An investigation into safety concerns within the live events industry in Botswana.

AN INVESTIGATION INTO SAFETY CONCERNS WITHIN THE LIVE EVENTS INDUSTRY IN BOTSWANA

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Declaration by the candidate

‘I hereby declare that this dissertation submitted for the degree of MTech Performing Arts Technology at Tshwane University of Technology, is my own work and has not been previously submitted to any other institution. The references quoted are indicated and acknowledged by means of a comprehensive list of references.’

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Kgosi Khiba

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This study is dedicated to my beautiful daughters, Phalana and Phethisang Khiba. I hope it will inspire them to dream and reach for the stars in whatever they set their minds on.

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Abstract

This study is based on an investigation into potential hazards and health and safety risks in the live events industry in Botswana. Specifically, the study aimed to investigate potential hazards and health and safety risks in contemporary Botswana's growing live events industry, including how the risks can possibly be mitigated. The study proceeded from the basic premise that the live events industry is a highly technical and risk-sensitive industry with potentially catastrophic risks for technical crew, artists, and audiences who either work on, or attend these shows. With this in mind, the study sought to investigate potential hazards and health and safety risks in Botswana also as the country's levels of awareness and preparedness to mitigate such risks.

It was felt that this can be achieved by putting proper safety guidelines and regulations on safety in place at the country's live events. Much as the study felt that Botswana could potentially borrow freely from similar jurisdictions, the neighbouring country of South Africa has structures and legislation in place that govern its live events industry, from which Botswana can borrow in the first instance. The study came to the conclusion that Botswana has to put in place a well-coordinated national structure that will represent safety interests in the live events industry by having safety guidelines or regulations at live events to minimise hazards. Using a qualitative approach based on direct and indirect observation at specific live events venues in Botswana and interviews and questionnaires, the study closely examined potential hazards and health and safety risks in the live events industry in Botswana. This data was then collated, analysed, and used to answer the study's principal research question, 'What are the potential health and safety hazards in Botswana's live events industry, and how can health and safety hazards and risks be minimised at the country's live events?'. Answers to this question were then used to propose some of what can or should be done if the country is to mitigate and solve potential safety concerns in its live events industry.

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Abbreviations

ABCB	Australian Building Codes Board
BCA	Building Code of Australia
BEPA	Botswana Entertainment and Promoters Association
GICC	Gaborone International Convention Centre
HSE	Health and Safety Executive
ILO	International Labour Organisation
JOC	Joint Operations Committee
LPA	Live Performance Australia
NCC	National Construction Code (NCC)
NDRMP	National Disaster Risk Management Plan
NRC	National Rigging Certificate
OHSA	Occupational Health and Safety Act
PA	Public Address system
PASO	Provincial Arts Service Organisations
PLASA	Professional Lighting and Sound Association
PPE	Personal protective equipment
SANS	South African National Standards
SASREA	Safety at Sports and Recreational Events Act
SHE	Safety, health and environment
SWL	Safe working load
UN	United Nations
VOC	Venue operations centre

Chapter 1: Introduction

What is the current situation in Botswana concerning safety when it comes to an organisation or individual wishing to stage a live performance event? What regulations or guidelines are in place for live events? Who monitors that all elements of setting up for a live performance are done safely? Is risk assessment done before setup of an event? What knowledge do technical crews have concerning safety on stage? Who drafts the floor plan of the venue, waste management plan, emergency services plan, crowd management plan, waste management plan, and public liability insurance? Who approves the safety of temporary structures? Is there an event safety officer appointed for the event? Is there a safety plan?

Accidents at theatres and live event venues are mostly caused by lack of knowledge, carelessness, being in a hurry because of the popular phrase ‘the show must go on’, risk-taking, creativity versus safety risks, and faulty equipment. Lack of control, which includes education and training, inadequate inspection, and unsafe working procedures are other factors behind accidents. Everyone who has worked in theatres and on live events knows this. Live events are events that are performed to an audience in real-time. Live events include, but are not limited to, musical productions, festivals, concerts, theatre, corporate events, trade shows, sports events, film, and video productions. Live events are either hosted in indoor or outdoor venues, and technical equipment like sound, lighting, audiovisual, staging, and various technical effects are used.

In Botswana, the Ministry of Youth, Sport and Culture's Application for Public Entertainment and Permit Exemption form states that to organise a live event the following are requirements:

1. Certificate of incorporation;
2. Performance contracts of both local and foreign artists witnessed and signed by a lawyer;
3. Passport copies of ALL foreign artists (including band members);
4. Withholding tax payment (Botswana Unified Revenue Services);
5. Venue confirmation; and

6. Individuals and or businesses are advised to consult or engage a registered and certified member/s of Botswana Entertainment and Promoters Association (BEPA) to assist with the application.

Nowhere in the application form is any question asked about an event safety officer, safety plan, public liability insurance, risk assessment, disaster management, certification of temporary structures, venue layout, or anything about the safety measures to be implemented at the event. In the letter of invitation to participate in the 2017 Maitisong Festival (one of the oldest arts festival venues in Gaborone, the capital city of Botswana), nothing is mentioned about safety standards of the performance venues nor rules that guide productions about safety at the venue.

The event organiser together with a registered and certified promoter, among other things are expected to do the following:

- Plan the safety and security of the event
- Implement the traffic management plan
- Make sure that there is compliance with all temporary infrastructure set up
- Make sure that there is adherence to all city by-laws

It can be stated then that it seems as if Botswana has no guidelines, regulations, standards or compliance requirements to any Regulation or Act with emphasis to safety at live events.

Event organisers or promoters should be required to submit a presentation to authorities covering the following aspects:

1. Disaster management plan
2. Emergency management services plan
3. Safety plan
4. Traffic and parking management plan
5. Fire safety plan
6. Crowd management plan
7. Venue design plans
8. Electrical safety plan
9. Evacuation plan
10. Waste management plan

11. Emergency communication plan
12. Public liability insurance

1.1 Research problem

From the findings of a research paper, *A study of health and safety practices in small and medium-sized enterprises: A case of Botswana,* by Josephine Moeti-Lysson and Rudolph L. Boy (2011, p. 125), it is clear that when good health and safety practices are not put in place, accidents and major and minor injuries can happen. This implies that if health and safety practices are not managed effectively, both employers and their employees could be easily put at risk.

From the above statement, it is clear that the Occupational Health and Safety Act (henceforth abbreviated to OHSA) has to play a prominent role in all technical and artistic activities of the live events industry to minimise accidents and the potential loss of lives.

The author's research interest in safety hazards in Botswana's live events industry came about after he initially interviewed the following people who are all connected to the live events industry in Botswana. One of my interviewees in Botswana, Gao Lemmenyane (Interviewed on 14 October 2014) indicated that he was:

> *Not sure [whether] there are any safety regulations specifically for the entertainment industry. What I know is that there is an insistence on the highest levels of safety in any workplace. Government through the Ministry of Labour and Home Affairs insists that employers must have SHE Officers (Safety, Health and Environmental Officers) who are responsible for safety in the workplace for that particular organisation. I suppose this applies to the entertainment industry also.*

Lemmenyane's insights are particularly significant in that he is the festival director of the Maitisong Festival and a theatre manager of the Maitisong Theatre. His views were expressed when I asked what safety regulations were currently in place for the live events industry in Botswana.

Charles Kokwane, a technical manager of Showgroup Technical and Staging Services in Botswana, simply answered 'none' to the same question. A lecturer in

Botswana theatre and African theatre at the University of Botswana, Thulaganyo Mogobe, also reaffirmed that there was no safety legislation specifically governing performance theatres and live performance spaces in Botswana.

The live events industry has a role to play towards job creation and economic growth. It is vital that this industry is well organised and safely managed so that it adds value to Botswana's economic development. In order for Botswana to reap the fullest benefits from its live events industry, Botswana has to work towards developing a coordinated national structure to represent the safety interests of the live events industry by having safety guidelines or regulations for live events safety, which will minimise hazards.

The live events industry is extremely technically orientated and risk-sensitive. The performance area has cables running along the stage (sound, lighting, audiovisual, pyrotechnics cables, and power cables) that can easily trip performers. Some stages have stage mechanics such as revolves, stage lifts, or they are raked. All these things are appealing aesthetically, but they can be dangerous if not operated safely or performer-oriented in terms of hazards. Lately, temporary structures that are made from aluminium trusses have been used as stages and are risk-sensitive in that many factors have to be considered, for example the load capacity and the wind speed that the structure can withstand.

OHS is generally about the following:

- Identifying hazards at workplaces;
- Improving the working environment and working conditions;
- Preventing occupational accidents; and
- Cooperation between employer and employees concerning safety at the workplace.

From the above definition, it is clear then that OHS is about eliminating accidents in the workplace to the extent that live event spaces are also a workplace like any other as clearly enunciated above.

The expansion of the live events industry from conventional venues to include unconventional venues has led to an increase in the number of people working in

the live events industry. Some of these people are not adequately trained in the safety aspects of their jobs.

1.2 Research aims

The research aims to:

- To investigate potential safety hazards and risk concerns in the live events industry in Botswana;
- To recommend the best health and safety practices using South Africa as a comparative example; and
- To promote a safe mindset by stakeholders, technical crew, and event promoters in the live events industry of Botswana.

1.3 Methodology

The research methodology adopted for this study is a mix of qualitative, observation and questionnaires methodology. Mukhopadhyay and Gupta (2014, p. 111) define primary research methods in qualitative research design as interviews, observation, case study, ethnographic study, action research, and archival or document analysis.

Because the live performance industry is a fast-paced industry due to limited time to put a show together, I will observe the subjects of the research. These will include technical crew and technical directors. I will document my observations by taking photographic evidence and analysing the documentation and processes relating to the organisation of productions in terms of safety.

Questionnaires will also be used as a methodology. Questionnaires probe the interviewees' knowledge and experience of the topic in much greater depth.

Some of the official documents that are quoted in this dissertation are not gender-neutral specific in the sense that they refer to all workmen as 'he'. For compliance with gender sensitivity, wherever these documents refer to 'he', in my dissertation, I will insert the plural and singular pronouns 'them/their/they' to make my document more gender neutral.

1.5 Ethics

This research project will involve event organisers or promoters, technical directors, and technical crew. The only information required from them is their honest answers to the questionnaire, the number of years working in the entertainment industry, and their qualification. The questionnaire will have structured questions. Because experience and knowledge play a pivotal role in safety at live events, I will talk to and observe the technical crew to get to know how their experiences have informed the way they implement safety in their workplace.

Since the entertainment industry is fast-paced, the observation will be during technical setup to see if hazards are identified and what measures are taken to eliminate or minimise them. For standard legal reasons, participants younger than 18 years will not be involved in this research. I will explain to the participants (event organisers or promoters, technical directors, and technical crew) that stakeholders in the live events industry of Botswana will hopefully use the findings of this research to adopt best health and safety practices and to promote a safe mindset.

The questionnaire will also be accompanied by a consent form that participants will read and sign before participating in the research. Participants are not obliged to answer the questionnaire. The confidentiality and anonymity of respondents will be respected, and only my supervisors and I will access the answered questionnaires.

All the data collected in the process will be transcribed into text, analysed, and presented in narrative form.

The questionnaires will be stored in a safe place for three years, after which they will be destroyed.

Chapter 2: Background

2.1 Historical background of live entertainment in Botswana

During the preliminary research process of this dissertation, I was faced with the significant challenge of finding scholarly sources of information on the historical background of live entertainment in Botswana. There is also not much research that was done about the safety aspects of the live events industry in Botswana. Hardly any documentation was discovered that deals with the topic of occupational health and safety in the entertainment industry.

Botswana gained its independence from Britain in 1966, and because the country is not a settler colony, very little was written on theatre and live events. Research that was done is on the rhythmic features and aesthetic elements of performances of *borankana* (traditional dance of Batswana, such as *setapa, phathisi, dikhwaere and modokoda*).

2.2 Safety aspects in the live events industry: A general overview

The purpose of this chapter is to provide a general overview of safety aspects in the live events industry. Everyone who has worked in or still works in theatres and on live events knows that the entertainment industry is a safety-risk industry with irregular working hours. However, all event organisers or promoters, entertainment venues, and technical production companies are legally responsible for making sure that the working environment is safe and healthy.

Live events are events that are performed to an audience in real-time. They include but are not limited to musical productions, festivals, concerts, theatre, corporate events, trade shows, sports events, film and video productions. These events are either hosted in indoor or outdoor venues, and technical equipment, such as sound, lighting, audiovisual, staging, and various technical effects are used. Audiences are usually in attendance at these events (irrespective of the size of the audience). Audiences have to feel safe from the moment they enter the parking lot until they leave the venue.

In this chapter, I will introduce the reader to how occupational health and safety is imperative in the live events industry in many countries. I will research if the countries have guidelines, legislation, or regulations, what their health and safety objectives are, and how do they raise awareness to manage health and safety better and how they have better safe working environments in the live event industry. It is important to remember that safety in the live events industry can be implemented by standards, norms, codes-of-practice, Acts, regulations, and guidelines. Because live events happen in dynamic environments, this study will be guided by Acts, regulations and guidelines from different countries. **Acts** state what must be done and **regulations** outline how it should be done. **Guidelines** are not mandatory. They just raise awareness, provide practical guidance, encourage consistency, but they have no legal status and may not apply in all work situations.

During the 1980s, Botswana hosted many international artists who performed in that country as part of the United Nations (UN) boycott that had been imposed on South Africa in protest at the country's apartheid policies. International groups such as UB40, The Commodores, and Eric Clapton gave stellar performances at the Botswana National Stadium (outdoor venue) and the Boipuso Hall (indoor venue) in Gaborone, performing to full houses at both venues. In Botswana, as elsewhere across the world, hosting major music events has become a significant motivator for tourism development, and this features highly in the development and marketing plans of many international tourist destinations (Getz 2008, p. 403). Growth in the live events industry means there will be growth in the economy, the size of audiences and venues. A large number of lights will be rigged and energised. There will be loud sound coming from the speakers, and large temporary structures will be built, sets constructed in the workshop, and chemicals used to make props. All these have to be done in a safe manner as these activities pose and increase safety risks.

From the findings of a research paper by Moeti-Lysson and Boy (2011, p. 125), it is shown that when good health and safety practices are not put in place, accidents and major and minor injuries can happen, and this is what most of the employees in other companies have so far experienced. This implies that if health and safety are not managed effectively, both employers and employees could be easily put at risk.

OHS Acts are generally about the following:

- Identifying hazards at workplaces;
- Improving the working environment and working conditions;
- Preventing occupational accidents; and
- Cooperation between employer and employees concerning safety at the workplace.

Alli (2008, p. 17) states that the International Labour Organisation (ILO) has reaffirmed the importance of protecting occupational health and safety by saying that:

- Work should take place in a safe and healthy working environment.
- Conditions of work should be consistent with the workers' well-being and human dignity.
- Work should offer real possibilities for personal achievement, self-fulfilment and self-service to society.

Unlike other countries, Botswana does not have an OHS Act. Rather, aspects of OHS are scattered over various Acts of Parliament, such as:

- Factories Act
- Employment Act
- Waste Management Act
- Control of Smoking Act
- Atmospheric Pollution Act
- Radiation Protection Act
- Mines, Quarries, Works and Machinery Regulations
- Building Control Regulations

However, a reading of these various Acts indicates that the country's live events industry can adopt some regulations from these Acts to serve as guidelines in ensuring safety at the country's live events. For example, the Factories Act of Botswana (1973, sec. 5 (1)) interprets 'factory' as any premises in which persons are employed in manual labour and any process for or incidental to any of the following:

a) *The making of any article or part of any article.*
b) *The altering, repairing, ornamenting, finishing, cleaning, washing, breaking up, or demolition of any article.*
c) *The adapting of any article for sale, being premises in which, or within the close or curtilage or precincts of which, the work is being carried on by way of trade or for purposes of gain, and to or over which the employer of the persons employed therein has the right of access or control and whether or not they are factories by reason of the foregoing definition the word 'factory' also includes the following premises in which persons are employed in manual labour, that is to say –*
d) *any premises in which persons are regularly employed in or in connection with the generation of electrical energy for supply by way of trade, or for the supply for the purposes of any industrial or commercial undertaking or for any public building or public institution or for supply to streets or other public places.*

Similarly, the Factories and Works Act of Zimbabwe defines factory as any premises in which any person performs work in connection with any business, undertaking or institution, whether as an employer or employee, pupil or inmate of an institution or otherwise, in any one or more of the following activities of the sub-paragraphs of section 3 of that Act (1996):

(i) The making of any article or part of any article;
(ii) the altering, repairing, renovating, ornamenting, painting, spraying, polishing, finishing, cleaning, dyeing, washing or breaking up of any article; (and the next relevant point is point (v) [author])

(v) The painting, spraying, construction, reconstruction, assembling, repairing or breaking up of vehicles or parts thereof.

Section 175 (1) (a) (b) of the Factories Act 1961 of the United Kingdom defines 'factory' as premises in which persons are employed in manual labour in any process for or incidental to:

(a) Making any article or part of any article; and
(b) Altering, repairing, ornamenting, finishing, cleaning, or washing, or breaking up or demolition of any article.

It is clear from the various definitions, and factory legislation of the various countries outlined above, that making, altering, painting, manual labour, breaking up of an article, and cleanliness of the factory is a common factor, including all that is done in theatre and the entertainment industry. In all these various Acts, certain aspects can be adapted to serve the safety of the live events industry.

The OHS of the United Kingdom is guided by the Health and Safety at Work (1974) and the Management of Health and Safety at Work Regulations (1999).

2.3 What is the role of OHS in live events?

Health and safety in the live events industry do not always seem to be a priority, and theatre practitioners are resistant to health and safety. The art aesthetic on stage is a priority, but achieving that magic without considering health and safety is a concern. Some theatre practitioners believe health and safety compromise creativity. Because theatre has hard deadlines, time is always a factor, especially when the 'the show must go on' is said. Usually, this is said with 'regardless of the risks involved' connotation.

OHS is about eliminating health and safety hazards in the workplace. If eliminating a hazard is not possible, then the hazard has to be reduced or substituted. The question is, 'How?'

1. **Engineering controls** are a preferred form of controlling hazards as the hazard is physically isolated. For instance, this can be by improving lighting at a venue that does not have adequate lighting.
2. **Administrative controls** are when safe working practices or procedures are used. There is no ‘cutting of corners’. There has to be a health and safety plan or policy.
3. **Personal protective equipment (PPE)** lessens the potentially harmful effects of exposure to a known hazard. Although an important part of health and safety management, PPE is considered the last resort for hazard control. It is used only after engineering controls, and administrative controls have been shown to be impractical, ineffective, or insufficient.

As with any workplace, OHS also applies to live performances because technical crew and artists are employed to work and thus called employees. The International Labour Standards (Felderhoff, et al., 2002, p. 319) state that the word ‘workplace’ covers all places where workers have to be or have to go because of their work, and which are under the direct or indirect control of the employer. The Occupational Health and Safety Act No. 85 of 1993 of South Africa defines the workplace as any premises or place where people perform work in the course of their employment.

In this study ‘workplace’ will be defined as the live-events industry venues in Botswana, such as the Maitisong Theatre, Gaborone International Convention Centre (GICC), and Botswana Craft. As is the case with the normal workplace, audience, technical crew, and artists should be governed by a set of rules and regulations. For the audience, there should be regulations guiding positioning and behaviour in the venue; and for the artists and technicians, there must be regulations governing how they should behave on stage. This is meant to prevent accidents and to avoid both parties potentially endangering one another. Live events venues such as stadiums, theatres, piazzas, and all unconventional venues that host events and performances are workplaces where the need for safety ought to be given sufficient consideration because a large number of people attend shows at the venues and disasters could happen if those venues are not safe.

2.4 Elements of a live performance area

Most theatre and live entertainment performances consist of two main elements, namely an *audience area* and a *performing area*.

- **The audience area:** Because live performances can be presented anywhere, there are no limitations on the extent of this component. In a standard theatre venue, the performance takes place in a custom-built structure where there is a specific area for the audience and a specific performance area.
- **The performing area:** This is what is commonly referred to as the stage. In standard theatre venues, the stage is built as a permanent structure.

Live events have been presented in all sorts of available spaces, be it open fields, sports stadiums, school or church halls, school classrooms – whatever is available. A temporary structure is built for these venues. More often than not, presenting live events in available spaces is what leads to problems with OHS. These problems are because most of these venues are not necessarily designed to house live performances or to accommodate large audiences. The responsibility for the integrity of these structures remains with the companies who build them. Because some of these structures are temporary, they are usually built with stage decks, marquees, aluminium trussing or scaffolding. An aluminium truss is a standard product used for suspending lighting, audiovisual, and scenic equipment in the live events industry. One of the major concerns for these structures is stability. It is structural stability, which prevents these structures from collapsing or being blown away by forces of nature as the wind in cases where the roof canopy is made out of canvas. It is of paramount importance to know the load capacity and the wind speeds that a structure can withstand and to build those structures according to the guideline set by the manufacturers, to ensure structural integrity and stability. It is for this reason that planning and risk assessment are pivotal to the success of live events.

2.5 Planning

Good planning is of paramount importance to the success of an event. Health and safety must form part of the overall planning of an event. The event manager or promoter is responsible for planning for a successful event, and to assist, an event safety officer can be appointed. An event safety officer is appointed by an event

organiser to be responsible for safety and security at an event (Safety at Sports and Recreational Events of South Africa 2010, sec. 4 (4) (a)).

As per the South African National Standards, Health and Safety at Events — Requirements 10366:2012 (SANS 2012, pp. 23–24), the role of a safety coordinator is defined as:

> *The event organiser shall have access to competent help in applying the provisions of the relevant national occupational health and safety legislation (see foreword) unless they are competent to devise and apply protective measures themselves.*
>
> *The event organiser shall appoint a competent safety coordinator to assist in compliance with the relevant national occupational health and safety legislation (see foreword). The event organiser shall ensure that the safety coordinator reports directly to them.*
>
> *Safety coordinators can assist in the following duties:*
>
> *a) Selection and monitoring of contractors;*
> *b) Liaison with contractors, self-employed people on-site and the local health and safety authorities and their inspectors;*
> *c) Checking of safety method statements and risk assessments;*
> *d) Preparation and monitoring of site safety rules;*
> *e) Checking of appropriate certificates in respect of structures, electrical supplies, etc.*
> *f) Communication of safety information to contractors on-site;*
> *g) Monitoring and coordinating safety performances; and*
> h) *Coordinating safety in response to a major incident*.

In his book, *Special Events*, Joe Goldblatt (2002, p. 7) defines an event manager as the person who is responsible for researching, designing, planning, coordinating, and evaluating events. For this research, over and above planning and coordinating events, event managers or promoters are individuals or organisations that promote and manage the safety of an event from start to finish.

As soon as the event goes into the planning phase, the event manager must start planning for effective health and safety management. Health and safety management system is a system or measure that is used to minimise accidents, injuries or illness at the workplace. Minimising accidents also helps with preventing litigation against event managers or promoters. Internationally, the health and safety management system is guided by the Occupational Health and Safety Act. Alli (2008, p. vii) *d*efines occupational health and safety as:

> *(T)he science of the anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and well-being of workers, taking into account the possible impact on the surrounding communities and the general environment.*

To judge if a health and safety management plan is or was successful, it must have the following:

2.5.1 Creating a safety, health and safety policy

Safety, health, and environment (SHE) policy is a document that demonstrates a company or organisation's commitment to health and safety. The policy must be an integral part of that organisation at all levels. The management of the company at which the policy will be actioned must endorse that policy. Most companies stress the importance of worker participation in drafting health and safety policies.

In Canada, joint labour and management occupational health and safety committees have become the most significant manifestation of worker participation in industrial health and safety programmes (Bryce & Manga 1985, p. 257).

The policy must address the goals and objectives of the company regarding the prevention of major and minor accidents, and the responsibilities of management, workers and contractors. The policy must comply with relevant legislation pertaining to the specific work one does.

According to the Occupational Health and Safety Act No. 85 of South Africa 1993 (sec. 7) regarding the health and safety policy:

(1) The chief inspector may direct:

(a) Any employer in writing; and

(b) Any category of employers by notice in the Gazette, to prepare a written policy concerning the protection of the health and safety of his employees at work, including a description of his organisation and the arrangements for carrying out and reviewing that policy.

(2) Any direction under subsection (1) shall be accompanied by guidelines concerning the contents of the policy concerned.

(3) *An employer shall prominently display a copy of the policy referred to in subsection (1), signed by the chief executive officer, in the workplace where his employees typically report for service*.

Conway (2009, p. 38) states that in England and Wales, a safety policy must be in place if an organisation employs five or more people.

In South Africa, some of the legislation or Acts that are taken into account when planning for health and safety at events are:

- Occupational Health and Safety Act, No. 85 of 1993 (as amended from time to time). The Act is meant:
  - To provide for the health and safety of persons at work and the health and safety of persons in connection with the use of plant and machinery:
  - The protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work:
  - To establish an advisory council for occupational health and safety, and to provide for matters connected therewith.

Safety at Sports and Recreational Events Act, No. 2 of 2010 of South Africa (as amended from time to time) and from now is abbreviated as SASREA of South Africa.

This Act stands to provide the following:

> *To provide for measures to safeguard the physical well-being and safety of persons and property at sports, recreational, religious, cultural, exhibitional, organisational or similar events held at stadiums, venues or along a route; to provide for the accountability of event role-players; to provide for certain*

prohibitions; to provide for the risk categorisation of events; to provide for the establishment of measures to deal with safety and security at events; to provide for accreditation of role-players at events; to provide for event ticketing; to provide for the control of access of spectators and vehicles at events; to provide for the issuing of safety certificates for planned or existing stadiums or venues; to provide for the contents of safety certificates and amendments to safety certificates; to provide for appointment of inspectors and their powers of entry and inspection; to provide for the deployment of security services; to provide for spectator exclusion notices; to provide for prohibition notices; to provide for the establishment of an Appeal Board and for appeals; to provide for public liability insurance for events; to provide for payment of fees; to provide for offences and penalties; and to provide for matters connected therewith.

- National Road Traffic Act, No. 93 of 1996
- National Liquor Act, No. 59 of 2003
- Regulation 205 of 1993 of the Gathering Act
- Disaster Management Act, No. 57 of 2002
- Health and Safety at Live Events-General requirements SANS 10366:2005
- National Environmental Act, No. 107 of 1996
- Water Services Act, No. 108 of 1997
- National Building Regulations and Building Standards Act 103 of 1977
- National Health Act, No. 61 of 2003

Because events are never the same due to location, target market and the kind of event, the health and safety policy should always be reviewed.

2.5.2 Developing an event-specific health and safety plan to ensure the health and safety policy is put in practice

This is when the implementation of the plan is explained in detail, and the roles and responsibilities of the people implementing the policy are also elaborated. The people who implement the policy are usually service providers and authorities, such as police services, medical services, fire departments, disaster management services, and venue managers. All these various agencies are supposed to

organise an effective management structure and distribution of the policy. They must also include a person who will be responsible for monitoring and implementing health and safety.

2.5.3 Analysing and reviewing performance

According to the Event Safety Alliance (2014, p. 12), if there are patterns on how employees usually sustain injuries, this becomes an indication of the issues that have to be addressed. Planning for health and safety is pivotal to the morale, productivity, and quality of work at any given workplace. Safety ought to be guided by:

- **Anticipation***:* Thinking ahead about what could go wrong and how it can be avoided. Looking at the worst-case scenario and how to prevent that scenario.
- **Readiness to act***:* Having personnel who are well trained to manage incidents that could occur.
- **Fail-safe mechanisms***:* Functioning of the entire organisation occurs when unforeseen incidents if fail-safe mechanisms are in place (Saterhed et al. 2011, p. 5). A fail-safe mechanism is a plan that is implemented should anything go wrong.

It is in light of the safety and health issues outlined above that the current project will try to sensitise event managers, venue managers, technical crew, technical directors, and artists working in the live-events industry in Botswana about how hazards and risks can be minimised in a systematic and coordinated way. The suggestions will be based on my field practice, and direct observation within the live events industry in Botswana as that is how potential safety hazards and risks can be investigated, and recommendations to promote best safety practices can be achieved.

2.6 Risk assessment

Every event has related risks, and every event offers risks that are unique to it. A risk assessment is a process of identifying the risks associated with a particular type of work and environment, then assessing them on a likelihood of occurrence versus

the severity of consequence matrix. This is the overall process of risk analysis and risk evaluation.

The event manager or promoter has to ask the following questions, what might cause harm to people and what measures are in place to prevent that harm. These questions can only be answered if a site visit is conducted, and a risk assessment is done.

