

**THE IMPACT OF OCCUPATIONAL HEALTH HAZARDS AND  
INJURIES ON LIVELIHOODS OF AFFECTED WORKERS: A CASE OF  
KITWE DISTRICT**

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INJURIES ON LIVELIHOODS OF AFFECTED WORKERS: A CASE OF  
KITWE DISTRICT**

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A Research Report Submitted to Mulungushi University in Partial Fulfilment of the  
Requirements for the Award of the Degree of Master of Disaster Studies in the School of  
Agriculture and Natural Resources

August 2018

**CERTIFICATION**

The undersigned hereby certify that they have read and recommend the report to be submitted by NAMUMBA EVERLYN as fulfilling the partial requirements for the award of the Degree of Master of Disaster Studies of Mulungushi University.

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**DECLARATION**

I, **EVERLYN NAMUMBA**, do declare that this research report “**THE IMPACT OF OCCUPATIONAL HEALTH HAZARDS AND INJURIES ON LIVELIHOODS OF AFFECTED WORKERS: A CASE OF KITWE DISTRICT**” is entirely my own work except as specified in the references and that neither the research report nor the original work contained herein has been submitted to this or any other institution for a higher degree or examination in any other University.

Acknowledgement for referenced materials has been appropriately made.

Signature.....Date: .....

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## **ACKNOWLEDGEMENT**

With a grateful heart, I thank the Almighty God for giving me this life and all the support has come along with it so far. He does above our expectation.

Without the gentle push, guidance and encouragement of my supervisor, Dr F. Mushabati (School of Medicine and Health Sciences) and my co-supervisor Dr. C. Kalinda (University of Namibia Katima Mulilo Campus) for their valuable guidance throughout my research process, this work would have been insurmountable. They have been of great support and interest in making sure that a good and acceptable work is produced despite their busy schedules. I have learnt from them to believe in myself and to seek guidance when needed. Without their patience and availability, this work would not have been produced. Forever I will remain indebted to them for their patience and understanding when going through my work.

I would also like to thank my course lecturers Dr. Phiri, Dr. Silengo, Dr Chomba, Mr Mwale T, Mr Mwale M, Mr Siyanga B, Mr Daka and the entire faculty of the department of Disaster Studies for providing an enabling environment for pursuing my studies and their insights as I developed my report. I was always cherish their forbearances, encouragement, assistance and guidance.

I extend my acknowledgement and special thanks to my family and friends, as well as my fellow colleagues who supported me by encouraging, guiding and advising me as I worked on this research report. Lest I forget, special thanks to all my course mates in the 2017-2018 Master of Disaster Studies for their attitude and inspirational support to me.

I would also like to thank staff at Kitwe Civic Centre (KCC), Mine Safety Department (MSD), Occupational Safety and Health Department (OSHD), Occupational Health and Safety Institute (OHSI), Workers Compensation Fund Control Board (WCFCB), Factories Department and International Labour Organisation (ILO) and all other institutions that assisted me during my field work.

Special thanks go to the Research Assistants who assisted me in data collection.

## DEDICATION

I would like to dedicate this work to everyone who supported me and made it possible to compile this research report.

To my late father (Iton Edward Simumba) and my late brother (Col. Gershom Lonely Simumba) who have been my sources of inspiration and whose councils and advice when reflected upon gave me courage and strength to complete this research report.

To my mother Grace Nambule Simumba thank you for standing by my side and for your encouraging and assuring words “*Ulificilizya mwana wane*” (*You will manage my daughter*).

To Mr and Mrs Mwakilasa, my twin sister Annie Suwilanji Namumba, Uncle Henry Sense Simukonde, and other family members who have not only been instruments in my education but have also shown love and care.

I love you so much and may the Almighty God bless you all.

## ABSTRACT

The subject of occupational health hazards, accidents and injuries is becoming a major problem. Although they are on the rise, they are poorly documented in many parts of Zambia and thus inadequate information accessible to several stakeholders. Consequently, the socio-economic effects of workplace injuries are visibly on the increase too. Therefore, this study aimed to assess and determine the socio- economic impact of occupational health hazards and injuries on livelihoods of affected workers and families in Kitwe District of Zambia. The study was done in a cross sectional manner; respondents were observed, given self-administered questionnaires and semi-structured interviews in English and translated in Bemba.

The study involved a total of 322 respondents who were either still working or had worked for the industries of interest such as mines, manufacturing, and construction and quarrying. The information obtained was analysed using SPSS version 21 and the results presented using frequencies, percentages, tables and diagrams. The study observed that head injuries, brain injuries, spinal cord injuries, abrasions, muscle strain, fracture, dislocation, burns, cuts/lacerations and inhaling toxic fumes are the major Occupational Health Hazards and Injuries (OHHI) that are most common among workers on Mines, manufacturing, construction and quarrying industries. Financial challenges, chronic illness development, physical challenges, and expensive medical bills are the major socio-economic effects of OHHI of affected workers livelihoods and their families. The study revealed that labour laws legislation such as Factories Act, Cap 441, Employment Act, Cap 268, etc. may be inadequate and ineffective as they may not meet current conditions of labour laws. The study recommended government to introduce national policy on OHS and aligning occupational health standards to current labour conditions.

The findings of this research would be useful to key stakeholders (schools, universities, NGOs, health workers, policy makers) to identify the gaps in current intervention strategies for heavy industrial workers. Most importantly, the findings will help to influence policy and help government in the enactment of relevant laws and policies towards the creation of a safer working environment for both public and private workers in Zambia.

**Keywords:** *Impact, Occupational health hazards, Injuries, accidents Livelihoods, affected workers, Kitwe District, Zambia.*

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## **ABBREVIATIONS AND ACRONYMS**

CSO	Central Statistics Office
DRR	Disaster Risk Reduction
GDP	Gross Domestic Product
GRZ	Government of the Republic of Zambia
ILO	International Labour Organization
KCC	Kitwe City Council
KDSA	Kitwe District Situation Analysis
MTIs	Medically Treated Injuries
MCP	Mopani Copper Mines
MSD	Mine Safety Department
NAPSA	National Pension Scheme Authority
OHHI	Occupational Health Hazards and Injuries
OHS	Occupational Health and Safety
OHSI	Occupational Health and Safety Institute
OSH	Occupational Safety and Health
RWI	Restricted Work Injuries
SADC	Southern Africa African Development Community
TDRC	Tropical Diseases Research Centre
UN	United Nations
UNDP	United Nations Development Program

WCFCB	Workers' Compensation Fund Control Board.
WHO	World Health Organisation
DFID	Department for International Development
ZOHSA	Zambia Occupational Health Safety Association
ZOOHS	Zambia Organization for Occupational Health and Safety
ZNAHI	Zambia National Association of Hearing Impaired

## DEFINITION OF TERMS

**Occupational safety and health (OSH)** is generally defined as the 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 (ILO, 2012).

A **hazard** is generally defined as a source of potential damage to a worker or potentially harmful effect caused by an inactive source (Driscoll et al., 2005).

A **fatal** accident is one which involves death of a person or persons and **non-fatal** (or lost time accident) is an accident where the injured person does not report for work for more than three days excluding the day of the accident (Michelo et al., 2009; ILO,2012; Auditor General Report, 2015).

**Occupational accident:** An accident resulting in injury to a worker or in damage to, or destruction of, any artificial aid used by a worker in the course of employment or an occurrence arising out of or in the course of work which results in: fatal occupational injury and non-fatal occupational injury (Goncalves, 2011; Katsakiori, 2008; Hamalainen, 2010; Auditor General Report, 2015).

**Occupation injury:** Death or any personal injury or disease resulting from an occupational accident, or it also means an injury contracted or suffered as a result of one's employment and **Occupational disease** is a disease contracted or suffered as a result of one's employment. It includes physical or mental elements affecting health which are directly related to safety and hygiene at work (ILO: 2012; Hamalainen, 2010).

**Employee/worker** is any person who works for another person, whether incorporated or not, or for a government agency, and receives entitlement to receive any remuneration and **an Employer** is any person who provide work for another person and who remunerates or expressly or tacitly undertakes or remunerates that other person (Chabala, 2005; ILO, 2012).

A **Policy** is a law, regulation, procedure, administrative action, incentive or voluntary practice of governments and other institutions and a **National Policy** is a policy on occupational safety and health and working environment developed in accordance with the principles of article of ILO Occupational Safety and Health Convention No. 155 of 1981 (Chabala, 2005).

A **livelihood** is defined as comprising 'the assets (natural, physical, human, financial and social capital), the activities, and the access to these (mediated by institutions and social relations) that together determine the living gained by the individual or household' (Carswell, 2000; Cooper, 2000; WHO, 2007).

**Workers' Compensation** - "Financial support system established under law to provide income, medical care and rehabilitation to employees for illness, injury or death arising out of, and in the course of their employment whether or not the employee was at fault (Siziya et al., 2010).

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background

Zambia's manufacturing and processing industries are growing because of increase in mining sector. This development has resulted into an increase in jobs created for many citizens locally and from within the sub-region (Sixth National Development Plan, 2014; Seventh National Development Plan, 2017). However, the jobs so created have come with increasing incidences of occupational health hazards and injuries, and accidents involving employee fraternity. The casualties who survive these accidents are laid off or retired on medical grounds as they can no longer perform as expected (Michelo et al., 2009; Siziya et al., 2010).

According to Burgard & Katherine, (2013), most of the victims head households or are bread winners of their respective families. In African countries, a lot of lives have been lost due to occupational related injuries resulting in reduced human capital. Equally, it has been reported worldwide that the number of people at risk has been growing each year and the majority are in higher poverty levels making them more vulnerable and that most of the victims are bread winners of the respective families (ILO, 2012). The majority are also low class workers whose compensation or retirement packages are usually too low to provide a sustained safety net for the family. Whether compensated or not the change of status affects the family's socio-economic positioning in society. Their needs are no longer cared for by the company and the state, let alone reassessed. The family is left alone to reinvent strategies to help sustain their livelihoods (ISDR, 2007; Shannon & Lowe, 2002).

Zambia has a steadily developing in manufacturing and industrial sector ranging from agro-processing, chemical steel plants (Chabala, 2005). Since 2000 the country has recorded a steady increase in the number of mines opened and operationalized resulted into a robust development of support infrastructure and a lot of employment created (Todaro, 2006).

Kitwe district is a major economic hub on the Copperbelt, housing, manufacturing companies' mines, quarrying, construction, agricultural and the transport sectors. The district has 1336 companies which are mainly in mining, quarrying, construction and manufacturing and the employment so created has come with a lot of challenges (KDSA, 2015). Industrial activities has

been characterized by most researchers as one of the most hazardous occupations amongst other activities (Kunda et al., 2013).

Occupational accidents and injuries have claimed a lot of lives, permanent disability, homelessness, and loss of employment and place people in different ways of lives with no capital to start over their sources of livelihoods (Carswell, 2002; UN-Habitant, 2009; Ncube & Kanda, 2018). Many employees have suffered varying degrees of injuries, some fatal and some resulting into permanent disabilities and considerable effects on the livelihoods of the affected persons and their households. Kitwe town has a high population of families whose livelihoods have been affected in many ways (Michelo et al., 2009; UN-Habitant, 2009; CSO, 2013).

Although a number of studies have been undertaken by other scholars, government institutions, and research institutions and cooperating partners to preventing occupational hazards and injuries as well as mitigating the cost after injuries occur (Sabitu et al., 2009; Driscoll et al., 2005). However, little research has been done on impacts of occupational accidents and injuries on lives of workers and their family. To reduce the negative effects of this problem, government with the support of NGOs and other co-operating partners have put in place a number of policy actions to improve their abilities to cope with the new challenges faced (Cooper, 2000).

This study was motivated by a deep sense of concern due to the number of occupational health hazards and injuries as well as accidents happening in workplaces which have adverse effects such as loss of lives, financial and medical bill problems as well as permanent deformity. Therefore, the current study evaluated the occurrence of occupational health hazards and injuries in workplaces. The study further looked at the impact of these injuries on the livelihood of affected workers and families of Kitwe District. Furthermore, the study assessed the effectiveness of labour laws and safety structures against occupational health hazards.

## **1.2 Problem Statement**

Since independence up to-date, Zambia put in place various laws related to occupational safety and health of workers in work environments. Starting with medical examinations of young persons (Underground work) convention act of 1965 to the recent Occupational Health and Safety Act of 2010 (ILO, 2012:13), statistics of injuries and fatalities reported are still on rise, which may signify that either implementation of Occupational Health Hazards and Injuries

(OHHI) laws and regulations, monitoring and evaluation, research or indeed the laws themselves may not be effective enough to protect Zambian workers (Siziya et al., 2012). This is evident (Appendix 2) because between 2003 and 2014 the statistical trend of OHHI has been increasing on average even though there was a slight reduction in 2010 and 2012. Equally, a large number of OHHI remain unreported despite all these measure put in place.

### **1.3 Aim**

To determine the impact of occupational health hazards and injuries on the livelihood of affected workers and their families; a case of Kitwe District in Zambia.

### **1.4 Specific Objectives**

- i. To assess the types of occupational health hazards and injuries among industrial workers of Kitwe District.
- ii. To assess the socio-economic effects of occupational health hazards and injuries on the livelihoods of affected workers and families of Kitwe District.
- iii. To determine the effectiveness of labour laws legislation and safety strategies against occupational health hazards.

### **1.5 Research Questions**

- i. What types of occupational health hazards exist in mining, construction, quarrying and manufacturing industries in Kitwe District?
- ii. What are the socio-economic effects of occupational health hazards and injuries affecting workers and their livelihoods?
- iii. How effective are Zambian labour laws legislation and safety strategies in the protection of workers from occupational health hazards and injuries?

### **1.6 Significance of the Study**

The study will aid our understanding of the OHHI situation in Zambia; this is done to help with policy making and long term policy intervention on OHHI in order to improve workers health and safety in work environments. It will also be beneficial for use to various stakeholders including private companies, public companies, social workers, Non-Governmental Organisations etc. An in-depth assessment of the occupational health hazards and injuries on the livelihood of affected workers and their families will be significance in eradicating occupational

health hazards and injuries, and developing ways to improve performance and sustainability of mines, industries and factories.

The research will also be of value to academics and researchers in that it provides insight into areas that require further research preventing occupational health hazards and injuries. Such research will enable policy makers and implementers to devise improved ways of preventing accidents and injuries, and making a safe working environment.

### **1.7 Limitations of the Study**

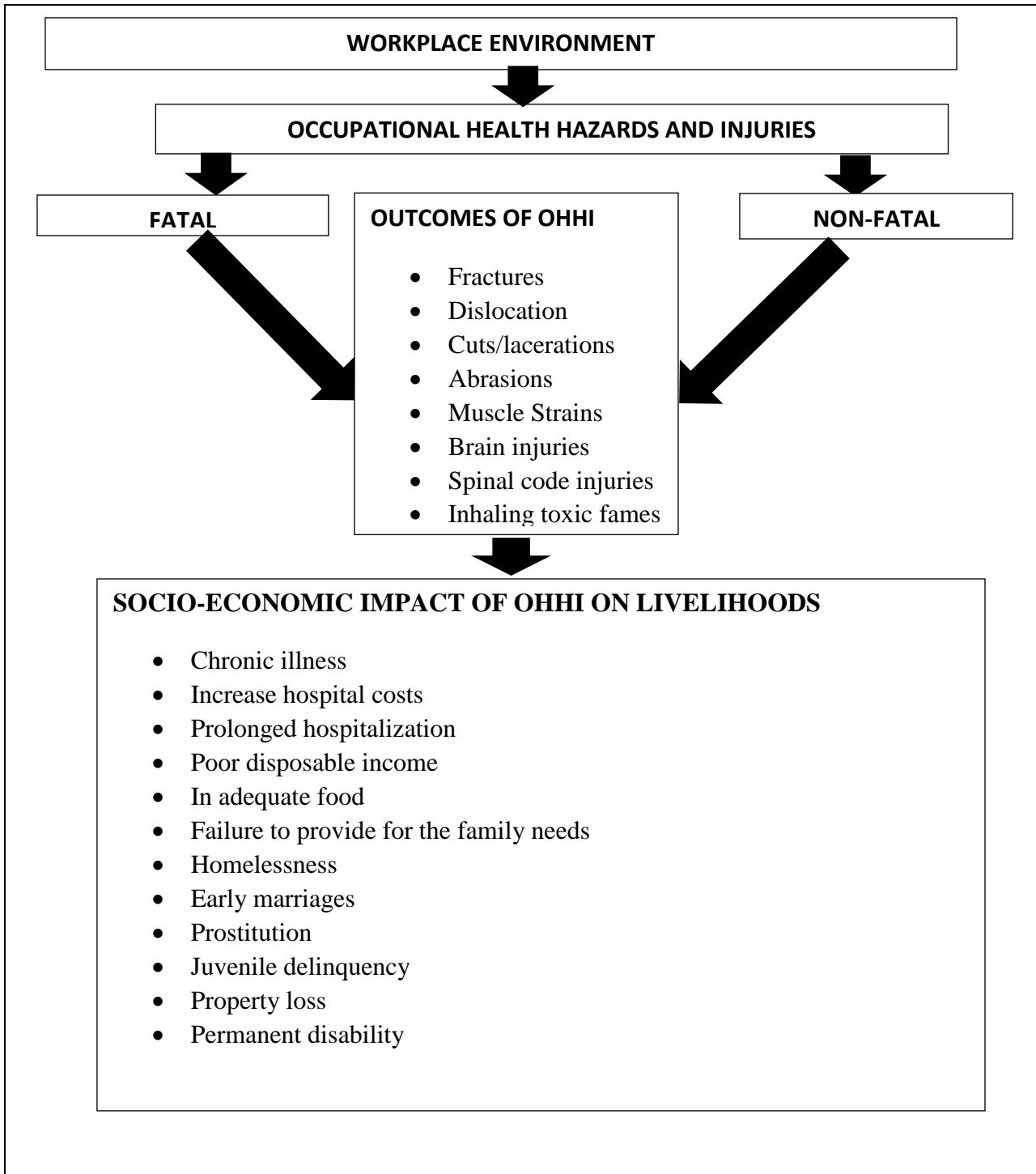
Financial constraints

It was also very difficult to find respondents because most had relocated. This compelled the researcher to sample the all Kitwe district.

