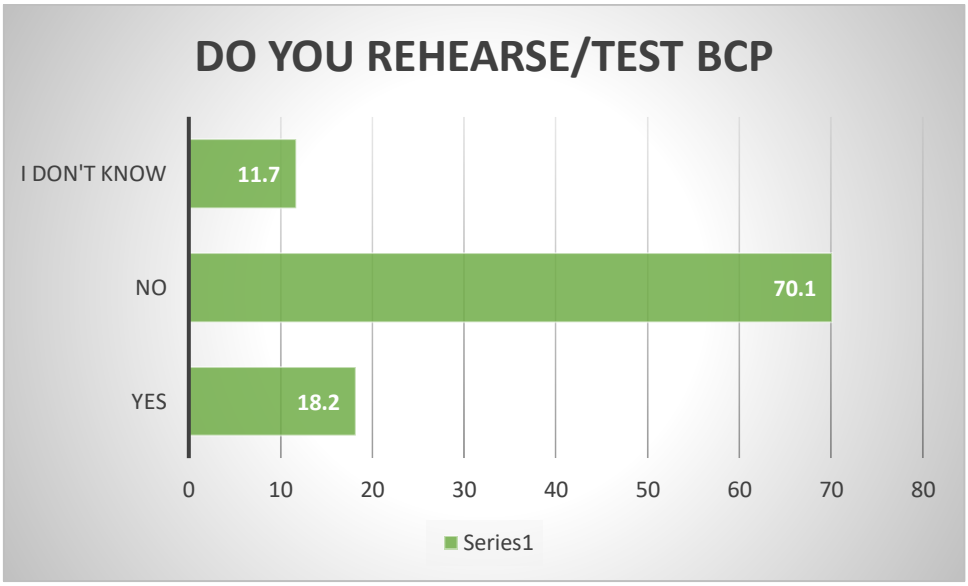


**Figure 5.13: Rehearsal of the BCP**
Source: Field survey (2019)

### 5.2.4.3 Rehearsing of business continuity plans

Asked whether those companies with BCPs rehearse them, the responses revealed that many companies in Bayhead do not rehearse their BCPs. A total of 70.1% confirmed that there were no BCP rehearsals in their organisations, while only 18.2% of the respondents agreed that there were rehearsals (Table 5.4).

**TABLE 5.4: FREQUENCY OF REHEARSAL OF BUSINESS CONTINUITY PLANS BY COMPANIES**

| Frequency | Percentage |
|---|---|
| Not at all | 64.9% |
| Once a week | 2.6% |
| Once a month | 1.3% |
| Once in six months | 3.9% |
| Once a year | 10.4% |
| Less than once a year | 3.9% |
| I don't know | 13.0% |

Source: Field survey (2019)

Alexander (2005) advised that plans should be tested and updated periodically on a repetitive cycle. The data highlighted that 64.9% of the companies that did have an existing BCP, never rehearse it; 2.6% rehearsed once a week; 1.3% rehearsed once a month; 3.9% once in six months and 10.4% rehearsed once a year. The results showed that 3.9% rehearsed BCPs in less than a year and about 13.0% did not know whether there are BCP rehearsals or not in the company.

### 5.2.5 Disaster risks

#### 5.2.5.1 Disaster risks experienced in the last five years


**Figure 5.14: Disaster risk experienced by the company in the past five years**
Source: Field survey (2019)

When asked if the company has experienced any disaster within the past five years, the results showed that many companies in Bayhead experienced many disasters within the last five years. Approximately 61% of the respondents have experienced disasters in the last five years and about 39% did not experience any disasters in the last five years.