Five steps are involved when conducting risk assessment:

1. **Identifying hazards which can cause harm:** This is when difficult questions are asked. What is this event about? Will there be alcohol consumption of on site? Will alcoholic beverages be served in plastic containers or glass? Will there be cash sales or cashless services? Will work be done in the dark? All hazards are significant and have to be considered.
2. **Identify those who could be harmed and how they could be harmed***:* Who will be potentially harmed by the hazards identified above? Is it the technicians, crew, performers, contractors or general public or audience?
3. **Evaluate the hazards:** This is when it is decided what measures will be taken to either eliminate, minimise, or control the hazards.
4. **Record the findings:** Hazards have to be recorded, and this must include the process by which they will be eliminated minimised or controlled. If there is a crew working at height, the need for hard-hats, safety boots, and harnesses should be recorded.
5. **Review the findings:** Did all the measures that were put in place eliminate, minimise, or control hazards? Were there near misses and what plans were identified to improve safety at the next production?

A risk assessment must be done for every aspect of the event or production. It should involve all the people who will be undertaking the work, and it is the right of the employee or worker to see the risk assessment associated with the work that they will be doing. This is according to the Australian OHS Act 35 (Occupational Health and Safety Act of Australia 2004, sec. 35).

Risk assessment, which is under section 3 of the Management of Health and Safety at Work Regulations 1999 (reg. 3 (1)) of the United Kingdom says:

> *(1) Every employer shall make a suitable and sufficient assessment of:*
>
> *(a) the risks to the health and safety of his employees to which they are exposed whilst they are at work.*
>
> *(b) the risks to the health and safety of persons not in their employment arising out of or in connection with the conduct by their undertaking*.

A risk assessment must be done during the planning phase of the event. Information from sub-contractors is also required. It is at this stage that indemnity forms and certificates like structural engineers' certificates, certificates of compliance for things like electrical installations and rigging certificates, for example. Only a competent person can perform a risk assessment. The Construction Regulations of South Africa (reg. 1) defines a competent person as a person who:

> *a) Has in respect of the work or task to be performed the required knowledge, training and experience and, where applicable, qualifications, specific to that work or task.*
>
> *b) Is familiar with the Act and with the applicable regulations made under the Act.*

In this study, research on planning and risk assessment will be for the following:

- Venue or site design;
- Temporary structures; and
- Crowd management.

2.7 Venue and site design

The first step in planning for an event is to decide on a venue. A properly selected venue can eliminate many risks. The venue can be indoor (conventional theatres, discotheques, convention centres, and all covered venues) or outdoor or open-air events (stadiums, and all uncovered venues). Nevertheless, the event manager has to appoint a competent person who must visit the venue beforehand to assess and draw a detailed and scaled floor plan of the venue. The venue designer must also

consider other people's experiences with the venue. Among other things, the venue's design and layout must include:

- **Temporary structures:** Is there enough space for temporary structures such as stages or multiple stages? Can the stage be cordoned off?
- **Audience area:** How many people can be accommodated comfortably in the venue? Is there sufficient space for the overflow of the audience? Are there enough exit and entrance points?
- **Entrances and exits to the venue:** Can they serve the expected crowd sufficiently?
- **Parking area:** Is there enough parking for the expected crowd? Should a park-and-ride system be an option? If so, is there a space for drop off? Is the parking area well lit?
- **Emergency access:** Entrances and exits of emergency services. The quickest route out of the venue to the nearest hospital or fire brigade?
- **Venue access for both traffic and pedestrians:** Is the venue accessible to pedestrians and people with disability? Is the venue accessible using vehicles?
- **Production structures:** Is there enough space backstage? The location of the venue operation centre? Location of dressing rooms?
- **Ablution facilities:** Are there ablution facilities? Location of ablutions? The number of toilets in relation to the expected crowd?
- **Floor conditions:** Is the venue floor raked or flat? How will the floor conditions influence the sightlines? Does the venue have a lawn or gravel?
- **Boundaries:** Are the site boundaries defined?
- **Marquee:** The proposed location of a marquee and the internal layout of the marquee? That includes the seating arrangements, stages, entrances, etc.
- **Street name:** The name of the street where the event will be hosted?

The primary idea of a venue design is for the designer to provide an area in which the audience can enjoy the entertainment safely and comfortably. According to the South African Bureau of Standards Code of Practice for the Application of the National Building Regulations, the class of occupancy of a building for entertainment and public assembly and theatrical and indoor sport is A1 and A2 respectively. This classification of buildings is based on the purpose for which they are used (Code of

practice for the application of the National Building Regulations n.d. p. 34). Group A are all assembly-type buildings, and each person is allocated 1m^2 of space if there are no fixed seats in those buildings. The occupant capacity can either be for a seated or a standing audience, and this refers to the available space for the audience.

Fire safety is an integral aspect of building safety. Knowing the occupant capacity is vital in that it will help with organising the correct number of emergency management services personnel, ablution facilities, catering facilities, crowd barriers, and emergency exits. Whatever the occupant capacity, it should not exceed the capacity of available escape routes. The occupant capacity is authorised by a fire official who has jurisdiction on the above-mentioned safety-related issues. The number of exits of a venue depends on the occupant capacity and the evacuation rate. Adequacy of an escape route is determined by:

1. Escape time is the time it takes for people to reach a place of safety. This time depends on the escape route capacity.
2. Escape route capacity is the ability of an escape route to discharge the number of people present to a place of safety. These routes (indoor or outdoor venues) must be made in such a way that people can escape quickly. The escape route must be assessed for if it has doors or other elements that can impede the escape.
3. Travel distance is the distance that people have to travel to an exit.

In outdoor venues, the risk that fire poses to people can be taken as low. In venues like these, people are unlikely to be suffocated by smoke. The biggest challenge in outdoor venues is that the escape time is higher because of the number of people who attend outdoor events and the barriers that are found at these events. It will take longer to disperse the crowd to a place of safety.

Exit or escape capacity is the number and width size of exit doors, and the time it will take for a specific number of people to evacuate through those exits. The occupant capacity and exit capacity has to be calculated to determine how many people a venue can accommodate and can be safely evacuated. The determination

of the width of the exit doors is vital as the width of the exit door increases as the number of people accommodated in that venue increase. In Botswana, the United Kingdom, and South Africa, the occupant capacity of a stadium where there are no fixed seats, in an assembly hall with movable seats, or in an assembly hall with no seats, is 0.5m^2.

For events that have tickets sold or seated events it is quite easy to tell the occupant capacity. For non-ticketed or non-seating events a calculation using the formula below will have to be made to get the occupant capacity.

> *Occupied area (m^2)/Occupant density (Notional area per person in metres squared) = Occupant capacity*

2.7.1 Exits

It has become common practice for artists and technicians to occupy a smaller space compared to the audience or spectators. The problem occurs when there is an accident and spectators have to evacuate the venue with only a few emergency exits. Past tragedies have demonstrated that there is a potential for minor or major injuries occurring as a result of the dynamics of crowd behaviour. The number of exits of a venue depends on the occupant capacity and the evacuation rate. The South African National Standards on the application of the National Building Regulations defines an emergency route as an escape route or part of an escape route that provides fire protection to the occupants of any building and which leads to an escape door (South African National Standards 2012, p. 5)

Building Control Regulations of Botswana (1981, reg. 2) define an exit as:

> *A fire-protected route by way of a room or doorway into a passage and after that only by way of a passage, including any stairway forming part thereof, by which a person may reach a place of safety, but at no stage by means of a lift, escalator or doorway containing a revolving door, and, in particular, means from:*
>
> *a) any point on a storey of a building, a route from that point;*
>
> *b) any room, a route from the doorway of the room; or*

c) *any flat, a route from the entrance to the flat.*

Occupant capacity of room	**Number of exits**
1–60	1
61–600	2
601–1000	3
1001–1400	4
1401–1700	5
1701–2000	6
2001–2250	7
2251–2500	8
2501–2700	9
Over 2700	One additional exit for every 300 persons or part thereof

Table 1: Number of exits as required by Regulation 47 of the Building Control Regulations of Botswana.

Exits for indoor or outdoor venues must open outwards and be clear of any obstructions, and they must lead to a final exit that is safe. Under no circumstances should any emergency exit be chained or locked when the venue is occupied. It is always the case that buildings that are purpose-built as event venues have an occupancy capacity. Such buildings do have emergency exits that are in line with the capacity of the venue. However, venues such as stadiums are not built to host live events on the pitch, and therefore they have emergency exits leading from the grandstands. In both indoor and outdoor venues, purpose-built, and available spaces, the evacuation rate is increased by widening the escape routes. In addition to this, exit signs in indoor venues must be well illuminated, and they must switch on automatically when there is a power failure. The exit signs must always be illuminated to at least 11 lux when a building is occupied (Alliance 2014, p. 43).

A common phenomenon is that people tend to want to escape through the entrance that they used. If that is not possible other exit routes must be clearly marked. In theatres and indoor venues, the audience can be advised where exit routes are located before the commencement of a show. This can happen when the general

housekeeping rules are announced before the commencement of a show. For outside venues such as stadiums, signage ought to be used. There must be a provision that should there be a power failure, announcements can still be made. People tend to panic more when they are not given clear instructions or when there are no instructions at all.

Table 2 and 3 are from the Building Control Regulations of Botswana and the South African Building Regulation, respectively. They both define the need to increase the width of exits or stairways when the number of occupants increases. This is to accommodate the influx of people wanting to exit the room or venue and to avoid a stampede.

The tables show precisely how the width of exits increases by the same component of 0.3m or 300 mm when the number of occupants increases.

Number of persons	**Total width of stairway or exit (in metres)**
0–50	0,90
51–150	1,20
151–200	1,80
201–225	2,10
226–250	2,40
251–275	2,70
276–300	3,00
Where the number of persons exceeds 300 but does not exceed 600, the width of the stairway or exit shall be increased by 0,30 m for each additional 25 persons or part thereof.	

Table 2: Minimum width of stairways and exits as required by Regulation 50 of the Building Control Regulations of Botswana

Maximum number of persons	**Minimum width, mm**
120	1100
130	1200
140	1300
150	1400

160	1500
170	1600
180	1700
190	1800

Table 3: Width of escape routes according to the Building Regulation of South Africa

In the United Kingdom, assembly halls are classified as Class 9b buildings. Each person in an assembly area is allowed 0.5m^2 seating space.

Occupied area type	**Typical occupant density m^2 per person**
Standing spectator or audience area or bar (unseated)	0.3
Assembly area, dance floor or hall	0.5
Dining area, seated bar or restaurant	1.0
Skating rink or sports area	2.0
Display gallery or workshop	5.0
Camping area	6.0
Sales area	2.0
Car park	Two people per parking space

Table 4: Occupant density of the United Kingdom

The minimum width of an escape route should ideally be 1,050mm, but in any case not less than 750mm (unless it is for use by less than five people in a part of your premises), and where wheelchair users are likely to use it, not less than 900mm (HM Government 2006, p. 72).

The escape times of an open-air venue and a large place of assembly are different according to their respective guidelines. Large places of assembly in the United Kingdom are premises where more than 300 people can gather. These premises range from stadiums, marquees, nightclubs to large community centres. Open-air venues could be venues like music concerts, festivals, and sporting events (HM Government 2006, p. 66).

In premises where there is a low occupancy level and all the occupants are able-bodied and capable of using the means of escape without assistance; very little chance of a fire; few if any highly combustible or flammable materials or other fuels for a fire; fire cannot spread quickly; and will be quickly detected so people will quickly know that a fire has occurred and can make their escape, then the risk can usually be regarded as 'lower'.

A venue that accommodates a significant number of people who require assistance to evacuate is considered a higher risk. However, once a risk assessment is done, and there are plans to mitigate the slow evacuation, the venue can thus be considered normal to high risk.

The escape times of a large assembly venue is 2 minutes for higher risk premises, 2.5 minutes for normal risk premises and 3 minutes for lower risk premises (HM Government 2006, p. 71). Escape times of open-air venues are less than 5 minutes for higher risks venues, between 5 and 10 minutes for normal risk venues and less than 10 minutes for lower risk venues. As previously stated, the escape route capacity is determined by the number of people who pass along a route each minute of a defined escape time.

For seated open-air venue, the rate that people can pass through an escape route is 73 people per metre or minute and 109 people per metre or minute for standing open-air venue.

The exit width and capacity of an open-air venue can be calculated using the following formula:

Total exit width = number of people/flow rate x escape time

A competent person from the fire department should assist in calculating the escape time, escape route capacity, and travel distance.

Maximum number of persons	**Minimum width, mm**
80 people in high-risk premises	750mm
100 people in normal-risk premises	
120 people in lower-risk premises	
160 people in high-risk premises	1050mm
200 people in medium-risk premises	

240 people in lower-risk premises	
An additional 75mm should be allowed for each additional 15 persons (or part of 15)	

Table 5: Width of escape routes according to the Building Regulation of the United Kingdom,

2.7.2 Temporary structures

Temporary structures are used at many events. These structures range from tiered seating, stages, public address (PA) towers, crowd barriers, lighting, special effects towers, audiovisual screens, tents, and marquees.

The building of temporary structures must be done according to the calculations, plans, relevant loads, and specifications drawn up by a competent designer. Because the event organiser or promoter has a responsibility for the safety of people attending the event, it is imperative that they employ competent people to supply, design, erect, and dismantle a temporary structure. The event organiser must enquire about competency of service providers and ask for written evidence from the employees and suppliers about the capability to design and erect a temporary structure safely.

The objective is to make sure that they do not cause injury to people due to structural failure. Structural failure can be caused by the weight of banners, technical equipment, such as projection screens, lighting, and sound equipment that is rigged without including their load specification on the design plan. That is why the design, manufacturers' recommendation, erection, and deconstruction procedures are a key element is the event planning phase. Temporary structures must withstand natural elements like wind, rain, and ground movement, etc. Some venues like the Dome in Johannesburg require design drawings providing sufficient detail to determine the general size, form, weights, and materials of construction, and the use of the proposed building. Should the venue management and the fire department feel the structure is unsafe, they would require it not to be used in the venue.

The structural reliability of temporary structures is based among other things on how the structure is constructed, the material used, and how the site where the structure is built looks like. It is not wise to build a temporary structure on an area that is prone to flooding. The roof of temporary stages and marquees are usually made from fabric membrane material that is waterproof. Anchoring is crucial as it ensures stability and safety of the structure. The manufacturers' manuals must be used as a guide to anchor and erect a temporary structure, taking into consideration the wind speed that the structure can withstand.

Event venues have either permanent or temporary structures. A permanent structure refers to a performance space or building that already has a built-in stage, auditorium, toilet facilities, a known occupancy capacity, with entrances and exits. Public parking at permanent venues is also clearly demarcated. On the other hand, temporary structures refer to structures that are temporarily built specifically for an event. These structures must possess adequate strength and stability during setting-up, performance and dismantling. Temporary structures are typically built for outdoor venues. They include stages, barriers, fencing, and marquees. Outdoor venues refer to those venues that are increasingly used to host events other than those for which they were originally designed. An example in Botswana is the Botswana National Stadium in Gaborone. The stadium was built to host sporting events and not music festivals.

The National Building Regulations and Building Standards Act No. 103 of 1977 of South Africa (sec. 1 (iii)) defines a building as:

> *Any other structure, whether of a temporary or permanent nature and irrespective of the materials used in the erection thereof, erected or used for or in connection with: the accommodation or convenience of human beings or animals.*

According to the above Act, for a temporary structure to be erected, there has to be an application for authorisation that has to be made before construction can commence. The National Building Regulations and Building Standards Act No. 103 of South Africa (sec. A23 (2)) requires that an application should include the following:

a) A statement of the period for which authorisation is required;
b) A site plan;
c) Layout drawings in sufficient detail to enable the local authority to determine the general size, form, materials of construction and use of the proposed building; and
d) Any structural detail required by the local authority to determine the structural safety of the proposed building.

SASREA of South Africa (Safety at Sports and Recreational Events Act No. 2 of 2010 of South Africa, sec. 1) defines a stadium as:

> *An enclosed or semi-enclosed structure which consists of seating for spectators and a field of play or a permanent or temporary podium or another area within the structure reserved for the purposes of hosting events, which has a safe seated or standing spectator capacity of at least 2000 persons as certified by a local authority.*

Because many temporary structures were used in Australia, there was a code developed to reference for their design, construction, and use. A National Construction Code (NCC) was developed. NCC was developed to incorporate all on-site construction requirements into a single code. The goal of NCC is to achieve nationally consistent, minimum necessary standards of relevant safety (including structural safety and safety from fire), health, amenity, and sustainability objectives efficiently (National Construction Code of the Building Code of Australia 2016, p. 9).

Australia has what they call ‘importance levels’. Importance levels are the levels of consequences in the event of building failure. The higher the number, the greater the consequences there could be to a person or public. Importance levels are applicable to structural safety only. Temporary structures are classified as importance level 3. This level is for buildings designed to contain more than 300 people. All temporary structures must comply with the requirements of the Australian Building Codes Board (ABCB) temporary structures 2015 standard and the Building Code of Australia (BCA). Some of those requirements are that to ensure the stability of the structure, either a report by a registered testing authority must be written stating that the material or form of construction complies with the tests listed in the report. The results thereof or a professional engineer can certify that the

material, design, specification, or form of construction complies with the standard of temporary structures.

Risk assessment for temporary structures must be conducted at all times. This is because not all temporary structures allow testing their structural integrity during construction (for example, climbing on the structure when it is still under construction). Risk assessment for the demolition of the temporary structures must also be done. Location plays a vital role in the erection of temporary stages and many factors may influence the choice of location where temporary structures are placed. If the gradient of the venue is uneven, the structure may have to be modified. The maximum load that venues can carry should be checked as it might collapse when there is an enormous load that is exerted on it. Users must not exceed a venues' load-bearing capacity. Another consideration has to do with the drainage of venues when there is flooding. In addition, it must be determined whether the placement of technical equipment will pose any danger to structural integrity.

During the designing stage of temporary structures, fire safety must be taken into consideration. There should be enough exits to evacuate within a specified time. It is always advisable to include competent fire officers to advise regarding entrances, exits of temporary structures and the type of fire-fighting equipment to use.

According to Regulation 12 (3) (a) of the Construction Regulations of South Africa, contractors must ensure that all temporary structures are adequately erected, supported, braced, and maintained by competent personnel. This is so that these structures are capable of supporting all anticipated vertical and lateral loads that may be exerted on them, and that no loads are imposed onto structures that the structures are not designed to withstand. In this way, the structural reliability and safety thereof are maintained. This is important because the stability and strength of temporary structures are subject to the weather elements and location. An anemometer should be used to measure wind speed.

2.8 Crowd management

Knowing the occupant capacity of venues does not guarantee that the stated venues' capacity will necessarily be reached. Three things may happen. The

occupant capacity might be reached or not reached, or there might be an unexpected influx of people wanting to watch the show. Crowd attendance at events is usually determined by the following factors:

1. **The venue:** Does it have a bad reputation? Is it family-friendly? The location of the venue. The location and number of entrances and exits.
2. **The nature of the event:** Is it a jazz, rock ‘n roll festival or theatre performance? This will give a clear audience.
3. **Profile of performers or artists at that particular event:** Are they popular artists with a good following?

Crowd behaviour has to be understood when managing crowds. Several actions can be used to manage crowd movement inside venues, such as:

- Provision of audiovisuals;
- Elevation of the stage;
- Sound or delay towers;
- Multiple-stages; and
- Clear sightlines.

Crowds become agitated when they cannot see the stage, the artists, and cannot hear the sound. Audiovisuals assist the crowd in seeing the stage from afar. The crowd does not necessarily have to come closer to the stage to see the performance. Good quality audiovisual equipment and the time of day that the equipment is used is important. An ordinary projector should ideally not be used during a nice sunny day as the image will not be bright enough. A projector will work when it is dark, but it has to have specific ANSI lumen to achieve that. Daylight screens can be used at any time of the day. Their brightness will not be reduced when used on a sunny day. Audiovisual screens are perfect as they can pass a message while the show is running and the message can be seen by people who are hearing impaired.

Delay towers are used in big venues that have large crowds in attendance. These towers propagate the sound coming from the speakers at the main stage.

Lately, many music festival have used multiple stages. Event managers can pack various artists into the venue and divide music genres for shows for a day or two. Multiple stages also help to spread the crowd evenly. Besides the main stage at the MTN Bushfire Festival in Swaziland, three smaller stages have great artists performing there throughout the three-day music festival. The audience has a choice of which artist to see and when. Afropunk Johannesburg has two stages, and the Standard Bank Joy of Jazz has four stages.

Figure 1: Multiple stages of Afropunk Johannesburg. Picture courtesy of K Khiba.

Sightlines have a crucial effect on crowd behaviour. Poor or obstructed sightlines can cause spectators to stand in a seating area leading to agitation when they cannot see. This is one of the reasons why consideration must be given at the design stage to provide good sightlines.

2.9 International trends

One of the aims of this study is to promote a safe mindset by stakeholders, technical crew, and event organisers and promoters in the live events industry of Botswana. To achieve that, Botswana has to learn from other countries what can be done to minimise injuries in their live events industry and theatres.

The entertainment industry is one of the fastest-growing sectors around the world. The Association for Media and Event Technology (VPLT), a Germany-based association, estimates the entertainment industry turnover at around €4 billion.

Europe has many standards for structures that are approved by the European Committee for Standardization (CEN). There are 34 members of CEN, and among these are Austria, France, Germany, and the United Kingdom. They have standards for tents, structures, and stages. These standards are for temporary structures, tents safety, design of aluminium structures, and design of steel structures, among others. Even though the CEN member states have these standards, they also use OHS Acts.

Germany has the Entertainment Technology Industry Association quality standard that is a standard of quality that endeavours to achieve the required quality level of service to define events in the event industry. The United Kingdom has the Professional Lighting and Sound Association (PLASA). Australia has an Occupational Health and Safety Act and a Work Health and Safety Act 2011. The main object of the Work Health and Safety Act 2011 of Australia (sec. 1.2 (1)) is to provide for a balanced and nationally consistent framework to secure the health and safety of workers and workplaces by:

> *(a) Protecting workers and other persons against harm to their health, safety and welfare through the elimination or minimisation of risks arising from work or from specified types of substances or plant.*
> *(e) Securing compliance with this Act through effective and appropriate compliance and enforcement measures.*

The objectives of the Occupational Health and Safety Act of Australia 2004 (sec. 1) are:

> *(a) To secure the health, safety and welfare of employees and other persons at work.*
> *(b) To eliminate, at the source, risks to the health, safety or welfare of employees and other persons at work.*
> *(c) To ensure that the health and safety of members of the public are not placed at risk by the conduct of undertakings by employers and self-employed persons.*

(d) to provide for the involvement of employees, employers, and organisations representing those persons, in the formulation and implementation of health, safety and welfare standards – having regard to the principles of health and safety protection set out in section 4.

The United Kingdom also has an OHS Act called Health and Safety at Work Act 1974. Like the Act of Australia, the main objective of the United Kingdom's Act is to secure the health, safety, and welfare of persons at work, and for protecting others against risks to health or safety in connection with the activities of persons at work.

The United Kingdom has the Guide to Safety at Sports Grounds guideline. Its objective is to provide guidance to ground management, technical specialists such as architects and engineers, and representatives of all relevant authorities, to assist them in the assessment of how many spectators can be safely accommodated within a sports ground (Guide to Safety at Sports Grounds of the United Kingdom 2008, p. 13). This guideline is colloquially known in the entertainment industry in the United Kingdom as the Green Book.

Australia and the United Kingdom also have guidelines that promote safe working environments for live entertainment and event practitioners. In Australia, there is a body known as Live Performance Australia (LPA) that provides a practical guideline on the execution of events. Some of these guidelines are:

- Safety guidelines for the entertainment industry;
- The safety guidelines for live entertainment and events;
- Guidelines for concerts, events and organised gatherings; and
- Event guidelines by the City of Sydney.

These guidelines are all based on Work Health and Safety Act 2011 (WHS Act) and Work Health and Safety Regulations 2011 (WHS Regulations), and their purpose is to identify basic standards and safety measures for event organisers. This is to safeguard the lives of patrons and to have uniformity in organising events throughout Australia. Live events practitioners wrote these guides.

The difference between the Workers Health and Safety Act and Workers Health and Safety Regulation is that the Act states **what** must be done and the regulation mentions **how** it should be done.

The Australian Entertainment Industry Association and the Media Entertainment and Arts Alliance developed the Safety Guidelines for the Entertainment Industry. Media Entertainment and Arts Alliance is a union advocating for people in the arts, entertainment, and events industries. Because of these associations, there is health and safety legislation that applies to all workplace practices in all states and territories of Australia. All productions, events, and venues must comply with relevant legislation, and any person working outside these requirements may be subject to fines and prosecution. This legislation (Safety Guidelines for the Entertainment Industry 2001, p. 5) requires all organisations involved in the entertainment industry to:

- Have policies and procedures that aim to protect the health and safety of all;
- Ensure that such policies and procedures are documented and available to all;
- Undertake risk assessments to identify hazards and implement appropriate control measures; and
- Consult with all involved in the workplace.

Health and Safety Executive (HSE) is an agency in the United Kingdom that regulates and enforces health and safety at the workplace. Their mission is to prevent work-related death, injury, and ill health. They have a guideline called The Event Safety Guide. The aim of this guide (Health and Safety Executive 1999, p. 1) is:

> *To help everyone who organises music events so that events run safely. The guide will enable event organisers to understand the needs of others concerned with the event, such as local authorities and the emergency services so that they can all work together to improve event safety.*

The Australian Entertainment Industry Association, the Media Entertainment and Arts Alliance of Australia, Live Performance Australia, Health and Safety Executive in the United Kingdom, and the United Kingdom Department for Culture, Media and Sport are just a few international organisations that advocate for safety at events. Safety is achieved by having guidelines that can be used in conjunction with their OHS Acts and other Acts and regulations to provide a safe working environment in the live events industry.

2.9.1 Safety plan or safety management system

For compliance purposes, an organisation or company is required to have a comprehensive safety plan or safety management system. The Live Performance Australia's Safety Guidelines for Live Entertainment and Events (2018, p. 15) safety management system includes the following:

- Policies – work health and safety policy and commitment;
- Management – who is responsible, accountable and their contacts;
- Planning processes – integrated with other systems;
- Consultation – involving workers (including contractors) and other people conducting business or undertaking and communicating outcomes;
- Risk management process – systems, procedures and measures for identifying hazards, risk assessment, controls, review of controls, and relevant insurances;
- Supervision, information, instruction and training – including competence verification and testing;
- Injury management, treatment, claims, and return to work procedures;
- Incident reporting, analysis, and review; and
- Processed for measuring and evaluating work health and safety performance;
- Safety management systems review – improvement of any element of the system.

The Work and Health Safety Act of Australia 2011 (sec. 84) gives employees the right to cease working if they have a reasonable concern that the work they are about to do exposes them to a high level of risk.

A health and safety policy is a legal requirement in the United Kingdom if an organisation has more than five employees. The policy does not have to be complicated. It should have a statement that describes the commitment of the company to health and safety, the responsible person, and how the aims of the commitment will be achieved.

Theatres should have a safety management plan. For receiving theatres on non-producing theatres, a rental contract must include a clause that states that all building and rigging systems are in working order. The floor plan should include the maximum weight loads of the rigging systems. It is also necessary to view the

theatre, and in that way entrances and exits for both casts on stage and audiences in the auditorium is established and that the entrances and exits are well lit and have no obstructions. Firefighting equipment must be checked. If it is not possible to go view the theatre, the theatre should have a stage plan that includes the entrances and exits, fly bars, and stage dimensions that could be sent to clients.

In Australia, before event organisers organise an event, they should first apply for an entertainment permit or license. This happens at the planning phase of an event. The Brisbane City Council Entertainment Events Permit Application form requires the following, among other information required:

- Expected number of people attending the event;
- The type of event proposed, e.g. outdoor amplified music concert, festival, outdoor sports event, amusement rides, or circus;
- What activities will be conducted at the event, e.g. mechanical rides, live bands, pyrotechnic display, food stalls, or camel rides? If pyrotechnics are to be used, then a pyrotechnics notification form will have to be completed by a qualified professional. The form must be accompanied by fireworks contractors' public liability insurance;
- Will marquees, tents or other structures be erected, e.g. stages or rides in the park?;
- Will there be liquor sales to the public? If so, then a license will have to be obtained from the Queensland Government;
- Will food be sold to the public? If food is prepared at the venue, then a license will be required;
- Will amplified devices be used, e.g. speakers?; and
- Plans are required to show the location of all activities. The site plan to scale must include:

    - entry and exit points from the event and adjoining buildings
    - emergency services designated areas and access points
    - location and arrangement of noise sources
    - location and arrangement of light sources
    - location of restricted areas
    - method of proposed ventilation (for any indoor event)

- location and number of bins and toilets
- location of food and drinks stalls, including potable water supply source.