It was also difficult to sample some of the accident victims to participate in the study. This was due to the fact that they claimed no one had visited them to ask them questions about the accident and therefore see no reasons why they should respond to the questions. Researcher had to keep explaining the purpose of the study and the interview to them that it was purely an academic exercise for a researcher to complete masters' study.

### **1.8 Conceptual Framework**

This study determine the impact of occupational health hazards and injuries on the livelihood of affected workers and their families of Kitwe District. Furthermore, the study evaluate the types of Occupational Health Hazards and Injuries (OHHI) among industrial workers and also assess the socio-economic effects of OHHI on livelihoods of affected workers and their families.



**Figure 1: Conceptual Framework**

Source: Owners understanding of the interaction of the factors that influence OHHI

The conceptual framework shows the types of occupational health hazards and injuries that occur in different workplaces and their socio-economic implications on people's livelihoods. The framework suggests that in any workplace environment, workers are exposed to different types of occupational hazards and injuries (i.e. fractures, dislocation, cuts/lacerations, abrasions, muscle strains, brain injuries, spinal cord injuries, inhaling toxic fumes etc.) which can either be fatal or non-fatal (ILO, 2012; Michelo, et al., 2009). However, these OHHI have different effects on the workers and their families. The effects which are social and economic may include; chronic illness, increase hospital costs, prolonged hospitalization, poor disposable income, inadequate food, failure to provide for the family needs, homelessness, early marriage, prostitution, juvenile delinquency, property loss and permanent disability. If injuries are serious, employees cannot work productively and may not even return back to work (Stough et al., 2016). The loss of productivity does not only impact employers financially, but also burdens society as a whole (Ncube & Kanda, 2018; Ezenwa, 2001).

The socio-economic effects of occupational health hazards and injuries may be severe if not taken care of. Accidents and injuries induce costs in terms of both human costs and socio-economic costs. Socio-economic costs include; hospitalization, long-term care, material damage, police and rescue service, production loss, and welfare loss (Stough et al., 2016). Although the injured worker is normally the person most directly affected, workplace accidents may potentially impact on family members, coworkers, medical care providers, insurance administrators and a host of other individuals and groups (Harry & Graham, 2002, Stough et al., 2016). The repercussions of an occupational injury may reach beyond the boundaries of the victim's workplace and home, extending into hospitals, courts, and the local community (Moyo et al., 2015; Shannon & Lowe, 2002; Burgard & Katherine, 2013).

Food insecurity may as well make children drop out from school because of attending classes on an empty stomach. Income insecurity, homelessness, make families engage into prostitutions, forced/early marriages, juvenile delinquency, crime, substance abuse and child labour. Poor health may lead to blindness, dumbness, deafness, paralysis (Carswell, 2002). Livelihood may be sustainable when one can cope and recover from stresses and shocks and maintain or enhance capabilities and assets now and in future (ILO, 2008; Cooper, 2000; WHO, 2007; Kollmair & Gamper, 2002).

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter reviews the literature related to Occupational Health Hazards and Injuries in workplaces in general. The review is categorized into twelve (12) broad areas namely; Accidents and injuries in the workplace, common types of injuries in the workplace, classification of occupational accidents and injuries, factors influencing the occurrence of occupational health hazards and injuries, social and economic effects of occupational health hazards and injuries, International Organisations involved in protection of workers from workplace injuries, legislations for safety and health of the working populace in Zambia, Occupational Health and Safety (OHS), Non-Governmental Organisations involved in (OHS), occupational health and safety legislation, institutions advocating for the rights of workers in Zambia, compensation of occupational accidents.

#### 2.2 Accidents and Injuries in the Workplace

In many developing countries, increasing trends of mortality due to injuries at work are reported; whereas, developed countries show declining death rates. This includes work-related traffic injuries (Takala, 2000; Todaro, 2000). Differences in types of industries, occupational activities, employment characteristics, and implementation of safety measures also explain injury variability across countries. Occupational health hazards and injuries constitute a substantial global burden (Driscoll, 2005; Hamalainen, 2007; Kunda et al., 2013). A review of ILO data describing injury at work for 21 countries indicates that males accounted for between 91% and 99% of all injuries at work in all countries, independently of the level of economic development of the country. Occupational fatal and non-fatal accidents produce a tremendous burden on workers, their families, and society. Following this analysis, occupational risk factors are responsible for 8.1% of the combined burden of both mortality and morbidity due to injuries (Goncalves et al., 2011).

Michelo et al., (2009) determined the frequency rate of occupational injuries and fatalities among copper mines in Zambia using a retrospective study was undertaken and information obtained from the electronic accident survey data base of the company and found that the underground department had the highest frequency rates of fatalities (111/100,000 employee years) and

injuries (5.5/1000 employee years). The most common causes of fatal injuries was fall of rocks in the underground mines and the most frequent mechanism of injury was handling of tools and materials, and the most commonly injured body parts were the hands and fingers.

Another study is that by Ezenwa (2001) who conducted a study in Nigeria to study the fatal injuries in Nigerian factories using the reference period 1987 – 1996. His study found that there were a total number of 3183 injuries during the reference period which 71% were fatal. His study also found overall fatality rate of the country at 2.23 per 100 workers. Further, his study found that of the fatal injuries recorded; 71% were associated with power-driven machines; 14.1% with explosions and 12.6% with workers falling. His final finding was that coal-petroleum, chemical/pharmaceutical industries and metal industries had more deaths than other industries. His study also recommended that work environments should have accidents prevention programmes such as use of protective equipment, safety education, machine guarding, work permit system, effective supervision and enforcement of factory safety laws and regulations.

Siziya et al., 2012 and Chabala, 2005 alluded that injuries at work are largely preventable by improvements to make work safer and healthier. Improved engineering controls, administrative policies, health and safety information, and education to promote safety attitudes and behaviors are needed worldwide. Improved surveillance data must be developed to provide the basis for targeting prevention measures towards high-risk worker groups. Similar analysis and preventive actions in other nations can greatly reduce injuries in the workplace (Ezenwa: 2001).

### **2.3 Common Types of Injuries in the Workplace**

Occupational health hazards and injuries are a public health problem, estimated to kill more than 300,000 workers worldwide every year and to cause many more cases of disability (Takala, 2000). Serious occupational health hazards and injuries are far too common and there are a range of accidents and injuries which occur across all occupational sectors and that people working in different types of jobs face a range of different hazards (ILO,2015; Serole & Paul, 2016). Over 4,405 workers are killed every year while on the job and millions more suffer serious non-fatal injuries (Driscoll et al., 2005). Furthermore, 3.3 million people suffer an occupational health hazards and injury from which they may never recover. Equating to an astonishing 4.5 million estimated working days being lost (ILO, 2005). The reports of occupational accidents

that occurred in Brazil throughout the years 2007-2011 by the Federal Auditors of the Ministry of Labor and Employment (Goncalves, et al. 2011).

Serole and Paul (2016) added that occupational injuries and accidents have emerged as a major problem because of their effects on the health of workers. This after they conducted a descriptive survey to investigate the types and causes of injuries that occurred amongst construction workers at Railway Construction Industry in Pretoria South Africa in which they found that; bruises, lacerations, muscle sprain, burns and fractures were the most common types of injuries reported. The duo also found that most injuries were caused by moving objects and stationary machines.

Several other studies have also supported this (National Statistics, 2016; Dembe, 2001; Dembe et al., 2005) outlined the following as most common accidents and injuries in the workplace;

- i. Slips, trips and falls (STF):* The top incident type for occupational health hazards minor injuries are common in many sectors including Water Supply, Sewerage, Waste Management and Remediation Activities, Wholesale & Retail Trade, Logistics & Transport, Information & Communications, Financial & Insurance Activities, Real Estate Activities, Professional, Scientific & Technical Activities, Administrative & Support Service Activities, Health Activities, Education, Mines and Other Personal Service Activities sectors.
- ii. Muscle strains:* Strained muscles are another common type of work-related injuries, as anyone who regularly lifts heavy items at work would probably know already. Back and neck strains, in particular, are all too frequently sustained while working.
- iii. Being hit by falling objects:* Falling or flying objects in a workplace can expose workers to relatively minor injuries, such as cuts or abrasions, as well as more serious injuries such as concussions or blindness.
- iv. Repetitive strain injury:* A problem that has become increasingly common at work over the years, and can be caused by a variety of tasks, such as forceful or repetitive activity, or by poor posture. The condition mostly affects parts of the upper body, such as the forearm, elbow, wrist, hands, shoulders and neck.

- v. *Crashes and collisions:* Accidents resulting in crash or impact injuries are quite frequent. Whether they involve cars, Lorries or even smaller vehicles such as forklift trucks, they can have serious consequences.
- vi. *Cuts and lacerations:* All sorts of office implements can end up leaving their user nursing a painful cut. From power saws to paper trimmers, it's easy to do yourself a mischief at work. The most common causes of these lacerations include poor training, inadequate safety procedures and failing to wear the proper protection. Employers can help prevent such accidents by providing adequate safety equipment and putting the right procedures, including training, in place.
- vii. *Inhaling toxic fumes:* The air in many workplaces contains hazardous substances in the form of dusts, fumes, mists, gases and vapours. Most workers without protection may be at risk of impairment to breathing, skin or eye reactions as well as potentially more serious injuries. Employers must provide workers with the correct work wear, including goggles and fitted face masks, to avoid dangerous exposure.
- viii. *Exposure to loud noise:* Noise at work can cause hearing damage that is permanent and disabling. This can be hearing loss that is gradual because of exposure to noise over time, but also damage caused by sudden, extremely loud noises. Safety measures such as ear protection can help to prevent it.
- ix. *Walking into objects:* When you suddenly find yourself on the sharp end of a door, table, wall or cabinet. Needless to say, these injuries can hurt. Luckily, such accidents can be avoided by reminding employees to be vigilant and moving unnecessary hazards out of the way where people can't walk into them.
- x. *Fights at work:* Simmering workplace tensions can bubble under for months or even years before spilling over into physical confrontation. Fights in the workplace can, unsurprisingly, result in nasty injuries. Effective procedures for dealing with employee grievances can help reduce the risk of them coming to blows though.

## **2.4 Classification of Occupational Accidents and Injuries**

Occupational hazards are the sources or situations with potential for to cause harm in terms of injury, or ill health, damage to property and damage to workplace (Donoghue, 2005). From a medical perspective, occupational accidents and injuries are classified as;

- i. Medically Treated Injuries (MTI's): Require medical treatment beyond the first aid capability or authority of an industrial paramedic.
- ii. Restricted Work Injuries (RWD): Injuries resulting in some restrictions of duty or work hours lasting less than one week.

Studies by (Donoghue, 2005; Takala, 2002; Kunda et al., 2013; Dembe et al., 2005; Oluwafemi, 2017) categorized Occupational Health Hazards and Injuries (OHHI) as follows;

**i. Physical Hazards (mining, construction, quarrying)**

Physical hazards include;

- Rock fall
- Fires – exhaustions, syncope, cramps, burns, prickly
- Explosions
- Mobile equipment accidents
- Falls from height
- Entrapment
- Electrocutation – burns and shocks
- Flooding of underground workings
- Wet-fill release from collapsed bulkheads
- Air blast from block caving failure
- Radiation – cancer, leukemia, severe anemia

**ii. Chemical Hazards ( manufacturing and mining)**

Routes of entry of chemical hazards include inhalation (main route of entry), ingestion and skin absorption. Chemical agents may be;

- Metals – Lead, As, Hg, Cd, Ni , Co
- Aromatic Hydrocarbons – Benzene, Toluene, Phenol
- Aliphatic Hydrocarbons – Methyl alcohol
- Gases - N<sub>2</sub>, CH<sub>4</sub>, CO<sub>2</sub>
- Chemicals - CO, H<sub>2</sub>S, HCN  
Ammonia, SO<sub>2</sub>, Cl<sub>2</sub>

### **iii. Biological Hazards (manufacturing, mining)**

A biological hazard is one that is posed to humans by a biological organism or by a material produced by such an organism. The risk can be direct through infection or indirect through damage to the environment. Biological hazards include:

- Bacteria – Tetanus, Tuberculosis, Anthrax, Brucellosis (Milkmen), Gonorrhoea
- Virus – Hepatitis, HIV
- Protozoal & Parasitic – Malaria, Hookworms, Hydatid (Dog-handlers), tapeworms
- Fungi (Agri-workers) – Tinea-infections, Psittacosis, Coccidiomycosis, Ornithosis

### **iv. Mechanical Hazards (mining, manufacturing, construction)**

Mechanical hazards include:

- Injuries – Falls, cuts, abrasions, concussions, contusions
- Ergonomic Disorders – Muscular-skeletal disorders(MSDs), Cumulative-trauma-Disorders (CTDs)
- Ergonomics – Adjustment of Man & Machine
- Ergo-friendly tools – Tools which reduce the stresses or problems resulting in CTD's / MSD's.)

### **v. Psychosocial Hazards (mining, quarrying, manufacturing)**

Psychosocial Hazards result from lack of job satisfaction, insecurity, and ambiguity, poor interpersonal relations.

Psychological & behavioral changes including;

- Hostility
- Aggressiveness
- Anxiety
- Depression
- Alcoholism
- Drug addiction
- Sickness absenteeism

Psychosomatic disorders are;

- Hypertension
- Headache

- Body-ache
- Peptic ulcers
- Asthma, diabetes
- Heart disorders

## **2.5 Factors Influencing the occurrence of Occupational Health Hazards and Injuries**

Workers need employment because they derive economic and social security from it. Though it is their right to return from work unharmed at the end of each working day and the sad reality is that a lot of them get fatal work-related injuries or diseases daily (ILO, 2012). Mills (2009) outlined the factors influencing the incidence rate of injuries and accidents among workers as; Organization, demographic, swing and dynamics, personal, physical and psychological factors.

In a study conducted by Katsakior (2008) to determine the factors attributed to occupational fatalities occurring in the region of East Attica, Greece, in all industry types over a 5-year period preceding the 2004 Olympic Games. It was found that poor work practices arising from lack of orientation and job training, performance pressure and workers' inexperience associated with knowledge- and skill-based errors.

Dembe, et al., (2005) found that hypertension, cardiovascular disease, fatigue, stress, depression, musculoskeletal disorders, chronic infections, diabetes and general health complaints all-cause mortality and are associated with overtime and well-being of workers. There is also some research linking long hours to contingent work and OHS problems. For example, there is evidence of an association between multi-tiered subcontracting, long hours, fatigue and unsafe work practices in long haul road transport and construction

Equally, Oah et al (2018) in a study in which they were identifying the influence of workers' perceived workload accident experiences, supervisors' safety leadership, and an organization's safety climate on the cognitive and emotional risk perception using correlation analysis and hierarchical regression analysis in the Korean manufacturing sector found that hypertension, cardiovascular disease, depression, musculoskeletal disorders, chronic infections, diabetes and general health complaints all-cause mortality and are associated with overtime and well-being of workers.