#### 5.2.5.2 Necessity of risk assessment

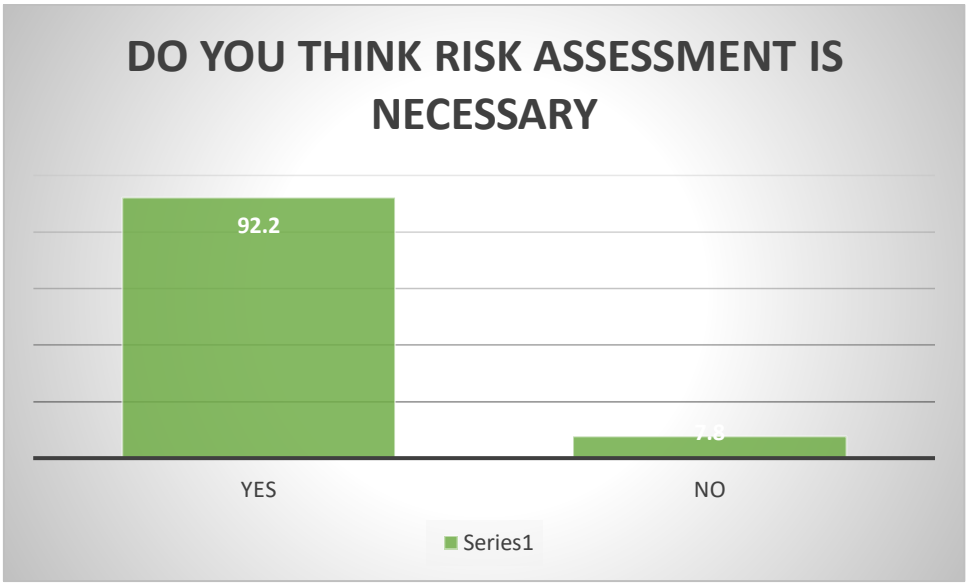


**Figure 5.15: Knowledge of the necessity of risk assessment**
Source: Field survey (2019)

Asked whether risk assessment was necessary, the majority of the respondents (92.2%) agreed that it is important to conduct a risk assessment and only 7.8% did not consider risk assessment as important.

#### 5.2.5.3 Common hazards that could affect the company

**TABLE 5.5: COMMON HAZARDS THAT COULD AFFECT THE COMPANY**

| Hazards | Percentage | Ranking |
|---|---|---|
| Floods | 77.9% | High |
| Fires | 63.6% | High |
| Explosion | 55.8% | Medium |
| Riots | 49.4% | Moderate |
| Storm surges | 49.4% | Moderate |
| Human error disasters | 59.7% | Medium |
| Electric shock | 50.6% | Medium |
| Environmental pollution | 64.9% | High |

Source: Field survey (2019)

This survey question asked respondents to select hazards that could negatively affect the company and lead to a disaster. The hazards selected were as follows (in the hierarchy of responses received):

- Floods – 77.9%
- Fires – 63.6%
- Explosions – 55.8%
- Riots – 49.4%
- Storm surges – 49.4 %
- Human error disasters – 59.7%
- Electric shock – 50.6%
- Environmental pollution – 64.9%