Other supporting documents required are the Certificate of Currency or Certificate of Compliance from service providers and Certificate of Currency for Public Liability Insurance at a minimum of $20 million, indemnifying the city council for all claims for personal injury and damage to property arising out of the event.

The event application form of the City of Sydney has to be submitted 16 weeks before the proposed event date of major events. Among other things required are adequate accessible toilet facilities, and the total number thereof. The number of toilets must accommodate the maximum number of guests attending the event at one time. The site plan of the event venue is also required. The plan must include:

- Barricading;
- Stalls and marquees;
- Stages;
- Toilets;
- Rubbish and recycling bins;
- Signs or banners;
- Lighting towers;
- Public address system speakers;
- Entry and exit points;
- Emergency evacuation area; and
- Trees and tree protection zones.

A minimum cover of $10 million for public liability insurance is required by the City of Sydney.

According to SASREA 25 (1) of South Africa, event organisers of live events or theatre productions in South Africa must have public liability insurance. Public liability insurance is designed to cover the event organiser or promoter’s legal liability, following a successful claim by a member of the public or another business. Public liability insurance indemnifies the event organiser or promoter against legal action and compensation claims by a third party.

In Canada, there is a coalition called Provincial Arts Service Organisations (PASO). This coalition strives to strengthen the individuals and organisations that disseminate arts. One organisation that is a member of PASO is Theatre Alberta that has an online resource called *Safe Stages* – an occupational health and safety resource for the Alberta theatre community with best practices, forms, and additional resources. *Safe Stages* is a guide to Alberta's occupational health and safety legislation for employers and employees in the theatre industry.

Over and above the public liability insurance, other insurances can be included in a theatre company, according to *Safe Stages* by Theatre Alberta (2007, p. 31).

1. *Commercial General Liability Insurance – covers those employed by or working on behalf of the theatre company and its members. This insurance provides coverage to a business for bodily injury, personal injury and property damage caused by the business' operations, products, or injury that occurs on the business' premises.*
2. *Property Insurance – covers the physical plant and its contents.*
3. *Tenant's Legal Liability Insurance – covers your company while working in a rental facility for damages caused to the rental facility while under the control of the theatre company; most rental facilities require this of each renter.*

The various types of insurance mentioned above is a clear indication that European countries and North American countries like Canada, respect the safety of personnel at events and have Acts and requirements that protect the wellbeing of people.

Concerning venue design, all events in Australia require public building approval. The approval is given when all the health and safety issues have been addressed.

According to the Australian Health Act 1911 (Part VI sec. 173), a public building is:

(a) A building or place or part of a building or place where persons may assemble for:

(i) Civic, theatrical, social, political or religious purposes;

(ii) Educational purposes;

(iii) Entertainment, recreational or sporting purposes; and

(iv) Business purposes;

(b) Any building, structure, tent, gallery, enclosure, platform or other place or any part of a building, structure, tent, gallery, enclosure, platform or other places in or on which numbers of persons are usually or occasionally assembled, but does not include a hospital.

The interpretation is far broader, includes more buildings that people assemble in that are not specified in paragraph (a) of the definition.

2.9.2 Working at height

Working at height in European countries is taken very seriously. Training is an integral part of working at height. The United Kingdom has the Work at Height Regulations 2005 drafted by the Health and Safety Executive. PLASA has a certificate for professional riggers known as National Rigging Certificate (NRC). This certification is required for all riggers doing work at height. The certificate comes with an NRC identification card.

Botswana can learn to manage safety in the live events industry by adopting some regulations and safety guidelines of the other countries discussed regarding how safety in the live events industry is managed using the OHS Act and standards drafted by entertainment industry practitioners.

2.10 Current industrial safety legislation in Botswana

Employers and employees have a role to play in the implementation of health and safety on all productions and live events. There is a legal obligation to take care of their safety and safety of others. This responsibility extends to venue owners, event organisers, and promoters. OHS Acts the world over protect employees against disease, sickness, and injury at a workplace. Since Botswana does not have an OHS Act, how can safety hazards and risks be minimised in the live events industry?

The live events industry in Botswana would have to work towards developing a coordinated national structure to represent the safety interests of their events by having safety guidelines or regulations on live events safety, which will minimise hazards. This can be achieved by adopting some legislation and regulations that form part of legislation used to regulate health and safety in Botswana.

2.10.1 Building Control Regulations of Botswana

These regulations designate places of entertainment as places of assembly. The intention of places of assembly is for persons to congregate for pleasure, recreation, education, worship, or work, including theatres, cinemas, churches, mosques, public halls, exhibition buildings, grandstands, stadia, or canteens.

According to the Building Control Regulations of Botswana, a building is defined as any building or erection constructed of durable materials (excluding buildings of traditional local construction), whether temporary or permanent, including any fixture, not being a structure or erection exempted under Regulation 5. It includes a prospective building (Building Control Regulations of Botswana 1981, reg. 2). Regulation 5 discusses exempted buildings. The entertainment industry uses many temporary structures. These structures are marquees, tents, public address system towers, delay towers, and stages. When these structures are constructed, demolished or altered, a permit must be granted to do so. A design plan and the specifications of that building have to be submitted to the building authorities. This is according to Regulation 9. Regulation 17 goes on to say that no one must occupy a building unless it is in compliance, and a permit is granted.

The design plans and specifications that a designer of a temporary structure can submit is:

- A scaled design plan of the structure;
- Maximum weight loads of the rigging systems;
- Topography of the site;
- Entrances and exits if it is a marquee or tent;
- Evidence of competency of the designer;
- Structural calculations;
- Fire risk assessment; and
- Manufacturers' specifications.

All the submission of notices and deposit of plans for Regulation 9 are clearly stated on the Building Control Regulations.

The above details will give the building authorising official all the necessary information that will show for a permit application how the structure will be constructed and its stability. It is imperative that these structures are certified using permit approval.

It is important for constructors of temporary structures to make sure that the construction of temporary buildings is done according to the design plan and that the manufacturers' specifications are followed for compliance. Only when the structure is compliant, and a permit is issued, is the structure at least guaranteed to have been built according to standards set by building authorities.

Regulation 18 says that if a building carries a load deemed to be dangerous, a fence should be erected for the safety of the public. The Mines, Quarries, Works and Machinery Regulations of Botswana 1978 (reg. 65) also say that all entrances to dangerous places underground shall be securely fenced or barricaded across the whole width of such entrance to prevent unintentional access to such places.

In the live events industry, a crowd barrier can be erected at the front of the stage. Crowd barriers are used either temporarily or permanently to shield crowds away from a dangerous area, guide people, make people stand in queues, and barricade the front of the stage. This relieves crowd pressure and overcrowding. There are various types of crowd barriers, and the type of barrier used should not pose a hazard. Experience and research suggest that the greatest dangers are not large transient pressures on people, but crowd collapse and subsequent traumatic asphyxiation (IStructE 2007, p. 84).

When a crowd barrier is erected, sightlines must be taken into consideration as poor or obstructed sightlines can cause a crowd to become agitated.

The crowd barrier erected in front of the stage is called a *front-of-stage crowd barrier*. This barrier is a pressure barrier that is specifically designed to resist horizontal loads such as those exerted by a crowd at the front of a stage (Alliance 2014, p. 252). This kind of crowd barrier is typically 1.1m high and has a dual purpose. Besides stopping the crowd from surging to the front of the stage, they have an elevation at the back that security or marshals can use to stand on and see stressed audiences due to crowd pressure. The distressed audience member can

be pulled from the crowd and treated on the other side of the barrier. In front of the barrier, there is a footplate that the audience stand on to stabilise the barrier.

Front-of-stage barriers are used in non-seating or general-admission venues.

Figure 2: Crowd barrier or pressure barrier used in front of the stage.

Below are two pictures of crowd barriers that are commonly called speed fences. These are commonly called speed fences because they are set up quickly. The speed fence in Figure 3 is made of steel, is free-standing, and is usually 1.1m high.

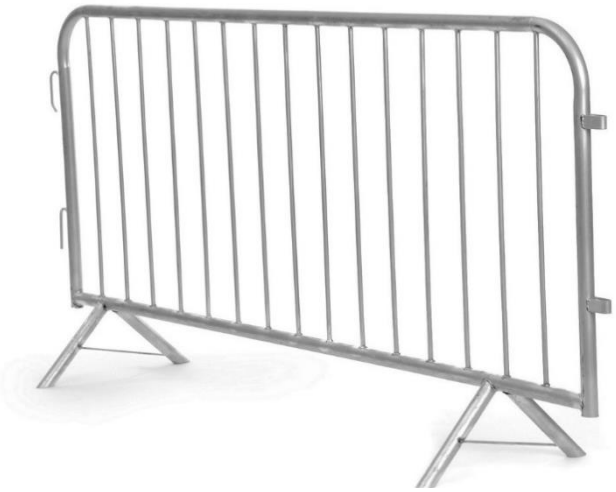

Figure 3: Speed fence made of steel

Figure 4 is a speed fence made of mesh fencing. This kind of crowd barrier is about 2m high and have plastic blocks that stabilise them. All these speed fences or crowd

barriers have minimal structural strength to resist crowds. Their main duty is to restrict access, guiding the route, and used as gateways at entrances for ticket validation or as a searching area by security personnel. The crowd barriers are usually used for fencing off sites that do not have demarcation and are usually covered with a mesh cloth to restrict viewing from the outside.

Figure 4: Speed fence made from mesh cloth

It is the responsibility of the builder of the temporary structures to provide temporary structures that are safe for their users, including proper protection against the risks of fire. The engineering calculations and drawings must be submitted to the building authority and must state that the structure surface can withstand the suspended load, and at what degree the structure can withstand natural elements like wind and fire.

The stability of the structure must not be compromised. The ground conditions where the temporary structure is going to be built has to be known because some soils give little resistance. In such cases, anchoring becomes crucial to the stability of the structure. Anchoring can be used to resist windy conditions, and this can either be by cross bracing, ground anchors, or the use of ballasts. Some venues do

not want their ground penetrated, so ballasts are used to resist the uplifting force of the structure. Anchoring should be by the manufacturers' specification.

The demolition of buildings and structures must be done according to Regulation 113 of the Building Control Regulations. An experienced person must do the demolition of temporary structures, and all electrical power must be switched off. Also, when a temporary structure is built, that area must be closed off. The same thing applies when the temporary structure is being demolished. No unauthorised people are allowed in that area.

A building or a room has a finite number of people that it is capable of accommodating. That number is called the occupant capacity. Regulation 56 of the Building Control Regulations describes occupant capacity and how it is calculated.

The occupant capacity and exit capacity have to be calculated to determine how many people can occupy a room and be safely evacuated. Occupant capacity is the capacity of the hall in relation to its size and type of event being held. The lower number calculated is used as the maximum occupancy number. Exit capacity is the number and width sizes of exit doors, and the time it would take for persons to pass through them.

Complete evacuation out of a hall should be done in 2½ minutes, and the minimum width of an exit door should be no less than 0.750m wide. The following is how to calculate the exit capacity:

- Measure and add together the widths of all the exit doors (in metres). Any exit measuring less than 0.750m wide and the biggest size door cannot be used in the calculation.
- Divide by 0.750m (minimum single door width).
- Multiply by 40 (maximum number of persons exiting per minute).
- Multiply by 2½ (minutes to evacuate).

The following is how you calculate the occupant capacity of an assembly hall that is 20m x 10m in size:

Occupied area (m^2)/Occupant density (Notional area per person in m^2)
= Occupant capacity

200m²/0.5m² = ***400 people***

This formula is guided by the description of the venue and the notional area per person in metres squared as per Table 6:

Description	**Notional area per person in metres squared**
Assembly hall (movable seating or none)	0.5
Bar (public and lounge)	0.5
Bedroom	4.0
Bowling alley and billiard hall	9.3
Canteen	1.0
Club	0.5
Common room	1.1
Concourse	0.7
Conference and committee rooms	1.1
Crush hall and queuing lobby	0.7
Dance hall	0.7
Dormitory	4.6
Enquiry room	3.7
Factory shop floor, workroom, and storage	4.6
Grandstand (no fixed seating)	0.5
Kitchen	9.3
Library, museum, and art gallery	4.6
Mess room	1.0
Office: (a) multiple occupation	5.1
Office: (b) individual room	3.7
Reading room	1.9
Restaurant	1.0
Shop: (a) Ordinary consumer goods	1.9
Shop: (b) more expensive or exclusive trades, e.g. carpets	7.0
Stadium (no fixed seating)	0.5
Staff room	1.1
Studio (radio, television, film, and recordings)	1.4
Writing room	1.9

Table 6: Occupant capacity of buildings according to Regulation 56 of Building Control Regulation of Botswana

The following Building Control Regulations are what the event organisers, promoters, and venue owners could implement in venues when drafting evacuation plans for outdoor events. Indoor venues will be most likely to be abiding by these regulations already, as indoor venues are permanent buildings.

- Regulation 46 – provision of exits;
- Regulation 47 – number of exits;
- Regulation 48 – travel distance in relation to exits;
- Regulation 49 – requirements as to exits; and
- Regulation 50 – width of exits.

2.10.2 National Disaster Risk Management Plan (NDRMP)

For this study, a disaster will be defined according to the Botswana National Policy on Disaster Management (1996, p. 6). The definition of disaster is:

> *An event that seriously disrupts the normal pattern of activities in a given area as a result of interaction between a hazard and a human population that results in loss of life and property, injury and economic and social hardships and the possible destruction and damage to government systems, buildings, communications and essential services, that requires exceptional measures to be taken both from within the affected community and outside.*

Botswana has the National Policy on Disaster Management (1996, p. 4) and one of its objectives is to have systems in place to deal with disasters other than drought or famine. These systems should be used at national, district, and local levels.

The National Disaster Risk Management Plan (NDRMP) of Botswana emanates from the National Policy on Disaster Management. NDRMP addresses issues related to natural and human-made hazards and vulnerabilities as per sectoral mandate and gives guidelines on prevention, mitigation, preparedness, response, rehabilitation, and reconstruction of disaster risk-management activities of government ministries or departments, the private sector, non-governmental organisations, and communities. The NDRMP is the central disaster risk-

management plan for Botswana (National Disaster Risk Management Plan 2009, p. 1).

In 2008, the National Disaster Management Office identified religious and cultural events as a major event hazard in areas of Ramotswa, Otse, Lobatse, and Gaborone. Gaborone, being the capital city of Botswana, hosts a significant amount of live events and all the entertainment theatres are in Gaborone.

The live events industry can learn from this plan because all risk-management plans, identify risks or hazards and detail procedures of how to eliminate or reduce them. Risk management is about saving lives and protecting property, and that is what the NDRMP envisages by:

- Identifying hazards which can cause harm;
- Identify those who could be harmed and how they could be harmed;
- Evaluate the hazards;
- Record the findings; and
- Review the findings.

One of the objectives of the NDRMP is to have measures to reduce vulnerability to disasters and build capacity and resilience at national, district, and community levels.

Strong winds and industrial accidents are some disasters identified to be prevalent in Botswana. Mitigating against the harm that these disasters can cause is very important, as these disasters are also common in the live events industry.

On disaster management and preparedness measures of the Ministry of Youth, Sport and Culture, Botswana's National Disaster Risk Management Plan (2009, p. 23) states that the ministry must do the following, among other things:

- Ensure that the design of recreational and cultural facilities and centres (e.g. stadiums, theatres, museums, and libraries) takes into consideration disaster responsiveness measures and regulations.
- Collaborate with relevant stakeholders in developing plans that mitigate and prevent disasters during festivals, sports, celebrations, and rallies.

2.10.3 Factories Act

Safety provisions in case of a fire are discussed in the Factories Act. The factory must have adequate escape routes, and they must be free from obstruction. These escape routes must also not be locked at any time when people are inside a factory. This can be applied at all entertainment venues. It is a common feature to find stadium gates locked using a chain and a padlock. This presents an access and exit problem when events are taking place. Rather, have security personnel guarding those entrances. This is important because when there is a fire at one escape route, the audience is able to use other routes to escape.

The Gaborone City Council (General) Bye-Laws 23 (2) (1966) also mention that owner of a building is required to have a fire extinguisher in a place that is easily accessible and is in a good working condition.

A very important regulation that the live events industry can adopt from the Factories Act of Botswana is Regulation 32 (1) of the Factories (Electricity) Regulations of Botswana as it discusses the competency of persons to undertake specific work. According to that regulation, only an authorised or competent person working under supervision can do work that requires technical knowledge or experience. A competent person must be assigned to work at height in theatre or live event stages or even rigging. Experience and training are required for that kind of work. The regulation further explains that no one should be employed in a position that can cause harm without being told of the dangers that come with that position.

The Factories Act fails to elaborate how theatre curtains, borders, drapes, and theatre legs in a theatre should be treated to be flame retardant as they are the most likely materials on stage to catch fire. The likelihood of those drapes and curtains catching fire is high as they are on stage with lighting equipment that might cause an electrical short and cause a fire on stage. The Act only mentions the requirement for adequate and suitable fire-extinguishing equipment.

2.10.4 Mines, Quarries, Works and Machinery Regulations

Mining is the cornerstone of the Botswana economy, and the regulations governing mining can also be applied in the live events industry. Mines appoint electrical

engineers and electricians in writing. These people should be qualified and suitably experienced. Outside venues typically require generators to power up the whole event. It is important that the person in charge of the connection of electricity be qualified to do so. As mentioned previously, Moeti-Lysson and Boy (2011, p. 125) find that when safety practices are not put in place, accidents are bound to happen.

In mines, there is a regulation known as ‘complaints of danger’. If an employee complains to their superior of any danger in their workplace, it is the duty of the superior to confirm such danger and take steps to rectify it (Mines, Quarries, Works and Machinery Regulations of Botswana 1978, sec. 25). The employer must provide a working environment that is safe and without risk to the health of employees. This is the essence of what is expected of an employer, according to OHS.

The responsibilities of employees in mines and quarries according to Mines, Quarries, Works, and Machinery Regulation 30 is as follows:

> *(a) be familiar with the regulations which apply to the work in which they are engaged;*
> *(b) examine their working place and equipment to ensure that they are safe for any work required to be done and are in compliance with these Regulations;*
> *(c) take precautions to ensure his own safety and the safety of their fellow workmen, during the course of their employment; and*
> *(d) at all times when the nature of their work requires use all devices and wear all articles of clothing designated for their protection or required to be used and worn by them under these regulations.*

This is precisely how the responsibilities of employees in the live events industry should be. This cannot be expressed more emphatically.

When working in mines, an approved safety hat and safety footwear have to be worn by every employee where overhead construction work is being done. Employees will not be allowed to continue working without safety boots and hard-hats if working where there is overhead construction. Overhead construction work is often done in the live event industry, and injuries are bound to happen if due care is not taken, such as using hard-hats and safety footwear that are PPE. Mine

employees are also given eye protection equipment when there is a likelihood of an eye injury. In theatres, sets are made from steel and wood. Making use of such materials has its own hazards, and eye protection equipment is a way of eliminating eye hazards.

Having discussed at length the safety aspects of the live events industry, the OHS of the live events industry and how other counties manage safety at their events, Botswana can especially learn from South Africa. As the old saying of Setswana goes, "*Dilo makwati di obolwa mo go ba bangwe".*

Chapter 3: Data presentation and analysis – the live events industry in Botswana

3.1 Introduction

This chapter presents and analyses data on potential safety hazards and risks that were identified in the Botswana live events industry. The data that is presented and analysed in this chapter was obtained using a combination of questionnaires, which were targeted at venue managers, event organisers or promoters, technical crew, and technical directors who are all crucial to issues of safety at live events. I also did direct observation in the field.

Merriam (2009, p. 176) states that the purpose of data analysis is to provide answers to specific research questions. He goes on to say that the process of data analysis begins by identifying segments in the data set that are responsive to the research questions. Analysis requires a mix of creativity and systematic searching, a blend of inspiration and diligent detection (Ritchie et al. 2014, p. 270).

A qualitative research methodology was used to achieve the aims of this study. Primary research methods in qualitative research design to include interviews, observation, case study, ethnographic study, action research, and archival or document analysis (Mukhopadhyay & Gupta 2014, p. 111). In the case of my adopted qualitative approach, I used observation and questionnaires as methods of collecting data. Observation is participant observation (Mack et al. 2005 p. 14). It is defined as a qualitative method with roots in traditional ethnographic research with the objective of helping researchers learn the perspectives held by study populations.

The following is a reminder of the aims of this study:

- To investigate potential safety hazards and risk concerns in the live events industry in Botswana.
- To recommend the best health and safety practices using South Africa as a comparative example.
- To promote a safety mindset among stakeholders, technical crew, and events promoters in the live events industry in Botswana.

The study is intended to answer the following principal research question, 'How can safety hazards and risks be minimised in the live events industry in Botswana?'. The choice to use South Africa as a comparative example was based on the following:

- South Africa's proximity to Botswana;
- South Africa's well established and vibrant live events industry; and
- The availability of legislation guiding the live events industry in South Africa.

I now proceed to present and analyse the data which was gathered through the various methods that I used in the project. I am going to present the data in such way that profiles the respondents; presents and analyses the data gathered from event managers or promoters, venue managers; presents and analyses the data collected from the technical directors, technical crew; and presents and analyses the data I gathered from the direct observation. In this way, the data analysis will hopefully show commonalities or inconsistencies among the various portfolios as event safety information has to cascade from the event manager or promoter to the venue manager, technical director, and technical crew. The direct observation that I did was to observe what is on the ground.

3.2 Overview of respondents

The entertainment industry in Botswana is quite small, with great potential for growth. The whole country has one school theatre, and many venues that are not purpose-built as entertainment venues, and so the pool of technicians and event managers is quite small. The technical aspect of productions is also very small and less elaborate compared to other countries. Because of the size of the entertainment industry, the sample of this study included one event manager or promoter, three venue managers, one technical crew member, and one technical director.

My data collection method was two-pronged. Firstly, I used questionnaires directed at event managers or promoters, venue managers and the second set of questionnaires directed at the technical crew and technical directors. This was followed by direct observation. In the case of the questionnaires, some of the

questions required a direct ‘Yes’, ‘No’, ‘Sometimes’, ‘Always’ and ‘Never’ for an answer. Others required respondents to explain their answer.

The same structured questionnaire was administered to both the event managers or promoters and venue managers, as they plan and oversee the whole event administratively. The technical crew and technical directors received the same questionnaire, as they both operate the technical elements of the whole production and oversee safety on stage.

For ease of analysis, the data will be grouped according to how the questions and the data elicited addresses the aims of the study (section 1.3). The data that addresses the first aim of the study has to do with the competency of respondents to identify and investigate potential safety hazards and risks by using competent personnel to do so. The data pertaining to the last two aims of the study will be dealt with in Chapter 4 as it deals with recommendations aimed at promoting the best safety mindset by all stakeholders in the live events industry in Botswana.

In a nutshell, all the questions that are included on both the questionnaires were meant to investigate potential safety hazards and risk concerns, and to recommend and to promote best health and safety practices in the live events industry in Botswana. The ultimate purpose was to answer the research question, ‘How can safety hazards and risks be minimised in the live events industry in Botswana?’.

The event manager or promoter is responsible for overall safety coordination before and during the event, and the venue is responsible for providing a safe place of work and environment for their staff, contractors, visitors to the venue and their clients, the event organisers, event managers, or promoters, so far as is reasonably practicable. So that is why data was collected at three venues, namely a theatre, a restaurant-cum-entertainment venue, and a national convention centre. The reasons for using these three venues as data collection sites are that the theatre was purpose-built to host productions. I visited the venue during a popular Botswana arts festival, the Maitisong Festival. The Maitisong Festival is arguably the country’s biggest arts festival. The restaurant-cum-entertainment venue, Botswana Craft, was not built to host live events. However, because of its size, a temporary stage was built as the restaurant hosts many live events each year. Originally, the restaurant was built as a catering facility and a cultural market. The

convention centre hosts events ranging from exhibitions, conferences, product launches, corporate functions, live shows, and weddings. It has a seating capacity of about 1800 and incorporates cinema-style seating.

An informal interview was conducted with a technical director during setup for the President's Day Celebrations event on 16 July 2019 at the Gaborone International Convention Centre (GICC) located in Botswana's capital city, Gaborone.

The qualifications and experience of the technical crew and technical directors who were interviewed in this research is shown in Table 3.2.1. The data presentation and analysis collected from technical directors and technical crew is separated from the rest of the data for the simple reason that the role of technical directors and technical crew as technicians is skilled and requires a certain level of education. Technical crew operate technical equipment backstage or behind the scenes. They make sure that productions run smoothly and safely. A technical director who serves in the entertainment industry is the most senior technical person in the theatre or live events space. A technical director is highly skilled in their field of expertise and possesses the highest level of competence in a specific technical field.

Position	**Number of years' experience**	**Qualification**	**Highest standard passed**
Technical director	13 years	BTech Performing Arts Technology	
Technical crew	19 years	Trade B in Electrical installation	Junior Certificate (Form 2)

Table 3.2.1: Qualifications and experience for technical personnel who participated in the project.

Event managers or promoters and venue managers all responded to the same questionnaire. This was because people in these roles plan and manage safety for the whole event or production, and they occupy administrative positions. However, out of six potential event managers or promoters identified as respondents, only one response was received. Three venue managers completed the questionnaire. The venue managers were drawn from a theatre and an indoor venue for live events. As indicated earlier, because of the nature of the focus for the study, the sample was not large because of the relatively small size of the live events industry in Botswana.

The live events industry in Botswana is nowhere near as big as the South African entertainment industry.

Also, as indicated earlier, South Africa will in some cases be used as a benchmark and point of reference for the current study because South Africa has elaborate legislation that governs the management of safety at live events (section 2.5.1). Local municipalities in South Africa have a Joint Operations Committee (JOC) that aims to mitigate disasters and help with event compliance. South Africa also has a Venue Operations Centre (VOC) where the entire safety and security operation in respect of an event or venue is coordinated on site.

Table 3.2.2 identifies respondents by number and category.

Position or role	**Respondent number**	**Respondent number**	**Respondent number**
Event managers or promoters	1		
Venue managers	1	2	3
Technical crew	1		
Technical directors	1		

Table 3.2.2: Positions or roles and number of respondents

As mentioned in section 3.1, data presentation and analysis obtained via questionnaires will show commonalities or inconsistencies among the various portfolios.

The layout of the data presentation and analysis will be as follows: I will first provide a narrative and then outline the question, followed by the responses of the respondents. After that, I will analyse the responses.

For ease of reference, the various responses will be presented in tabular format.

3.3 Presentation and analysis of data collected from event managers or promoters and venue managers

In line with the main objectives of the research, the analysis will include a focus on how potential risks can be minimised. I will recommend the best health and safety

practices using South Africa as a comparative example and promote a safety mindset in the live events industry of Botswana to minimise risk.

As already mentioned above, the questionnaire will be divided into two parts. One part will deal with questions that seek to investigate potential safety hazards and risk concerns in the live events industry in Botswana (the first objective of the study). The second part of the questionnaire will be questions that seek to recommend and promote the best health and safety practices (the second and third objective of the study).

The respondents had to answer the questions in Table 3.3.1 that focuses on how potential risks in the live events industry can be minimised.

Question 4 & 5	Do you have a risk assessment done for each live event? If the answer to this question is YES, SOMETIMES or ALWAYS, who performs the risk assessment for you?
Question 6	What crowd management measures do you apply at live events?
Question 13 & 14	Does a structural engineer inspect all temporary structures at your live events? If the answer to this question is YES, SOMETIMES or ALWAYS, briefly explain what this inspection involves.
Question 16	What methods do you use to communicate information to the audience at your events in case of an emergency?

Table 3.3.1: Questions that focus on how potential risks can be minimised in the live events industry in Botswana.

Hazards and risks at events are ever-present. Audiences should be notified of any hazards and be directed away from hazards. Risk assessment is the process of identifying the risks associated with a particular type of work environment, and an assessment of risks on the likelihood of occurrence versus the severity of consequence matrix (section 2.6). Question 4 required respondents to indicate if they ever conduct a risk assessment. The question went as follows:

Question 4. Do you have a risk assessment done for each live event? If the answer to this question is YES, SOMETIMES or ALWAYS, who performs the risk assessment for you?			
Position or role	**Respondent number**	**Response**	**Explanation**

Event manager or promoter	1	Sometimes	Risk assessment is and was left to the university personnel and structures.
Venue manager	1	No	_
Venue manager	2	No	The events are very similar in nature.
Venue manager	3	Yes	As the director, I ensured that the users knew the risks and all the safety precautions which were stipulated in the contract.