Several studies (Hamalainen, 2010; Fingerhut, 2005; Michelo et al: 2009; Cooper, 2000; Katsakior, 2008; Ezenwa, 2001; Dembe et al., 2005) categorised the factors related to occupational accident into the following categories;

- i. *Environmental* - factors resulting from location of the accident such as, noise, heat, ventilation, housekeeping, poor working conditions, night shifts, a no-leave policy, having to stand the whole day, limited leisure period, dusty or smoky air, no air flow or daylight, prolonged exposure to chemical odors, unsafe electric machines and excessive heat.
- ii. *Task* - factors related to the development of the real activity. The rules and procedure to execution of the activity are not included.
- iii. *Organizational* - factors are those structural factors in the work community which either directly or indirectly influence the occurrence of accidents. The pressure of the work community, the size of the company, and subcontracting poor design, gaps in supervision, undetected manufacturing defects or maintenance failures, unworkable procedures, clumsy automation, shortfalls training, less than adequate tools and equipment.
- iv. *Material* - factors resulting from machinery, tools, personal protective equipment or safety equipment.
- v. *Human* - factors resulting from physical, psychological and physiological characteristics (violence, substance abuse, attitude, experience, age, gender and qualification of the individual).
- vi. *Maintenance* - factors resulting from actions and measures needed to restore or to conserve items (e.g. installations, equipment, builds, machine, etc). Include lubrication, cleanness, unscheduled repair, inspections, planned preventive and predictive maintenance, calibration and testing.
- vii. *External*- factors such as provision of equipment (unavailability of appropriate protective equipment) and as well as work design and organization (unclear expectations and ambiguity, tight work and production schedules for workers, miss assignment of the victims).
- viii. *Internal*- factors resulting from failure to use protective equipment.

In Zambia (Siziya et al.,2012) found that workers are more exposed to a range of occupational health hazards which includes; vibrations from machinery, low temperature, smoke, frame, powder, dust inhalation, pesticides, loud noise, chemicals, heavy lifting and frequent bending. Others important findings were that exposure to occupational health hazards was associated with old age, males, low education, being married and self-employment.

Similarly, Muula et al., (2010) identified that age, males, low education, married/cohabiting and self-employment were positively associated with occupational health hazard and injury. Their study used cross sectional secondary data from the 2009 Zambian labour force survey.

CSO (2012) and Michelo et al., (2009) explained that workers are not taking the proper precautionary measures before working, or they are simply too lazy to be bothered with it. CSO and the Ministry of Labour and Social Security reported in 2006 that 20.6% of employed person reported work related injuries with 61.6% having suffered back/muscle pains, 20.3% wounds/deed cuts, 14.2% sight problems, and 3.9% hearing problems. Hence, training, signage and access to the necessary safety equipment can all be in good health (Siziya et al., 2010; Hamalainen, 2010; Fingerhut, 2005; Michelo et al: 2009).These data suggested that workers in Zambia face poor working conditions.

## **2.6 The Social and Economic Effects of Occupational Health Hazards and injuries.**

Injuries at a workplace comprise a substantial part of injury burden and are an important public health problem that affects not only the person sustaining the injury but also other household members that depend on the injured adult for support (Ezenwa, 2001; Dembe, 2001; ILO 2012) estimates that, approximately 270 million occupational accidents that lead to absence from work, medical treatment, disability and the payment of survivor benefits to worker families occur each year (ILO, 2012).

Dorman (2000) argued that occupational injury and illness are not only matters of health, but also matters of economics, since they stem from work, and work is an economic activity. He considered two main economic costs that result from disability and premature death at work.

*The first one is:* worker's lost wages during the period of absence from work and possible reduced wages after return to work, either of which may or may not be social cost, depending on whether otherwise unemployed substitute worker are found to do the same tasks.

*The second one:* the cost of medical treatment, care during the period of disability and rehabilitation. He found that, social and health insurance systems (costs) are easy to measure, but there also house costs that can escape detection.

Occupational accidents cause direct and indirect or hidden costs for the whole society (Hamalainen et al., 2005). In developed countries, the total economic costs of work-related injuries approximate those of cancer and heart disease. Victims suffer considerable financial loss as a direct result of their injury or illness. These costs include ongoing medical costs, direct income loss, transport costs, and losses related to lifestyle changes people had to make because of their condition. Dorman (2000) survey results from the United States of America, revealed that one in six injured workers needed some other family members to take care of him or her, and that 2/5 required other family members to perform some or all of their house hold tasks, on the other hand, even though these contributions of time and effort by the families of the injured workers have no price, in the market place, they certainly represent economic costs.

On the other hand, these economic calculations are made in industrialized countries that have established specific compensation and social security systems. Often in developing countries an accident which occurs in the work place does not cause direct costs (Hamalainen et al., 2005). The study by Stough et al, (2015) examined how pre-existing disabling conditions influenced the recovery process of survivors of Hurricane Katrina. This study focused specifically on the barriers that hindered the recovery process. Five themes emerged as the most significant barriers to recovery: housing; transportation; employment; physical and mental health; and accessing recovery services. Their findings were that, when disaster recovery services and resources did not accommodate the needs of individuals with disabilities, recovery was hindered.

## **2.7 International Organisations involved in Protection of Workers from Workplace Injuries.**

### **2.7.1. International Labour Organization (ILO)**

The ILO is an agency of the United Nations that bring together government, employers and workers' representatives of 189 member State to set labour standards, development policies and advise programmes promoting decent work for all men and women. The main aim of the organization is to promote rights at work, encourage decent employment opportunities, enhance social protection and strengthen dialogue on work-related issues (ILO, 2012). By including

government, employer and worker representatives, the ILO hopes to create a forum to improve rights at work and standards of employment. Attorneys at the ILO can help evaluate member states' legal frameworks, formulate national and international policies, and provide expert advice on labor standards.

### **2.7.2 Southern African Development Community**

The Southern African development Community (SADC), the regional body to which Zambia belongs has developed codes of practice addressing various issues in the workplace. Some of the codes include the HIV/AIDS Code of Practice and the Code of Practice on the Safe Use of Chemicals. Though Zambia is party to these codes there is very little awareness about their existence, particularly the Code of Practice on the Safe Use of Chemicals.

Zambia belongs to both International Labour Organization and the Southern African Development Community, international and regional organizations, respectively, that have developed various guidelines on OSH.

## **2.8 Legislations for Safety and Health of the Working Populace in Zambia**

In Zambia employment make a vital contribution to the economy. It is therefore, essential to ensure that employers work under the most favourable conditions so as to give optimum output. The provision of safety comes at a cost to the employer and in order to safeguard workers' entitlement to safety, the Employment Act was promulgated (WHO, 2015). Legislation for safety and health of the working populace in Zambia include;

- i. The Factories Act Cap 441, only applicable to workplaces defined as factories. The Act generally provides for the regulation of the conditions of employment in factories and other places regards to the safety, health and welfare of persons employed therein. The Act specifically provides for; supervision of safety and health in factories, inspection of factories and certain plants and machinery by inspectors from the OSHSD; and reporting and investigation of occupational accidents and diseases.
- ii. Mines and Minerals Development Act No. 7 of 2008 (Mining Regulations), only applicable to the mining industry. These regulations provide for the supervision of safety and health in mines, inspection of mines by inspectors from Mine Safety Department

(MSD), reporting and investigation of occupational accidents, occupational diseases and dangerous occurrences. These regulations also provide for the responsibilities, duties and conduct of mine owners/employers and workers.

- iii. The Occupational Health and Safety Act No. 36 of 2010, applicable to all sectors of the economy. The Act provides the following; establishment of the Occupational Health and Safety Institute (OHSI) and its functions; establishment of health and safety committees at workplaces and for the health, safety and welfare of persons at work; the duties of manufactures, importers and suppliers of articles, devices, items and substances for use at work; the protection of persons, other than persons at work, against risk of health or safety arising from, or in connection with, the activities of persons at work.
- iv. The Ionizing Radiation Act, Chapter 311, which provides for the protection of the public and workers from dangers arising from the use of devices or materials capable of producing ionizing radiation. The Act stipulates the Occupational Exposure Limits (OELs) for various categories of workers. It also regulates the possession, sell, disposal, importation and exportation of radioactive materials. It further regulates the installation, servicing and maintenance of radioactive devices and radiation premises. Those who venture into prospecting mining of radioactive minerals must apply for a license prior to commencement of operations.
- v. The Workers' Compensation Act, Chapter 271 (Act No. 10 of 1999), providing for the establishment and administration of a fund for the compensation of workers who are disabled by accidents or who contract diseases in the course of their employment. It also provides for the payment of compensation to dependants of workers who die as a result of such accidents and diseases, and for the grant of pensions and allowances to certain dependants of workers who being in receipt of pensions for such disablement die from causes not connected with such accidents or diseases. The Act excludes members of the public service and Zambia Defense and Security Forces/Services from its application.

Various regulations exist for protecting the rights of formal sector employees in Zambia. The majority of these regulations are outlined in the labour laws;

- i. Employment Act, Cap 268.
- ii. Employment Act (Special Provisions) Act, Cap 270.
- iii. Industrial and Labour Relations Act, Cap 269.

- iv. Workers Compensation Act, Cap 225.
- v. Employment of Young Persons and Children's Act, Cap 274.
- vi. Minimum Wage and Conditions of Employment Act, Cap 276.
- vii. Factories Act, Cap 441.

Currently, Zambia does not have a national policy covering the sphere of occupational safety and health (ILO, 2012; Siziya et al. 2012; Moyo et al., 2015). The Ministry of Labour and Social Security, through its department of Occupational Safety and Health Services, has been making efforts to bring stakeholders together in order to develop a national policy specifically addressing the subject of occupational safety and health. Funding proposals for this exercise were made and government subsequently allocated funds for this exercise in the 2011 budget. The Ministry of Mines, Energy and Water development, through its Mines Safety Department has been considering the development of a policy addressing occupational safety and health. This process has however stalled due to other pressing demands on the Ministry.

## **2.9 Occupational Health and Safety (OHS)**

Occupational injuries and accidents are all caused by preventable factors which could be eliminated by implementing measures and methods that already exist. Several studies (Dorman, 2000; Katsakior, 2008) revealed that, many industrial countries have extensive and comprehensive systems of occupational safety and health management. This is demonstrated by the consistently reduced accident rates. Access to health and safety in the workplace has had an inexplicably challenging gestation and a protracted and complicated delivery phase globally (Moyo et al., 2015). This is evidenced by the alarming statistics showing that more than 2 million work-related deaths and about 300 million nonfatal occupational accidents occur annually, resulting in global economic costs contributing to 4% of the global gross domestic product (GDP) (ILO, 2012; Moyo et al., 2015).

Certain occupations are more dangerous than others due to the exposed variety of occupational health hazards and risk and construction industry workforce suffers a significant number of serious injuries and its one of the most dangerous industries, International Labour Organization (ILO) estimated that at least 108 thousand workers are killed on site every year which accounts for about 30 per cent of all occupational fatal injuries (Dorman, 2000; Oluwafemi, 2017). A

study carried out by Oluwafemi (2017) to assess the Knowledge of Occupational Hazards, attitude and practice of occupational safety measures among construction workers in different building sites in Nigeria s, Abuja and Port Harcourt between the year 2000-2010, revealed that Lagos state led in the casualty figures with 178 casualties within the period, followed by Abuja with 65 casualties while Port Harcourt recorded 30 casualties. The study revealed the high knowledge of occupational hazards but poor attitude and poor practice of occupational safety measures. This is evident in the non-compliance attitude to the utilization of personal protective equipment related to their different nature of work.

OHS remains a big challenge in expanding economies (Moyo et al, 2015). The imperative fundamentals to the genesis of wider coverage and improvement of OHS rests on the commitment of member states both individually and collectively. The majority of expanding economies in Africa face an enormous challenge of improving coverage and access to OHS services (Siziya et al., 2012). Research on occupational injuries and the pursuit of improved occupational health has largely been conducted in high- and middle-income nations. Routinely collected occupational health data using information systems from low-income nations are often unavailable or incomplete and unreliable (ILO, 2012, Siziya et al., 2012, ILO, 2008).

Despite the noted poor coverage of OHS, Southern African countries have demonstrated a certain level of commitment to OHS, as shown by their ratifications of the ILO conventions that have to do with health and safety (Moyo et al, 2015). For instance, Zambia recorded the highest number of ratifications of ILO technical conventions with 36, followed by South Africa with 17, Zimbabwe with 15, and lastly Botswana with 6 (ILO, 2012; Moyo et al., 2015).

OHS board is the main national body that is responsible for the coordination and collaboration of OHS issues in Zambia (ILO, 2012; Moyo et al., 2015). The main national competent bodies charged with an OHS regulatory function in promoting and enforcing OHS include;

- i. Occupational Safety and Health Services Department (OSHSD) - Ministry of Labor and Social Security.
- ii. Mines Safety Department (MSD) - Ministry of Mines, Energy, and Water Development.
- iii. Radiation Protection Authority (RPA) - Ministry of Health.
- iv. Occupational Health and Safety Institute (OHSI) - Ministry of Health.

## **2.10 Non-Governmental Organisations involved in OHS**

### **i. Zambia Occupational Health and Safety Association (ZOHSA)**

Formed in 2010, its mission statement, is work with regulatory institutions and both local and international stakeholders in order to enhance occupational health and safety; and raise awareness in order to inspire change in people's attitudes towards occupational health and safety.

### **ii. Zambia Organization for Occupational Health and Safety (ZOOHS)**

The Organisation was very active in advocating for OSH in Zambia in the nineties. ZOOHS organized and successfully convened the first Pan-African Conference on Occupational Health in Lusaka, Zambia, in November 1992. Several participants from West, East and Southern Africa attended the conference. International organisations including the International Labour Organization, World Health Organisation, and International Commission on Occupational Health also attended the conference. However, the Zambia Organization for Occupational Health and Safety is currently very inactive.

### **iii. Zambia National Association of Hearing Impaired (ZNAHI)**

Has been helping industrial undertakings in developing hearing conservation programmes in their respective workplaces. ZNAHI's main area of focus has often constituted audiometric tests of workers in working areas with high noise levels.

ZOHSA and ZOOHS deal with OSH issues in general while ZNAHI specializes in assisting workplaces in developing hearing conservation programmes by addressing workplace noise.

## **2.11 Occupational Health and Safety Legislation**

Safety and health regulations set standards designed to eliminate personal injuries and illnesses from occurring in the workplace. These standards are enforced through periodic inspections conducted in workplaces subject to the regulations (Moyo et al., 2015). Standards for safety and health often require employers to adopt certain practices to appropriately protect workers on the job; employers are required to both familiarize themselves with the applicable standards and remove any hazards that might pose a threat to their employees. Fultz & Pieris (2007) eluded that, access to health and safety in the workplace has had an inexplicably challenging gestation and a protracted and complicated delivery phase globally. Its development has not paralleled or matched the industrialization impetus in both developed and expanding economies.

Because workers represent half of the world's population and are the major contributors to economic and social development, this magnitude of occupational accidents and fatalities calls for an urgent redress of the situation. Less than 15% of the global workforce, primarily in big enterprises in developed countries, has access to occupational health and safety (ILO, 2012; Mills, 2009, Moyo et al., 2015; Michelo et al, 2009).

## **2.12 Institutions Advocating for the Rights of Workers in Zambia.**

Occupational injuries have received limited research attention in the Southern African Development Community. Much of the published data come from South Africa and little has been reported elsewhere within the region (Moyo et al, 2015; Siziya et al., 2010; ILO, 2012)

### **i. Mines Safety Department**

The Mines Safety Department (MSD) under Ministry of Mines Energy and Water Development is responsible for regulating and inspecting occupational safety, health engineering and hygiene in mining companies. It deals with all matters pertaining to safety and health of persons employed in Exploration, Mining and Mineral processing operations throughout the Republic of Zambia in line with the provisions of the Mines Minerals Development Act number 7 of 2008.

The department is made up of four Units. These include the Machinery, Mining, Explosives and Environment and Research Units.

### **ii. The Workers' Compensation Fund Control Board**

The Workers' Compensation Fund Control Board (WCFCB) under Ministry of Labour and Social Security who are responsible for workers compensation, occupational safety and health inspections in mining and non-mining private companies. The mandate of WCFCB is threefold, namely: Management of contributions made by employers to the Fund, Compensation of workers for disabilities suffered or diseases contracted during the course of employment; and Payment of compensation to dependants of workers who die as a result of occupational accidents or diseases (Siziya et al, 2010). To help employers reduce occupational accidents and diseases in their workplaces, the Workers' Compensation Fund Control Board provides free OSH programmes which include health & safety lectures, seminars, inspections and appraisal visits. The Employment Injury Scheme in Zambia is administered by the Workmen's Compensation

Fund Control Board; the Ministry of Labour and Social Services generally supervises the fund and as well as the National Pensions Schemes Authority (Fultz & Pieris, 2007).