#### 5.2.5.4 Business impact analysis

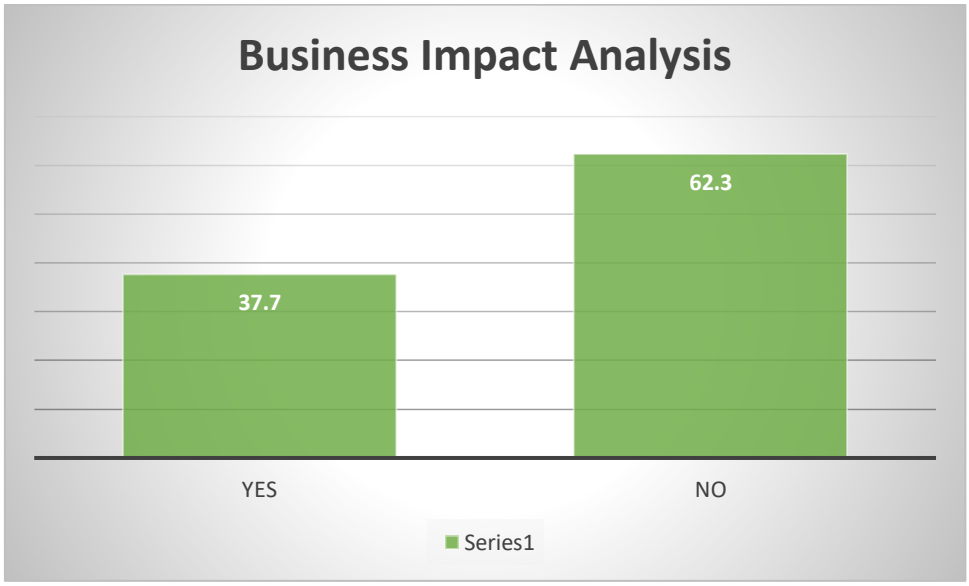


**Figure 5.16: Conducting business impact analysis due to shocks**
Source: Field survey (2019)

According to Momadi (2010), BIA assist companies to quantify disaster risks and enable companies to plan. Therefore, 37.7% of the respondents did quantify the disaster risks using BIA. About 62.3% of respondents did not do a BIA to quantify the identified disaster risks and their impacts on the business.

## 5.3 Phase 2: Qualitative results

Qualitative research tries to attain a well-defined perceptive of the problem under analysis in a more compound way. This methodology is used to get information about how people think, feel, and act and what they know (Lebied, 2018).

In this research, the qualitative results were retrieved from the open-ended questions asked in the questionnaire. The qualitative questions included in the questionnaire allowed the respondents to also share their own views, experience, as well as their understanding of BCPs. The respondents also shared the experience they faced in the occurrence of disasters that affected their companies and to explain if having a BCP is important or not. The purpose of including open-ended questions in the questionnaire was to find out how participants feel about BCPs.

### 5.3.1 Responses to questions included in the questionnaire

**Question: Do you know what business continuity plan is?**

Many respondents surveyed knew and understood the meaning of BCP. Figure 5.8 anfd figure 5.9 shows that the respondents underrated BCPs. The question gave an option to tick 'yes' or 'no' for understanding BCPs. Here are some answers from the respondents:

**If 'yes', state in your own understanding the meaning of BCP**:

> ***Respondent 1:*** *"When a disaster hits the company knows procedures to follow in order to respond and save some assets and it is the ability of the company and BCP enables the company to deliver to its clients without the disaster interrupting."*
>
> ***Respondent 2:*** *"A BCP is a plan to prevent and/or deal with potential threats/risks to a company. It is a disaster recovery plan that is put in place by a company."*
>
> ***Respondent 3: "*** *BCP is to prepare for potential contingencies such as VMS failure, severe weather conditions, etc. The continuity should outline sufficient processes and plans to ensure uninterrupted continued operations in the event of emergencies."*
>
> ***Respondent 4: "****BCP is processes and procedures to follow to ensure business carries on in instances of a disaster. These include off-site data storage and contingency plans."*

The responses shows that the respondents understood the BCP and were able to define it.

**If 'no', please state why:**

> ***Respondent 1:*** *"BCP is not necessary because our company is small and we do not need a BCP."*
>
> ***Respondent 2****: "BCP does not exist in our company; there is no need to know what it entails, the most important recovery plan for the company is the emergency plan."*

Based on all responses it shows that the respondents were aware of the BCP and were able to define it in their own words. It was only a few respondents who could not define the BCP and the responses showed that it was due to a lack of interest.

**Question: Who has access to the BCP document?**

> ***Respondent 1:*** *"Every Business unit has a BCP and it is available on the internet."*
>
> ***Respondent 2: "****Managers, the members of the risk committee and health and safety members/employees."*
>
> ***Respondent 3: "****Risk management unit has access to the Business Continuity Plan."*
>
> ***Respondent 4:*** *"The management department and IT department."*
>
> ***Respondent 5:*** *"The finance department and Human resources unit have the responsibility and access to BCP."*

The results showed that the respondents knew and were aware of who ha the responsibility and access to the BCP.

**Question: Where is the BCP document kept?**

> ***Respondent 1:*** *"On the Companies intranet/shared drive."*
>
> ***Respondent 2:*** *"The document is kept in the IT department."*
>
> ***Respondent 3:*** *"The document is kept on recovery."*

As shown in Figure 5.14, 61% of the companies in Bayhead Harbour experienced a disaster in the last five years, while 39% did not experience any disaster.