Table 3.3.2: Summary of responses from event managers or promoters and venue managers to Question 4.

The answer given by the event manager or promoter is interesting as it indemnifies them in terms of risk assessment, passing the responsibility elsewhere. Because events are similar, according to Respondent 2 among the venue managers, there is no necessity to have a risk assessment done. As much as events could be similar, the profile of artists is not the same, hence the need to follow the five steps of conducting risk assessment (section 2.6).

Respondent 3 among the venue managers relies on the venue hiring contract, which should stipulate specific venue's rules and regulations. In situations of best practice in terms of safety, a risk assessment must be done at the planning stage of every event, and it must not adopt a one-size-fits-all approach. This is why risk assessment must be conducted by a competent person for each specific event. The majority of respondents use a one-size-fits-all approach when doing a risk assessment. This can be detrimental to the safety of the event as risks are unique and may not always be present at a specific event.

Crowd management is the business of recognising, analysing, and meeting the demands of crowds by managing their movements. Information is crucial in crowd management. For example, clear and visible signage on-site and a good sightline will subtly direct the flow of the crowd and improve crowd management. Question 6 required respondents to identify the crowd management strategies used at their events.

Question 6. What crowd management measures do you apply at live events?		
Position or role	**Respondent number**	**Response**
Event manager or promoter	1	Police escort.
Venue manager	1	We have ushers at events.
Venue manager	2	Single-entry tickets, wristbands available for multiple entries. Secure barricades at the front of the stage. Guards and bouncers proportional to the number of tickets printed. Easy exit.
Venue manager	3	The ticketing system ensured that the number of tickets sold corresponded with the capacity of the venue as dictated by the show. Sometimes the setting's arrangement changed. Front-of-house staff collected tickets and allowed in only those in possession of tickets.

Table 3.3.3: Summary of responses from event managers or promoters and venue managers to Question 6.

From the answers provided, Respondents 2 and 3 among the venue managers rely on tickets and wristbands as a method of crowd management. Tickets and wristbands are used to manage crowds at the point of entry. Once the crowd is inside the venue, the crowd still has to be managed to avoid stampeding and pushing forward to the front of the stage. Respondent 1 among the event managers or promoters answered this question by saying that a police escort is used. The presence of police services is often a good deterrent for potentially unruly crowds. Respondent 1 among the venue managers indicated that he used ushers. The use of ushers is a good idea only if the ushers are trained in crowd management. All respondents except two only managed crowds at the entrances of the venue and did not seem to have a strategy for managing and controlling crowd movements once in the venue. Crowd management is achieved by ensuring good and wide sightlines, an elevated stage, use of delay towers, audiovisual screens, and other appropriate measures that are meant to minimise the chances of crowds surging towards the front of the stage. Once at the front of the stage, crowd barriers can be

used to control the crowd. Without proper crowd management and crowd control, overcrowding, unruliness and stampeding are bound to happen.

There is no crowd management and crowd control inside the venues as there was, for example, no mention of crowd barriers or signage from the respondents. The crowd is managed at the entry points using tickets only. Crowd control is thus left to ushers and police and has its own repercussions as stated above.

Temporary structures are often used at live events and mostly at outdoor venues. However, temporary structures also come with their own hazards and risks. Some venues have technical equipment that is rigged on a truss or suspended by a chain hoist or steel cables. All these temporary structures have to be constantly inspected. Question 13 required respondents to indicate whether they use professionals to inspect the safety of temporary structures, and the question to that effect was structured in this manner.

Question 13. Does a structural engineer inspect all temporary structures at your live events?			
Position or role	**Respondent number**	**Response**	**Explanation**
Event manager or promoter	1		I assume they are. I did not confirm it.
Venue manager	1	No	It is not a requirement, and we work on a limited budget and with time constraints. So, planning ahead is not something we do enough.
Venue manager	2	No	No temporary structures.
Venue manager	3	Never	There was never a need to do that, unless there was anything that was being fixed or installed in the building, for instance, after the installation of a new sound system and lighting which necessitated the increase in the number of rigs, there was a need to assess to ensure that the building could indeed carry more safely.

Table 3.3.4: Summary of responses from event managers or promoters and venue managers to Question 13.

Regulation 17 of the Building Control Regulations of Botswana states that no one must occupy a building unless it complies with the provisions of these regulations as ascertained by an authorised representative of a building authority who grants a permit. The regulation defines a building as any building or erection constructed of durable materials, whether temporary or permanent. Respondent 1 among the event managers or promoters said: “I assume they are”. In best safety practices, as an event manager, the respondent is duty-bound to make sure that structures are certified by a structural engineer and should not proceed based merely on the assumption. Respondent 1 among the venue managers went on to indicate that because of time constraints, a structural engineer does not inspect or certify temporary structures. As a result, the safety of audiences is compromised because of the limited time and time constraints of putting up a show.

The response of Respondent 3 among the venue managers is contradictory. The respondent said that there was never a need to use a structural engineer to inspect unless there was the installation of sound and lighting equipment. That installation has to be inspected periodically and not only during installation.

The general consensus among respondents was that structural engineers did not inspect temporary structures at live events. This is against the Building Control Regulations of Botswana.

Crowd panic is exacerbated if there is no communication with them. A simple announcement such as letting the audience know of a late start to the show or where exits are is of utmost importance. Important messages can be communicated using audiovisual screens or via a public address system. Consideration for people with special needs must also be taken into account. Question 16 required respondents to identify the method used to communicate emergencies at events by answering the question in Table 3.3.5.

Question 16. What methods do you use to communicate information to the audience at your events in case of an emergency?		
Position or role	**Respondent number**	**Response**
Event manager or promoter	1	Public announcement system. Emergency and risk siren, and alerting to assembly points.
Venue manager	1	Through ushers and signals (fire exit signs).

Venue manager	2	We have never had an emergency, but we would use the public address system.
Venue manager	3	Public address system that is in-built.

Table 3.3.5: Summary of responses from event managers or promoters and venue managers to Question 16.

From all the responses listed above, it is clear that only one method of communication (public address system) is the preferred method used to make emergency and safety announcements. While this is a good way of communicating to crowds, the audio must be clear from all parts of the venue. However, this method has a major disadvantage in that it does not communicate to the hearing impaired. The complementary use of audiovisuals to communicate can be used, as it is a visual method, and many people would be able to read the messages.

Best safety practices require that there are always two sources of power at live events. The primary electrical source must power the whole entertainment system, while the secondary electrical source is reserved as a backup to the primary electrical source. This secondary electrical source must be independent of the primary electrical source. The secondary electrical source does not necessarily have to power the whole entertainment system but must power the public address system and other communication methods to communicate information to the audience during an emergency.

Communication with hearing-impaired audience or crowd is non-existent among the respondents.
Another drawback is that sirens (used by Respondent 1 among the event managers or promoters) often cause panic and anxiety as the crowd does not know where the danger or hazard might be located or its source. Respondent 1 among the venue managers indicated that they use ushers and signals (fire exit signs). However, one cannot rely on ushers to communicate safety information. Ushers must be used only to direct the crowd to places of safety during an emergency.

The responses that are presented and analysed in this section came from event managers or promoters and venue managers based at the various sites at which field data was collected.

3.4 Presentation and analysis of data collected from technical crews and technical directors

I will now present and analyse data from the technical crew and technical directors that focus on how potential risks can be minimised. The following questions would guide the data:

Question 2 & 3	Do you make it a consistent habit to have a competent person or persons check the stage and all temporary structures before your live events? If the answer to this question is NO, SOMETIMES or NEVER, please elaborate.
Question 5	What safety measures do you put in place when you rig lighting (and other equipment) on lighting bars? Provide a brief account.
Question 6 & 7	Are rigging cables, chain hoists and ropes that are used on stage checked by a competent authority for safety before use? If the answer to this question is YES, SOMETIMES or ALWAYS, state from which department will that person be coming from.
Question 8 & 9	Does a trained rigger execute the rigging of your lighting, sound and audiovisual equipment? If the answer to the above is NO, SOMETIMES or NEVER, do you think it is correct to use an untrained rigger? Explain briefly.
Question 10	Does a certified electrician regularly certify all your electrical installations before a show?
Question 11	Does a competent person setup, control, and activate your pyros during live events?
Question 13 & 14	Do you have the necessary firefighting equipment on or near the stage during live events? If the answer to this question is YES, SOMETIMES or ALWAYS, what sort of fire-fighting equipment is in place and what informs your choice, quantity and type of equipment used. Briefly explain.
Question 17	What is your knowledge of personal protection equipment (PPE), and what do you consider as adequate personal protection equipment in the theatre and live events?
Question 18	Who enforces the wearing of personal protection equipment?

Table 3.4.1: Questions for technical crew and technical directors that focus on how potential risks can be minimised

The safety of temporary structures relies heavily on the design, stability, strength and the erection of the structure, among other factors. The designer of the temporary structures must be competent and understand the loads that the

temporary structures are able to carry and follow the manufacturers' erection guidelines. The structure must be designed in such a way that it has adequate strength and stability and that it provides protection against falls for artists and technical crew. When erecting the temporary structures, attention must be given to the designers' plans, safe working load (SWL) and manufacturers' specifications.

The first question for the technical crew and technical directors was meant to determine if respondents see the necessity for design drawings to be made available for certification of the structural stability of all temporary structures. The question was phrased as follows:

Question 2: Do you make it a consistent habit to have a competent person or persons check the stage and all temporary structures before your live events?			
Position or role	**Respondent number**	**Response**	**Explanation**
Technical crew	1	Never	Firstly there is no competent person or qualified person where I am working, and most of the things are done using our little experience.
Technical director	1	Yes	_

Table 3.4.2: Summary of responses of the technical crew and technical directors to Question 2.

It is not surprising for the technical director to answer in the affirmative as it is their responsibility to get a competent person to check the stage and all temporary structures before events. It is not the responsibility of the technical crew. An external and independent structural engineer or a competent person who has experience in temporary structures designs and the safety thereof has to certify the temporary structures. This must not be done by the technical crew to avoid bias as this will compromise safety.

It must be noted that even though the event managers or promoters and venue managers said that structural engineers did not inspect temporary structures at live events and that the technical director said 'Yes', they do, temporary structures are generally built by the technical crew and technical director and thus they should have those structures certified. The least that the event managers or promoters and

venue managers can do is to appoint an event safety officer who will be responsible for the health and safety of the event. The fact that temporary structures are not certified, and that there is no event safety officer to check if there is someone to certify the structures, is a disaster waiting to happen. Not all events will have a dedicated technical director who will make sure that temporary structures are certified.

Rigging happens mostly at height, and when working at height, there are safety measures that should be considered. Both the rigger and the equipment that is rigged must be safe from falling and must be secured safely. The technical crew must take steps to ensure that falling objects cannot hurt people. Question 5 sought to determine if respondents have measures in place that are designed to prevent equipment from falling during rigging and after rigging. The question was phrased as follows:

Question 5. What safety measures do you put in place when you rig lighting (and other equipment) on lighting bars? Provide a brief account.			
Position or role	**Respondent number**	**Response**	**Explanation**
Technical crew	1	Sometimes	Make sure that the clamps are very tight and using safety chains if they are available.
Technical director	1	Yes	Provide all the safety checks on lighting bars to withstand the weight. With equipment rigged to make sure there are safety chains on each individual item.

Table 3.4.3: Summary of responses of the technical crew and technical directors to Question 5.

The technical crew seems to rely on clamps as safety measures because safety chains or wires are used if they are available. This is an indication that safety chains or wires are not always readily available to be used. The technical director firstly mentioned the safety checks done on the lighting bars. That is very important as the safe working load (SWL) of the lighting bar must be checked to see if the lighting bars can withstand the weight of the equipment rigged on them. For each equipment item that is rigged, the technical director makes sure that the equipment has a safety

chain or wire. Rated safety chains or safety wires are highly recommended in the live events industry when rigging equipment and that it is a good standard practise because live entertainment equipment is heavy and is at greatest risk of falling and causing injuries. Both respondents have safety measures in place when rigging lighting or other equipment. However, it is the best safety practice to have both primary (clamps) and secondary (safety chains or wires) support in case the primary support fails then the secondary support is there. The technical crew must also become habituated to doing safety checks on the bars that equipment is rigged onto so that the technical crew can identify defects. According to OHS Acts the world over, technical crew as employees are duty-bound to take care of their safety and the safety of others, hence the insistence on always having safety chains or wires as a safety measure during rigging.

Chain hoists, steel cables, winches, counterweights, and ropes are some of the rigging devices used to support or suspend equipment like sound speakers, lighting equipment, scenery, backdrops, and audiovisual screens. It is vitally important to check the manufacturers' guidelines for the safe working load (SWL) and that the rated tolerance is visibly imprinted on the equipment itself.

Question 6 seeks to determine if rigging equipment is consistently checked for defects by a competent person. Good standard practice requires that all safety checks must be documented in a logbook. The question was phrased as follows:

Question 6. Are rigging cables, chain hoists and ropes that are used on stage checked by a competent authority for safety before use? If the answer to this question is YES, SOMETIMES or ALWAYS, state from which department will that person be coming from.			
Position or role	**Respondent number**	**Response**	**Explanation**
Technical crew	1	No	_
Technical director	1	Sometimes	Checked internally by concerned supervisors.

Table 3.4.4: Summary of responses of the technical crew and technical director to Question 6.

The responses of the respondents show that the rigging equipment is not checked by a competent authority. According to the technical director, competent authorities are supervisors who are supposed to have adequate training and experience to perform such functions. Rigging equipment must be checked by riggers and not just anyone, as riggers are competently trained persons with relevant experience working with rigging equipment. Riggers are able to interpret the manufacturers' specifications of the rigging equipment and use the equipment accordingly. Rigging equipment that is defective can fail during use and cause damage and injuries to equipment and personnel.

Trained riggers are an asset to technical companies as they are knowledgeable in lifting equipment and calculating weights (section 3.5.1). The hazards that come with improper rigging can be disastrous if an unqualified rigger does the rigging, hence it is important to find out if a trained rigger is used at live events. The question was phrased as follows:

Question 8. Does a trained rigger execute the rigging of your lighting, sound and audiovisual equipment? If the answer to this question is NO, SOMETIMES or NEVER, do you think it is correct to use an untrained rigger? Explain briefly.			
Position or role	**Respondent number**	**Response**	**Explanation**
Technical crew	1	No	Because then, safety will be compromised.
Technical director	1	Sometimes	We typically use in-house, trained technicians. It is not correct to use an untrained rigger as all the necessary checks will not be covered to avoid an accident.

Table 3.4.5: Summary of responses from technical crew and technical director to Question 8.

Rigging is high-risk work that requires dropping and lowering of equipment and the use of mechanical load-shifting equipment, and thus a competent rigger is required to execute the task. The fact that in-house trained technician/s are used as riggers at Botswana venues is an indication that the type of rigging done is more theatrical rigging and not high-risk rigging. Theatrical rigging includes rigging lights on a lighting bar, and attaching scenery on a dedicated point. High-risk rigging uses

mechanics such as chain motors, blocks and winches, suspension point installations like a temporary bar and the flying of performers.

The technical director explicitly says that sometimes there is a trained rigger as it is not correct to use an untrained rigger as all the necessary checks will not be covered to avoid an accident. A trained rigger should always be used. Theatrical rigging is mostly done in the events industry in Botswana, and a trained rigger is only used when there is a high-risk rigging work to be done. The magnitude of events and the technology used in the events industry in Botswana shows that high-risk rigging is done, but not by trained and experienced riggers.

The technical crew member said that there is never a trained rigger available to rig. The technical crew member might have said so because they have seen other crew members who are not trained and experienced riggers. However, the so-called in-house technicians doing theatrical rigging are unwittingly doing high-risk rigging for which they are not trained.

In smaller technical production companies, it is quite common for technicians to perform all the technical duties in a production and some technicians end up being ‘riggers’ in that production. Especially in rigging, once this is done safety is compromised.

It is worrying to note that technical directors use supervisors to check on the safety of rigging equipment (Question 6) and that trained technicians execute the rigging of lighting, sound, and audiovisual equipment (Question 8). No mention is made of a trained and experienced rigger checking the safety of rigging equipment and executing the rigging of equipment. This puts the lives of people at risk as this very risky exercise is not done by experienced and trained riggers.

In addition to the hazards of the rigging of equipment such as lighting, sound, audiovisual, and other technical elements, electrical hazards are common in the entertainment industry. Often, these hazards can cause a fire. A competent electrician is required to identify hazards and potential risks pertaining to temporary electrical installations at outdoor venues that do not have permanent electrical installations. All technical production equipment is electrically operated. An electrician must draw high electrical voltage power from the source for the production and to power their technical equipment. All this has to be done safely

and efficiently as people can be electrocuted. An electrician should be used regularly and not haphazardly.

Question 10 required respondents to indicate whether they use certified electricians for all their electrical installations. The question was structured as follows:

Question 10. Does a certified electrician regularly certify all your electrical installations before a show?		
Position or role	**Respondent number**	**Response**
Technical crew	1	Sometimes
Technical director	1	No

Table 3.4.6: Summary of responses from the technical crew and technical directors to Question 10.

The technical crew answered the question by saying ‘Sometimes’ because venues like theatres that are purpose-built as entertainment venues, have a dedicated electrical power supply and never require an electrician to draw electrical power from another source to power the theatre equipment unless there are setups of technical equipment outside of the theatre. The technical director, on the other hand, emphatically said ‘No’, indicating that a certified electrician does not regularly certify electrical installations before a show. The risk of not having an electrician to certify temporary electrical installations is that faulty wiring can cause a fire that will cause severe harm and injury to the technical crew, performers, and audience. There could also be electrical shock and possibly an explosion from faulty equipment.

Questions 11 and 13 both refer to fire hazards, risks, and preparedness for the outbreak of fire. Pyros or pyrotechnics are hazardous and highly regulated (due to their explosive nature) fireworks displays that are used to enhance the aesthetics and technical appearance of a production. Pyros must be operated by a licensed and qualified technician who is known to the local fire department and trained in emergency procedures. Because fireworks are explosive, preparation must be made for fire hazards, such as having appropriate firefighting equipment ready at

all times. Because of this, Question 11 required respondents to indicate whether pyros are set up by competent personnel. The question was phrased as follows:

Question 11. Does a competent person setup, control, and activate your pyros during live events?		
Position or role	**Respondent number**	**Response**
Technical crew	1	_
Technical director	1	Yes

Table 3.4.7: Summary of responses from the technical crew and technical directors to Question 11.

From the answer given by the technical director, competent persons do setup and safely operate pyros. This minimises the fire risk.

Fire is always a threat to an event, and fire safety must be a priority when organising an event and during an event. Fire safety includes many issues, such as venue entrances and exits, directional signs, and firefighting equipment. The aim of Question 13 is to establish if steps are in place to prevent loss of life or injury by fire. The question was phrased as follows:

Question 13. Do you have the necessary firefighting equipment on or near the stage during live events? If the answer to this question is YES, SOMETIMES or ALWAYS, what sort of fire-fighting equipment is in place and what informs your choice, quantity and type of equipment used. Briefly explain.			
Position or role	**Respondent number**	**Response**	**Explanation**
Technical crew	1	Sometimes	Well in our theatre, there are fire extinguishers on the side of the stage and at the back, but am not sure whether they are the right ones.
Technical director	1	Sometimes	Firefighting equipment trucks if we have a big pyrotechnics show (outdoor) – fire extinguishers if using small gerbs indoor in a venue.

Table 3.4.8: Summary of responses of the technical crew and technical director for Question 13.

The technical crew gave an interesting answer. The respondent does not know if the firefighting equipment in their theatre is correct. This could be due to a lack of training or knowledge of firefighting equipment because firefighting equipment is always labelled according to the type of fire it is designed to extinguish. This becomes a risk if a fire breaks out, and the technical crew does not know which firefighting equipment to use to extinguish the fire.

According to the responses and explanations by the technical director to Questions 11 and 13, the technical director is aware of the hazards that the pyros or pyrotechnics pose, hence the requirement for a competent person to set and operate them (Question 11) and the availability of firefighting trucks (Question 13) albeit sometimes.

The same technical director said that they never have an electrician to certify their electrical installations that usually have high voltage electricity that can also cause a massive fire (Question 10). It can thus be concluded that the technical director assumes that pyros pose more danger compared to the high voltage electrical power used to power the entertainment equipment as there is never an electrician to certify the electrical installation but always a competent person to set up and operate pyros. Both pyros and temporary electrical installations pose a fire risk if connected and operated carelessly, hence the need for firefighting equipment in their proximity all the time.

Questions 17 and 18 sought to determine the respondents' knowledge of personal protection equipment (PPE). The live event industry, like any workplace, has an array of hazards, and PPE is used to lessen the potentially harmful effects of exposure to known hazards.

Every employee in a workplace is supposed to be provided with and trained by their employers on how and when to use PPE and its limitations. PPE is the last resort for hazard control (section 2.3). Question 17 aims to find out if the technical crew and technical director feel they have enough knowledge of PPE, and if the PPE was sufficient in their line of duty. The question was structured as follows:

Question 17. What is your knowledge of personal protection equipment (PPE), and what do you consider as adequate personal protection equipment in the theatre and live events?		
Position or role	**Respondent number**	**Response**
Technical crew	1	Generally, if I understand the question, it is looking after your equipment and making sure that they are always working properly.
Technical director	1	It is equipment that can be used to prevent hazards and accident in live event and theatre. For firefighting, we require extinguishers and for protection, gloves, goggles, steel-tip safety boots, hard-hats, or helmets.

Table 3.4.9: Summary of responses from the technical crew and technical director to Question 17.

It is evident from the response of the technical crew member that the respondent is at serious risk of injury as they do not know what PPE is about. On the other hand, the technical director knows what PPE is and even mentions the various PPE. However, the technical director does not state that this equipment is meant for protection against injury or infection and instead says PPE is used to prevent hazards and accidents at the event and in the theatre, which is incorrect. This disparity in responses demonstrates a dangerous lack of guidance and information by the technical director to the technical crew.

In light of the above, Regulation 77 (1) (c) and (2) of the Mines, Quarries, Works and Machinery Regulations of Botswana could be easily adopted in the live events industry as it deals with the need to use protective equipment at all times. The regulation says:

> *Every manager shall make provision to supply an approved safety hat and approved safety footwear to every person who is employed where overhead construction work is proceeding. No person shall proceed to, or be in, a place referred to in sub-regulation (1) without wearing such safety equipment.*

Section 53 of the Botswana Factories Act 1973 can also be implemented in the live event industry as it says:

Where, in any factory, workers are employed in any process involving excessive exposure to wet or to any injurious or offensive substance, suitable protective clothing and appliances, including, where necessary, suitable gloves, footwear, goggles, head or face coverings or any other necessary clothing or appliance required by the chief inspector, shall be provided and maintained for the use of such workers.

As the most senior technical person at the entertainment venue, it is the responsibility of the technical director to make sure that the technical crew is trained on the proper use of PPE and that the training is documented. Question 18, therefore, seeks to find out who the respondents think must enforce the wearing of PPE. The question was phrased as follows:

Question 18. Who enforces the wearing of personal protection equipment?		
Position or role	**Respondent number**	**Response**
Technical crew	1	None.
Technical director	1	The supervisor on duty during the production.

Table 3.4.10: Summary of responses of technical crew and technical director to Question 18.

From the responses outlined above, the technical crew member discloses the disturbing fact that no one enforces the wearing of PPE in their environment. It is not surprising that the respondent says no one enforces the wearing of PPE as the respondent does not know what PPE is, as per their response to Question 17.

On the other hand, the technical director relies on the supervisor on duty to enforce the wearing of PPE. By virtue of their seniority, the technical director can delegate someone to enforce the wearing of PPE at an event. However, the event safety officer is responsible for monitoring and coordinating the safety at an event. None of the respondents mentioned an event safety officer as the overseer of the safety of the whole event. This then shows that an event safety officer is never appointed in the live events industry of Botswana to assist the event organiser as required by the South African National Standards for Event Standards 10366:2012.

The above data analysis investigated the potential safety hazards and risk concerns in the live events industry in Botswana. This was achieved by asking specific questions in the questionnaires that required respondents to willingly or otherwise identify potential safety hazards in the entertainment industry. In the next section, I will present and analyse data that was obtained by observation at many venues. This data presentation and analysis will also seek to investigate first-hand, potential safety hazards during a production.

3.5 Presentation and analysis of data obtained through direct observation

The presentation of data collected via observation is guided by the following factors:

1. Competency in identifying hazards: Are the respondents able to identify potential hazards?
2. Personal protection equipment (PPE): Is PPE regarded as a necessity and is it worn?
3. Are respondents aware of their health and safety responsibilities and that of others?

This section begins by presenting and analysing data observed during technical setups at various venues, and special attention was given to crew working at height, the building of temporary structures, and crowd control and management.

3.5.1 Hazards associated with working at height

Many venues and activities in the live events industry worldwide involve working at height, where safety is a priority. An elevation above ground is considered to be ‘at height’ if a person or worker could be injured as a result of a fall, even if the elevation is at or below ground level. Some of the hazards that come with working at height in live events include potential falls, objects falling and hurting a person or worker, and falls resulting from collapsing structures. It is not easy to minimise or eliminate the chances of someone falling or an object falling, but all reasonably possible actions must be taken to prevent this from happening.

The risk assessment of working at height must always include the height being worked at and the amount of time spent working there. The following questions ought to be asked when drafting a risk assessment of working at height.

- Is there enough lighting when working at height? What are the weather conditions?
- Is the structure stable enough to climb and work on, and what is the level of competency of the employees?
- Is PPE such as safety harnesses, chain hoists, rated steel cables, safety chains or wires, edge marking, and guardrails provided? In theatres where the orchestra pit is open, is there a safety net put in place as part of risk assessment and mitigation?

Some technical crews in the entertainment industry confuse the use of a G-clamp with that of a safety chain or wire. A G-clamp is used for rigging lighting equipment on a bar. It is a primary safety tool. A safety chain or wire is only used as a secondary safety measure. A safety chain or wire prevents the lighting fixtures from falling and thus minimises the risk of injury. A safety chain or wire is highly recommended in the live events industry whenever equipment is rigged. It is always advisable to use safety chains or wires in case there is a liability action because a light fell and hurt someone. Figure 5 is an image of a lighting fixture that only has a G-clamp with no safety chain. This picture was taken during the GICC-hosted President’s Day Celebrations setup day. The image might have been taken during setup, but it is important to secure the light from the onset with a secondary safety measure.

Figure 5: Lighting fixture without a safety chain or wire. Picture courtesy of K Khiba.

When a technical crew member at Maitisong Theatre was asked if a trained rigger executes the rigging for lighting, sound, and audiovisual equipment at the theatre, the answer was a straight ‘No’. However, the crew member went on to concede that it was improper not to have a trained rigger as this was a matter of safety (Question 8). On 16 July 2019, the President’s Day Celebrations event technical director concurred and said the venue management uses its own initiative when it comes to the safety of rigging for events. This submission is a clear indication that whoever rigs equipment at this venue does not follow a set standard or procedure but instead uses their own discretion and initiative to mitigate hazards. A trained and experienced rigger would be expected to be knowledgeable about safety, maintenance, lifting of materials, force calculations, and have an understanding of the load tables for any structure that is suspended from the roof or above the stage to hang lights, speakers, or units of the set. Training for riggers is vital as it includes the selection, inspection, and management of a variety of personal protection equipment (PPE) and fall-arrest systems among other things (section 3.5.1.2 for an in-depth discussion on PPE). Fall-arrest systems include mechanisms such as

harnesses (full-body or half-body harnesses), and safety nets, which are used to protect people from injury as a result of falling from heights.

Some venues in South Africa prefer to have their own service providers to rig in their venues. Once rigging is done, the venue's structural engineer certifies the safety of the rig. Other performance venues require the event manager or promoter to acquire the services of a structural engineer who will certify the rig and submit a certificate of compliance to the venue management.

An important regulation that the live events industry in Botswana can adopt from the country's factory regulations is the section that deals with the competency of persons who are eligible to undertake specific work. According to this regulation, only an authorised or competent person working under supervision can do specific work that requires technical knowledge or experience. This application of the regulations can be used when working at height in theatres or on live event stages, including rigging. Experience and training are required for this sort of work. The regulations go on to explain that no one should be employed in a position that can cause harm without them being made aware of the dangers that come with the position. Working at height must always include a fall-protection plan. A fall-protection plan refers to all the reasonable measures that may be taken to protect people from falling from an elevated area to a lower level. According to a guide to health, safety and welfare at live entertainment events in the United States, the Event Safety Guide (2014, p. 195), the use of personal protective equipment should be mandatory at all times when the working surface is greater than 1.8m from the ground. It is important to note that there is a 20cm difference between what the United States' Event Safety Guide states compared to what the Mines, Quarries, Works and Machinery Regulation of Botswana states.