### iii. Occupational Health and Safety Institute

Occupational Health and Safety Institution (OHSI) under the Ministry of Health is responsible for workers health, occupational safety and health inspections. The role of OSHI is to provide comprehensive, specialized occupational health care. In addition to providing occupational health care, the OSHI also provide laboratory services and serves as a research institution on OSH. The Workers' Compensation Fund Control Board is the main public social security institution responsible for compensation of workers with regards to disablement caused by occupational accidents or diseases, or death arising from such accidents or diseases.

### iv. Occupational Safety and Health Services Department

Occupational Safety and Health Services Department (OSHS) under the Ministry of Labour and Social Security which is responsible for regulating and inspecting safety, health and hygiene in factories. The department mandate is twofold; to administer and enforce the Factories Act in order to protect workers and to some extent the general public from occupational hazards; and to promote occupational safety and health in the country.

In addition, there are also stakeholders such as Primary Health Care Hospitals responsible for workers' health, National Labour Organisations for Employers and Employees (Unions) who are responsible for the welfare of the employers and employees respectively; mining and non-mining Private and Public Sector Industries who are responsible for implementing safety and health measures at workplace.

## **2.13 Compensation of Occupational Accidents**

Workers' compensation is a system of insurance established by state law and financed by employers. It provides payment to workers or their families specifically for occupational illnesses or injuries (Ruser, 1995). The Workers Compensation Act further reviews the Act applies to all persons who have entered into contracts of service, apprenticeship or learner ships with anybody of persons or corporate or incorporate entities. It does not apply to domestic

workers or the government as an employer. The role of MDS and WCFCB institutions is regulatory in nature (Fultz & Pieris, 2007).

The primary purpose of Workers Compensation is to provide some wage replacement and reimbursement of medical costs for those at work. (Shannon & Lowe, 2002; Siziya et al, 2010). Access to compensation continues to be crucial in providing fair treatment for injured workers. Although occupational accidents and diseases are supposed to be reported, it is a different case of occupational disease in Michigan. Researchers (Shannon & Lowe, 2002) conducted a study to find out the number of workers who do not file claims for worker's compensation benefits. The results shown that 55% did not file for replacement and only 9% could be labeled as definitely having filed. In a similar study, results showed that 72% reported a claim, with 58% claiming wage loss benefits. It was evident that decision to file a claim were factors related to the workers' health and the severity of the reported condition.

The similar study was conducted in Zambia by Siziya et al., (2010) about compensation patterns following occupational injuries in Zambia. Their findings show that demographic, social and economic factors are associated with receiving compensation for work-related injuries. Compensation varied by gender, geographical area (provinces), employment status, and number of employees stationed in a workplace. Additionally, there is widespread under-reporting of cases. In 2000, only 14 fatal occupational injuries were reported to ILO and none in 2005.

Zambia, has laws in place that allows injured workers to claim for compensation (Siziya et al, 2010). Such laws includes; the Minimum Wages and Conditions of Employment Act; the National Pension Scheme Act etc. These are the primary documents detailing compensation and benefits for Zambian workers. The Industrial and Labour Relations Act establishes parameters for collective bargaining.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter focuses on the description of the methods that were applied in carrying out the research. It introduces and describes the study research methodology; study area location and description, target population, research design, sample size, sampling methods, inclusion and exclusion criteria., data collection procedures, research instruments, data presentation and analysis, and ethical issues.

#### **3.2 Study Area Location and Description**

The city of Kitwe is located on a 3,000-foot plateau above the sea level and has an estimated area of 777 km<sup>2</sup>, on the Copperbelt Province of Zambia. It can be found between Latitude 12° and 13° south and Longitude 28° and 29° east. The city sits on a fairly flat land with an altitude of 1,295m above sea level. It was originally called Nkana after the local chiefdom and derived its name from the then “Citwe” (now known as Kitwe) Stream. The name Kitwe depicts the skull of an elephant (Icitwe Chansofu) which was found alongside copper ore deposits. Foreign settlers could not pronounce the name “Icitwe” as the natives used to call it, and pronounced the name as “Kitwe” (UN-Habitat, 2009, CSO, 2013). The City has had mining operations dating back to the 1930s.

Kitwe has five (5) constituencies; Chimwemwe (87, 671), Kamfinsa (55,454), Kwacha (97, 633), Nkana (64,443) and Wusakile (70, 923). Kitwe is made up of townships and suburban areas including Parklands, Riverside, Buchi, Chimwemwe, Chamboli, Nkana East, Nkana West, Garneton, Wusakile, Ndeke and Race Course, to mention a few (CSO, 2013). The present population of Kitwe City stands at 522,092 with an approximated 3.3% annual growth rate. Kitwe has been a seat for a number of manufacturing companies feeding the mines, agricultural and the transport sectors. It is also regarded as the hub “Commercial Capital” of the Copperbelt Province due to its central location, as the focal route to other towns in the country. In terms of the languages spoken, Bemba and English are the most frequently used. The district has 1336 companies that have created employment major mines include, Mopani Copper Mines and Nkana mines (UN-Habitant, 2009 & CSO,2010).

### 3.3 Research Design

This study was done based on the Cross-sectional Survey approach as the most appropriate method, due to the fact that it measures the outcome and the exposure at one point in time. The research was mainly based on qualitative approach although quantitative analysis had to be employed when analysing statistical data using Special Package for Social Sciences (SPSS). Qualitative data was acquired through the use of questionnaires, observations and interview guide. Information was obtained from the accident victims or relatives and relevant bodies dealing with OHHI.

### 3.4 Sample size Determination and Sampling

#### 3.4.1 Sample Size

According to the studies done by Siziya et al., (2010) and Kunda et al., (2013), the prevalence of work related injuries in the Zambian mines is 30%. Therefore, the following formula was used to determine the required sample size.

$$n = \frac{r^2 p q}{d^2}$$

Where:

p is the estimate of prevalence: 30%

r is 1.96

q is 1-p

d is the marginal error which should not be more than 0.05 and confidence interval is 95%.

$$n = \frac{(1.96)^2 p q}{d^2}$$

$$n = \frac{(1.96)^2 (0.30) (1-0.30)}{(0.05)^2}$$

$$n = \frac{3.8416 \times 0.30 \times 0.7}{0.0025}$$

$$n = 322$$

Hence, according to the calculations shown above the total of 322 respondents were sampled.

### **3.4.2 Sampling method**

The study determined the impact of occupational health hazards and injuries on the lives of affected workers and families of Kitwe District in Zambia. Using a cross-sectional survey, it necessitated the use of suitable methods such as Purposive (Deliberate), Convenience and Snowball sampling methods were used to select the participants for the study (Leedy & Ormrod, 2005). In snowball sampling, additional samples are identified by participants and the sample is thus extended. Using purposive sampling, a researcher uses a wide range of methods to locate all possible cases of highly specific and difficult-to-reach population. Key informants within the community of Kitwe District were used to identify and lead the researcher to participants wishing to take part in the study.

## **3.5 Inclusion and Exclusion Criteria**

### **3.5.1 Inclusion Criteria**

The study included all female and male adults 18 years of age and above who have been laid off, working, or retired on medical grounds. The participants were supposed to residents of Kitwe District and wished to participate in the study. All respondents were male due to the nature of work, only one female was interviewed.

### **3.5.2 Exclusion Criteria**

This study excluded all households and individuals not fulfilling the criteria as stipulated in 3.5.1 above. It all excluded all households affected by injuries that were not work related.

## **3.6 Data Collection Procedure**

The selected study participants had signed a consent form (see Appendix 8), Thereafter, a self-administered, semi-structured questionnaire which had been designed in English but later translated to Ichibemba (see Appendix 9a, 9b,10) was given to each participant. The procedure took about 15-20minutes and the information collected were recorded. Furthermore, the study used in-depth interview to collected information from key informants. The key informants were from Workers' Compensation Fund Control Board (WCFCB), Mine Safety Department (MSD), Occupational Safety and Health Security Department (OSHSD) under Ministry of Labour and Social Security, Occupational Health and Safety Institute (OHSI), International Labour Organisation (ILO) and Factory Department.

### **3.7 Data Presentation and Analysis**

The collected data was analysed using the statistical package for social sciences (SPSS version 21) and Microsoft Excel. Each response was given a numerical code to enable data to be standardized and processed using statistical methods. Descriptive statistical analysis was carried to assess the types of occupational health hazards and injuries among study participants. Furthermore, a chi-square test was used to determine a relationship between injuries suffered and longevity of employment. Descriptive statistical analysis was also used to assess the socio-economic effects of occupational health hazards and injuries on the livelihoods. To determine the effectiveness of labour laws legislation and safety strategies against occupational health hazards, descriptive statistics was used.

### **3.8 Ethical Considerations**

Ethical clearance was obtained from the Tropical Disease Research Centre (TDRC) in Ndola. Permission to conduct the study was also obtained from the Workers' Compensation Fund Control Board (Ndola), Ministry of Labour and Social Security (Lusaka), Ministry of Mines and Minerals Development (Lusaka), Occupational Health and Safety Institute (Kitwe), local administrative bodies and concerned mining, construction, manufacturing and quarrying companies. Verbal consent was also obtained from every study subject after clearly explaining the purpose of study. Respondents were informed beforehand that participation in the interview was absolutely voluntary and that they were free to withdraw themselves at any time. They were also free to abstain from answering any particular question they felt uncomfortable with. Confidentiality of the data was strictly maintained throughout the study period. No financial or material incentive was provided to the respondents.

## CHAPTER FOUR

### RESULTS

#### 4.1 Introduction

This chapter represents the results on Occupational Health Hazards and Injuries on Livelihoods of workers and their families. These results will be presented themes in line with the three specific objectives which are: to assess the types of occupational health hazards and injuries among industrial workers of Kitwe District, to assess the socio-economic effects of occupational health hazards and injuries on the livelihoods of affected workers and families of Kitwe District and to determine the effectiveness of labour laws legislation and safety strategies against occupational health hazards.

#### 4.2 Socio-Demographics

A total number of 322 respondents participated in the study of which 99.7% (n=321) were males and 0.3% (n=1) female (Table 1). The results further showed that 8.1% (n=26) of the respondents were single, 65.2% (n=201) were married, 8.1% (n=26) divorced and 18.6% (n=60) were widowed. In-addition, it was revealed that most of the participants had a family size of 3-5 people per household. The study also showed the 44.1% (n=142) of the respondents were above the age of 40.

Table 1: Respondents socioeconomic demographic characteristics

Variable Name	n	Percentage %
<b>Age group</b>		
18-25	50	15.5
26-40	130	40.4
>40	142	44.1
<b>Gender</b>		
Female	1	0.3
Male	321	99.7

<b>Marital Status</b>		
Single	26	8.1
Married	210	65.2
Divorced	26	8.1
Widowed	60	18.6
<b>Family size</b>		
No response	4	1.2
1-2	43	13.4
3-5	105	32.6
6-8	88	27.3
> 8	82	25.5
<b>Work/industry places</b>		
Mines	198	61.5
Manufacturing	26	8.1
Quarrying	30	9.3
Construction	52	16.1
<b>Education levels</b>		
Primary	87	27.0
Secondary	187	58.1
Tertiary	48	14.9

### 4.3 Types of Occupational Health Hazards and Injuries

#### 4.3.1 Injuries suffered

The study found that most of the injuries suffered were non-fatal. (i.e. 72.7%, n=234) while 23.3% (n=75) were fatal (Figure 2).

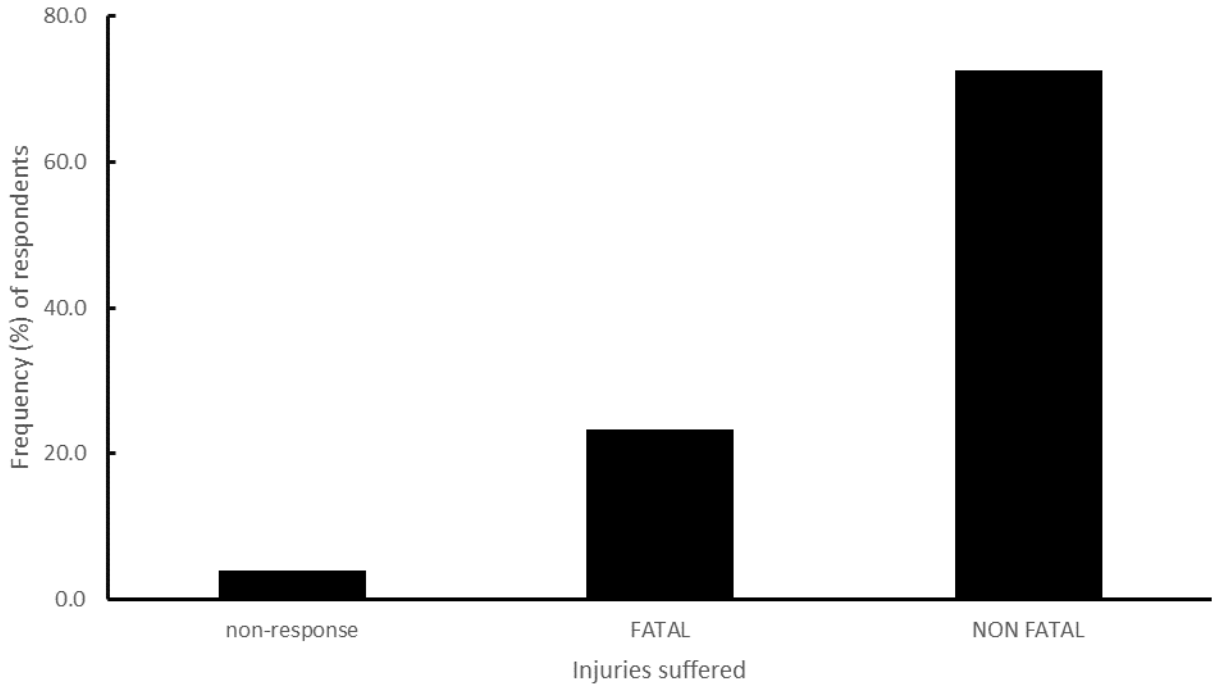


Figure 2: Injuries suffered

#### 4.3.2 Injury Suffered and Age

The results further showed that age had an influence on the type of injuries suffered ( $p=0.001$ ). It was found that 20.5% (n=48) of respondents in the age group 18-25 had non-fatal injuries while only 1.3% (n=1) of respondents in the same age group had fatal injuries. Furthermore, respondent above the age of 40 had more fatal injuries 56% (n=42) compared to the other age groups. The study further found that 40.2% (n=94) of the respondent in the age group of 26-40 had non-fatal injuries. Further, the study revealed variation with age group between fatal and non-fatal with a larger portion of any particular age group suffering from non-fatal injuries.

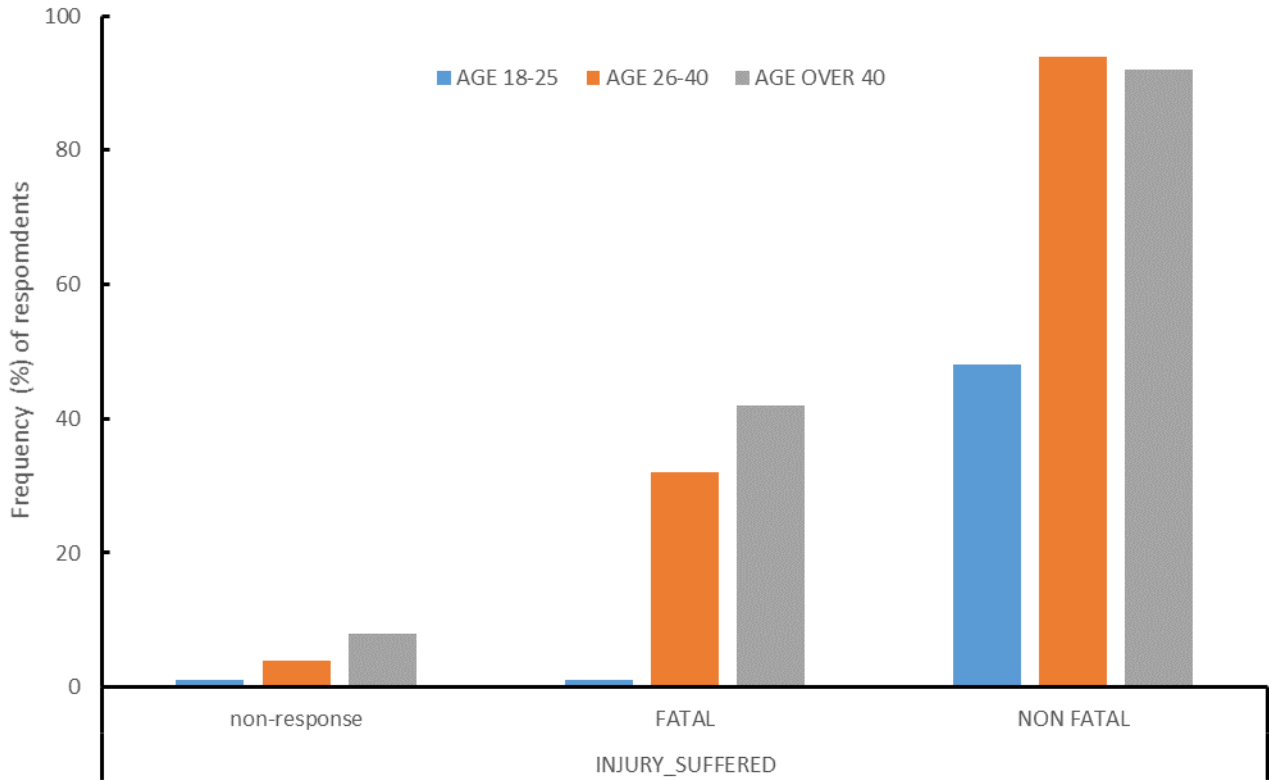


Figure 3: Injury Suffered and Age

#### 4.3.3 Injury suffered and longevity of employment

The results show that there is a relationship between injuries suffered and longevity of employment ( $P=.000$ ). It was found that 47% ( $n=151$ ) of the respondents who had worked a period of 10 years and above suffered more fatal and non-fatal injuries while .024% ( $n=8$ ) those who worked for a period of 1 year had the least fatal and non-fatal injuries (Figure 3). This shows that non-fatal was the most common injuries for durations of employment.