**Question: Please explain what kind of disaster happened and how did the disaster affect the daily operations of the company?**

> ***Respondent 1:*** *"It was on the 10th of October 2017, all operations came in to a halt, winds were plus/minus 150–200 km's per hour, ripped out roof off in our warehouse and the warehouse catches fire and destroyed everything in the company beyond repair and the unfortunate part it is that other warehouses from different companies were affected."*

Figure 5.17 and Figure 5.18 confirms the statement made by this respondent about the fire that happened in one of the warehouses in Bayhead Harbour. The response came from one of the companies without a BCP.

**Figure 5.17: Warehouse burning in Bayhead Harbour**
Source: Transnet (2017)

**Figure 5.18: Warehouses that were affected after the fire**
Source: Transnet (2017)

The response illustrates that Bayhead is surrounded by many disaster risks that can cause disaster and for this reason, the company suffered financial loss. The fire that occurred in one warehouse affected other warehouses severely. This shows if all warehouses had a BCP in place severe damages could have been avoided.

**Question: Please explain what kind of disaster happened and how did the disaster affect the daily operations of the company?**

> ***Respondent 2****: "Truck congestion from trucks coming from Transnet to deliver commodities caused truck congestions and the company's daily operation had to stop because clients could not pass through, this caused the company to lose the substantial profit of the day."*


**Figure 5.19:** **Truck congestion**
Source: Google image (2015)

> ***Respondent 3:*** *"Floods affected the company because employees could not come to work there [was] literally any taxis for those without cars and those with cars could not also come to work because of the severe floods in around March 2019."*

Figure 5.20 shows how the floods affected the Bayhead area.

**Figure 5.20: Floods in Bayhead Harbour, Durban**
Source: ??

***Respondent 4:*** *"The oil spill from oil refinery company contaminated the quarry next to the port doc side. The company had to stop because people from the environmental affairs department had to conduct an investigation, this affects our company because the ship could not doc out in time and every minute delayed costs the company tons of money."*

**Figure 5.21: Oil spills in Durban harbour**
Source: Hanekom (2015)

***Respondent 5:*** *"The company experienced severe storm surges and all ship had to stop operations due to severe winds. The winds caused the ship to have an accident and then their company incurred severed costs."*

Figure 5.22 shows the ship accident that the respondent referred to.

**Figure 5.22: Ship accident at Bayhead**
Source: Seleka (2019)

**Question: What other aspects would you suggest regarding business continuity plan?**

This question was aimed to received feedback from companies that have an existing BCP. About 65 companies did not answer or complete this question.

> ***Respondent 1:*** *"Disaster Management on their impact analysis to indicate the consequences of not having a plan."*
>
> ***Respondent 2:*** *"Business Continuity Plan must be put into practice and not be just stored in without being rehearsed or testedt."*
>
> ***Respondent 3:*** *"Business Continuity Plan is a necessity all companies although. BCP must be developed before a disaster happen though many companies develop it after the disaster has happened."*
>
> ***Respondent 4:*** *"Business Continuity Plan must include utility failure, telephone, Transportation, Internet failure, Medical Emergency, and Hazard Plan."*

## 5.4 Findings of the research

The results of the study showed that many companies in Bayhead did not have an existing BCP. The respondents were able to define a BCP in their own words. This study also revealed that many companies still do not find BCP as important. This study is in line with the study conducted by Momani (2010) which concluded that many companies still do not have an existing BCP.

The study revealed that many companies in Bayhead harbour are in line with the BCP principle, which is that executive management of the company must partake and be responsible in drafting the BCP (BS1, 2012). The findings revealed that the BCP is mostly kept on external drives with the IT department or unit. Other companies keep BCP at the risk

management unit. However, the results showed that companies with an existing BCP do capture all the important components in the BCP.

The results in figure5.9 illustrated that companies do agree that BCP is important and every company must have a BCP. The majority (87%) of the surveyed population agreed that a BCP is important. The results showed that at least many respondents find BCP important.

The researcher found it concerning that 64.9% of the companies do not rehearse or test the validity of the BCP. This finding gives an impression that many companies in Bayhead Harbour, Durban, draft a BCP to only stack it away on shelves. This shows that most? companies in the area do not regard BCPs as important. It is a concerning matter because Bayhead Harbour is proved to be an area with many disaster risks which need to be prepared for and also be mitigated.