According to the Mines, Quarries, Works and Machinery Regulation of Botswana (Construction Regulations 2014, reg. 10 (2)), a fall-protection plan or procedure is provided for all employees whose job requires them to work at or above the height of 2m above floor level. According to the regulations:

A fall-protection plan contemplated in sub-regulation (1), must include:

(a) A risk assessment of all work carried out from a fall risk position and the procedures and methods used to address all the risks identified per location;

(b) The processes for the evaluation of the employees' medical fitness necessary to work at a fall risk position and the records thereof;

(c) A programme for the training of employees working from a fall risk position and the records thereof;

(d) The procedure addressing the inspection, testing and maintenance of all fall protection equipment; and

(e) A rescue plan detailing the necessary procedure, personnel and suitable equipment required to effect a rescue of a person in the event of a fall incident to ensure that the rescue procedure is implemented immediately following the incident.

When a fall-protection plan is drafted, it must not be limited to the stage where the performance takes place. It must include spaces occupied by the audience.

Other administrative ways of controlling the hazard of falling off stage are by marking out the edges of the stage and using masking or illuminating tape is typical.

3.5.2 Elevation using a scaffold

During the setup of the President's Day Celebrations event hosted at the Gaborone International Conference Centre (GICC), there was a worker on a scaffolding that was more than 2m high. The scaffolding did not have mandatory guardrails on the three sides. Neither did the worker have any PPE on, yet a safety harness and a safety helmet are basic requirements when working on scaffolding. The worker seemed quite oblivious to the risks taken. Upon asking about the whereabouts of the event safety officer, the technical director at the event told me that the venue did not have an event safety officer as both the event manager and the technical director of the event had not engaged one. Figure 6 is evidence of the risk taken by the person on the scaffolding.

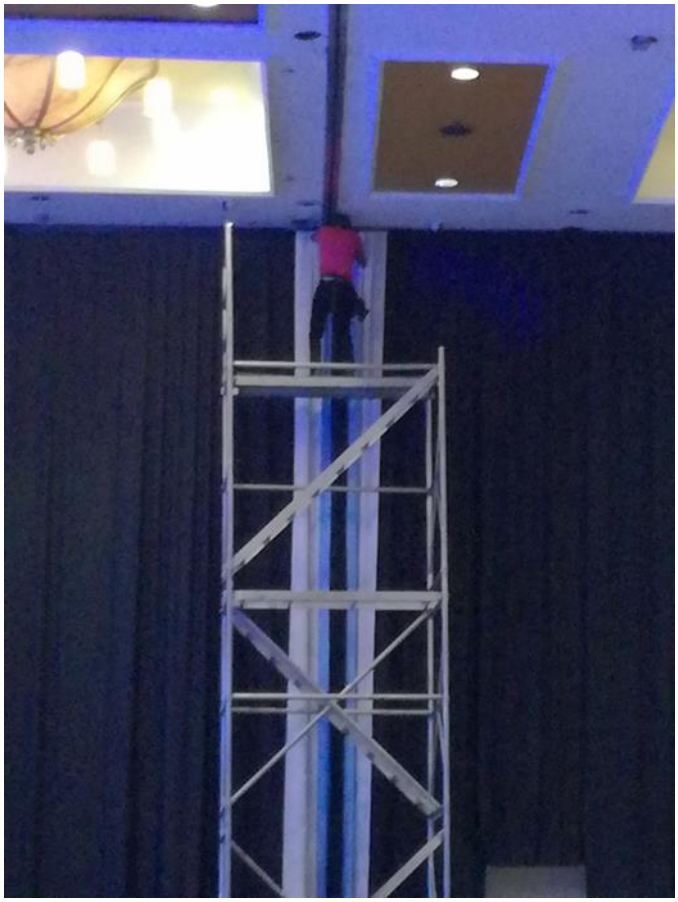

Figure 6: An employee on a scaffolding with missing guardrails. Picture courtesy of K Khiba.

In Australia, if the potential fall distance is greater than 4m, then scaffolding must be erected and dismantled only by the holder of a certificate of competency for that class of scaffolding, or a person who is trained under the direct supervision of such a certificated person. If the potential fall distance from a scaffold is less than 4m, the scaffold may be erected or dismantled only by a competent person who is trained in the type of scaffolding that is being used. Unauthorised changes to scaffolding structure are illegal (Safety Guidelines for the Entertainment Industry 2001, p. 11).

The Mines, Quarries, Works and Machinery Regulations of Botswana 1978 (reg. 260 (2) (a)) states:

Every side of any working platform or working place being a side from which a person is liable to fall a distance of more than 2,0m shall be provided with:

(a) two rails of adequate strength, firstly, a handrail at a height of not less than 1,0m and not more than 1,1m above such platform or place, and, secondly, a knee rail placed at the mid-point between the top rail and the walkway.

The Building Control Regulation of Botswana 1981 (reg. 104) states:

Every side of a working place or platform, being a side thereof from which a person may fall more than 2m, shall be provided with a suitable, strong guardrail to a height of at least 1m and with toe boards up to a height of not less than 200mm.

The South African National Standards 10085 also states that every scaffold platform must be provided, with substantial guardrails of at least 1m in height with knee rails on all sides. The user must also make sure that there is a 'safe to use' sign attached to the scaffolding. From Figure 6 and Figure 7, it is clear that the person on the scaffolding is either not aware of the above Acts and regulations or is careless. It is also clear that the venue management did not care to stop the person from endangering his life and that of other people as there was no event safety officer appointed for that event.

To reiterate Moeti-Lysson and Boy (2011, p. 125), if health and safety are not managed effectively, both employers and their employees could be easily put at risk.

Figure 7: Employee with no personal protective equipment working above 2m height with no guardrails on two sides of the scaffolding. Picture courtesy of K Khiba.

Figure 6 was taken at Maitisong Theatre during a changeover at the Maitisong Festival of 2019. The three basic steps of eliminating, minimising, or controlling hazards (engineering controls, administrative controls, and PPE) are evidently not in use.

3.5.3 Personal protection equipment (PPE)

Personal protection equipment (PPE) is worn to minimise exposure to hazards and to protect against injury or infection. The wearing of appropriate PPE in the work

environment is a requirement at law and must be mentioned in the event safety policy and the venue's safety policy. The implementation of the safety policy is the responsibility of the event manager, promoter, venue management, or the event safety officer. They must make sure that staff wear the correct PPE for the job they are doing and that the PPE is used correctly. Employees have to be trained on how to use PPE, how to wear it, and how to inspect it. PPE is the last resort for personal protection when engineering and administrative controls cannot reduce or minimise hazards.

In entertainment theatres, properties masters and décor technicians often require eye and face protection as they are exposed to chemicals, paint, and the drilling of metals. Goggles, face shields, dust masks, and gloves are some PPE that they can use. The technical crew are exposed to working on stage, at height, working with heavy equipment, and they are exposed to very loud noise. Harnesses protect the technical crew from falling while working at height, hard-hats or safety helmets for potential head injuries, protective footwear like steel-tip boots for potential foot injuries and earplugs or earmuffs if exposed to very loud noises like sound on stage. The employees in Figures 6 and 7 both had no PPE.

When PPE is required, and there is someone like an event safety officer available at the event to make sure PPE is worn, risks of injury from lack of PPE would be minimised or eliminated.

In the United States, the use of personal protective equipment is mandatory when the working surface is 1.8m above the ground (Alliance 2014, p. 195).

3.5.4 Temporary structures

Live performances are often presented in all sorts of available spaces. As a result, temporary stages and temporary auditoriums or seating areas have to be built. A primary concern with these structures is the lack of adequate strength and stability. Responsibility for the integrity of the structure remains with the company that builds the temporary stage or seating area. In South Africa, the code of practice for the application of the National Building Regulations is used as a guide for temporary

structures. Before authorisation is granted to build a temporary structure, the local authority requires a statement outlining the period for which authorisation is required, a site plan, layout drawings in sufficient detail to enable the local authority to determine the general size, form, materials of construction, use of the proposed building, and any structural details required. The documentation is used to determine the structural safety of the proposed building (code of practice for the application of the National Building Regulations n.d., p. 24). Design drawings are not required at this stage but must be available whenever needed. Certification by a structural engineer should be provided to certify that the structure was inspected and found suitable for the proposed use.

At an event at the Gaborone International Conference Centre (GICC) in Botswana, stage decks or stage platforms were used to build a temporary seating area (Figure 8). This was meant to elevate the audience and the main performance area for better sightlines. Theatres usually do not have a problem with sightlines as they are often purpose-built as entertainment venues. Other indoor venues like convention centres require tiered seating to elevate the audience so that the audience is able to see the stage clearly.

However, at the GICC there was no one to check the safety of the elevated seating area. Neither was there a building design to show the load that the temporary seating area could take or if safe working practices were followed to build it. Confirmation of the stability of the temporary structure using inspection was evidently not done. There certainly was no prior risk assessment, because had there been an assessment the building design of the temporary seating area would have shown that there was a dangerous gap between the various levels of the seating area.

Figure 8: Stage decks or platforms showing potentially hazardous gaps in-between. Picture courtesy of K Khiba.

After temporary structures are erected, and before they are used, these structures are supposed to be inspected by a competent person. Once that is done, a completion or handover certificate must be issued. However, at the President's Day Celebrations event, I observed that no competent person checked the safety of the temporary seating area. The organisers of the event clearly did not apply Regulation 17 of the Building Control Regulations of Botswana that states that no one must occupy a building unless it was inspected for compliance, and a permit was granted. This regulation applies to new buildings before occupation. However, I believe that the inspection component is something that can be used whenever a temporary structure in the live events industry is erected.

During the show, there were close to 300 people seated on the temporary seating structure that had no certification for the load and stability, nor a completion or handover certificate. This was a risky exercise as the seating area could have caved in due to overloading the structure, and the gaps between the decks could have had dire consequences.

The Building Control Regulations of Botswana (reg. 18 (1) (a)) states that:

> *Where, in the opinion of a building authority, any building or structure or part thereof is in such a condition or is used to carry such loads as to be*

dangerous, the building authority shall take all reasonable precautions, including the erection of a fence, for the protection and safety of the public.

The operative words in the above statement are ‘reasonable precautions’. A building authority or an event safety officer could have easily picked up the dangers posed by the positioning of the chairs in Figure 8. Here there is a danger that the chairs could easily slip between the stage decks. Engineering controls of OHS could have been used, and in this case, maybe a 20mm plank screwed in along the edges of the stage decks to stop the chairs from sliding between the various levels of the seating area.

In most standard theatres, performance stages are generally elevated. Because of stage height, it is important that performers and crew must easily access the stage, and this is usually through the use of a stairway. The stairway can lead to a stage, or the stairway can be used to access a raised seating area. Stairways should provide protection when ascending or descending stage areas and platforms.

Every stairway should be guarded on both sides by a railing that extends between 800mm and 1100mm in height. This is according to the Building Control Regulations of Botswana (reg. 59). Figure 9a and 9b show two sets of stairways that did not have protective railings at the President’s Day Celebrations event and were used as an entrance and a safe escape route from the temporary seating area. One of the images shows a person walking up the stairway. Should a person lose their step while using the stairway, they will potentially suffer serious injuries.

Figure 9a and 9b: A staircase without handrails. Picture courtesy of K Khiba.

Figure 10: Seating area with dangerously incomplete back railings. Picture courtesy of K Khiba.

A general safety regulation is anything meant to protect the audience from falling over must not be tampered with or altered. From the images shown above the guardrails used were not made for this kind of structure. They did not cover the entire seating area. Therefore, the risk of some seats falling or keeling over at great risk of injury to the patrons was quite high.

3.5.5 Fire safety

Fire safety is crucial at both outdoor and indoor venues. Indoor entertainment venues are designed, constructed, and equipped in such a way that in case of fire, easy evacuation is possible. Equipment for detecting, fighting, controlling, and extinguishing fires must be easily available and accessible. Venues that are purpose-built for entertainment must have sufficient entrances and exits in line with occupant capacity. Venues that are not built for entertainment purposes, such as stadiums, require the event manager or promoter to secure the services of fire or local authorities who will calculate the occupant capacity and the additional entrances and exits that may be required.

Policies and procedures should be in place on how to deal with a fire. The use of fire extinguishers, their location, and evacuation procedures should be known for every venue. Exit doors for indoor or outdoor venues must always open outwards in the direction of the flow of traffic. The doors must be clear of any obstruction and

must be in direct proportion to the occupancy capacity for the venue. In the case of the Botswana venues in focus, the obstruction of exit doors and obstruction of exit signs were common-place as shown in Figures 11, 12, and 13.

Figure 11 shows a theatre flat in front of a theatre doorway with a ladder on the floor. All this is contrary to the provisions of the Factories Act of 42 (2) of Botswana that states that escape routes should be properly maintained and kept free of obstructions. The live events industry can use this regulation to develop its own safety code.

Safety provisions in the case of fire are discussed in the Factories Act of Botswana. Factories must have adequate escape routes, and these must be free from obstruction. The escape routes must never be locked when people are inside the factory. This can be applied at all entertainment venues as the entertainment venues are also comparable to factories (section 2.2).

Figure 11: A stage flat blocking a doorway inside a performance venue. Picture courtesy of K Khiba.

Exit signs out of venues must be visible at all times. They must be free from obstruction, and they must stay illuminated whenever the venue is occupied. This

must especially be the case whenever the main lighting in the venue is dimmed or extinguished. Figures 12 and 13 show how draping covered the exit signs in contravention of proper safety controls. The occupant capacity on the day of this particular event was 1200 people. Had there been a fire hazard on the day and the venue required to be evacuated, the audience would not have known which door to use, especially if they were panicking. According to the Building Control Regulations of Botswana (reg. 47), at least four exits are required for venues with a capacity of 1200 people (Table 1 in section 2.7.1). During the President's Day Celebration event, the Gaborone International Conference Centre (GICC) had enough exits although some of the exit signs were dangerously obscured by draping (Figures 12 and 13).

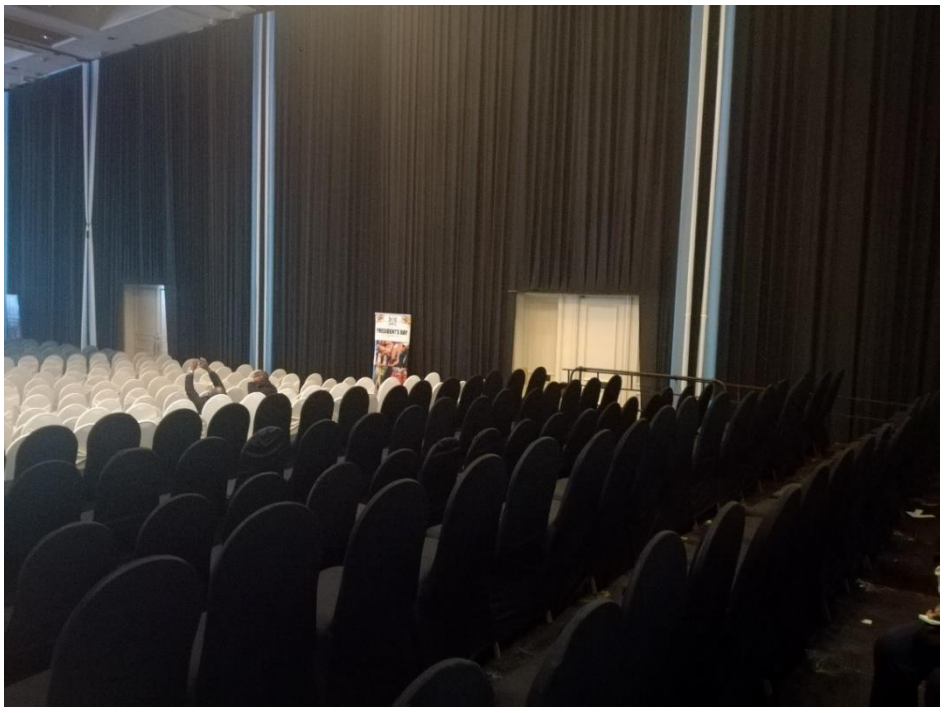

Figure 12: Invisible exit signs obscured by draping. Picture courtesy of K Khiba.

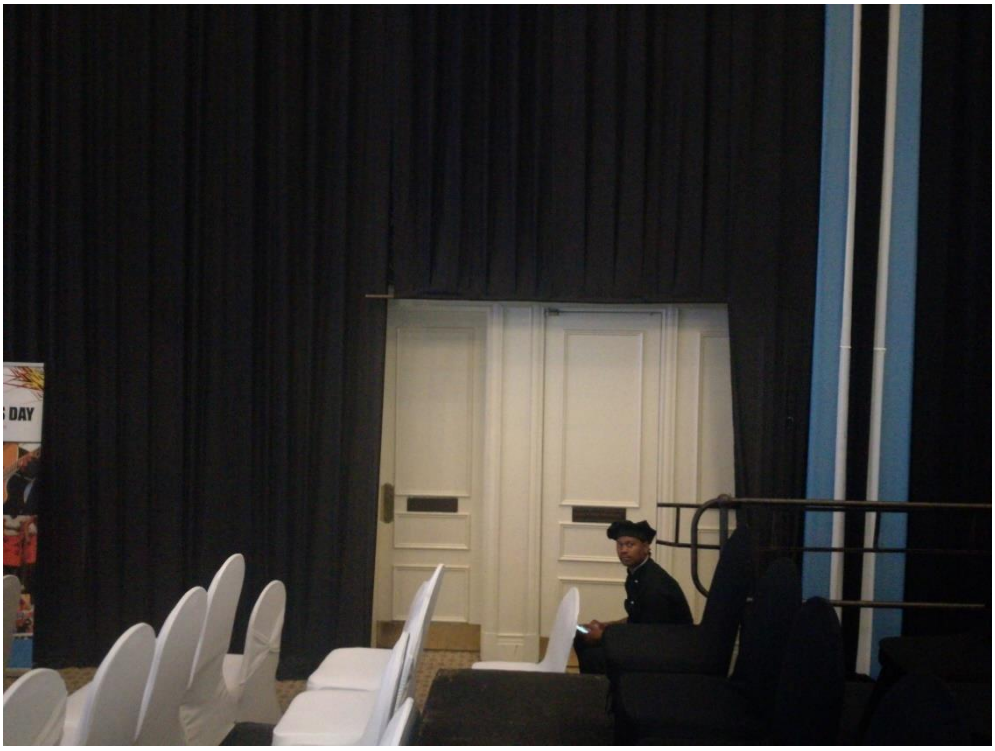

Figure 13: Invisible exit signs obscured by draping. Picture courtesy of K Khiba.

Fire is a potentially worrying factor at most events. Because of limited backstage space in most theatres, equipment tends to be stacked in a corner to create space. Backstage at Maitisong Theatre, access to firefighting equipment was blocked by a subwoofer speaker (Figure 14). It would have been quite a task to get to this equipment if the need to use the firefighting equipment had arisen.

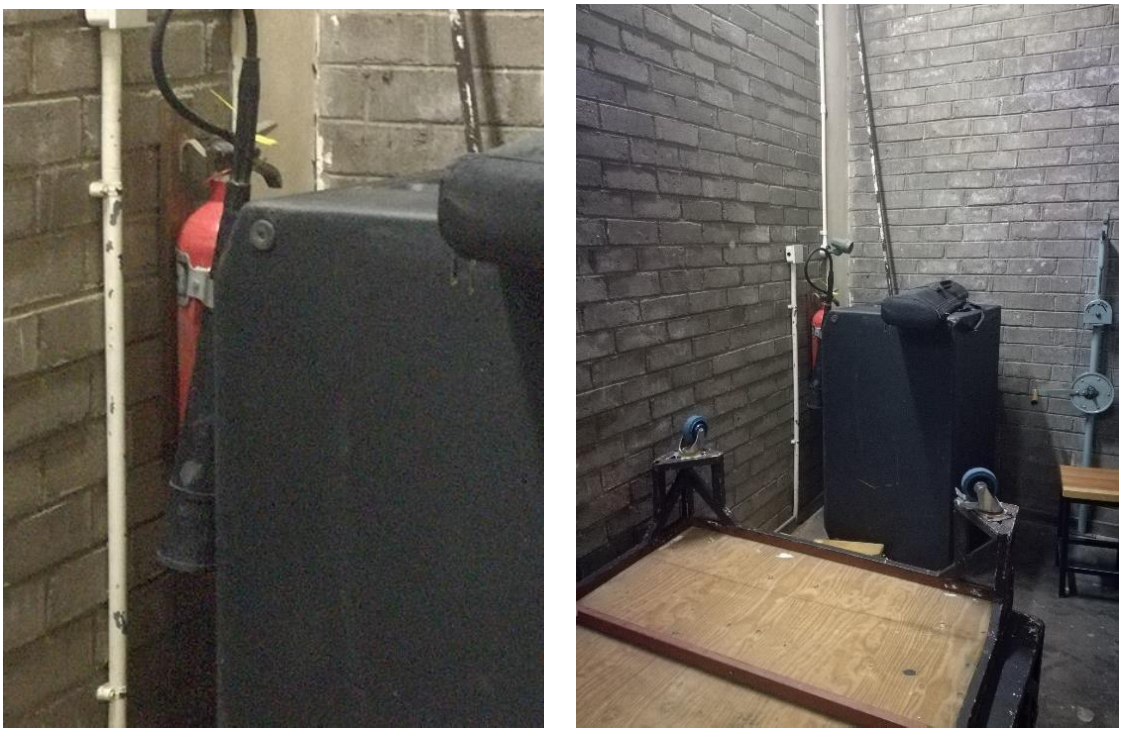

Figure 14: Access to firefighting equipment blocked by a speaker. Picture courtesy of K Khiba.

Venues such as the Gaborone International Conference Centre (GICC) and the Maitisong Theatre have permanent electrical installations. Maitisong Theatre also has a dimmer room that is dedicated to powering all the lighting equipment.

Venues that are not purpose-built as entertainment venues generally require temporary electricity to power technical equipment. One of the venues I visited to collect data was a restaurant-turned-entertainment venue that obtains electrical power from an external energy source in the form of a generator. This type of energy source is used because the electrical grid of the venue is not sufficient to include stage equipment, hence the need for a generator.

Because lighting, sound, audiovisual, and staging equipment has to be energised, technical companies usually use their own distribution boards to distribute electricity where it is supposed to go. This means a temporary electrical installation has to be put in place although the source of electricity is from within the venue. Unfortunately, however, the likelihood of a temporary electrical installation catching fire is high and having firefighting equipment close by is highly recommended. Figure 15 shows a temporary electrical installation used to power technical equipment at an event at

the Gaborone International Conference Centre (GICC). Despite the evident risk involved, there was no fire officer or firefighting equipment on site.

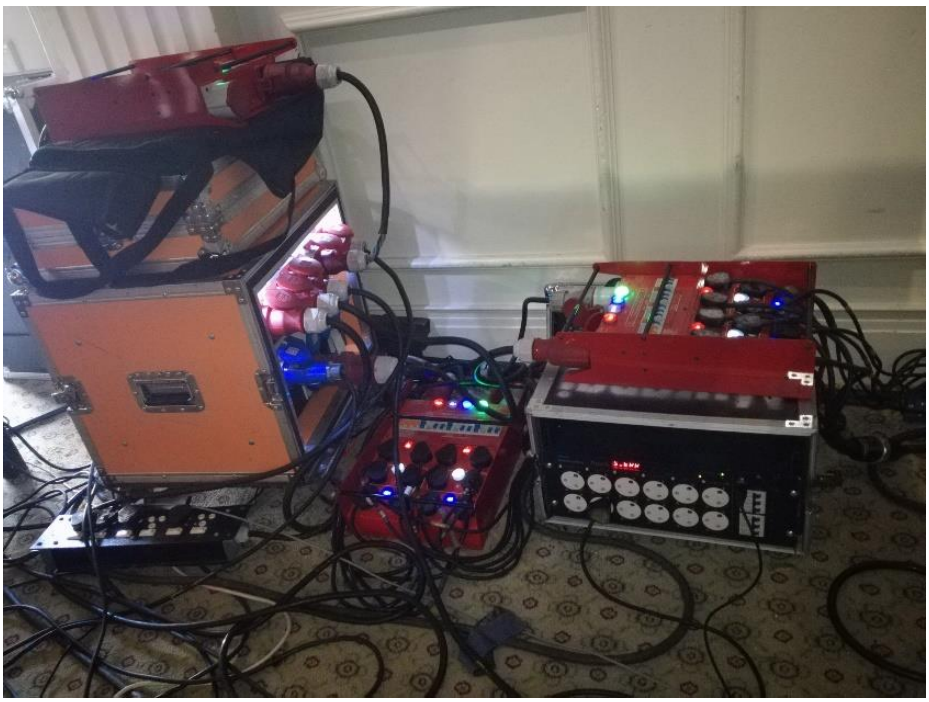

Figure 15: Electrical distribution board. Picture courtesy of K Khiba.

The image above shows the extent to which safety for technicians, artists, and the audience is compromised. This is why it is important to have public liability insurance for every live entertainment venue. The University of Botswana's Indoor Sports Centre has a clause in their Facility Use Policy that says "Users may be required to maintain or provide adequate insurance cover". This policy indemnifies the university against risk, injury, and loss, and ensures that event organisers at that facility always have public liability insurance. The Botswana Craft event enquiry form also does not mention anything about the need for public liability insurance. A public liability claim can emanate from a slip resulting from an exposed cable, as shown in Figure 16, an image was taken at the Gaborone International Conference Centre (GICC). During setup, the likelihood of cables becoming exposed is high. Therefore, the venue must be cordoned off, and only technicians should be allowed to enter the working area. During a performance, cables should be taped or secured to the floor, or a cable run must be used in high-traffic areas. Leaving cables loose

on the ground as was observed at the President's Day Celebrations event is a severe safety hazard.

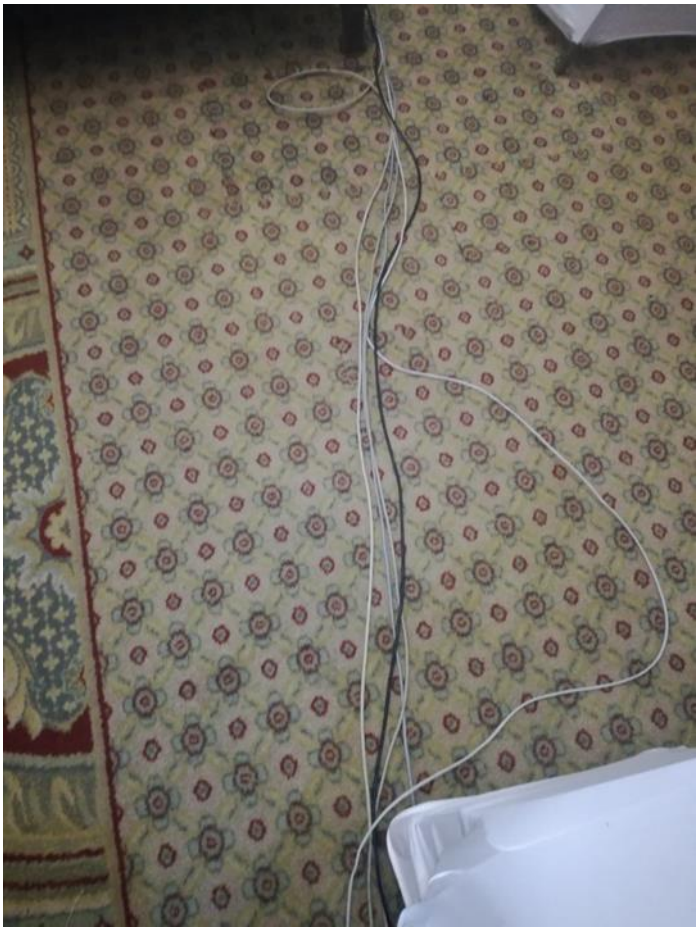

Figure 16: Loose cables are not taped down at the Gaborone International Conference Centre. Picture courtesy of K Khiba.

3.5.6 Crowd control and management

Crowd management involves managing crowd movement patterns and guiding the crowds to do what the event organiser or promoter wants them to do. The crowd must not feel that it is compelled to do so. Crowd control can be achieved through the use of crowd barriers. In essence, crowd management is putting systems in place to manage the crowd before the crowd converges, and crowd control is controlling an unruly crowd.