The results further suggest that age had an influence on the type of injuries suffered. Workers in the age group above 40 experienced more injuries than those below 40 years. This was also indicated by one key informant who indicated that'

*“The common causes of occupational accidents in Zambia are; poor safety culture, lacking training in basic safety information., poor housekeeping, the pressure of meeting deadlines, subcontracting,*

*work long hours in order to increase their earnings, workers on temporary contracts rarely have sufficient training and lack of maintenance on machinery (interview & Appendix 1, OSHSD-Factory Department)”.*

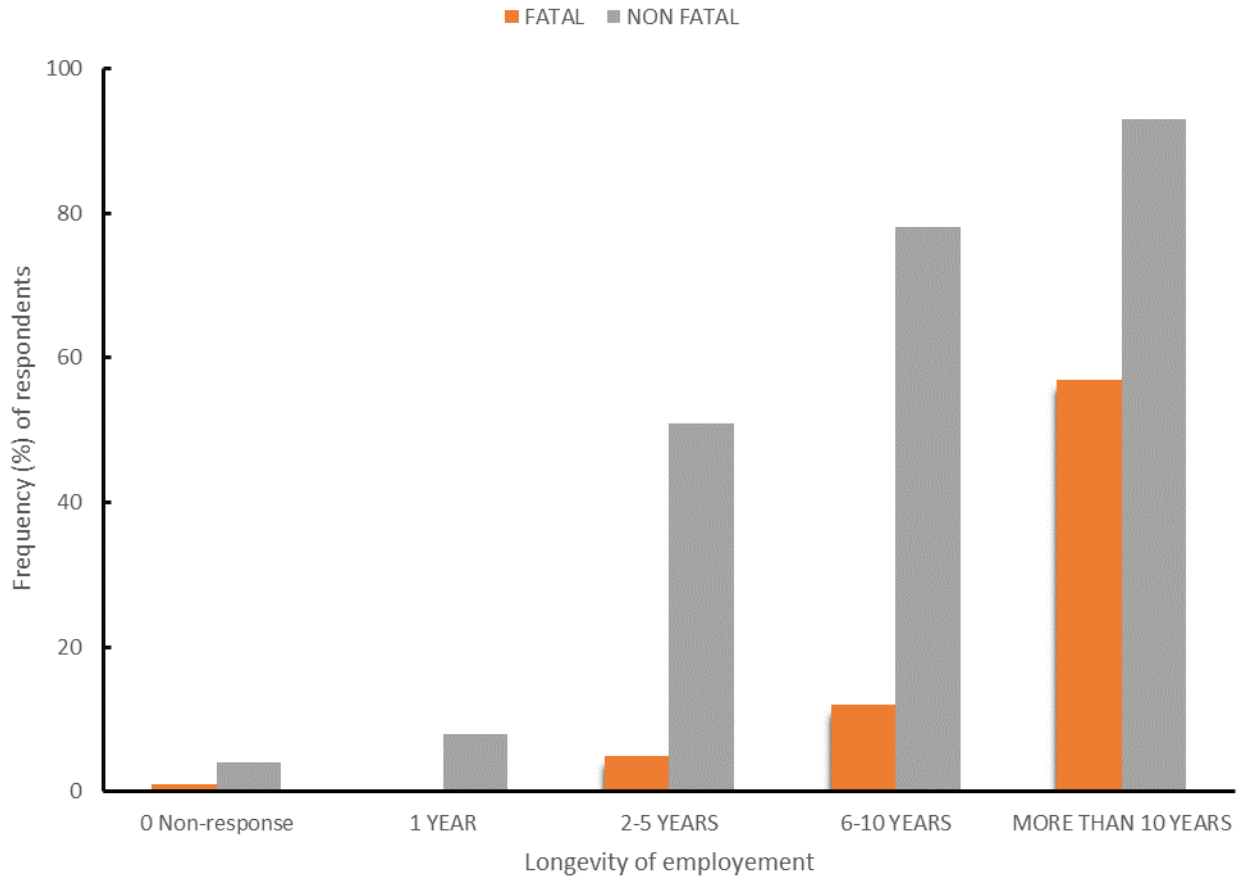


Figure 4: Injury suffered and longevity of employment

#### 4.3.4 Types of injuries

Different OHHI were found in the study (Figure 5). Inhaling toxic fumes 16.5% (n=53) were common amongst the respondents while abrasion were the least suffered injuries 0.9% (n=3). Furthermore, the results found that the most common types of OHHI were cuts/lacerations and inhaling of toxic fumes. This was also supported by many organisations in Zambia;

This was also confirmed by WCFCB in a statement that;

*“Common types of occupational injuries in Zambia include; cuts and lacerations, burns, dislocation, fractures, abrasions, spinal cord injury”*

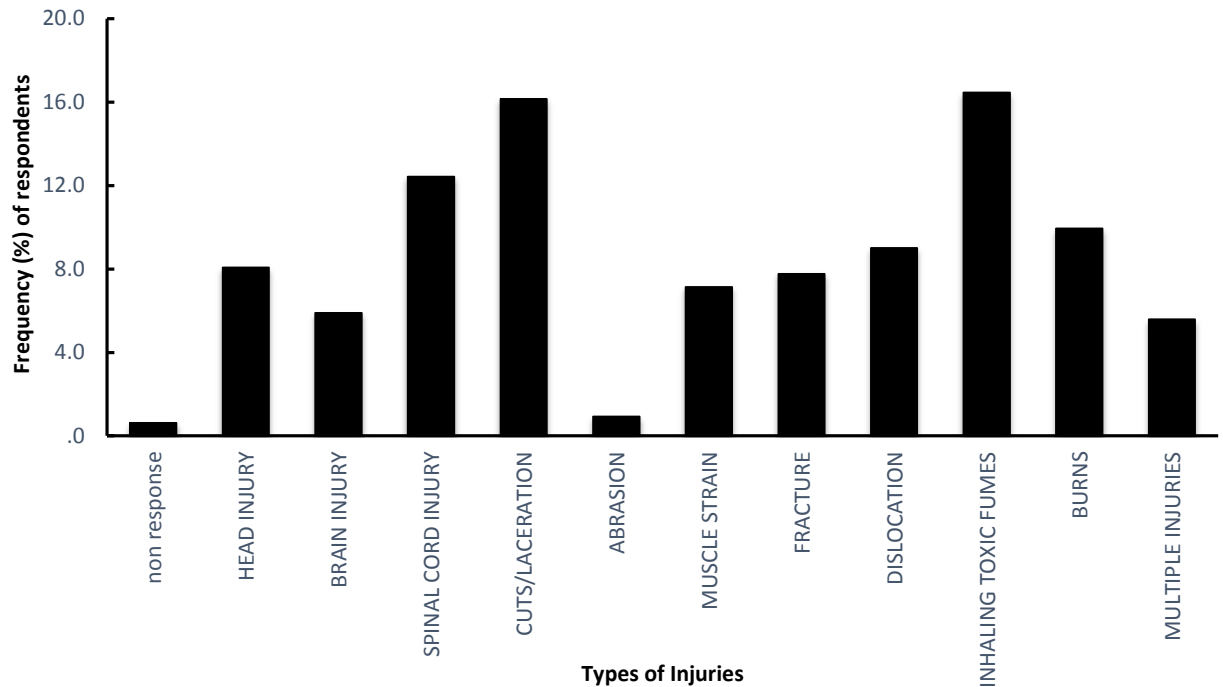


Figure 5: Types of injuries

#### 4.3.5 longevity of injuries of types of injuries

The results found a relationship between age and injuries suffered, and that the likelihood of one in a lower age group (18 - 25 years) suffering from an injury is less as compared to one in a higher age group (26 – 40 years) ( $P= .001$ , Appendix 3); The study further showed that age had no influence on the type of injury ( $P= .201$ , Appendix 3). This is evident as 15.5% ( $n=50$ ) of workers in age group 18-25 suffered injuries while 40.4% ( $n=130$ ) in the age group 26 – 40 suffered injuries and 44.1% ( $n=142$ ) above 40 years suffered injuries.

The results showed that the length of employment had no effect on the type of injury suffered ( $p=.581$ , Appendix 3). On the other hand, the study showed that the type of injury had an influence on the longevity of the injury ( $p=.001$ , Appendix 3). The study found that inhaling of toxic fumes 8% ( $n=25$ ) were from respondents who worked for 3-5 years while cuts and

lacerations 7% (n=23) for respondents with working length of less than 2 years. Similarly, for the period 5 – 10 years we expect one to suffer from spinal cord injury and more than 10 years we expect on to suffer multiple injuries (Figure 5). Further, the study revealed that the majority 37.58% (n=121) of the respondent had injuries for less than 2 years while 8.7% (n=28) had injuries that lasted more than 10 years as the least (Figure 6).

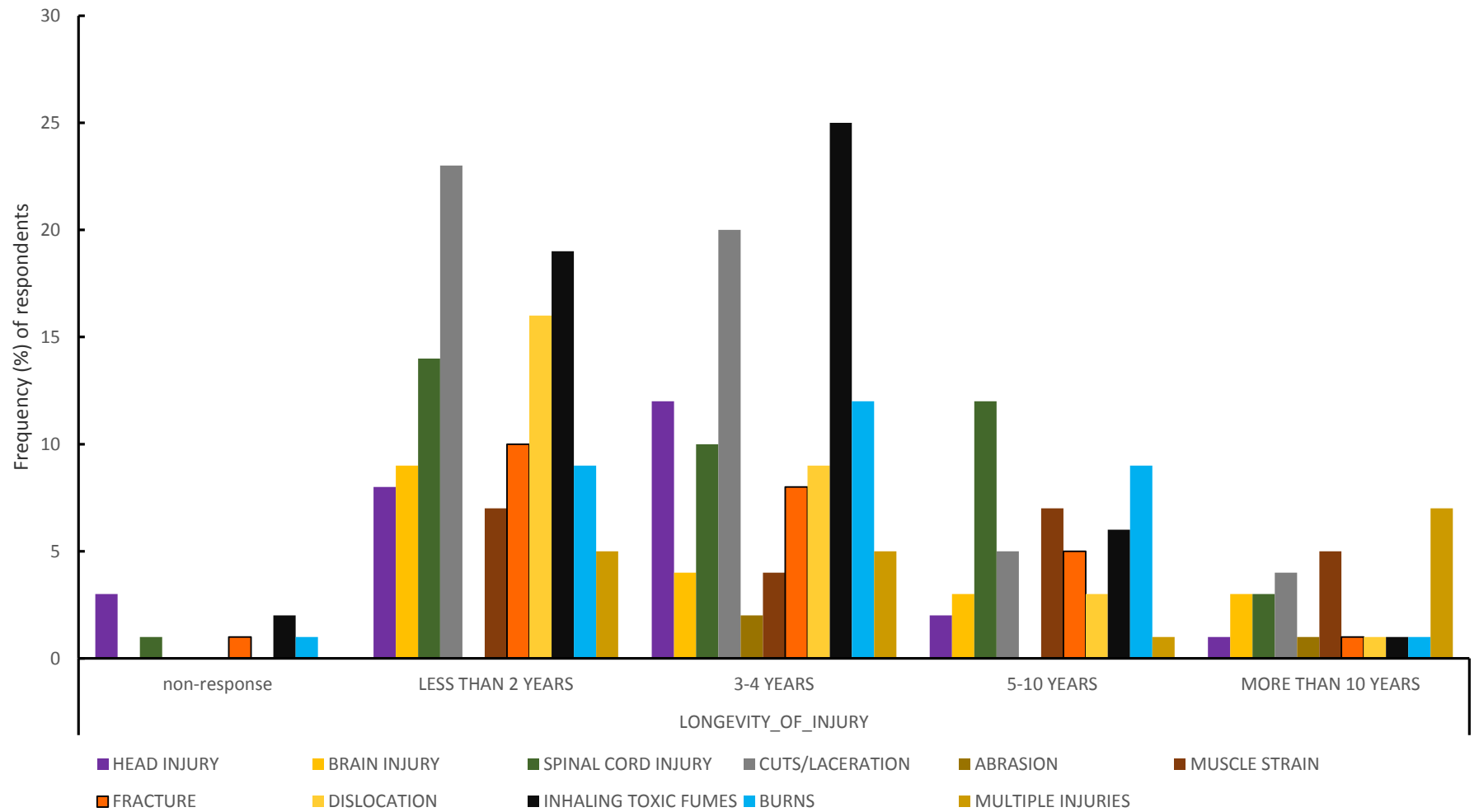


Figure 6: longevity of injuries of types of injuries

#### 4.4 Assessment of the effects of OHHI on the livelihoods of affected workers and families.

The results reveal that above quarter (1/4) of effected workers had OHHI with a duration of less than 2 years 37.58% (n=121) while 34.78% (n=112) had OHHI between 3-4 years. However, the other fractions of a quarter had OHHI with duration between 5-10 years 16.46% (n= 53) and others for more than 10 years 8.7% (n=28). Therefore, a larger portion of the affected workers had an injuries duration of atleast 2 years (Figure 7).

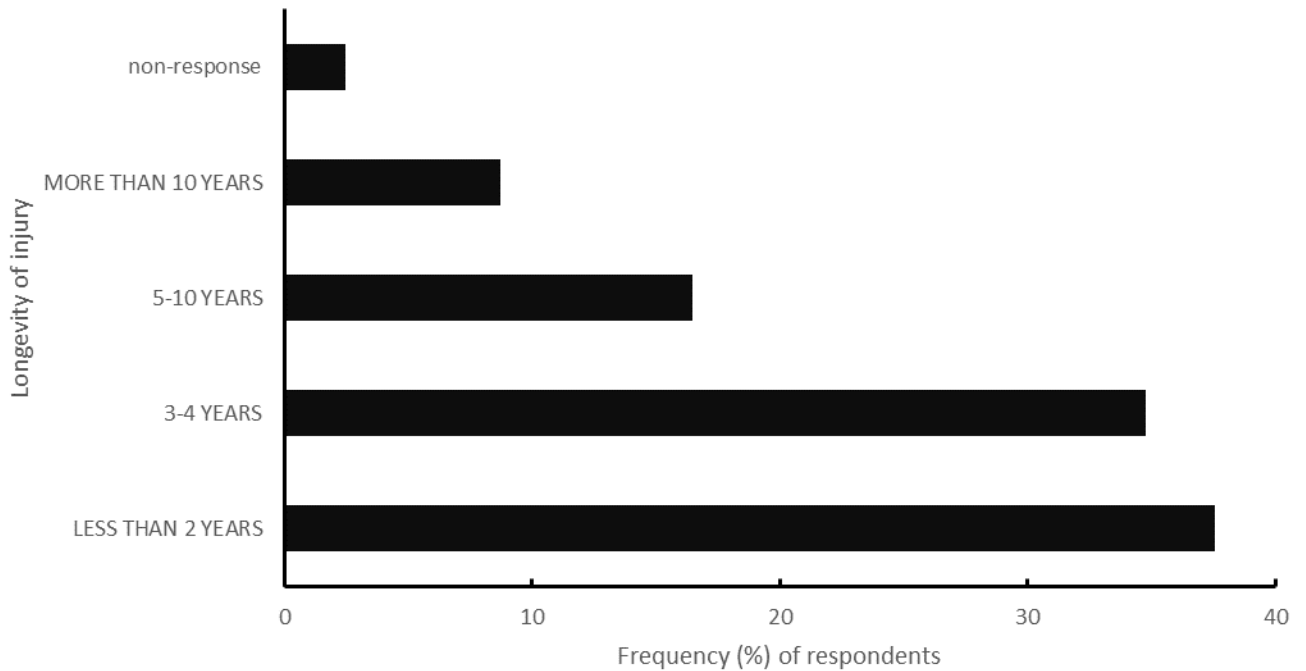


Figure 7: Duration of injury

##### 4.4.1 Challenge after injury

Further, the results in figure 8 reveals that more than half (77.3%, n=249) of the affected workers faced financial challenged to cope with after OHHI. On the other hand, other challenges faced included; chronic illness development physically challenges and increased medical bills. Therefore, the analysis found that the majority of the affected workers had financial challenges to cope with after occupational injuries suggesting that compensation after OHHI was not sustainable.