The findings revealed that many companies in Bayhead Harbour encountered different disaster within the past five years. About 61% of the companies in Bayhead harbour experienced a disaster that cost the companies a lot of money. This is one of the most important reasons why companies in this area must have a BCP. Many respondents shared their experiences that the disaster they encountered caused operations to stop and have cost the company a lot of money.

The results from the respondents further show that the main hazards that led to a disaster in Bayhead were floods with 77%, environmental pollution at 64.9%, and 63.9% are fires in the area. These are the top ranking hazards revealed by the results. These results proved that Bayhead is a hazardous area that needs proper planning. Nevertheless, the findings in this research showed that a large number (92.2%) of the companies found risk assessment necessary. Risk assessment is the first step before drafting the BCP. A risk assessment identifies risks and enables the BCP to be plan properly. BIA quantifies risks and allows the companies to allocate the budget specifically for BCP. However, the findings showed that 62.3% of the companies do not use BIA as a quantifying tool for disaster risks.

In general, the research findings revealed that the BCP is not regarded as important by many companies because many respondents were able to define BCP but they still do not have an existing BCP. On the other hand, the findings revealed that companies that have an existing BCP do not test or rehearse their BCP, which poses a problem because not rehearsing the BCP can cause serious response problem when disasters occur. Many companies in the area still believe that a BCP is a recovery measure. This finding is in line with findings by Cerullo and Cerullo (2004), where in their study area, the respondents also perceived BCP as a recovery strategy.

Chapter 6

# Conclusion and Recommendations

## 6.1 Introduction

This chapter presents the conclusion and recommendations of the study. The first section of the chapter deals with the conclusion of the study and the second section deals with recommendations from the research findings.

## 6.2 Conclusion

### 6.2.1 Returning to the research problem

The research focused on determining the perception of BCPs from the executive managers of companies in Bayhead Harbour, Durban, and to find out if there is an existing BCP in case of a disaster. The study also focused on exploring the responsible personnel for BCP, where it is kept and if the BCP is tested and rehearsed regularly. This research was conducted to assess the awareness and importance of developing a BCP by companies in Bayhead Harbour Durban. The targeted readers are both private and public sectors, government, and the public in general.

The research problem was also addressed in different chapters. In Chapter 1, the research problem was briefly explained and Chapter 3, the literature review, the research problem was explained thoroughly by making use of many existing kinds of literature based on BCP. Bayhead Harbour is an area with many disaster risks and there are a total of 105 companies that operate in this area. This is the main reason why companies should have an existing BCP, to enable companies to plan or prepare for any disaster that could strike in the area directly or indirectly for companies.

Chapter 2 discussed the theoretical framework and legislative arrangements of business continuity planning. The study found that there is no specific theory for business continuity planning, but there are concepts put together by different scholars to try to understand the complexity of business continuity planning. business continuity planning is guided by international standards, named BS 25992 and ISO 2701.

### 6.2.2 Revisiting the objectives and research question

The overall purpose of this study has explored the awareness of BCPs from companies in Bayhead Harbour, Durban, and to emphasise the importance of developing a BCP before a disaster strikes. The research questions were answered in Chapter 5, from Figure 5.7 to Figure 5.16, and Table 5.4 through the research finding descriptions. The awareness of the BCP question was discussed in Chapter 5 by checking the respondents' perception of BCPs. The results revealed that the level of awareness was high and the lacking point was the implementation part of developing a BCP.

The hazard assessment was done in the literature review chapter (Chapter 3) where the researcher presented the top priority hazards of Transnet and the top priority hazards of eThekwini Metropolitan Municipality. The results showed that there was still an existing gap for companies seeing the importance of having a BCP. Many companies do not see the importance of having a BCP.