In the book, *Temporary Demountable Structures*, the Institution of Structural Engineers (IStructE 2007, p. 14) of the United Kingdom define crowd control and crowd management as follows:

> *Crowd control implies that crowds are intrinsically dangerous. They are not: they are simply made dangerous by insufficient or inappropriate provision for their demands. A physical response by stewards is then necessary to secure public safety. By contrast, crowd management is the business of recognising, analysing and meeting the demands of crowds by a combination of forward planning, risk assessment, engineering response, visually intrusive and clearly audible information and alert general management. The aim should be to make crowd control unnecessary by the implementation of good crowd management.*

As a general rule, people tend to enjoy themselves more at events where they feel safe. When conducting crowd management, it is important to know the audience profile and crowd dynamics. An event organiser or promoter has to know the kind of people that will attend a performance. An audience expects the event manager or promoter to meet their expectations and when this is not fulfilled, an audience becomes irritated, angry, and restless. Crowd expectations regarding safety at events can range from adequate security at the parking lot, enough lighting in the parking lot, no bottlenecks at entrances and exits, enough directional signage, wide sightlines to view the stage, and most importantly, good and constant communication.

Crowd barriers must always demarcate the stage pit. The stage pit is the area between the stage and the crowd barrier. The media popularly use the stage pit, but it is used to house distressed or injured audience members identified by security. Botswana Craft has a crowd barrier, but it is too close to the stage and makes the stage pit very small in size. Should there be a need to assist an audience member near or in the stage pit, this may not be possible. Figures 17 and 18 are pictures taken at the Botswana Craft, indicating the proximity of the crowd barrier to the stage. The distance of the stage pit from the main stage must be the height of the stage plus 1m. In other words, if the stage is 2m high, then the distance of the stage pit from the stage should be at least 3m.

Figure 17: A stage at Botswana Craft with no provision for a stage pit. Picture courtesy of K Khiba.

Figure 18: A picture taken at Botswana Craft, showing a crowd surging to the front of the stage. Picture courtesy of Starkre Photography.

Stages are the focal point at all events, and this is why sightlines for stages are important to prevent crowds from surging towards the front or in the direction of the stage. Sightlines are the lines of unobstructed visibility between the audience and the stage. If a crowd does not have a clear and wide line of sight, they will often surge to the front of the stage and cause a stampede.

3.6 Conclusion

From the answers given by respondents and my observations, I was able to identify some severe safety hazards or risks that could be fatal and cause major harm.

1. No risk assessment;
2. No knowledge of fire safety and firefighting equipment;
3. Lack of knowledge about PPE;
4. No inspection done on temporary structures;
5. Lack of communication methods; and
6. Lack of crowd management and crowd control skills.

The next chapter aims to recommend and promote the best safety practices that will assist in minimising or eliminating the hazards in the live events industry in Botswana identified in the previous chapter. The recommendation and promotion of the best safety practices for Botswana will be guided by some of the legislation of Botswana, the other jurisdictions that govern the entertainment industry, and industries with regulations that could be harnessed to the live events industry. I will also suggest the best way for Botswana to take full care of the safety concerns that I have raised in this study.

Chapter 4: Safety practices in Botswana

4.1 Case for best safety practices in the live events industry in Botswana

Having presented and analysed data that aimed at investigating potential safety hazards and risk concerns in the live events industry in Botswana in the previous chapter, I now proceed to present and analyse data that aims to recommend and promote best safety practices in the live events industry in Botswana. Specifically, this chapter intends to address the last two objectives of the study which are namely; to recommend best health and safety practices using South Africa (and other jurisdictions) as a comparative example and to promote a safety mindset among stakeholders, technical crew and events promoters in the live events industry in Botswana.

I will be looking at the general awareness of practitioners in Botswana about matters that have to do with the identified safety hazards. Having determined the levels of awareness, I will attempt to link these with existing documents in Botswana and those from other jurisdictions with a purpose to come up with possible draft regulations, guidelines and standards that can assist in the promotion of the best safety practices when working in the live events industry in Botswana.

Reference to relevant documents like the South African National Standards, Health and Safety at Events — Requirements 10366:2012 (SANS), Occupational Health and Safety Act of South Africa (OHSA), the South African Safety at Sports and Recreational Events Act (SASREA), the Mines, Quarries, Works and Machinery Regulations of Botswana, Building Control Regulations of Botswana, Occupational Health and Safety Act of Australia, Factories Act of Botswana and Acts from other countries will be used to guide event managers, promoters, venue managers, technical crew, and technical directors working in the live events industry in Botswana to have a safety mindset when organising and working on events. The data that I present and analyse in this chapter deals with questions that speak to the awareness of respondents about matters to do with safety and how this can possibly be addressed. I will support my analysis with specific legislation that Botswana can use to draw up its own document with respect to safety at live events.

As in the previous chapter, the data was obtained from event managers or promoters, venue managers, technical directors, and technical crew. This category of respondents was requested to answer specific questions on the questionnaire, and all the questions were meant to address the last two objectives of the study.

Table 5.1 shows the questions which were designed to address the recommendation and promotion of the best safety practices or mindset by event managers or promoters and venue managers.

Question 1	Do you have specific guidelines to assist you in organising live events to ensure that safe working conditions are enforced at all times?
Question 2 & 3	Are you aware of the health and safety responsibilities that lie with you as a manager or organiser of live events? If the answer to this question is YES, SOMETIMES or ALWAYS, what are the responsibilities? Briefly explain.
Question 7	Do you ever have an evacuation plan for your attendees?
Question 8	Are you aware of any regulations regulating the number of spectators attending a live event inside a building or at an open-air venue? If the answer to this question is YES, do you abide by those regulations?
Question 10	Do you know of any guideline regulating the number of exits and entrances also as escape routes for the public attending live events?
Question 17 & 18	Do your events have a safety officer in attendance at all times? If the answer to this question is NO or NEVER, why not?
Question 19	How many security personnel do you typically use for your shows with 500–1000 attendees?
Question 20	How many security personnel do you typically use for your shows with 1001–5000 attendees?
Question 21	How many security personnel do you typically use for your shows with 5001–15000 attendees?

Table 5.1: Outline of questions directed at event managers or promoters and venue managers with a focus on identifying recommendations for best safety practices

It is the responsibility of the event manager or promoter organising an event, or a venue manager, to create safe working conditions for everyone involved in the

event. During the planning phase, the event manager or promoter, or the venue manager must draft a feasibility study that includes a site or venue layout, and obtain relevant permits and approvals before any erection or construction work takes place. They must also obtain the latest policies on safety and compliance certificates from contractors. In this way, they can make sure that contractors are competent and adhere to their roles and responsibilities. Question 1 set out to find out if there are guidelines that event managers or promoters and venue managers follow to ensure safe working conditions. The question was phrased as follows:

Question 1. Do you have specific guidelines to assist you in organising live events and ensuring that safe working conditions are enforced at all times?		
Position or role	**Respondent number**	**Response**
Event manager or promoter	1	No
Venue manager	1	No
Venue manager	2	Yes
Venue manager	3	Yes

Table 5.2: Summary of responses to Question 1 from event managers or promoters and venue managers

The event manager or promoter and Respondent 1 from among the venue managers answered ‘No’ to this question, while the other two venue managers answered ‘Yes’. From the perspective of the best safety practices, it is rather worrisome that the event manager or promoter does not follow or have guidelines in place that ensure safe working conditions that are enforced at their live events. This is despite one of the main responsibilities of an event manager or promoter is to ensure the safety of everyone at any specific event. Respondent 1 from among the venue managers may have answered ‘No’ to this question because the respondent is dependent on event managers or promoters to ensure safe working conditions at the events that the venue manager hosts. The possibility of a disaster happening increases when the event manager or promoter does not have safe working guidelines to assist them.

In the context of South Africa, a respondent who would answer ‘No’ to this question would be in contravention of SASREA. This Act provides for measures to safeguard

the physical well-being and safety of persons and property at various venues, provides for the establishment of measures to deal with safety and security at events, and holds stakeholders accountable for safety at events.

Respondents 2 and 3 of the venue managers both answered ‘Yes’, indicating they do have specific guidelines to assist in ensuring a safe working environment at live events. Guidelines are good practice because guidelines help to raise awareness, provide practical guidance, and encourage consistency. Therefore, it is imperative that in the absence of an Act of Parliament, guidelines can be used to assist organisers of live events in having a safe working environment as event organisers and venue managers are responsible for ensuring that adequate consideration was given to any health and safety issues that may arise before, during, and after an event.

The United Kingdom uses legislation and guidelines to assist event organisers in organising safe live events. Some of these guidelines are the Event Safety Guide (second edition, published in 1999) and the Guide to Safety at Sports Grounds. The Event Safety Guide enables event organisers to understand the needs of everyone directly involved with the event, such as local authorities and emergency services, so that they can all work together to improve event safety. The Guide to Safety at Sports Grounds applies to the safety of spectators at all sports grounds.

SASREA 4 (1) of South Africa states that a controlling body, an event organiser, or a stadium or venue owner must put prescribed measures in place to ensure the physical safety and security of people and their property at an event.

The following points are the best safety practices from the above Act that will assist the department of Arts and Culture in the Ministry of Youth, Sports and Culture in Botswana’s event managers or promoters in organising safe and secure live events and in ensuring that safe working conditions are enforced at all times.

The suggested SASREA regulation is mentioned in each case of the suggested safety cases below and discussed.

- Event layout plan
    - Design of stages and temporary structures which must include:
        - Emergency exits

        - Location of temporary structures
    - Venue layout drawings and other information must indicate:
        - Address and GPS coordinates of the venue
        - The boundaries of the site
        - Occupancy capacity
        - Venue grading certificate
    - Expected number of attendees
        - Evacuation plan
        - Position of all fire extinguishers
        - Event programme
        - Contact details of event organiser or promoter
- A safety and security plan
- Safety officers or inspectors
- Public liability insurance
- Properly qualified personnel in the live events industry
- Appointment letter of an event safety officer

4.2 Data analysis for the current safety practices in Botswana

Occupational health and safety (OHS) are crucial at all workplaces. All companies must recognise that occupational illness, injury and environmental incidents have a far-reaching effect on both the individual and the profitability of the company, especially production and technical companies. As previously mentioned, OHS practices protect employees against disease, sickness, and injury in the workplace. Event managers or promoters and venue managers are duty-bound to take care of the safety of technical crews and audiences at events. The following question was directed at respondents to find out if the event managers or promoters and venue managers are aware of their responsibilities in respect of occupational health and safety. The question went as follows:

Question 2. Are you aware of the health and safety responsibilities that lie with you as a manager or organiser of live events?			
Position or role	**Respondent number**	**Response**	**Explanation**
Event manager or promoter	1	Yes	Safety of persons: from injury, as in the access facilitated to performance space. Safety in the use of props or equipment. Safety within the spaces & for the spaces: in cases of fire, for example, arson (be accessible; nothing to spark a fire, etc.) Personal safety on the road during the carnival parade. Easy access to first aid and ambulances. Provision of water. Police escort.
Venue manager	1	Yes	My responsibilities are to ensure the safety of all my work colleagues and all customers who visit this venue or the events I run. So fire risks, evacuation procedures, fire response, hazards on site, access to emergency procedures and equipment, etc.
Venue manager	2	Yes	We use an event checklist, and depending on the number of tickets printed, we vary the number of security personnel, for over 600 people, we secure an ambulance service.
Venue manager	3	Yes	Ensure that entrances, exits are clearly lit during the show. Cars do not park by the fire evacuation route. All doors are never locked during the performances. These are the basic rules that I follow and ensure that staff and revellers understood.

Table 5.3: Summary of responses to Question 2 from event managers or promoters and venue managers.

From all the answers outlined above, the respondents are aware of the issues that may adversely affect the health and safety of all employees in the workplace, entertainment venue, or on stage. The respondents clearly state that they do not put their lives and the lives of their colleagues at risk, as advocated by the Occupational Health and Safety Act (OHSA) of South Africa, the Mines, Quarries, Works and Machinery Regulations of Botswana and the Occupational Health and Safety Act of Australia. However, the respondents do not mention where all those measures of safety are written down for employees or colleagues to access. The Occupational Health and Safety Act of South Africa 1993 (Act No. 85, sec. 7) states that the chief inspector may direct any employer in writing to prepare a written policy concerning the protection of the health and safety of their employees at work, including a description of their organisation and the arrangements in place for carrying out and reviewing that policy. It also demands the public display of a copy of that policy (Occupational Health and Safety Act No. 85 of South Africa 1993, sec. 7).

In Botswana, every person working at or in a mine, quarry, or works must take precautions to ensure their own safety and the safety of their fellow workers during their employment (Mines, Quarries, Works and Machinery Regulations of Botswana 1978, reg. 30 (c)). The Botswana live events industry could easily adopt this regulation to sensitise live events practitioners about the enormity of the responsibility that they, as employers and employees, carry regarding safety. The importance of health and safety requires that employees, other persons at work, and members of the public are given the highest level of protection against all potential risks to their health and safety that is reasonably practicable in the circumstances (Occupational Health and Safety Act of Australia 2004, sec. 4 (1)).

Even though the event manager indicated that there is easy access to first aid and ambulances, first aid must be administered by someone who is in possession of a valid certificate of competency in first aid. According to the Mines, Quarries, Works and Machinery Regulations of Botswana, this certificate must be issued by the Botswana Red Cross Society or any other recognised society or association approved by the Ministry of Health (Mines, Quarries, Works and Machinery Regulations of Botswana 1978, reg. 41). The OHSA (Occupational Health and Safety Act No. 85 of South Africa 1993, sec. 3 (4)) of South Africa requires the

certificate to be granted by the South African Red Cross, St Johns Ambulance, the South African First Aid League or a person or organisation who is approved by the chief inspector for this purpose.

As indicated in section 3.5.2.1, the management of audience traffic leaving a venue is crucial as disasters like fire can happen at any time during events. The time it takes for patrons to evacuate a venue must be minimised as patrons may easily become agitated and become unmanageable. Event managers or promoters and venue managers must always have a plan in place to evacuate patrons safely and within an acceptable timeframe to avoid congestion, stampeding, and loss of lives. This can be achieved by having a sufficient number of exits with adequate widths and identifiable points of exit in both normal and emergency conditions, among other things. Question 7 sought to find out if respondents had a plan in place to evacuate patrons safely should the need arise. The question was structured as follows:

Question 7. Do you have an evacuation plan for your attendees?		
Position or role	**Respondent number**	**Response**
Event manager or promoter	1	No
Venue manager	1	No
Venue manager	2	Yes
Venue manager	3	Yes

Table 5.4: Summary of responses to Question 7 from event managers or promoters and venue managers.

The event manager or promoter and Respondent 1 from among the venue managers said ‘No’, they do not have an evacuation plan in place. These respondents may have possibly passed over the responsibility of drafting an evacuation plan just as the responsibility of conducting a risk assessment was passed over to the relevant structures in the respondents’ institution as per the response to Question 17. It is not unusual for event managers or promoters to pass on the responsibility of drafting an evacuation plan, as that is usually done by an event safety officer appointed by the event manager or promoter.

It is unfortunate that Respondent 1 from among the venue managers did not have an evacuation plan in place because the main priority of evacuation is the protection of life from possible disasters such as a fire.

Evacuation from venues is typically dependent on the number of escape routes and the width of the exits as shown in Table 2 (section 2.6.1.1), which is the information that a venue manager should know about their venue. Respondents 2 and 3 from among the venue managers do have an evacuation plan in place at their venues should they have to evacuate patrons. These respondents are probably guided by the table showing the recommended number of exits as required by Regulation 47 of the Building Control Regulations of Botswana (Table 1 and Table 2 in section 2.7.1 showing the minimum width of stairways and exits as required by Regulation 50 under the same regulations.

In South Africa, a safety plan prepared by the safety officer for the event organiser must have emergency evacuation plans and actions to be taken by the safety officer (Safety at Sports and Recreational Events Act No. 2 of South Africa 2010, sec. 4 (10) (l)).

One moment of great risk in terms of crowd safety is at the point of evacuation from a venue, hence the requirement for an evacuation plan and for knowing the recommended minimum number of exits for a specific occupancy capacity.

When events are organised the world over, the first thing to do is to secure a venue and to know the number of attendees the venue can accommodate. This is known as the occupancy capacity. Question 8 and 10 are dealt with together in Table 5.5. This is because one question deals with occupancy capacity, while the other deals with the number of exits, entrances, and escape routes at a venue. The occupancy capacity cannot be calculated without considering the number of available exits and escape routes. Question 8 required respondents to indicate if they were aware of the regulation that deals with the number of spectators at a given venue, while Question 10 sought to find out if respondents were aware of regulations that have to do with the recommended number of exits and entrances for patrons at live events. The two questions were phrased as follows:

Question 8. Are you aware of any regulations regulating the number of spectators attending a live event inside a building or at an open-air venue?			
Position or role	**Respondent number**	**Response**	**Explanation**
Event manager or promoter	1	No	_
Venue manager	1	No	_
Venue manager	2	No	_
Venue manager	3	Yes	I abide by the rules strictly because in the event of an accident, say a fire or building collapse, non-compliance with any regulations would result in lawsuits and refusal by insurance to pay for any structural damages or public liability.

Question 10. Do you know of any guideline regulating the number of exits and entrances also as escape routes for the public attending live events?		
Position or role	**Respondent number**	**Response**
Event manager or promoter	1	No
Venue manager	1	No
Venue manager	2	No
Venue manager	3	Yes

Table 5.5: Summary of responses to Question 8 and Question 10 from event managers or promoters and venue managers.

All the respondents to Question 8, except Respondent 3 from among the venue managers indicated ‘No’, they were not aware of any regulations that have to do with the number of spectators attending live events inside a building or at an open-air venue. This is of great concern as it shows that the respondents do not know the occupancy capacity of a venue and how to calculate it.

Occupancy capacity is available space for patrons, including support staff at any given venue and the number of emergency exits. Occupancy capacity guides the assessment of how many spectators can be safely accommodated inside a venue.

According to Table 6 of Regulation 56 of the Building Control Regulations of Botswana 1981, notional area per person in metres squared of assembly buildings is 0.5m^2. The venue can be either an assembly hall (with movable seating or no seating), a club, a grandstand (with no fixed seating), or a stadium (with no fixed seating). The occupancy capacity of buildings of the United Kingdom is similar to that of Botswana as elaborated in Table 4.

Occupancy capacity is calculated using this formula:

> *Occupied area (m^2)/Occupant density (Notional area per person in metres squared) = Occupant capacity*

It is particularly recommended that occupant capacity and evacuation plans have to be calculated and planned for by event managers or promoters and venue managers so that they are aware how many people a venue can accommodate and how an audience can speedily evacuate when required.

Lack of knowledge or awareness about calculating occupancy capacity using notional area per person in metres squared might be the reason for potential overcrowding at events in Botswana. Overcrowding is often caused by having to maximise on the financial gain at the expense of the safety of patrons.

The explanation given by Respondent 3 from among the venue managers seems to be expedient. The respondent appears to be more worried about the potential refusal by insurance companies to pay for structural damages or public liability than saving lives. However, this respondent loses sight of the primary reason why venue managers ought to abide by regulations that focus on the number of spectators attending a live event inside a building or an open-air venue, which is to avoid injury, stampedes, and to protect life.

In South Africa, one of the minimum requirements of the South African National Standards, Health and Safety at Events — Requirements 10366:2012 is to have a venue design layout that stipulates occupancy capacity, exits, venue access, and entrances that form part of the evacuation plan. Occupancy capacity also assists the National Commissioner of the South African Police to categorise an event based on the expected total attendance at an event. Where available, a historical record of attendance figures at similar or previous events guides that categorisation

decision (Safety at Sports and Recreational Events Act No. 2 of South Africa 2010, sec. 6 (7) (b)).

Respondent 3 from among the venue managers was the only respondent to Question 10 who was aware of the guidelines that regulate the number of exits and entrances also as escape routes for the public attending live events. The other respondents do not know the answer to Question 10 and do not know that an escape route has a minimum width. As stated previously, Table 1 (section 2.7.1) explains the number of exits required for a specific occupancy capacity according to the Building Control Regulations of Botswana. Table 2 (section 2.7.1) shows the minimum width of stairways and exits as required by Regulations 47 and 50 of the Building Control Regulations of Botswana. Table 3 (section 2.7.1) shows the required width of escape routes according to the Building Regulations of South Africa. In contrast, Table 5 (section 2.7.1) shows the width of escape routes according to the Building Regulations of the United Kingdom. The minimum width of exits in these jurisdictions do not differ much with those of Botswana. It must just be emphasised to event managers or promoters that when organising outdoor events, they should always adhere to the stipulated minimum width of exits. Since exits are purpose-built at entertainment venues, indoor venues would have been built with the required minimum width for stairways and exits.

SASREA of South Africa 2009 (reg. 3 (11)) stipulates that a stadium or a venue must have sufficient emergency exits in place, including gates which allow egress onto the field of play and gates that allows egress through the inner perimeter of a stadium.

According to the Guide to Safety at Sports Grounds of the United Kingdom (2008, p. 80), management should ensure that exit routes are planned and managed safely to provide a smooth, unimpeded passage through an exit system until spectators reach the boundary of the ground, or in an emergency, a place of safety.

The Factories Act (42) and the Building Control Regulations 46, 47, 49, and 50 of Botswana can be easily adopted by the entertainment industry in Botswana as they discuss safety provisions in case of fire and structural fire precautions respectively. The Factories Act (42) can be used to ensure that venue managers abide by this legislation and avoid situations like those shown in Figure 7, where a stage flat

blocks a doorway inside a performance venue. The Building Control Regulations 46, 47, 49, and 50 of Botswana are vital to outdoor venues as most of these venues are not purpose-built as entertainment venues. Issues such as the requirement for exits, number of exits, and width of exits must be discussed by the event manager or promoter and should be sufficient for the number of attendees likely to have to use them at the time of evacuation.

Botswana can implement best safety practices regarding the design of emergency exit routes, safe spectator capacity, and the safety of a venue by learning and borrowing from the Guide to Safety at Sports Grounds of the United Kingdom and SASREA of South Africa.

According to the Guide to Safety at Sports Grounds of the United Kingdom (2008, p. 85), the exit routes must be designed in such a way that the loss of one emergency exit route does not prevent access to an alternative.

The guides will assist the event managers or promoters, and venue managers with the design and number of emergencies exit a venue requires, especially at unconventional venues like stadiums. There must always be several alternative emergencies exit routes with well-managed signage at all unconventional venues.

SASREA of South Africa has a grading certificate for safe spectator capacity and a safety certificate to determine the safety of a venue. A grading certificate is a certificate that is issued after the safe spectator capacity of a stadium or venue, and the level of risk of the event hosted at the stadium or venue is determined. A safety certificate is defined as a document that certifies the safety, the safe spectator capacity and level of risk of a stadium or venue to host events (Safety at Sports and Recreational Events Act No. 2 of South Africa 2010, sec. 1). This kind of certification can be used to determine the safety of the infrastructure and its occupancy capacity, which will ultimately assist with determining the number of emergencies exits.

The responsibility or duty of care for public safety at all live events rests with the event manager or promoter and the owner or venue manager of the property or land where such events are staged. The event safety officer is appointed by the event manager or promoter to plan and advice on issues of health and safety for the whole event. The South African National Standards, Health and Safety at Events — Requirements 10366:2012 (SANS) recommends the presence of a safety

coordinator whose duties are spelled out in section 2.5. Question 17 sought to find out if respondents have an event safety officer or safety coordinator appointed at their events. The question was phrased as follows:

Question 17. Do your events have a safety officer in attendance at all times? If the answer to this question is NO or NEVER, why not?			
Position or role	**Respondent number**	**Response**	**Explanation**
Event manager or promoter	1	No	We did not have such appointed. We relied on university personnel and structures.
Venue manager	1	No	It is not required, and we have limited staff.
Venue manager	2	Yes	_
Venue manager	3	Yes	_

Table 5.6: Summary of responses to Question 17 from event managers or promoters and venue managers.

From the responses outlined above, the event manager or promoter passed the responsibility generally expected of the event safety officer to the relevant personnel at their institution. This may be a good thing to do if the institution has the capacity to manage safety and security at events. Respondent 1 from among the venue managers indicated that an event safety officer is not required and that their venue has limited staff. The other two respondents who said they always have an event safety officer available might have had an inspector present as per the Factories Act of Botswana.

The Act stipulates that an inspector can inspect and examine a factory at any time where people are employed or highly inflammable materials are stored or used (Factories Act of Botswana 1973, sec. 69 (1) (a)).

SASREA of South Africa 2010 (Act No. 2, sec. 4 (4) (a)) states that an event organiser, event manager or promoter, or venue manager must appoint sufficient persons who are responsible for safety and security at an event, including an event safety officer, security officers, or other persons as prescribed. The safety officer

specifically works in events (Safety at Sports and Recreational Events Act No. 2 of South Africa 2010, sec. 1), unlike an inspector who works in factories (Factories Act of Botswana 1973, sec. 6).

It is recommended that in the absence of an event safety officer in the live events industry of Botswana, an inspector can be used to inspect the safety of events. They must be competent and knowledgeable in the field of events and have control of operational safety management issues just like a safety officer does in the United Kingdom (Guide to Safety at Sports Grounds of the United Kingdom 2008, p. 30).

As mentioned previously, South Africa has a Venue Operations Centre (VOC) from where the entire safety and security operation in respect of an event or venue is coordinated. The event safety and security planning (ESSP) committee sit in that centre, and their duty is to coordinate security at events while they are guided by the risk categorisation presided over by the National Commissioner of the South African Police Services. The purpose of Questions 19–21 was to determine how the number of security personnel is determined for specific sizes of audience or crowd. The three questions were phrased as follows:

Question 19. How many security personnel do you typically use for your shows with 500 to 1000 attendees?				
Question 20. How many security personnel do you typically use for your shows with 1001 to 5000 attendees?				
Question 21. How many security personnel do you typically use for your shows with 5001 to 15000 attendees?				
Position or role	**Respondent number**	**Response to Question 19**	**Response to Question 20**	**Response to Question 21**
Event manager or promoter	1	No response	No response	No response
Venue manager	1	5–10	8–15	N/A
Venue manager	2	No response	No response	No response
Venue manager	3	3	15	25

Table 5.7: Summary of responses to Questions 19–21 from event managers or promoters and venue managers.

The event manager or promoter and Respondent 2 from among the venue managers, did not answer any of these questions. There is a disparity in the answers given by Respondents 1 and 3 from among the venue managers, and this could be attributed to the fact that Botswana does not have an ESSP committee or any guideline to assist event practitioners on the number of security personnel required for a certain number of guests or audience.

In South Africa, the National Commissioner of the South African Police Services conducts the risk categorisation of events and establishes an event safety and security planning (ESSP) committee. The commissioner may require information and particulars of the planned event from the event organiser. It is this information that enables the National Commissioner of the South African Police Services to make a risk categorisation of the event (Safety at Sports and Recreational Events Act No. 2 of South Africa 2010, sec. 6 (2) (b)). One of the duties of the ESSP committee is to deploy security service providers. This is the forum at which the number of security personnel is discussed and agreed upon. However, there is no such committee in existence in Botswana.

The National Commissioner of the South African Police Services must consider the following when issuing a risk categorisation:

1. The expected total attendance at an event, and where available a historical record of attendance figures at similar or previous events;
2. The location of the event;
3. Any relevant crime statistics;
4. Certified safe capacity of the venue; and
5. The expected age profile of attendees at an event.

The following are the three risk categorisations of events in South Africa:

- The **low-risk** category requires the event organiser to notify the local police station of an event and for the South African Police Services to appoint an authorised member to conduct security cluster meetings with all relevant role players.
- The **medium-risk** and **high-risk** category require the National Commissioner of the South African Police Services to establish an event safety and security planning (ESSP) committee.

After analysing the data provided by the event managers or promoters and venue managers who are responsible for the safety of the whole event, the following data analysis will focus on technical teams. The following analysis intends to recommend the best safety practices for the live events industry. The respondents were asked the following questions:

Question 1	What is your understanding of safety at live events?
Question 12	In your general understanding of safety issues at live events, what credentials or qualifications do you think persons who monitor safety issues ought to have?
Question 15 & 16	Have you experienced an accident or accidents that happened during setup, dismantling of the stage or during a live event? If the answer to this question is YES, SOMETIMES or ALWAYS, please give details of what happened and what could have been done to stop the incident from happening.
Question 19 & 20	Do you feel that you are adequately protected in terms of safety in your work environment? Briefly explain your answer.
Question 21 & 22	Do you know and understand your personal and organisational safety and health responsibilities? Briefly explain your answer.