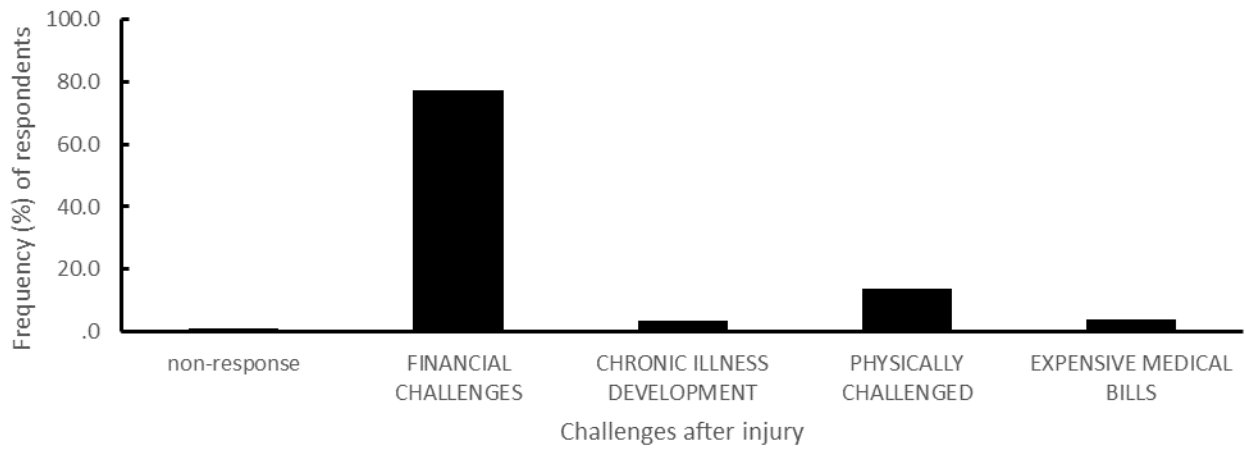


Figure 8: Challenge after injury

#### 4.4.2 Condition of work exit

The study found different condition of work exit, the results show that majority 25.5% (n=82) condition of work exit were medical and least 14% (45) condition of work exit were retired. The medical issues and death were the most common reasons why most of the workers left employment (figure 9).

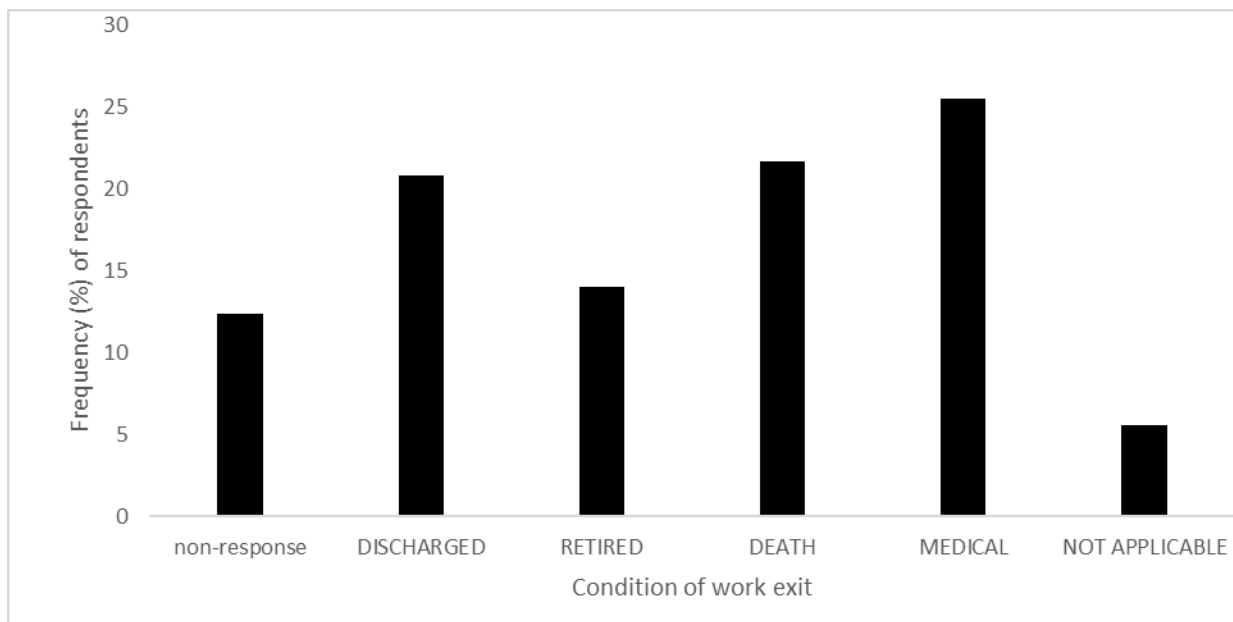


Figure 9: Condition of work exit

#### 4.4.3 Compensation by relevant body

The results show that 89.9% (n=289) of the OHI compensation were by relevant body while 9.9% (n=32) of OHI compensation were not by relevant body (Figure 10).

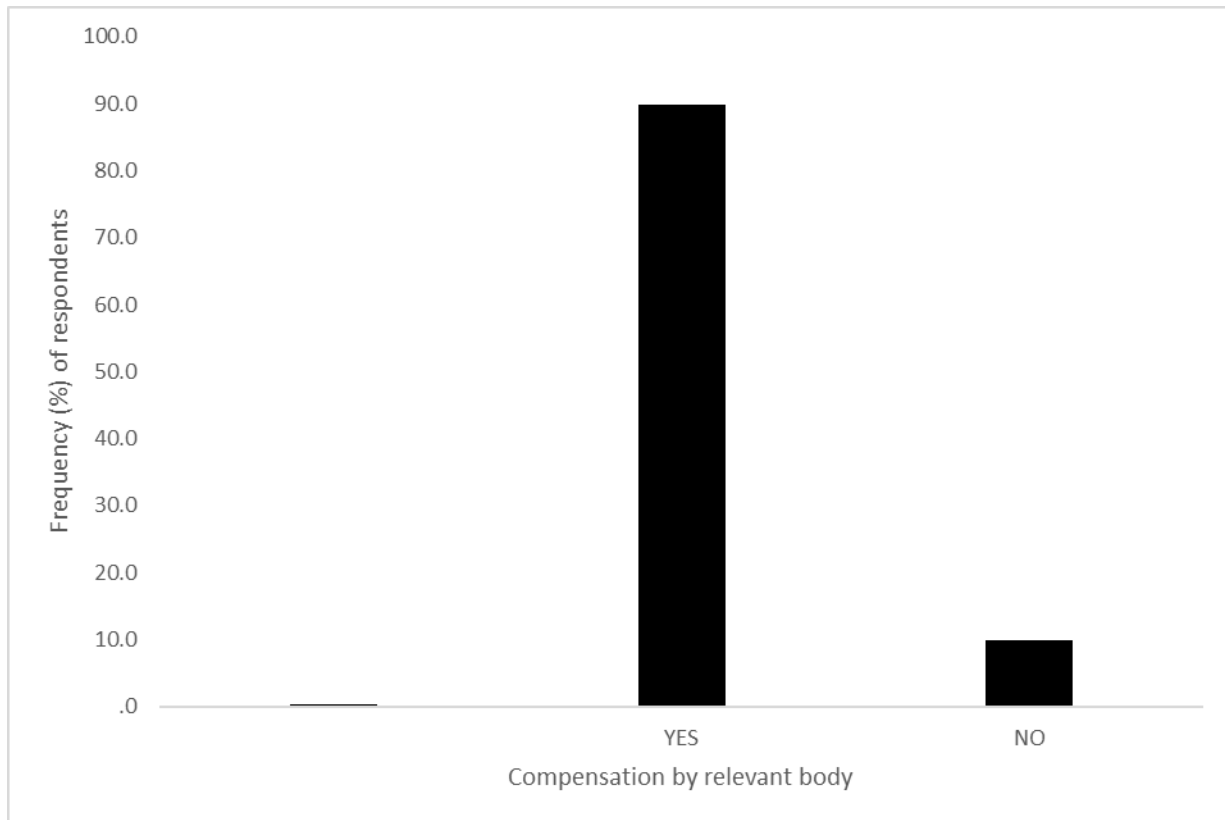


Figure 10: Compensation by relevant body

#### 4.5 Effectiveness of labour laws legislation

The study found that labour laws legislation are not protective enough. Results reveal that 48.45% (n=156) of the respondents indicated that labour laws legislation were not effective while 27.64% (n=89) indicated that labour laws legislation were protective enough. Further, the study revealed that 21.43% (n=69) indicated labour laws legislation were fairly protective and that 2.48% (n=8) did not respond. This analysis clearly shows that labour laws legislation are ineffective (Figure 11).

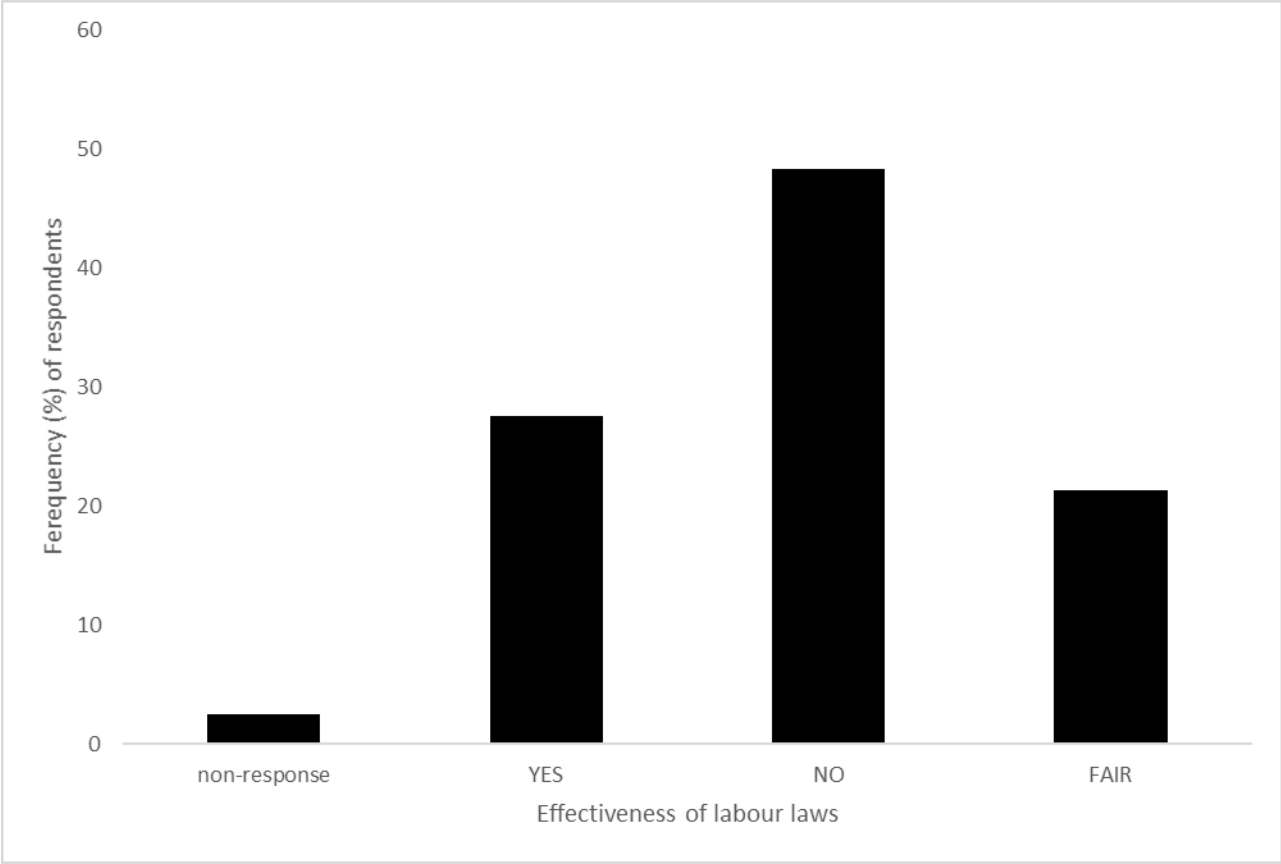


Figure 11: Effectiveness of labour laws legislation.

**4.5.1 Adequate safety structures in work place**

Although most of the worker have adequate safety structures in place as indicated in figure 12 showing that the majority said yes 33.2% (n=106) and 39.4% (n=126) fair to having adequate safety structures in their workplace, still most of them felt that there were gaps in the labour laws legislation that are supposed to be addressed if the labour laws legislation are to be effective.

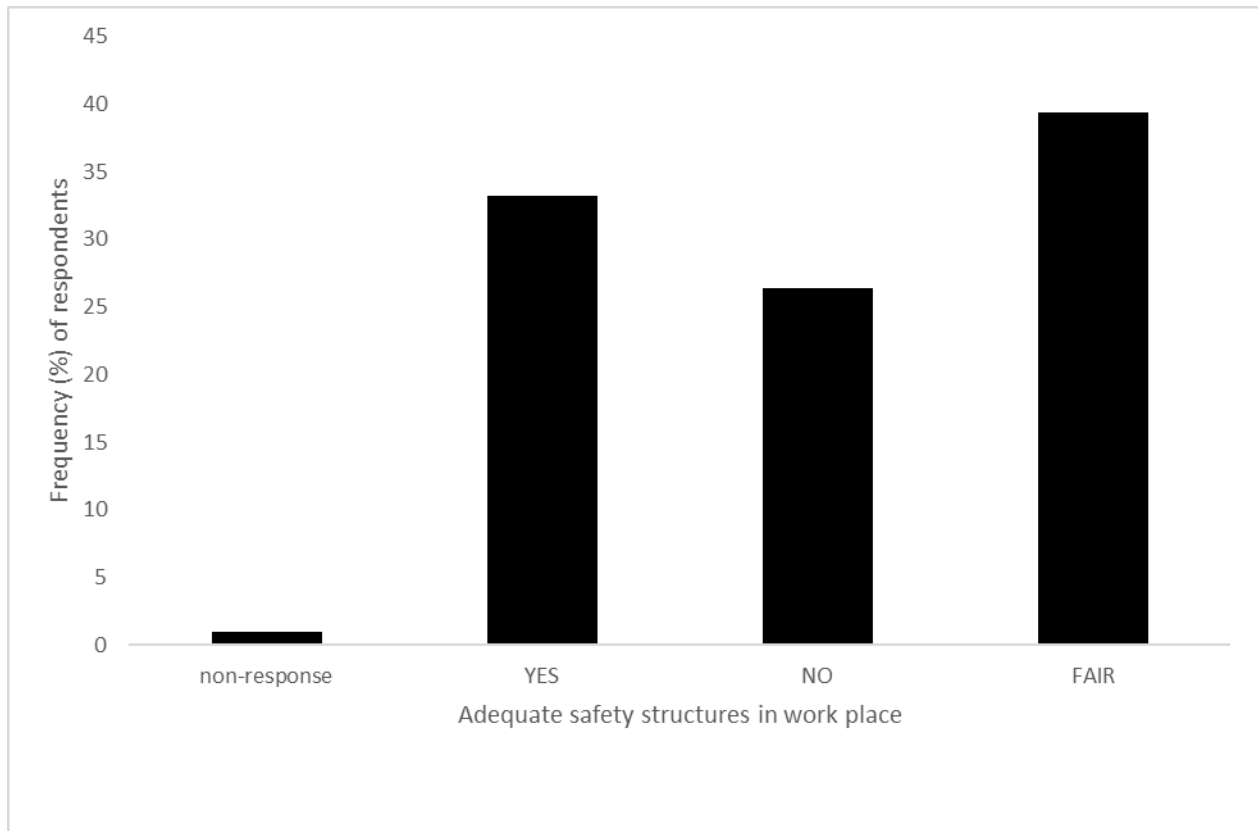


Figure 12: Adequate safety structures in work place

In backing up the argument that labour laws legislation are ineffective (figure 11), participants ranked gaps in labour laws legislation (Appendix 3). The study found that 17.1% (n=55) have the view that labour laws legislation needs to be revised, 29.5% (n=94) have the view that labour laws legislation are not enforced, 26.1% (n=84) have the view that labour laws legislation are not even applicable while 27.3% (n=88) did not respond. Thus, this shows that labour laws legislation are ineffective, hence there is need for a national policy and modification of the current laws to reflect the needs of the workers. For example, OSHSD and MSD indicated that *“Currently Zambia does not have a national policy covering the sphere of occupational safety and health and The Ministry of Labour and Social Security, through its Department of Occupational Safety and Health Services, has been marking efforts to bring stakeholders together in order to develop a national policy specifically addressing the subject of occupational safety and health. The Act is still under discussion.” (Interview & appendix 1).*

The following table shows the respondents responses to gaps in labour laws legislation gaps.