### 6.2.3 Concluding remarks

It can be concluded that many companies in Bayhead Harbour, Durban, do not have an existing BCP. The research findings revealed that the majority of the companies did understand the BCP and were able to define the BCP in their own understanding. Some companies without a BCP did see the importance of developing a BCP, but the problem is that business continuity plan Some of those companies without a BCP claimed that there was no need for their company to have a BCP because the company is small. The results showed that the majority of the surveyed companies experienced severe disasters in the past five years which give more reasons for them to have a BCP. The results revealed that the majority of the companies that had an existing BCP did not test the validity of the BCP and rehearse the BCP regularly. Companies draft BCPs and file it away without revisiting or updating it.

## 6.3 Recommendations on research findings

Based on the results discussed above, it can be recommended that companies in Bayhead should be encouraged to develop a BCP in line with the NDMF and the four KPAs to enable the companies to master the nature of disaster risk so that they can plan, mitigate, and reduce the severity of disaster risks as discussed in Chapter 2. Companies must adapt to handle business continuity planning as a proactive measure and not a reactive measure. When companies develop or draft a BCP they must always think of the worst-case scenario and not that disaster will never happen to them. It is vital for all companies, big and small, to have a BCP because when a disaster strikes an area, it does not hit big companies only. When

companies are on the pathway of a disaster, they become affected regardless of the size of the company.

It is further recommended that the BCP must be tested and updated regularly. The best tool to reduce disaster risks is through education and training of the people. The best BCPs are those that include preparedness systems such as early warning systems. It is a fact that there are some disasters that no one can prevent from happening, such as storm surges or tropical cyclones, but the magnitude or severity of those disasters can be reduced through proper planning.

Companies need to rehearse the BCP using exercises such as real-life drills to instil into the employees' minds the procedures to follow in the case of a disaster. Rehearsals help employees not to panic during the disaster and assist all personnel to make sound decisions during a disastrous moment. Companies can argue that the BCP is more expensive but prevention is better than cure, meaning it is better to spend trying to mitigate and preventing a disaster than to allow a disaster to wipe off the whole company within a split of a second, which results in huge damages.

All research questions were answered and the integrated model was adequate to address the research problem. The models included all pre-phase measures that are proactive. All objectives stated in Chapter 1 have been achieved in the research.

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# Appendix A

# Research Questionnaire

**University of the Free State**

**Disaster Management Training and Education Centre for Africa (DiMTEC)**

**INTRODUCTION**

My name is Zukiswa Vallery Poto, I am a Masters Student at the University of the Free State, the Disaster Management Training and Education Center for Africa (DIMTEC). I am conducting a survey on Business Continuity Plan for disaster risks at Bayhead harbour Durban. The survey is about awareness and development of the Business Continuity Plan for companies at Bayhead. The aim of the research is to create an awareness of the importance of business continuity plan development which will assist the companies to continue with their daily operations during and immediately after disasters.

I humbly request you to answer the questions honestly. Please note that the information on the questionnaire will be kept strictly confidential and the findings will be used for academic purposes only. The participation is voluntary and there will be no remunerations for participation in the survey.

This questionnaire will take about 15 minutes to complete

**Participant's signature** _____

**Please tick in the boxes and/or complete spaces provided when necessary**

**Section A. Socio-Demographics**

1. **What is Your Age?**
   - 1 18-35 ☐
   - 2 36-55 ☐
   - 3 56-65 ☐
   - 4 More than 65 ☐
2. **What is your gender?**
   - 1 Female ☐
   - 2 Male ☐
3. **What is your position in the company?**
   - 1 General Worker ☐
   - 2 Supervisor ☐
   - 3 Manager ☐
   - 4 Director ☐
   - 5 CEO ☐

   6 Other, Specify……...
4. **How many years have you been working for the company?**
   - 1 1 to 5 ☐
   - 2 6 to 10 ☐
   - 3 11 to 15 ☐
   - 4 16 to 20 ☐
   - 5 21 and above ☐
5. **What is your highest educational level?**
   - 1 No formal Education ☐
   - 2 Primary ☐
   - 3 Secondary ☐
   - 4 Tertiary ☐
6. **How many employees are in the company?**
   - 1 0-50 ☐
   - 2 51-100 ☐
   - 3 101-150 ☐
   - 4 151-200 ☐
   - 5 201-300 ☐
   - 6 301-400 ☐
   - 7 401 and above ☐