Table 5.8: Outline of questions for technical crew and technical director that focused on recommendations for and the promotion of best safety practices in the live events industry in Botswana

As already indicated in section 2.3, live events venues are no different from the typical workplace. Therefore, safety, protection, and security must be enjoyed by employees at that workplace or event. Question 1 aimed to find out if employees understand the whole concept of safety at live events. The question was structured as follows:

Question 1. What is your understanding of safety at live events?		
Position or role	**Respondent number**	**Response**
Technical crew	1	My understanding is that all structures must be safe to be used, and hanging equipment must be well secured and have a safety chain.

Technical director	1	Means taking reasonable steps to prevent harm at your event, be it audience or talent.

Table 5.9: Summary of responses to Question 1 from the technical crew and technical directors.

The two respondents indicated an understanding of what safety at live events is about. They also indicated that they take reasonable care to ensure the safety of everyone and avoid injuries caused by falling equipment. However, if one looks at the case of the OHS Acts of South Africa, Australia, and the United Kingdom, there is more there that Botswana could easily use to minimise the risk identified. In the case of these three countries, their OHS laws secure the health, safety, and welfare of persons at work and protecting others against risks to health or safety in connection with the activities of persons at work. This is what constitutes reasonable steps being taken to minimise or control hazards.

In previous chapters, I indicated that the competency of personnel is a necessity when undertaking various tasks and roles in the live events industry. A competent person means a person who has had adequate training and experience in their duties or functions to enable them to perform such duties or functions safely (Mines, Quarries, Works and Machinery Regulations of Botswana 1978, reg. 2).

Qualifications and experience are fundamental in the live events industry and more especially for the person who monitors safety at events. No event safety officer is declared competent without having experience in risk assessment and risk management systems. In the case of Botswana, stakeholders in the live events industry could have experience and a minimum qualification in risk management and hazard identification risk assessment as a prerequisite for persons who monitor safety in the live events industry. This will assist the industry in that a person who monitors safety (event safety officer) and is experienced in the live events industry will be expected to do the following among other things:

- Establish a risk assessment plan at the planning phase;
- Provide a risk assessment policy;
- Identify hazards associated with activities contributing to the event, where the activities are carried out and how the activities are to be undertaken;

- Identify people who might be harmed and how they might be harmed; and
- Evaluate risks.

Question 12 sought to find out if respondents believe that a safety officer ought to be qualified. The question went as follows:

Question 12. In your general understanding of safety issues at live events, what credentials or qualifications do you think persons who monitor safety issues ought to have?		
Position or role	**Respondent number**	**Response**
Technical crew	1	_
Technical director	1	The highest qualification, the better.

Table 5.10: Summary of responses to question 12 from the technical crew and technical directors.

Only the technical director responded to this question, and he agreed that a qualification is required. However, the respondent did not specify in which course or discipline the qualification ought to be.

The Factories Act of Botswana does not mention the specific qualification or qualifications that the inspector must possess, but the SASREA of South Africa (Safety at Sports and Recreational Events Act No. 2 of South Africa 2010, sec. 14 (4) (a)) makes it clear that an inspector must have sufficient qualifications and experience in the field of safety and security. Experience and a level of qualification are required to be competent in the live events industry as an event safety officer.

It is best safety practice to be qualified, because in South Africa the Safety Management Training Course (SAMTRAC), National Examination Board in Occupational Safety and Health (NEBOSH), and other OHS courses are some of the qualifications that are recognised for safety officers. One of the objectives of SAMTRAC is to understand the importance of risk management and hazard identification risk assessment processes.

An event safety officer with these qualifications is crucial to the events industry as that person endeavours to resolve health and safety problems quickly and

effectively. That person is on-site before the event, during the event and after the event and contributes to all aspects of the event safety programme.

According to the SASREA of South Africa, the safety officers are guilty of an offence if they do not cooperate and assist an inspector or police officer with any information that may be required.

One of the requirements for a safety officer in the United Kingdom is competency. A person shall be regarded as occupationally competent once they have had sufficient training, experience, and gained skills relevant to the tasks required for that role (Guide to Safety at Sports Grounds of the United Kingdom 2008, p. 209).

While hazards or near misses will always be present at live events, as a rule, it is unacceptable for workers in a production company to suffer injury, illness, or die at live events. Question 15 sought to obtain details of the first-hand experience of accidents or near misses by respondents at their workplaces. The question was structured as follows:

Question 15. Have you experienced an accident or accidents that happened during setup, dismantling of the stage or during a live event? If the answer to this question is YES, SOMETIMES or ALWAYS, please give details of what happened and what could have been done to stop the incident from happening.			
Position or role	**Respondent number**	**Response**	**Explanation**
Technical crew	1	No	_
Technical director	1	Yes	One freelancer had a stage fall on his foot, and he was not wearing safety boots, if he adhered to safety wear, it could have been prevented.

Table 5.11: Summary of responses to Question 15 from the technical crew and technical directors.

From the responses above, the technical director has experienced an incident at some point in their career. However, the explanation provided is not very clear as to the extent of the injury. One can only assume that the freelancer referred to in the response was injured because he was not wearing safety boots. The incident that the respondent refers to is common at live events. Lack of PPE causes many

injuries, and this particular incident may have been avoided altogether had Regulation 77 of the Mines, Quarries, Works and Machinery Regulations of Botswana been adhered to, or had there been an event safety officer on site. The event safety officer would have identified the hazard facing the freelancer who did not use appropriate PPE on-site, especially while working on a stage.

In response to Question 18 regarding who enforces the wearing of PPE, the technical director indicated that the supervisor on duty enforces the use of PPE.

The same technical director also responded 'Yes' to Question 2 with regard to the having have a competent person checking the stage and all temporary structures before the commencement of live events as a habit. Therefore, the questions that arise are, 'Where were the competent persons who are supposed to check the stage and all temporary structures when freelancers are injured on stage?', and 'Why were freelancers allowed to work without proper PPE?'. The obvious answer seems to be that there was no competent person to check the stage and temporary structures as claimed in response to Question 2. The respondent seems to corroborate this in answer to Question 19 in Table 5.12.

According to the OHSA of South Africa, employees must be provided with a healthy and safe working environment at all times, and they must be protected against all foreseeable hazards that may arise in the workplace. No employee must come to work and face the risk of injury. Employers must provide a reasonably safe workplace. Question 19 sought to find out if respondents felt adequately protected at their workplaces. The question was structured as follows:

Question 19. Do you feel that you are adequately protected in terms of safety in your work environment? Briefly explain your answer.			
Position or role	**Respondent number**	**Response**	**Explanation**
Technical crew	1	No	Because there is no competent safety person at my workplace.
Technical director	1	No	Our job is mainly done by freelancers, so it is very difficult to enforce all the necessary measures to make the work environment safe.

			We do not have certified personnel to check for any hazard and allow production to continue.

Table 5.12: Summary of responses to Question 19 from the technical crew and technical directors.

From these answers, it is evident that the two respondents did not feel safe at their respective workplaces. The reason why the technical crew did not feel safe at their workplace is that no one at their workplace is competent in event safety, as the technical director reiterated. There is no event safety officer, safety coordinator or inspector to inspect or examine the workplace as demanded by the Factories Act of Botswana.

Some production companies in Botswana use South African companies for their technical requirements. Because these companies are never asked for their safety policies, certification, and risk assessments by event safety officers as they would in South Africa, they overlook South African safety regulations when they are in Botswana. They do not comply with any safety regulations in Botswana as there are none with which to comply. They usually do not cordon off the rigging area, they do not have structural certificates and electrical certificates of compliance, and they do not wear the necessary PPE as there is no one to enforce these requirements.

The expectation that a South African company will deliver a safe working environment during production, and the possible non-deliverance thereof, might be the reason why the respondents do not feel safe at the workplace as the Botswana technical crews sometimes freelance with these South African companies.

The technical director clearly states that he finds it difficult to enforce all necessary measures to make the work environment safe because of the frequent use of freelancers. However, the technical director clearly understands what safety at live events means as per their response to Question 1. As an employer, the technical director must exercise the same care towards all employees regardless of whether they are freelance or not. This is supported by Regulation 30 of the Mines, Quarries, Works and Machinery Regulations of Botswana when it stipulates that every employee at or in a mine will take precautions to ensure their own safety and the safety of their fellow workmates during their employment (Mines, Quarries, Works

and Machinery Regulations of Botswana 1978, reg. 30 (c)). This regulation places emphasis on the fact that employees must not only depend on an event safety officer or inspector for their safety. Rather, employees also have a personal responsibility to take care of their safety and that of others. The Health and Safety at Work Act of 1974 of the United Kingdom concurs with the Mines, Quarries, Works and Machinery Regulations of Botswana when it states that it shall be the duty of every self-employed person to conduct their undertaking in such a way as to ensure that they and other persons (not being their employees) are safe so far as is reasonably practicable (Health and Safety at Work etc Act 1974 of the United Kingdom 1974, sec. 3 (2)). This Act covers the safety of freelancers.

Freelancers are individuals who are self-employed and are not committed to one particular employer. This category of workers is used in the entertainment industry the world over, including in Botswana by production and technical companies. Freelancers may be classified as employees once they are employed to do a particular job. The OHSA of South Africa defines an employee as a person employed by an employer to do a certain job and who receives remuneration for that job (Occupational Health and Safety Act No. 85 of South Africa 1993, sec. 1). The OHSA of Australia defines an employee as a person employed under a contract (Occupational Health and Safety Act of Australia 2004, sec. 5 (1)). Because freelancers are classified as employees, employers in the live events industry in Botswana must treat them as such and enforce all the necessary legislation that makes the work environment safe. The best way to do so is to have a plan to manage health, safety, and environmental hazards. The plan could be to use measures to control, reduce or minimise hazards. Controlling measures can include the use of PPE, which is typically the last resort after all engineering and administrative control measures have been exhausted.

The main objective of a management system is to manage the safety, health, and environmental (SHE) issues and risks for an organisation. The first step in achieving this is by having a comprehensive SHE policy in place. The SHE policy must be supported and formulated by management and must commit to the prevention of injuries, ill health, and pollution. It must also commit to minimising SHE risks and their impact. The policy is the commitment towards SHE made by an organisation.

In contrast, a personal commitment to SHE is guided by the OHSA of South Africa, which states that every employee must take reasonable care for the health and safety of themselves and of other persons who may be affected by their acts or omissions (Occupational Health and Safety Act No. 85 of South Africa 1993, sec. 4). The SHE policy should be available to all employees and must be displayed where everyone can see it. In a way, this reminds employees of the need to protect lives and promote a healthy working environment every day. The following question sought to find out if the respondents knew their personal and their companies' SHE responsibilities. The question was phrased as follows:

Question 21. Do you know and understand your personal and organisational safety and health responsibilities? Briefly explain your answer.			
Position or role	**Respondent number**	**Response**	**Explanation**
Technical crew	1	No	_
Technical director	1	Yes	Personal is your responsibility to make sure you avoid and prevent accident and looking after your own health and safety. Organisational is making sure that the workplace is safe and that your workforce's health and safety is not compromised in the workplace.

Table 5.13: Summary of responses from technical crews and technical directors to Question 21.

From the responses outlined above, the technical director understands their personal and organisational health and safety responsibilities. However, the technical crew does not know their personal and organisational health and safety responsibilities.

This is an indication that the technical crew lacks an understanding of what is required of them regarding personal safety. The employer seemingly does not have a SHE policy and the technical crew have not been inducted into their working area using the SHE policy as a commitment by the company on matters relating to safety, health, and environment.

Like the mining and manufacturing industries, other industries have regulations in place that guide employees regarding their responsibilities in respect of safety. According to the Mines, Quarries, Works and Machinery Regulations of Botswana, the responsibility of employees is that every person at or in a mine, quarry, or works must be familiar with regulations that apply to the work in which they are engaged. The employees are also required to examine their workplace and equipment to ensure that it is safe for any work that is required and is in compliance with the regulations. They must also take precautions to ensure their personal safety and the safety of others during the course of employment (Mines, Quarries, Works and Machinery Regulations of Botswana 1978, reg. 30 (a) (b) (c)). The Factories Act of Botswana goes on to state that employees are not to interfere or misuse means or appliances that are used for securing their safety, health, and welfare. They should also not endanger themselves or any other persons (Factories Act of Botswana 1973, sec. 66). These regulations emphasise personal safety and the safety of others at the workplace and for employees to respect and not misuse safety measures and equipment that is meant for their safety.

Because of the nature of their work, technical production companies are duty-bound to inform employees of work-related risks and dangers. According to legal prescription, the employer must inform employees how work-related risks and dangers can be prevented, and this information must be displayed prominently in the workplace (Occupational Health and Safety Act No. 85 of South Africa 1993, sec. 7).

All technical production companies in Botswana must heed this call as the SHE policy demonstrates how seriously a company takes its health and safety responsibilities. It is important to note that the employers are bound by the SHE policy and could be held legally liable for not complying with it. This will also minimise expensive and time-consuming litigations between employers and employees, as all role players in the company will know what is expected of them in terms of health and safety at the workplace.

The Acts and regulations mentioned above are of utmost importance and can help to uplift the morale of the technical crew. The technical crew will know that the employer has a plan to manage health and safety in the workplace. The compliance

with SHE policies will also educate the technical crew, as the SHE policy is usually the first thing mentioned to new employees during orientation.

My investigation into the safety concerns within the live events industry in Botswana has identified a substantial amount of potential safety hazards and risks. From the investigation using questionnaires, not all respondents have shown that they promote best safety practices at their events. This may be attributed to lack of knowledge and the absence of legislation specifically governing the live events industry. However, some legislation that was referenced above can be used by all stakeholders in the live events industry in Botswana to encourage best safety practices, to promote a safety mindset within the industry, and to minimise injuries at the workplace.

From the interviews, responses from questionnaires, and direct observations, I have come to realise that there are many areas of concern with regards to event safety in Botswana's live events industry. I will outline all the areas that Botswana's live events industry has to look into in terms of safety and identify legislation from other domains and industries in Botswana and other jurisdictions from which I believe a live event manual for Botswana can be developed.

However, it should be noted that Botswana already has laws and regulations that could be harnessed for use in the live events industry. These laws and regulations are the Factories Act, the Building Control Regulation, and the Mines, Quarries, Works and Machinery Regulations. However, because this legislation was not drafted for the live events industry but rather for specific industries, the core of such legislation could be harnessed for use in the live events industry and assist with drafting a live events safety manual for Botswana. I will refer to this legislation, including that from neighbouring countries and other countries abroad as I outline the areas of concern regarding safety in the live events industry in Botswana.

The Mines, Quarries, Works and Machinery Regulations of Botswana encompasses the core of occupational health and safety under Regulation 30 (c). Every person at a mine, quarry or works must take care of their safety and the safety of others during their employment. This is a call to all entertainment venues, technical production companies, and the technical teams in the live events industry to prevent carelessness that can have ramifications for their safety and the safety of others.

In a press release dated 4 September 2019 preceding the Botswana trade show, the managing director of TRM Group, Gorata Manyaapelo, explained that with Botswana's growing workforce there is an increasing need for occupational health and safety awareness and implementation. He goes on to say that it is becoming increasingly important for companies to ensure the uncompromised health, safety and well-being of employees in the workplace – for economic reasons and to promote good company values. It can be said that the companies that Gorata Manyaapelo is referring also include technical production companies and the country's various entertainment venues.

Even though entertainment venues and technical production companies are trying hard to take care of the health and safety of employees, the areas listed below are areas of concern that are still lagging in terms of safety.

Lack of properly qualified personnel in the live events industry

Qualifications and experience are very important in the mining sector. The same level of importance should be accorded to the live events industry. Regulation 5 of the Mines, Quarries, Works and Machinery Regulations of Botswana stipulates that no person can be appointed as a manager of any mine, quarry, or works unless that person has suitable qualifications and adequate experience. A mine manager can be equated to a safety officer. A safety officer requires a specific level of qualification, like the qualifications mentioned above.

4.3 Botswana regulations that apply to the suggested safety practices

According to the Regulation 11 of the Mines, Quarries, Works and Machinery Regulations of Botswana, a manager or someone appointed to assist the manager, enforces regulations at a mine, quarry, or works. Regulation 15 of the Building Control Regulations of Botswana states that a representative of the building authority can inspect a building from construction commencement until after completion. An event safety officer and a manager at a mine do similar jobs in enforcing regulations. At the same time, a representative of the building authority only inspects during building operations and makes sure that the provisions of

regulations that deal with construction are adhered to. For ease of reference, I will henceforth use the terms mining manager and representative of the building authority to elucidate that these roles can be conflated to the role of an event safety officer in the live events industry of Botswana.

The live events industry in Botswana does not make it mandatory to have someone in place who manages safety at indoor or outdoor events. Temporary structures and electrical installations are not always certified as required by law. This was noticed at events that I attended at the Gaborone International Conference Centre (GICC), Maitisong Festival, and Botswana Craft. There were evident hazards and risks in all three spaces observed.

If entertainment venues such as the GICC had a position similar to that of a mining manager, the service provider who was observed on a scaffolding without guardrails (Figure 5 and 6 of Chapter 3) would not have continued to work dangerously. The service provider was clearly in contravention of Regulation 96, 97, and 99 of the Building Control Regulations of Botswana in that there was no supervision regarding the use of the scaffolding. The scaffolding was not in good condition, and it was not supported because it was missing guardrails. Regulation 253 of the Mines, Quarries, Work and Machinery of Botswana was also contravened as the scaffolding was not inspected by a competent person. Neither was it erected by a person who has adequate experience in scaffold construction. The presence of someone similar to a mining manager would have ensured that the service provider implemented Regulation 260 (2) (a) of the Mines, Quarries, Works and Machinery Regulations of Botswana or Regulation 104 of the Building Control Regulation of Botswana in respect of the need for guardrails on all scaffolding, and Regulation 77 (2) of the Mines, Quarries, Works and Machinery Regulations of Botswana in respect of the use of PPE. Regulation 77 (2) prohibits employees from undertaking jobs that require safety equipment if that safety equipment has not been provided. When the technical crew was asked about PPE in Question 17 of the questionnaire, the crew did not seem to know what PPE is. This lack of knowledge puts lives in danger as the crew would not have been trained on how to use PPE and the reasons for using it. Regulation 9 (1) of the Personal Protective Equipment at Work Regulations 1992 of the United Kingdom also states that an employer must provide

instruction and training on PPE use so that the employee knows the risks that PPE can prevent and the purpose of PPE.

The event manager or promoter would have been required to submit the building designs and the technical specifications of the temporary structure to the building authority to apply for a permit to build a temporary structure. Technical specifications include the dimensions of the stage and marquees, the capacity of the venue, the number of entrances and exits, and load capacity of the structure, among other things. This is in accordance with Regulation 9 of the Building Control Regulations of Botswana. Regulation 6 (2) of the Construction Regulations of South Africa can be used to guide designers of temporary structures and Regulation 7 (2) (b) where the contractor is required to keep a health and safety file which must have all the documentation required by the Act and regulations.

Once the permit to build a temporary structure is issued, the builder of the temporary structure would give notice in person to the building authority regarding when the building will commence. That notice has to be accompanied by the building design plans of the structure (section 2.11.1), to satisfy Regulation 23 of the Building Control Regulations of Botswana. The event manager or promoter must ensure that they appoint a competent and experienced service provider to build the temporary structure because Regulation 250 of the Mines, Quarries, Works and Machinery of Botswana dictates that competent persons must be in charge of building and construction. The service provider must always be under the supervision of an event safety officer. Once that process is completed, a representative from the building authority has the right to inspect any work on-site during and after construction. The timeframe for inspection is in line with Regulation 14 and 15 of the Building Control Regulations of Botswana and Regulation 12 (1) of the Mines, Quarries, Works and Machinery Regulations of Botswana; the inspection is in line with Regulation 15 of the Building Control Regulations of Botswana; and the competency of the persons doing the inspection is in line with Regulation 12 of the Mines, Quarries, Works and Machinery of Botswana.

It is clear from Figure 8 and Figure 10 of Chapter 3 that there was no inspection done on the construction of the temporary seating area at the President’s Day Celebrations event hosted at the Gaborone International Convention Centre

(GICC). Due to lack of inspection, the risks of that temporary seating area are that the seating area could have caved in due to overloading, and guests could have slipped between the gaps and suffered an injury. The chairs that were placed on the seating area could have easily slipped into the gap and caused an injury. The missing or incomplete back railings (Figure 10) are an example of the carelessness that can have an impact on the safety and lives of people. The inspection was not done on the staircases shown in Figure 9a and Figure 9b of Chapter 3 as their construction goes against Regulation 59 (b) of the Building Control Regulations of Botswana and section 34 (4) of the Factories Act of Botswana. A representative of the building authority could have picked up the risks from the designs of the temporary structures and advised the builder to put 800mm high railings on both sides. This would have been accordance with Regulation 59 of the Building Control Regulations of Botswana.

Other employees would have had an obligation to fix or to report the potential danger or hazards surrounding these temporary structures as guided by Regulation 23 of the Mines, Quarries, Works and Machinery Regulations of Botswana.

If these issues were not attended to or corrected during the construction of the temporary structure, the representative of the building authority could have applied Regulation 17 of the Building Control Regulations of Botswana, which stipulates that a permit to occupy a building can be issued only once the building is inspected and found to comply with the regulations. Clearly, the temporary structures were not safe to accommodate people as there was no permit issued to occupy the temporary building or structure.

The event manager or promoter must always bear in mind that the builder of the temporary structure cannot go ahead and build a structure without proper permits, as that will be in contravention of Regulation 20 of the Building Control Regulations of Botswana. Under this regulation, the builder can be instructed to demolish the structure.

Some temporary structures are used to rig heavy technical equipment, such as lighting equipment, sound equipment, and audiovisual screens. This equipment is heavy, and the structure must be stable enough to sustain the load capacity of the equipment that is rigged on it. It is advisable to fence off the area of the temporary

structure construction site according to Regulation 18 (1) of the Building Control Regulations of Botswana to protect the public from injury caused by possible falling equipment. The demolition of the structures also requires that the site be fenced off. In the live events industry, the event safety officer would make sure that the responsibility for supervising the demolition operations of a structure is taken up by an experienced and responsible person according to Regulation 113 of the Building Control Regulations of Botswana. The live events industry can also use Regulations 270 and 271 (c) of the Mines, Quarries, Works and Machinery Regulations of Botswana when temporary structures are demolished. The regulations state that a competent person must supervise the demolition of temporary structures and ensure that precautionary measures are taken against any collapse that may endanger personnel. All crew that constructs and demolishes temporary structures that are 2.5m above the floor and who cannot use scaffolding require safety belts or harnesses as PPE as required when working in mines and quarries as Regulation 283 of the Mines, Quarries, Works and Machinery Regulations of Botswana. The regulations stipulate safety shoes, body harnesses, and hard-hats as key components to good safety practices and are often required in the live events industry. Regulation 576 of the Mines, Quarries, Works and Machinery Regulations of Botswana places emphasis on the need for hard-hats and safety boots at mines. The wearing of safety boots must be made compulsory to avoid the incident discussed where a freelance employee was injured when a stage deck fell on his feet (under Question 15). Training on the use of PPE is vital as some technical crew (under Question 17) failed to elaborate what their knowledge on PPE is.

As mentioned previously, temporary electrical installations are used at both indoor and outdoor venues. Mines also use electricity that exceeds 750kW, and they have an electrical engineer appointed to supervise, examine, test, and maintain proper electrical installations for all electrical equipment according to Regulation 13 (2) of the Mines, Quarries, Works and Machinery Regulations of Botswana. The live events industry requires a competent electrician to certify the temporary electrical installations as the damage to equipment and human life due to improper electrical connections can be devastating. This person must be a competent person, as Regulation 13 (5) requires. Regulation 186 (2) of the Mines, Quarries, Works and Machinery Regulations of Botswana describes the inspection, examination, and

testing of all electrical equipment for the safety of personnel. This regulation clearly shows how poorly maintained electrical equipment can have an impact on the safety of people and thus emphasises the need for equipment inspection and examination. This is something that the live events industry technicians and their management should learn to do by borrowing from the country' mining industry. According to the responses to Question 10, a certified electrician is not used to certify electrical installations at events. This is against Regulation 186 (2) of the Mines, Quarries, Works and Machinery Regulations of Botswana. In mines, the manager would be the person responsible for ensuring that the electrical equipment is inspected and examined. It should be the event safety officer who plays a similar role in the live events industry.

Regulation 186 (2) and Regulation 13 (5) of Mines, Quarries, Works and Machinery Regulations of Botswana can also be used in the live events industry for rigging equipment to be tested and inspected for safety by a competent person. Because rigging is usually done at height, it is one aspect of the live events industry that has to be done meticulously to avoid injury and fatalities to riggers, cast, artists, and audience. According to Question 6, the technical crew said rigging equipment is not checked by competent persons, and the technical director indicated that sometimes the rigging equipment is checked by supervisors. However, riggers themselves are the only competent personnel to check their equipment unless the supervisors also happen to be trained and experienced riggers. Botswana's live events industry could borrow from the Provision and Use of Work Equipment Regulations 1998 of the United Kingdom. This regulation requires employers to ensure that personnel who supervise or manage the use of work equipment are adequately trained for that purpose. The training must also include the risks that come with the equipment and the precautions that have to be taken.

The Mines, Quarries, Works and Machinery Regulations of Botswana make provision for the availability of first aid kits at mines, quarries, and works. The live events industry must also make provision for first aid kids for injuries that require first aid and those that require paramedics. The National Health Act of South Africa has Regulations Relating to Emergency Medical Services at Mass Gatherings. Regulation 3 (4) of the Regulations Relating to Emergency Medical Services at Mass Gatherings requires the event manager to appoint a competent medical

service provider who will be responsible for health and medical services at events. It is good practice for paramedics to be available during setup right through to load-out, with first aid kits available. This is so that should medical assistance be required, the paramedics are available and do not have to be called to site. During the event, the number of paramedics is dependent on the risk score of the event.

Even though areas of concern regarding safety have been identified and discussed, there is legislation from other jurisdictions and standards or guides that can be used to guide the development of a safety-at-live-events manual for Botswana. The legislation and standards or guides are listed as follows:

1. Occupational Health and Safety Act (Act 85 of 1993) of South Africa
2. Construction Regulations 2014 of South Africa
3. Explosives Regulations 2002 of South Africa
4. Environmental Regulations for Workplaces 1987 of South Africa
5. Driven Machinery Regulations 2015 of South Africa
6. Lift, Escalator and Passenger Conveyor Regulations 2010 of South Africa
7. Electrical Installation Regulations 2009 of South Africa
8. South African National Standards 10366:2012 Health and Safety at Events
9. National Building Regulations and Building Standards Act No. 103 of 1997 of South Africa
10. Australian Building Codes Board (ABCB) Temporary Structures 2015 Standard
11. The Guidelines for Concerts, Events and Organised Gatherings, 2009, Department of Health of Western Australia
12. Safety Guidelines for the Entertainment Industry 2001, Australia
13. Personal Protective Equipment at Work Regulations 1992, United Kingdom
14. Provision and Use of Work Equipment Regulations 1998 of the United Kingdom
15. The Guide to Managing Health & Safety at Exhibitions and Events 2002 of the United Kingdom

4.4 Going safety in Botswana: Suggested way forward

In this section, I propose the following as to what Botswana may have to do to take full care of the safety concerns that I have raised in this study.

As the custodian of arts and culture in the country, the Department of Arts and Culture must institute what could be termed a *health and safety at events committee*. This committee could comprise government officials who are crucial service providers. They should be involved in the planning stages of all public events. The objective of this committee would be to identify possible emergencies before the event and put in place preventative actions to avoid those emergencies. The committee will also ensure that regulations are enforced and that health and safety are adhered to at events. In order to achieve that objective, the committee would have to evaluate and assess all the event organisers or promoters' safety plans and ensure that compliance with relevant legal requirements is adhered to.

This committee could be constituted by the following group of civil servants:

4.4.1 The Department of Arts and Culture from the Ministry of Youth Sports and Culture

These officials would have to deal with the administrative part of the event, which is the event permit application process, issues relating to the venue, and check whether all due processes of application for relevant permits are completed, approved, and submitted. Copies of certificates of compliance (e.g. electricians) must be submitted. Venue layout designs, stage layout designs, technical information, technical specifications of temporary structures, and the venue's safety rules and regulations must also be submitted with the events permit application. The owners or managers of entertainment venues must assist event managers or promoters and be pro-active in providing timely and accurate safety rules and regulations pertaining to their venues. These must be availed to incoming productions to ensure that such productions are safely and efficiently installed, performed, and removed from the venue.

It is best practice for the live events industry to use a certain (legislated) scale for all drawings when a venue layout design is drawn and submitted to the directorate of the Arts and Culture just like plans of the mines are drawn to a scale using

Regulation 580 of the Mines, Quarries, Works and Machinery Regulations of Botswana.