Table 2: Labour laws legislation being protective gaps

Response	Frequency	Percent
non-response	88	27.3
Revision of labour laws	55	17.1
Re-enforcement of labour laws	95	29.5
Not applicable	84	26.1

**4.5.2 Employees precautions**

The study further found that most of employees in (figure 13) are sober minded/ alert of work environment (38.0%, n=119) and follow safety rules (45.6%, n=150). However, others employees 7.5% (n=24) regularly go for medicals while 9.0% (n=29) did not respond.



Figure 13: Employees precautions

### 4.5.3 Employers precautions

The study found that employers take precautionary measures to ensure safety of workers (figure 14). The results reveals that employers does inspect workers/provide of safety clothes and environment (39.8%, n=128). However, the study reveals that employers do not do much in terms of implementation of safety rules, training of workers on safety rules and alertness/maintenance of work facilities. Therefore, this shows that there is need for concerted effort on the employers to ensure that the workers are less exposed to OHHI in working environment.

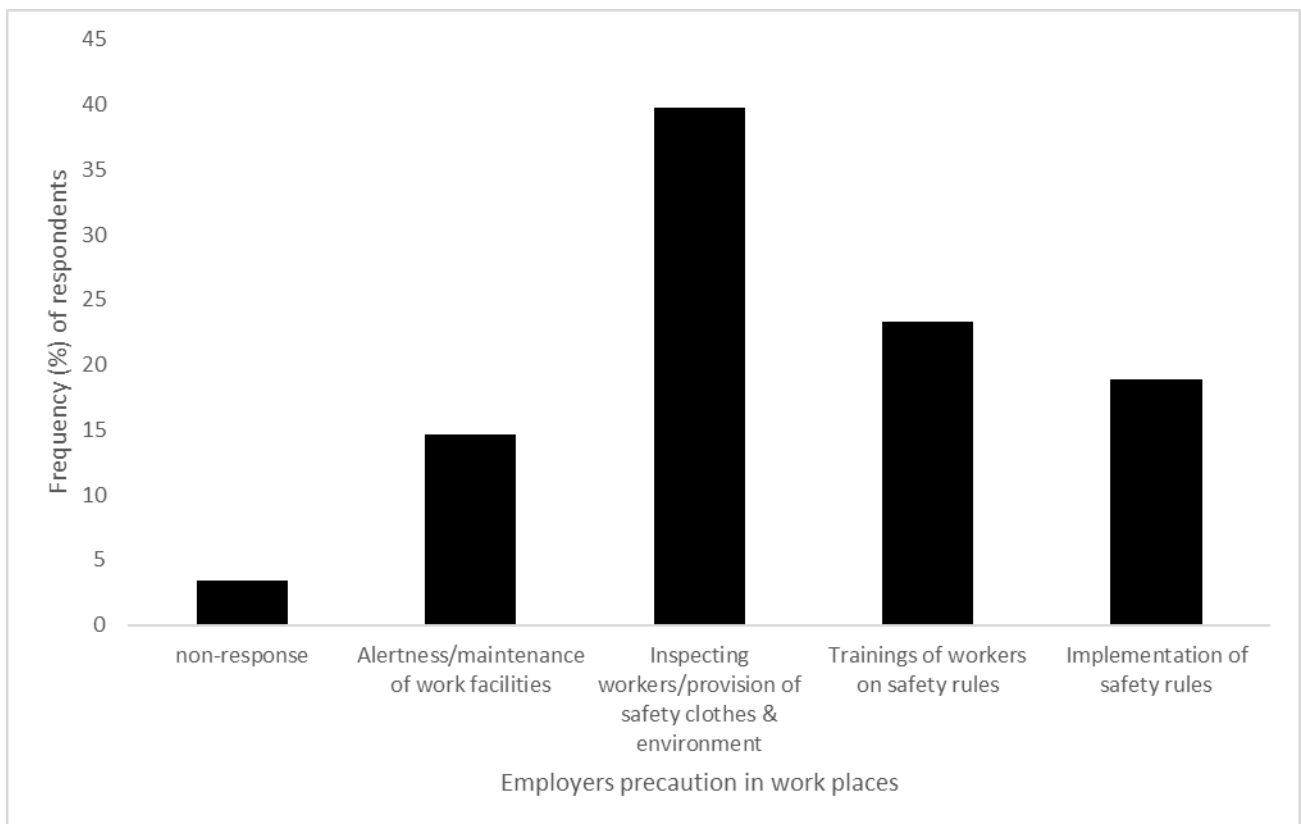


Figure 14: Employers precautions

From the in-depth interview one informant stated that:

*“Equally, organisations showed that, laws are there to guide both employers and employee and that occupational safety procedures are followed by both an employer and employee (interview & appendix 1, OHSI)”.*

### 5.5.4 Government precaution

The results further found that the government is strong at imposing stiff punishment on companies at fault and monitoring (35.4%, n=114). However, it also showed that government is weak on monitoring safety research workshops and training, labour laws legislation enforcement, protections of rights and safety institutions establishment. Therefore, the study reveals that government has not done much precaution to ensure workers avoid OHHI in work environments. (Figure 15).

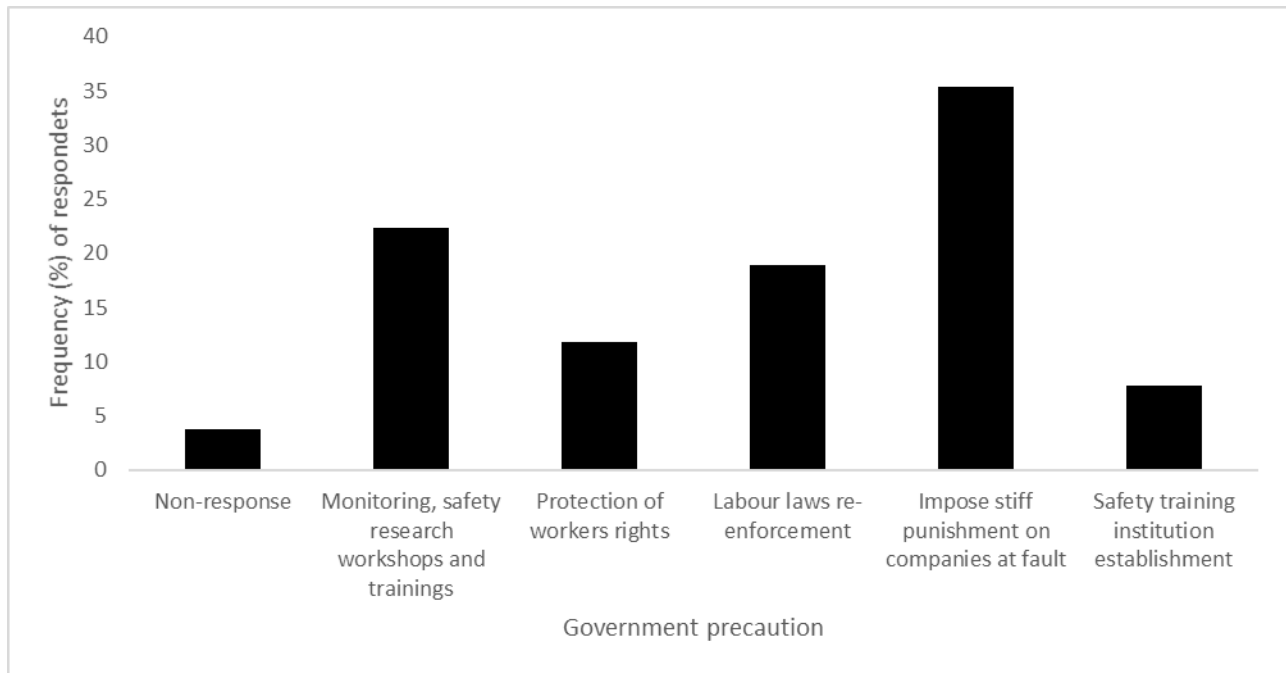


Figure 15: Government precaution

The study further found that the majority of workers did not have adequate safety structures in the work places. This was evident as the study revealed that 14.3% (n=47) of the respondents think that regular machine and facility servicing were missing in their work place, 13.7% (n=44) think that provision of safety clothing and facilities were missing in their work place, 4% (n=13) think sensitisations of safety rules were missing, 1.2% (n=4) think that expert manpower to operate machines was missing. However, only 31.4% (n=101) of the respondents indicated not applicable. Therefore, the study (table 3) reveal that majority of the respondents had inadequate safety structures in their work place.

Table 3: Adequate safety structures in work places

Response	Frequency	Percent
Non-response	113	35.1
Regular machine and facility servicing	47	14.6
Provision of safety clothing and facilities	44	13.7
Sensitisation on safety rules	13	4
Expert manpower to operate machines	4	1.2
Not applicable	101	31.4
Total	322	100

Appendix 1 is a summary of the roles and functions of organisations involved in issues of OHHI in Zambia. The table is also a reflections of these organisations understanding of the situations, most common OHHI, causes, government engagement, compensation measures and regulations around OHHI in Zambia.

This was also supported by one informant that indicated that:

*“Poor safety culture. Lacking training in basic safety information. Poor housekeeping. The pressure of meeting deadlines. Subcontracting, work long hours in order to increase their earnings. Workers on temporary contracts rarely have sufficient training. Lack of maintenance on machinery. (Interview & appendix 1, OSHSD- Factory Department)”*

## **CHAPTER FIVE**

### **DISCUSSION OF THE FINDINGS**

#### **5.1 Introduction**

This chapter presents the discussion of the findings of the study. The discussion centered around the main objective which was to determine the impact of occupational health hazards and injuries on the livelihood of affected workers and their families; a case of Kitwe District in Zambia was answered through the specific objectives which included; assessing the types of occupational health hazards and injuries among industrial workers of Kitwe District, assessing the socio-economic effects of occupational health hazards and injuries on the livelihoods of affected workers and families of Kitwe District and to determining the effectiveness of labour laws legislation and safety strategies against occupational health hazards.

#### **5.2 General Discussion of the Results**

The study found that the major types of occupational injuries suffered from were; head injury, brain injury, spinal cord injury, cuts/laceration, abrasion, muscle strain, fracture, dislocation, inhaling toxic fumes, burns and multiple injuries, with cuts/lacerations and inhaling toxic fumes as being the major conditions suffered from and that these occupational injuries affecting workers are mostly non-fatal (Figure 5).

Further, the study also found that effects of occupational health hazards and injuries on the livelihoods of affected workers and families includes; financial challenges, chronic illness development, physical challenges and expensive medical bills (Figure 8). It also revealed that, workers and their families were adversely affected with severe effects lasting for atleast 2 years (Figure 7).

The study found labour laws legislation on occupational hazards and injuries in Zambia to be ineffective and need reform, re-enforcement and be made applicable to the current working conditions. In additional, it was found that because labour laws legislation are ineffective, employees, employers and government are taking precautionary measures to ensure that occupational hazards and injuries are minimized in workplaces (Figure 11).

This study evaluated the effect of OHHI on the livelihood of workers in Kitwe district. The study found that most of the injuries despite influencing livelihoods are non-fatal. Furthermore,

respondents in the age groups 26-40 and above 40 had incurred more injuries than those below 26 years old. The study further assessed the types of OHHI affect workers in Kitwe. The study clearly suggest that, most of the workers are badly affected by OHHI. The findings further suggest that, workers are subjected to chronic illness, physical, expensive medical bills and financial challenges.

### **5. 2.1 Types of occupational hazards and injuries on the livelihoods of the affected workers**

The results from the current study showed that most of the injuries suffered were non-fatal. The major types of injuries suffered were head injuries, spinal cord injuries, cuts/lacerations, dislocation and burns. Besides these injuries, the study also found that inhalation of toxic fumes among respondents was a commonly reported hazard. The current finds are in consonant with previous finding by (Michelo et al, 2009, Hamalainen, 2010; Siziya et al., 2012; National Statistics, 2016). The occurrence of these injuries may be due to, lack of preparations, mental distractions, neglecting safety procedures, shortcuts, poor or lack of housekeeping. According to Siziya et al (2010), most accidents and injuries were not just caused by a small mistake or simple mishap from busy workers but tied to employer or employee negligence. Hence, training, signage and access to the necessary safety equipment can all be in good health. Recent research establishes the most frequent mechanism of injury, was handling of tools and materials. Evidence from CSO and the Ministry of Labour and Social Security reported in 2006 that 20.6% of employed person reported work related injuries with 61.6% having suffered back/muscle pains, 20.3% wounds/deed cuts, 14.2% sight problems, and 3.9% hearing problems. The data suggest that workers in Zambia face poor working conditions.

The results further found that age had an influence on the type of injuries suffered. Workers in the age group above 40 experienced more injuries than those below 40 years. A large body of research has shown that age has an influence on the type of injury suffered (Siziya et al., 2010; Fingerhut, 2005; Michelo et al: 2009). This can be attributed a lot of factors:

This was also indicated by one key informant who indicated that'

*“The common causes of occupational accidents in Zambia are; poor safety culture, lacking training in basic safety information., poor housekeeping, the*

*pressure of meeting deadlines, subcontracting, work long hours in order to increase their earnings, workers on temporary contracts rarely have sufficient training and lack of maintenance on machinery (Interview & appendix 1, OSHSD-Factory Department)”.*

### **5.2.2 Common injuries and why they are these injuries common**

Various studies have identified the most common accidents and injuries such as; slips and falls, muscle strains, crash and collisions, cuts and lacerations (National Statistics: 2016). Siziya et al (2012) further identified that, inhaling toxic fumes is as well common in many workplaces that contains hazardous substances in the form of dusts, fumes, mists, gases and vapours. For instance, WFCFCB indicated that *‘cuts and lacerations, burns, dislocation, fractures, abrasions, spinal code injury are the common injuries in Zambia’* (Interview & appendix 1).

However, many analysts argue that these OHI are common in developing country. Particularly in Zambia this can be attributed a lot of factors such lack of safety awareness and programs, negligence from both sides example, workers are given safety boots but they don’t use them, inadequate coverage of occupational safety and health in vocational and technical courses etc.

This was also supported by most of the organisations. For example, MSD, ILO and Factory Department who indicated that the common causes of occupational accidents in Zambia are: structure of the industry/working sites and poor working conditions, neglecting safety procedure lack of preparations, management considers safety as a cost not a gain and faulty machinery” (Appendix 1). This was equally supported by (Kunda et al., 2013) that most employers in Zambia do not pay attention to the health and safety of their employees, as they consider this to be costly.

Equally, (CSO, 2012 & Michelo et al., 2009) added that, workers are not taking the proper precautionary measures before working, or they are simply too lazy to be bothered with it. A majority of workers seem to like to find “things” to blame when workplace accidents occur rather than “root causes”

According to Driscoll et al., (2005) over 4,405 workers are killed every year while on the job and millions more suffer serious non-fatal injuries. Factors related to occupational health hazards

and injuries are categorized as; environment, task, organizational, material and human, and maintenance (Hamalainen, 2010; Fingerhut, 2005; Michelo et al: 2009; Cooper, 2000; Katsakior, 2008; Ezenwa, 2001; Dembe et al., 2005). Typically, studies have investigated and identified the fault of the personal involvement in the accidents. Workers were not taking the proper precautionary measures before working, or they were simply too lazy to be bothered with it (Mills: 2009, CSO: 2012, Michelo et al., 2009).