**7. How many employees are living with a disability?**

1 None ☐

2 1 to 2 ☐

3 3 to 4 ☐

4 5 and above ☐

**8. What is your home language?**

| | | | |
|---|---|---|---|
| 1 English | | 7 Sepedi | |
| 2 Afrikaans | | 8 Tshivenda | |
| 3 IsiZulu | | 9 Tsonga | |
| 4 IsiXhosa | | 10 Ndebele | |
| 5 Southern Sotho | | 11 SiSwati | |
| 6 Setswana | | Other, specify…… | |

**Section B –Economic**

**What is the main function of the company?**

| | Yes | No | | yes | No |
|---|---|---|---|---|---|
| **9. Logistics** | | | **14. Chemical Manufacturers and Distributors** | | |
| **10. Warehousing and storage** | | | **15. Building Materials** | | |
| **11. Treated Timber Production** | | | **16. Hotel and Bed and breakfast** | | |
| **12. Sugar Milling** | | | **17. Tourism** | | |
| **13. petroleum Refining and Distribution** | | | **18. Financial Institute** | | |
| **14. Mining and Quarrying** | | | **19. Chemical Manufacturers and Distributors** | | |
| **15. Gas Industry** | | | **20. Engineering** | | |
| **16. Food Producers and Processors** | | | **21. Others, specify……...** | | |

**Section C: Awareness**

**22. Do you have a Business Continuity Plan in case of disaster?**

1 Yes ☐

2 No ☐

**23. Do you know what Business Continuity Plan is?**

1. Yes ☐

2. No ☐

**24. If No, Please State why?**

_____

_____

_____

**25. If yes, please state in your own understanding the meaning of Business Continuity Plan**

| |
|---|
| |
| |
| |

**26. Do you think it is important for a company to have a business continuity plan?**

**1** Yes ☐

**2** No ☐

**Section C: Development of Business Continuity Plan**

**27. Is there any existing/written Business Continuity Plan in the company?**

1 Yes ☐

2 No ☐

**28. If yes, who has the responsibility of drafting the Business Continuity Plan for the company?**

1 Chief Executive office ☐

2 Director ☐

3 Deputy director ☐

4 Senior manager ☐

5 Manager ☐

**29. Who has access to the BCP document?**

_____

_____

**30. Where is this document kept?**

_____

**31. If you have an existing Business Continuity Plan, do you think it captures all-important components of companies?**

1 Yes ☐

2 No ☐

**Components of Business Continuity Plan**

**32. It important to plan and have a Business Continuity Plan**

1 Strongly Agree ☐
2 Agree ☐
3 Neutral ☐
4 Disagree ☐
5 Strongly disagree ☐

**33. Do you rehearse/test your business continuity plan?**

1 Yes ☐
2 No ☐

**34. How often do you rehearse?**

1 Not at all ☐
2 Once a week ☐
3 Once a month ☐
4 Once in six months ☐
5 Once a year ☐
6 Less than once a year ☐

## Section C: Disaster Risks

**35. Have the company experience any disaster within the past five Years?**

1 Yes ☐
2 No ☐

**36. If yes, please explain what kind of disaster happened and how did the disaster affect the daily operation of the company?**

| |
|---|
| |
| |
| |
| |
| |
| |

**What hazards do you think could badly affect your company? Please tick as many applicable hazards to your company**

| | Yes | No |
|---|---|---|
| **37. Floods** | ☐ | ☐ |
| **38. Fires** | ☐ | ☐ |
| **39. Explosions** | ☐ | ☐ |
| **40. Riots** | ☐ | ☐ |
| **41. Storm surges** | ☐ | ☐ |
| **42. Huma error disaster** | ☐ | ☐ |
| **43. Electric shock** | ☐ | ☐ |
| **44. Environmental pollution** | ☐ | ☐ |

**45. Other, specify**_____

**46. Do you think risks assessment is necessary for the company?**

1 Yes ☐

2 No ☐

**47. Does the company do business impact analysis to quantify the loss in case of any form of disaster?**

1 Yes ☐

2 No ☐

**48. What aspects would you suggest regarding the business continuity plan**?

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THANK YOU VERY MUCH FOR YOUR TIME