Proof of compulsory public liability insurance must be part of the documentation submitted with the application forms.

4.4.2 Disaster management officials

Disaster management is about minimising the potential loss of life, injury, and damage to property. Disaster management officials must interrogate the disaster management plan, which includes the evacuation plan. The event manager or promoter will have to explain how they plan on managing emergencies or disasters. Emergencies or disasters that will have to be managed when they happen include weather conditions like winds, storms, lightning, fire in the parking area, fire on stage, bomb scares, and public misbehaviour, among other things.

4.4.3 Emergency management services (EMS) officials

Emergency management services (EMS) would have to interrogate the medical operational plan for all planned events. The medical operational plan must cater to all medical emergencies that might occur from load-in right through to load-out. The event layout plan must indicate parking areas for ambulances and fire services also as a dedicated entrance and exit point for the EMS as clearly stated under Regulation 49 (1) (b) of the Building Control Regulations of Botswana and Regulation 219 of the Mines, Quarries, Works and Machinery Regulations of Botswana.

4.4.4 Environmental health officials

An environmental health and safety plan must be aimed at mitigating any possible environmental impact that may arise as a result of the event-related activities. This includes such things as a noise management plan, littering, noise pollution, waste removal and anything that negatively affects or alters the ecosystem. The environmental health official will have to know the mitigating factors that will be put in place. The number of toilets and how they will be maintained should be clearly

articulated, including any other information that would require clarity from an environmental perspective.

4.4.5 Health department officials

Caterers at the event, if any, should have certificates of compliance issued by the Department of Health.

4.4.6 Traffic Department and Botswana Police officials

Parking and traffic management plans will have to be interrogated and approved by the traffic department officials. These plans must address issues to do with where and approximately how many vehicles will be parked and where the overflow parking will be. Potential risks, like not having enough lighting in the parking lot, will have to be addressed. The Mines, Quarries, Works and Machinery Regulations of Botswana do make provision for permanent lighting under Regulation 166. However, the live events industry would most probably require a temporary lighting solution. Guidance regarding issues of security and the number of security personnel would have to come from the Botswana Police Services.

4.4.7 Fire department officials

The general fire safety and fire prevention at events and the emergency evacuation procedures of the venue and of temporary structures must be clearly indicated on the venue layout plan. These must address issues such as what measures will be followed when a fire alarm is sounded.

The fire officer will have to assist the event manager or promoter in calculating the occupant capacity of each venue. This can be implemented either by visiting the site beforehand or using the dimensions on the venue layout drawing. The occupancy capacity will assist with calculating the number of emergency exits required at the venue or site.

If the venue is an outdoor venue, the event manager or promoter must indicate the occupancy capacity as per Table 6 of the Third Schedule of Regulation 56 of the Building Control Regulations of Botswana. The number of emergency exits that will

be provided for the number of attendees of the event must be guided by Table 4 of the Third Schedule of Regulations 47 of the Building Control Regulations of Botswana. On the day of the event, the emergency exits must be clearly marked out with legible signs and arrows as required by section 42 (7) of the Factories Act of Botswana. Masking the exit signs of the emergency exits as shown in Figures 8 and 9 in Chapter 3, should not have been allowed as it is clearly in violation of Regulation 87 of the Mines, Quarries, Works and Machinery Regulations of Botswana.

While there are emergency exits to evacuate buildings from emergencies such as fire, there must also be means with which to extinguish fire hazards. A fire can be caused by many things, including faulty electrical installations, gas cylinders, and open or naked flames typically used by caterers and food vendors. The event manager or promoter must indicate the location of gas cylinders and open flames on the venue layout drawing and if the gas cylinders will be used at the event. They must also explain if vendors will be equipped with a certified and recently serviced fire extinguisher.

Such information will assist the fire officer according to a risk category to the event and will assist with the proper location and placement of fire-fighting equipment. Just like it is the responsibility of the event safety officer to make sure that fire-fighting equipment is available at live events, Regulation 150 of the Mines, Quarries, Works and Machinery Regulations of Botswana demands that the mine manager is responsible for making sure that adequate fire-fighting equipment is available. Section 41 (1) of the Factories Act of Botswana also requires the same.

For instance, if the event is in Gaborone, the Gaborone City Council (General) Bye-laws No. 23 (1) require the owner of the venue or the event manager or promoter to provide portable fire extinguishers for every 232,25m^2 of venue floor space.

Without proper safety-related regulations and guidelines designed for live events from the government of Botswana and the entertainment industry stakeholders, safety and health at Botswana’s live events will be left to chance, and disasters are likely to happen with potentially devastating consequences.

Chapter 5: Summary and conclusion

This study was based on an investigation of safety concerns within the live events industry in contemporary Botswana. The purpose of the study was to examine potential hazards and safety risks closely in the live events industry in Botswana and how these safety hazards and risks can be minimised using the country's neighbouring and other jurisdictions as a benchmark.

The study proceeded from the basic consideration that Botswana has to work towards the development of a coordinated national structure pertaining to safety issues to represent the safety interests of the live events industry. I felt that this coordinated structure could be achieved by putting in place proper safety guidelines and regulations.

Botswana could freely borrow from Acts, regulations and guidelines from the world and other similar jurisdictions, particularly its neighbouring country of South Africa that has its own live events industry structures and legislation in place. This is also not least because some of the technical companies that support live events in Botswana happen to come from neighbouring South Africa. As a result, South Africa was used as a suitable and convenient benchmark for the study.

The study began with an investigation into the country's potential safety hazards to achieve its purpose. This was followed by the analysis of data that was gathered in the field, and culminating in a series of recommendations regarding the promotion and establishment of the best safety practices and safety mindset of stakeholders in the live events industry in Botswana.

Be that as it may, the study had its limitations some of which had to do with a general lack of scholarly sources of information and lack of previous research conducted on safety aspects in the live events industry in Botswana. The study found that previous literature on the topic was virtually non-existent. So too was literature on a historical background to the live events industry and entertainment in Botswana. In that event, the study had to rely on comparative reviews of literature from other similar jurisdictions.

Another limitation is that the live events industry in Botswana is by any stretch of the imagination quite small compared to neighbouring South Africa and indeed other

countries in the region. The study noted that this is traceable to the country's relatively small population at less than 3 million, and the lack of large cities besides Gaborone and Francistown. This means the live events industry cannot take root and grow in sustainable ways. Furthermore, the live events industry generally seems to be in its infancy with few mega live events. This is quite unlike South Africa that has a burgeoning live events industry. Because of this significant limitation, the sample size for the study was quite small. That notwithstanding, the sample included representatives from among event managers, promoters, venue managers, technical crew, and technical directors.

Small as the sample was, it was representative of a considerable section of the country's live events industry. All these people work to organise events at indoor and outdoor venues, and they are involved in all spheres of the country's live events industry. The venues from which data was collected included some of the country's most iconic performance spaces such as Maitisong Theatre, Gaborone International Convention Centre, and Botswana Craft.

The research used a qualitative approach. Qualitative research methods provide insights into the problem under investigation in ways that allowed me to delineate the manifest characteristics of the material or research problem. The data collection instruments used were direct observation, informal interviews, and structured and semi-structured questionnaires. Direct observation and informal interviews were aimed at technical crews and technical directors as they are the people who set up productions and make sure that the setup is conducted with safety in mind. This category of respondents was observed and interviewed at work. This allowed me to easily identify potential safety hazards in real-time as a key component of the data gathering process. Questionnaires were used as a data collection instrument as they enabled me to probe issues in greater depth based on the interviewees' knowledge and experience.

The data that was collected was then grouped and analysed systematically according to how it addressed the main research question, its sub-questions, and the series of objectives. This systematic approach enabled the research data elicited to be analysed in such a way as to address all the aims of the study.

The following were the specific aims of the study:

- To investigate potential safety hazards and risks in the live events industry in Botswana;
- To recommend the best health and safety practices using South Africa as a comparative example; and
- To promote a safety mindset among stakeholders, technical crew, and event promoters in the live events industry in Botswana.

Two separate questionnaires were used in the data gathering process to achieve these objectives. The first questionnaire, which consisted of structured questions, was directed at event managers or promoters and venue managers while the second questionnaire was directed at technical crews and technical directors. The questionnaires were so divided since event managers or promoters and venue managers are responsible for the overall safety of the entire event. At the same time, technical crews and technical directors are responsible for safety only in terms of building the stage and the technical requirements of the event. In other words, the safety of the stage and its equipment, and the immediate environs.

The research ensured that no participant under the age of 18 took part. The confidentiality and anonymity of respondents were also respected and safeguarded as per the standards demanded by Tshwane University of Technology's various ethics committees.

All the questionnaires and data collection procedures and processes were intended to answer the principal research question, which was 'What are the potential health and safety hazards in Botswana's live events industry, and how can safety hazards and risks be minimised in the live events industry in Botswana?'. The questionnaires were divided into two parts. One part dealt with questions that seek to address the first objective of the study, which was to investigate potential safety hazards and risk concerns in the live events industry in Botswana. The other part consisted of questions that sought to recommend and promote the best health and safety practices as per the second and third objectives of the study.

Direct observation and informal interviews were conducted during the setup for productions. The interviews were conducted during setup because I soon discovered that there was simply no way to secure the technical crew for informal

interviews outside of their work schedules due to the generally limited timeframe available to set up productions.

From the answers obtained from various respondents and the observations that were made, I identified some significant safety hazards and risks that could be fatal and cause severe harm. Broadly, these hazards and risks were as follows:

1. No risk assessment done before hosting events;
2. Little or no knowledge of fire safety and firefighting equipment;
3. Lack of knowledge about personal protective equipment (PPE);
4. No safety inspection conducted on temporary structures;
5. Lack of clear lines of communication among event organisers, technical staff. and crew; and
6. Lack of skills in crowd management and crowd control.

The last part of the questionnaires sought to draft a case for best safety practices in the live events industry in Botswana by researching the level of awareness of practitioners regarding safety hazards in the live events industry. This awareness was then linked to existing legislation in Botswana and from other jurisdictions. The purpose was so that Botswana's live events industry can use these as a basis from which to come up with possible draft regulations, guidelines, and standards that can assist in the promotion of best safety practices when working in the live events industry in Botswana. The draft regulations, guidelines, and standards would then assist in minimising hazards and risks in the live events industry and make it a safe and pleasurable industry in which to work. Referenced legislation was from countries such as the United Kingdom, Australia, South Africa, and related existing legislation in Botswana that has to do with industries such as mining, building, and construction.

The best safety practices part of the research highlighted areas of concern, such as the lack of properly qualified personnel in the live events industry and the general absence of event safety officers or inspectors. Earlier, it was noted that basic educational qualifications play a significant part in the average person's ability to comprehend issues. As a result, the presence of a qualified events safety officer is crucial as per the roles and responsibilities for safety offers listed in an earlier chapter. The general absence of event safety officers was glaring at all the venues

where I conducted my observations. Some visible potential hazards and risks could have caused injuries and had there been event safety officers allocated to these spaces, and those hazards and risks could have been minimised and rectified. Even in the absence of an event safety officer, the Building Control Regulations of Botswana and the Mines, Quarries, Works and Machinery Regulations of Botswana emphasise the need for a general safety inspection by a competent person. The inspection of temporary structures in Botswana's live events industry is never conducted, and the procedures for the construction and demolition of temporary structures are hardly followed. Yet all these procedures are captured in the Building Control Regulations of Botswana.

The study also noted that occupational health and safety is imperative in the live events industry. Like any other worksite, this industry also has employers and employees who use a specific venue as their workplace. As stated previously in the study, the International Labour Standards (Felderhoff, et al., 2002, p. 319) states that the word *workplace* covers all places at which workers have to be present or have to go because of their work, and which are under the direct or indirect control of an employer. Accidents and sometimes fatal accidents are bound to happen at these various workplaces. Therefore, an administrative structure is required to ensure that good health and safety practices are observed and are in place. Planning by the event manager or promoter is paramount when working towards putting good health and safety practices in place. According to the Safety at Sports and Recreational Events of South Africa Act 2010, sec. 4 (4) (a) (SASREA) the event manager or promoter has to appoint a safety officer who is responsible for all safety and security issues as the overseer of the safety of the event. This lessens the burden on the event manager or promoter as these functionaries may then concentrate on other aspects of the event.

According to SASREA some of the duties and responsibilities of the event safety officer are as follows:

- The event safety officer must be on-site before, during, and after the event;
- The event safety officer reports directly to the event organiser; and
- The event safety officer must assist the event organiser with:
    - Checking all service providers' health and safety files;

- Drafting and implementation of the event health and safety policy;
- Drafting and implementation of the event health and safety management system;
- Monitoring of health and safety of all service providers on-site;
- Ensuring that all the role players understand their responsibilities and functions and that they will be held accountable for safety on site;
- Consultation with emergency medical services on health and safety matters on-site;
- Checking on the rigging and dismantling of all temporary structures;
- Deciding what further actions might be required to improve the safety of the venue design;
- Identifying hazards associated with activities contributing to the event, where the activities are to be carried out, and how the activities are to be undertaken; and
- Consulting with the local authority in relation to disaster management.

The study noted that events are dynamic. A one-size-fits-all approach can never be used in the management of safety at events of any kind. An event safety officer has to develop a health and safety plan that guides the mitigation procedures for hazards, risks, and environmental issues pertaining to a specific venue. The safety of attendees must also be prioritised at all times. The event safety officer must also analyse and evaluate the risks. This very vital process is known as risk assessment.

The study was able to establish that entertainment venues in Botswana do not have a permanently appointed event safety officer to manage the health and safety issues at venues and to implement the safety, health and environmental (SHE) policy at those venues.

Meanwhile, several legislations in South Africa can be considered in the planning process for event safety in Botswana. These are as follows:

- Occupational Health and Safety Act of South Africa;
- Safety at Sports and Recreational Events Act, No. 2 of 2010 of South Africa;
- National Liquor Act No. 59 of 2003;
- Regulation 205 of 1993 of the Gathering Act;
- Disaster Management Act No. 57 of 2002;

- Health and Safety at Live Events-General requirements SANS 10366:2005;
- National Environmental Act No. 107 of 1996;
- Water Services Act No. 108 of 1997;
- National Building Regulations and Building Standards Act 103 of 1977; and
- National Health Act No. 61 of 2003.

This study also focused on the planning and risk assessment that is done in terms of venue design, temporary structures, and crowd management. Risk assessment at any venue must include the viability of the venue to have temporary structures, entrances and exits to the venue and emergency access for emergency medical services. The number of entrances and exits are dependent on the occupant capacity and the evacuation rate for the venue. The study found that the number and size of the entrances and exits of a venue and the occupant capacity thereof are all guided by the Building Control Regulations of Botswana. The United Kingdom and South Africa also have regulations governing the number of exits at a specific venue.

The use of temporary structures at events is a common phenomenon. These must be built with utmost care as the structural reliability and stability of temporary structures is based on how the structure is constructed, the material used, and what the site where the structure is built looks like, among other things. It is also imperative for the temporary structures to be built by a competent person who will follow the design and manufacturers' recommendations to the letter, including the erection and deconstruction procedures for those structures. This is so that injuries as a result of structural failure are kept to a minimum.

The study found that there are several ways that can be used to manage crowd movement, like the provision of audiovisuals, elevation of the stage, sound or delay towers, multiple-stages, and clear sightlines. These will minimise the chances of crowds surging to the front of the stage because members of the audience want to have a clearer vision of the stage or wish to enjoy unimpeded audio.

The study also noted that many countries abroad realise the value that the live events industry brings to the national gross domestic product (GDP). So too can Botswana. Because of this, these countries have put in place elaborate legislation, safety guidelines, and standards to manage safety in their respective live events

industries. Some of these countries have also established national safety standards associations, such as the Entertainment Technology Industry Association (Germany), Health and Safety Executive (HSE) (United Kingdom), Association for Media and Event Technology VPLT (Germany), Guide to Safety at Sports Grounds (United Kingdom), Live Performance Australia (LPA) (Australia), Australian Entertainment Industry Association and the Media Entertainment and Arts Alliance (Australia) and the South African National Standards, Health and Safety at Events — Requirements 10366:2012 (SANS) (South Africa). All these associations promote safety guidelines that highlight best practices and safe working conditions at live events.

During the fieldwork excursions to gather data on potential safety hazards in Botswana, it came to my notice that Botswana does already have legislation in existence in other domains that can be easily adopted by the live events industry. The problem is that this legislation is not enforced, and in some cases, it is simply not known. Where it is known, the stakeholders in the live events industry do not care to see if that legislation could be relevant for application in the country's live events industry.

The study noted that together with legislation and safety guidelines from other jurisdictions, the Factories Act of Botswana, Mines, Quarries, Works and Machinery Regulations of Botswana, the Building Control Regulations of Botswana, and the City Council Bye-Laws are some of the home grown regulations that can assist the live events industry in Botswana. For example, the application for the construction and demolition of temporary structures is guided by the Building Control Regulations of Botswana. Fire safety is included and discussed in the Factories Act and the City Council Bye-Laws of Botswana. The Mines, Quarries, Works and Machinery Regulations of Botswana are more comprehensive and encompass the core values of occupational health and safety. The Building Control Regulations and the Mines, Quarries, Works and Machinery Regulations of Botswana are two regulations that could be used to guide the live events industry to draft its own regulations, guidelines, and standards to promote best safety practices.

I would wish to propose to the custodian of Arts and Culture in Botswanan or any of the other relevant authorities that what has to be done going forward is to mitigate

safety concerns that have been raised in this study. A health and safety events committee ought to be established with its membership drawn from various government departments and relevant players. The committee's main objective must be to identify possible emergencies before live events are initiated and to put in place preventative actions to avoid such emergencies.

Through legislation and the committee, Botswana's live events industry will be aligned to a centralised approach for managing safety to ensure that safety hazards and risks are minimised. Only in this way will Botswana align with other countries across the world that value the importance and impact of safety at live events.

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Addendum A: Questionnaires

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FACULTY OF ARTS & DESIGN

DEPARTMENT OF PERFORMING ARTS

Questionnaire for promoters or event managers or venue managers

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1. Do you have specific guidelines to assist you in organising live events to ensure that safe working conditions are enforced at all times?

   YES or NO or SOMETIMES or ALWAYS or NEVER

2. Are you aware of the health and safety responsibilities that lie with you as a manager or organiser of live events?

   YES or NO or SOMETIMES or ALWAYS or NEVER

3. If the answer to the above is YES, SOMETIMES or ALWAYS, what are the responsibilities? Briefly explain.

---

4. Do you have a risk assessment done for each live event?

   YES or NO or SOMETIMES or ALWAYS or NEVER

5. If the answer to the above question is YES, SOMETIMES or ALWAYS, who performs the risk assessment for you?

_____

_____

_____

6. What crowd management measures do you apply at live events?

_____

_____

_____

7. Do you ever have an evacuation plan for your attendees? — YES or NO or SOMETIMES or ALWAYS or NEVER

8. Are you aware of any regulations regulating the number of spectators attending a live event inside a building or at an open-air venue? — YES or NO

9. If the answer to the above is YES, do you abide by those regulations and why?

_____

_____

_____

10. Do you know of any guidelines regulating the number of exits and entrances also as escape routes for the public attending live events? — YES or NO

11. Are all the people who work on the technical aspects of your live events such as staging, lighting, sound etc. certified as competent? — YES or NO or SOMETIMES or ALWAYS or NEVER

12. If the answer to the above is YES, SOMETIMES or ALWAYS, what is their level of competency?

_____

_____

_____

13. Does a structural engineer inspect all temporary structures at your live events? YES or NO or SOMETIMES or ALWAYS or NEVER

14. If the answer to the above is YES, SOMETIMES or ALWAYS, briefly explain what this inspection involves.

_____

_____

_____

15. If the answer to the above question is NO or NEVER, briefly explain why not?

_____

_____

_____

16. What methods do you use to communicate information to the audience at your events in case of an emergency?

_____

_____

_____

17. Do your events have a safety officer in attendance at all times? YES or NO or SOMETIMES or ALWAYS or NEVER

18. If the answer to the above is NO or NEVER, why not?

_____

_____

_____

19. How many security personnel do you usually use for your shows with 500–1000 attendees?

_____

20. How many security personnel do you usually use for your shows with 1001–5000 attendees?

_____

21. How many security personnel do you usually use for your shows with 5001–15000 attendees?

_____

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Questionnaire for technical crew & technical directors

State the number of years' experience you have in the entertainment industry

_____ Years _____ Months.

State your qualifications:

_____

Highest standard passed:

_____

1. What is your understanding of safety at live events?

_____

_____

_____

2. Do you make it a consistent habit to have a competent person or persons check the stage and all temporary structures before your live events?

YES or NO or SOMETIMES or ALWAYS or NEVER

3. If the answer to the above question is NO, SOMETIMES or NEVER, please elaborate?

_____

_____

_____

4. Do you put safety measures in place when you rig lighting (and other equipment) on lighting bars? YES or NO or SOMETIMES or ALWAYS or NEVER

5. What safety measurements do you put in place when you rig lighting (and other equipment) on lighting bars? Provide a brief account.

_____

_____

_____

6. Are rigging cables, chain hoists and ropes that are used on stage checked by a competent authority for safety before use? YES or NO or SOMETIMES or ALWAYS or NEVER

7. If the answer to the above is YES, SOMETIMES or ALWAYS state from which department, will that person be coming from.

8. Does a trained rigger execute the rigging of your lighting, sound and audiovisual equipment? YES or NO or SOMETIMES or ALWAYS or NEVER

9. If the answer to the above is NO, SOMETIMES or NEVER do you think, it is correct to use an untrained rigger? Explain briefly.

_____

_____

_____

10. Does a certified electrician regularly certify all your electrical installations before a show? YES or NO or SOMETIMES or ALWAYS or NEVER

11. Does a competent person set - up, control and activate your pyros during live events? YES or NO or SOMETIMES or ALWAYS or NEVER

12. In your general understanding of safety issues at live events, what credentials or qualifications do you think persons who monitor safety issues ought to have?

_____

_____

_____

13. Do you have the necessary fire-fighting equipment on or near the stage during live events? YES or NO or SOMETIMES or ALWAYS or NEVER

14. If the answer to the above is YES, SOMETIMES or ALWAYS what sort of fire-fighting equipment is in place and what informs your choice, quantity and type of equipment used? Briefly explain.

_____

_____

_____

15. Have you experienced an accident or accidents that happened during setup, dismantling of the stage or during a live event? YES or NO or SOMETIMES or ALWAYS or NEVER

16. If the answer to the above is YES, SOMETIMES or ALWAYS, please give details of what happened and what could have been done to stop the incident from happening.

_____

_____

_____

17. What is your knowledge of Personal Protection Equipment, and what do you consider as adequate Personal Protection Equipment in the theatre and at live events? Explain briefly.

_____

_____

_____

18. Who enforces the wearing of Personal Protection Equipment?

_____

_____

_____

19. Do you feel that you are adequately protected in terms of safety in your work environment? — YES or NO or SOMETIMES or ALWAYS or NEVER

20. Briefly explain the above answer.

_____

_____

_____

21. Do you know and understand your personal and organisational safety and health responsibilities? — YES or NO

22. Briefly explain your answer below.

_____

_____

_____

Addendum B: Information leaflet and informed consent

Tshwane University of Technology
We empower people

Faculty of Arts & Design
Department of Performing Arts

Ref #: FREC 2018 or 03 or 06

INFORMATION LEAFLET AND INFORMED CONSENT

PROJECT TITLE: AN INVESTIGATION INTO SAFETY CONCERNS WITHIN THE LIVE EVENTS INDUSTRY IN BOTSWANA

Primary investigator: Mr K Khiba, BTech (Performing Arts Technology)

Study leader: Prof Owen Seda, DPhil, University of Zimbabwe

Co-study leader: Ms Anre Fourie, MTech, Department of Performing Arts, Tshwane University of Technology, Pretoria

Dear Potential research participant,

You are invited to participate in a research study that forms part of my formal MTech studies. This information leaflet will help you to decide if you would like to participate. Before you agree to take part, you should fully understand what is involved. You should not agree to take part unless you are completely satisfied with all aspects of the study.

WHAT IS THE STUDY ALL ABOUT?

Accidents at theatres and live events are mostly caused by lack of knowledge, carelessness, being in a hurry because of the popular adage, ‘the show must go on’, risk-taking, risks associated with creativity versus safety also as faulty equipment. Lack of control, which includes education and training, inspections and zero safe working procedures are also factors behind accidents. Everyone who has worked in theatres and at live events knows that the entertainment industry is a risky industry. Therefore, all entertainment venues and technical production companies

are legally responsible for making sure that the working environment is safe and healthy.

In light of all the above, what is the current situation concerning safety when it comes to an organisation or individual wishing to stage a live performance in Botswana? What regulations or guidelines are in place? Who monitors that all elements for setting up for a live performance are done safely? What knowledge does the technical crew and promoters or event managers have concerning safety?

The aim of this research project is:

- To investigate potential safety hazards and risk concerns in the live events industry in Botswana.
- To recommend the best health and safety practices for Botswana using South Africa as a comparative example.
- To promote a safety mindset among stakeholders, technical crew and promoters in the live events industry of Botswana.

WHAT WILL YOU BE REQUIRED TO DO IN THE STUDY?

If you decide to take part in the study, you will be required to do the following:

- To answer a questionnaire that will take approximately 30 minutes of your time.
- Your personal information is not required except your qualifications and the number of years you have been working in the entertainment industry
- You will be required to participate by providing your knowledge, opinions and insights on the study theme via questionnaires that will be distributed by me
    - The answers to the questionnaire will be seen only by the researcher and his supervisor and co-supervisor
    - This study will be conducted at your workplace or any other location convenient to you.
    - There will be no financial expenses incurred on your part.

ARE THERE ANY CONDITIONS THAT MAY EXCLUDE YOU FROM THE STUDY?

You will not be eligible to participate in this study if you are below the age of 18 years.

CAN ANY OF THE STUDY PROCEDURES RESULT IN PERSONAL RISK, DISCOMFORT OR INCONVENIENCE?

There are no risks associated with this research.

WHAT ARE THE POTENTIAL BENEFITS THAT MAY COME FROM THE STUDY?

You will make a positive contribution to safety in the live events industry in Botswana.

WILL YOU RECEIVE ANY FINANCIAL COMPENSATION OR INCENTIVE FOR PARTICIPATING IN THE STUDY?

Please note that you **will not** be paid to participate in the study.

WHAT ARE YOUR RIGHTS AS A PARTICIPANT IN THIS STUDY?

Your participation in this study is voluntary. You have the right to withdraw at any stage without any penalty or future disadvantage whatsoever. You do not even have to provide the reason/s for your decision. Note that you are not waiving any legal claims, rights or remedies because you participate in this research study.

HOW WILL CONFIDENTIALITY AND ANONYMITY BE ENSURED IN THE STUDY?

Only the researcher and his supervisor and co-supervisor will have access to the completed questionnaires. Your answers will be totally anonymous, and your identity will not be revealed under any circumstances. Also, nobody outside the study panel will be able to connect any answers to you in any recognisable way. Any photographic evidence of structures (and not personnel) gathered during the research will be used strictly for analysis, and these will not be published in the final project without your written consent.

The results of this study might be published in scientific journal/s or presented at scientific conferences, but again without revealing the identity of any of the research participants. The original questionnaires will be stored in a safe place for three years, after which they will be destroyed.

IS THE RESEARCHER QUALIFIED TO CARRY OUT THE STUDY?

The researcher has experience in the entertainment industry and qualified with a BTech degree in Performing Arts Technology. The researcher has also completed the Introduction to SAMTRAC course.

HAS THE STUDY RECEIVED ETHICAL APPROVAL?

Yes. This study has received ethical approval from the Faculty of Arts & Design Research Ethics Committee, Tshwane University of Technology (FREC 2018 or 03 or 06).

WHO CAN YOU CONTACT FOR ADDITIONAL INFORMATION REGARDING THE STUDY?

The primary investigator, Mr K Khiba, can be contacted during office hours at Tel (012) 382-2562, or on his cellular phone at 079 234 8000. The study leader, Dr O Seda, can be contacted during office hours on (012) 382 6197. Should you have any questions regarding the ethical aspects of the study, you can contact the chairperson of the Faculty of Arts & Design Ethics Committee, Prof R de Lange, during office hours at Tel (012) 382-6185, e-mail DeLangeRW@tut.ac.za. Alternatively, you can report any serious unethical behaviour at the university's toll-free hotline 0800 21 23 41.

DECLARATION: CONFLICT OF INTEREST

Nil.

A FINAL WORD

Your co-operation and participation in this study will be greatly appreciated. Please sign the informed consent below if you agree to participate in the study. In this case, you will receive a copy of the signed informed consent from the researcher.