Although Zambia has no policy on occupational accidents and injuries, there are occupational safety and health standards designed to eliminate personal injuries and illnesses from occurring in the workplace. These standards are enforced through periodic inspections conducted in workplaces subject to regulations (Moyo, et al., 2015). The standards often require employers to adopt certain practices to protect workers on the job, employers required to be familiarized themselves with applicable standards and remove any hazards that might pose a threat to employees. Although access to health and safety has had an inexplicably challenging gestation globally, more evidence showed that more than 2 million work-related death and about 300 million nonfatal occupational accidents occur annually, resulting in global economic costs contributing and same goes for Zambia (ILO:2012). To help reduce OHHI in workplaces, WCFCB provides free OSH programmes which includes health and safety, lectures, seminars, inspections and appraisal visits. Generally, there are safety precautions observed by most of the workplaces in the country.

### **5.2.3 Injury and age**

The results reveal that even with the injury type there were variations within age groups. However between age groups, the group 18-25 had the least injuries, this is a stranger results because theoretically this age group is expected to be entering the labour force and thus cannot chose employment whether its risk or not. Could this be because people in this age group are mostly in schools and colleges or that most of the people find jobs after 25 years? This findings is inconsistent with those found by Siziya et al, 2012 and Muula et al, (2010) who found that old age was associated with OHHI.

#### **5.2.4 Injuries suffered and longevity of injuries.**

The results suggest that the type of injury had an influence on the longevity of the injury. Equally, ILO (2005) reported that, 3.3 million people worldwide suffer an occupational health hazards and injury from which victims may never recover. Most of the workers who were affected by inhaling of toxic fumes and those with cuts and lacerations had longevity of injuries between 3-5 years while those affected by multiple injuries had longevity of injuries above ten years.

However, study also revealed that most of these occupational injuries affecting workers are mostly non-fatal. This findings consistent with many recent national reports findings. For instance. CSO and the Ministry of Labour and Social Security reported in 2006 that 20.6% of employed person reported work related injuries with 61.6% having suffered back/muscle pains, 20.3% wounds/deed cuts, 14.2% sight problems, and 3.9% hearing problems. Similarly supported those by Work Safe Driscoll et al., (2005), who found that over 4,405 workers are killed every year and on the job while millions more suffered serious non-fatal injuries.

#### **5.2.5 Effects of occupational health hazards and injuries on the livelihoods of affected workers and families**

The study found that that injuries suffered had influence on the livelihood of works. The study found that most respondents had injuries that lasted more than a year. However, it found that the longest period for the duration of an injury was 2 years.

The study found that financial challenges, chronic illness development, physical challenges and increased medical bills were that effects of occupational health hazards and injuries on the livelihoods of affected workers and families includes. It also showed that the majority of workers are financially challenged with occupational hazards and injuries. Equally, the results revealed that, workers were badly affected by occupational hazards and injuries. On the other hand, it found that occupational health hazards and injuries have severe effects on livelihood of affected workers and their families which mostly last less than 2 years. These findings are consistent with those by (Takala, 2000) who found that, in developed countries, the total economic costs of work injuries approximate those of cancer and heart disease. Victims suffer considerable financial loss as a direct result of their injury or illness. These costs include ongoing medical costs, direct income loss, transport costs, and losses related to lifestyle changes people had to make because

of their condition. These findings are also supported by (Mills, 2009) which asserts the socio-economic effects of occupational health hazards and injuries are severe if not taken care of and induce costs in terms of both human costs and socio-economic costs. With Socio-economic costs stemming from hospitalization, long-term care, material damage, police and rescue service, production loss, and welfare loss.

### **5.2.6. Effectiveness of labour laws Legislation**

The results found that labour laws on OHI were ineffective. This was shown (Figure 11) in the distribution of effectiveness in which 48.45% (n=156) indicated that labour laws were not protective enough, 27.64% (n=89) indicated that labour laws were protective enough and 21.43% (n=69) indicated that labour laws were fairly protective enough, this clearly show that the majority perceive labour laws not to be effective. In addition, the labour laws gap ranking responses (Appendix 3) revealed that labour laws on occupational hazards and injuries are ineffective because they needed them to be re-enforced, revised and made applicable to suit the current situation or worker's needs.

### **5.2.7 Precautions in Work Environments**

Furthermore, the study results found that because labour laws are ineffective, employees (workers) are taking precautionary measure at work in order to avoid occupational hazards and injuries (figure 13). The study also found that employers and government play a role if laws are to be effective as depicted in Figure 14 and 15 respectively. For example, ILO indicated that *“Cap 441 Factory Act is the law which regulates safety and health in workplaces and that labour laws are there to guide both an employer and employee”*. These findings are consistent to those by the (Siziya et al., 2012; Chabala, 2005) who argue that injuries at work are largely preventable by improvements to make work safer and healthier, improving engineering controls, administrative policies, health and safety information, and education to promote safety attitudes and behaviors are needed worldwide. Ezenwa (2001) also asserts that improved surveillance data must be developed to provide the basis for targeting prevention measures towards high-risk worker groups. Similar analysis and preventive actions in other nations can greatly reduce injuries in the workplace.

Similarly, this finding is also supported by Michelo et al (2009) who argues that workplace can be an extremely hazardous place and not only is it the employer's responsibility to ensure a safe

working environment; each employee also has a responsibility to take caution when on the job. Training, signage and access to the necessary safety equipment can all be a big help, with regular risk assessments being a necessity within the workplace to help to avoid unnecessary mishaps.

Results also found that even though government is strong at imposing stiff punishment on companies at fault and monitoring its lags behind when it comes to monitoring safety research workshops and training, labour laws enforcement, protections of rights and safety institutions establishment.

*Government wants every employer to promote a safe environment to protect the lives of all citizen (Interview & appendix 1, WCFCB).*

Therefore, the study reveals that government has not done much precaution to ensure workers avoid OHI in work environments (Figure 15).

### **5.3 Policy on Occupational Safety and Health (OSH).**

The study found that the country has no policy on OHHI but rather encourage employers through the OHSI to prepare a health and safety policy. For example, OSHSD and MSD indicated that “Currently Zambia does not have a national policy covering the sphere of occupational safety and health and The Ministry of Labour and Social Security, through its Department of Occupational Safety and Health Services, has been making efforts to bring stakeholders together in order to develop a national policy specifically addressing the subject of occupational safety and health. The Act is still under discussion.” (Interview & appendix 1). Therefore, the absence of a national policy makes it difficult for the government and other relevant stakeholders to fully inspect and routine evaluation because for inspections to be done there is need for a policy to support that.

## CHAPTER SIX

### CONCLUSIONS AND RECOMMENDATIONS

#### 6.1 Introduction

This chapter presents the conclusions and recommendations of the study based on objectives and findings.

#### 6.2 Conclusion

Occupational accidents often cause injuries that may leave an employee incapacitated or may lead to death. An occupational injuries has the potential to affect an employee's quality of life, career opportunity and progression, income, job security and psychological stress. The death of an employee on the other hand has the potential to affect business and country's economy through lost man power and productivity. Death of a bread winners may lead to poverty for surviving spouses, children and dependants their by increasing burden on Government to reduce poverty.

Workers are exposed to different occupational health hazards which posse risk on their productivity. This has led to putting up policy interventions such as the convention act of 1965, factories Act, occupational health and safety Act workers compensation Act of 1999 to the recent Occupational Health and Safety Act. However, despite measures put in place to address issues of occupational health and safety in the country, the situation stills remains the same. This is evident from the current statistics of injuries and fatalities reported which are still very high with a large number of OHHI remain unreported. This study concluded most of the injuries are non-fatal with the common ones being head injury, brain injury, spinal cord injury, cuts/laceration, abrasion, muscle strain, fracture, dislocation, inhaling toxic fumes, burns and multiple injuries, with cuts/lacerations and inhaling toxic. It also found that OHHI have adverse effects on employees which includes; financial challenges, chronic illness development, physical challenges and medical bills.

Finally, it found that the current labour laws legislation on occupational hazards and injuries in Zambia are ineffective as they do not meet current conditions of the labour laws. A lot still need to be done starting with the introduction of a national policy on occupational health hazards,

routine inspection and improved enforcement as well as aligning occupational health standard to the current labour conditions.

Government has failed to put in place a comprehensive National Policy covering the sphere of occupational safety and health. Government developed piece meal policies on safety and health in the health, labour and mining sectors whose implementation is not coordinated. This therefore, leads to occupational safety and health interventions being implemented haphazardly with no clear directions, hence duplication and overlapping of roles.

### **6.3 Recommendations**

In view of the results of this dissertation, the following recommendations emerged from the study;

1. Need reforms, re-enforcement and making current laws applicable to the needs the current working conditions of workers
2. Avoidance of OHHI should not be left to employees only, but that employers and government should also be taking precautionary measures in order to ensure safety in work places.
3. Introduction of a stiff punishment/penalties for employers who do not comply or abide by the good occupational safety and health standards.
4. Companies should come up with a tailor made, user friendly safety and health policy to complement the Factories Act.
5. Awarding of tenders for projects should be done on merit with incorporation of safety and health policy as a requirement for the selection criteria.
6. There is need to have a national policy on occupational health safety which employers have to comply to.
7. There is need to increased funding and human resource to aid in the routine monitoring and inspection of occupational health safety in companies.
8. Emphasis on safety in workplaces must be part of a holistic effort in Zambia to create a safer society. Workplace should comply with the laid down regulations.
9. Safety and health awareness must be instill at an early age in would be employers and employees. The ministries should establish more schools, colleges and universities of occupational safety and health.

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## APPENDICES

### Appendix 1: Organisations profile and roles on OHHI

	RESPONSES	ORGANISATION/INSTITUTION					
		WCFCB	MDS	OSHSD	OHSI	FACTORY Dpt	ILO
<b>Role</b>	Pay compensation to the injured workers who incur injuries in the course of employment and also to compensate dependents.	√	×	×	×	×	×
	To administer and enforce the Factory Act to protect workers from occupational hazards.	×	×	√	×	×	×
	Promote occupational safety and health in the country.	√	√	√	√	√	√
	Administer and enforces legislation regarding the safe and sustainable mining activities.	×	√	×	×	×	×
	To promote safety and health standards in workplace- WASHA standards.	√	√	√	√	√	√
	Adviser to the Ministry of Health on occupational health and safety.	×	×	×	√	×	×
<b>Reporting Ministry</b>	Ministry of labor and social security	√	×	√	×	√	×
	Ministry of mines, energy and water department	×	√	×	×	×	×
	Ministry of Health	×	×	×	√	×	×

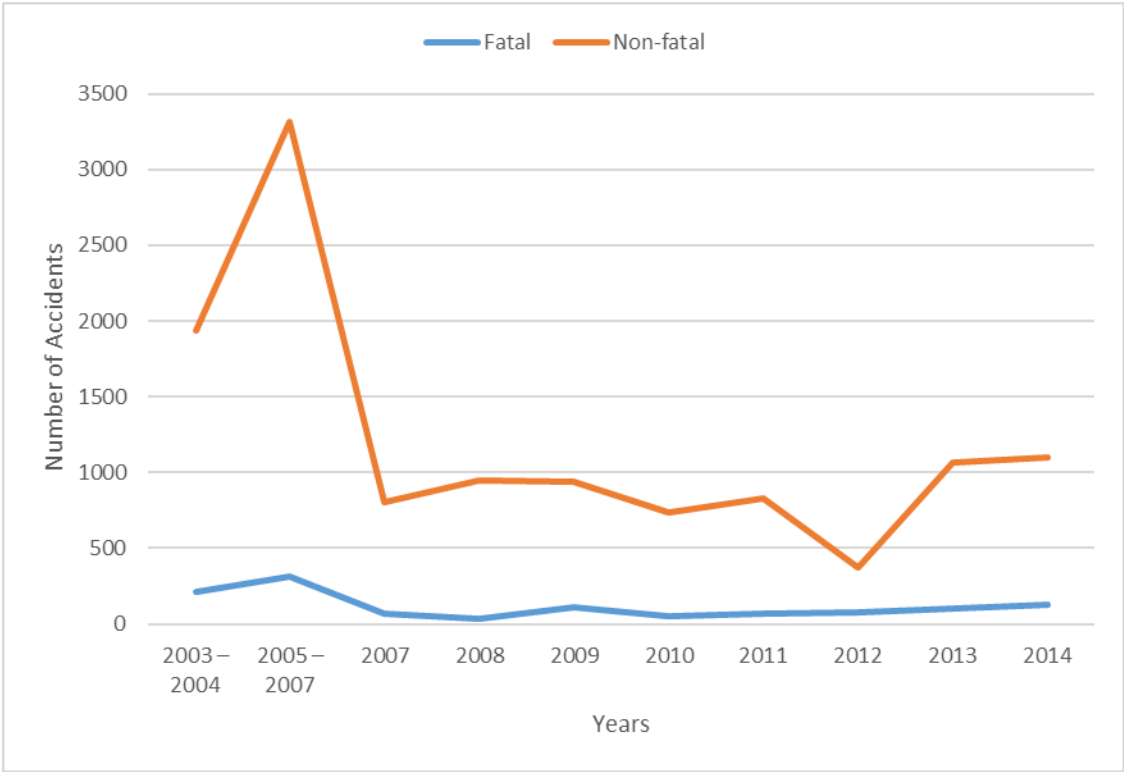
<b>Incidence and prevalence of OHHI</b>	Increasing but poorly reported	√	√	√	√	√	√
	They are real, common and Increasing every time	√	√	√	√	√	√
	Prevalence of accidents proportional to production	×	√	√	×	×	√
<b>Common OHHI in Zambia</b>	Cuts	√	√	√	√	√	√
	Laceration	√	√	√	√	√	√
	Burns	√	√	√	×	√	√
	Dislocations	√	√	√	×	√	√
	Fractures	√	√	√	×	√	√
	Abrasions	√	√	√	√	√	√
	Spinal code injuries/head injury	√	√	√	×	√	√
	Contusions	×	√	√	×	√	√
	Diseases like TB	×	×	×	√	√	√
<b>Sector recording highest accident</b>	Mining	√	√	√	√	√	√
	Quarrying	√	√	×	√	×	√
	Construction	√	×	×	√	√	√
	Manufacturing	×	×	×	×	×	×
<b>Common causes of OHHI</b>	Lack of safety awareness and programs	√	×	√	×	×	√
	Poor working conditions	√	√	√	×	×	√
	Lack of preparation	√	√	√	√	√	√

	Management considers safety as a cost not a gain	×	√	√	√	√	×
	Faulty machinery	×	√	√	×	√	√
	Poor house keeping	×	√	√	√	√	√
	Pressure of meeting deadlines	×	√	√	×	√	√
	Subcontracting work in order to increase earnings	√	√	√	√	√	√
	Insufficient training	√	√	√	√	√	×
	Lack of maintenance of machinery	×	√	√	√	√	√
	Poor safety culture	×	√	√	√	√	×
<b>Safety precautions observed</b>	Mining sectors equipped on PPE	√	×	×	×	×	√
	Creating a conducive working environment	√	√	√	√	√	√
	Laws on occupation safety and health	√	√	√	√	√	√
	Supervision and inspection of mines	×	√	×	×	×	√
<b>Importance of safety and health</b>	To protect the lives of workers	√	√	√	√	√	√
	To guide both an employer and employee on safety and health	×	√	√	√	√	√
	Provide comprehensive, specialized occupational health care of optimal quality, responsive to the needs of citizens	×	×	×	√	×	×
	Awareness of legislation regarding occupational safety	√	√	√	√	√	√

<b>National Policy</b>	Policy on occupation safety and health	×	×	×	×	×	×
<b>Government effectiveness on occupational safety</b>	Effective	√	√	√	√	√	√
	Effective but cannot be measured	×	×	×	×	√	√
<b>Workforce protection on labour laws by government</b>	Provide protection for workers	√	√	√	√	√	√
	Companies not observing labour laws	√	√	√	√	√	×
	Victims are compensated	√	√	√	√	√	√
	Legislative framework is provided	√	√	√	√	√	√
	Workers have not taken advantage of labour laws	×	×	×	×	√	√
	Laws are outdated and needs to be revised	×	×	√	×	√	×
<b>Employee eligible to be compensated</b>	All Zambian employees except from government, police service and all security wings of government	√	√	√	√	√	√
	Any employee whose employer remits to workers compensation	√	√	√	√	√	√
	Accident victims who undergo scrutiny and qualifies to be compensated following the laid procedures	√	√	√	√	√	√
<b>Influencing a</b>	Give safety talks	√	√	√	√	√	√
	Routine inspection	√	√	√	√	√	√

<b>safer work environment</b>	Holding workshops regularly	√	√	√	√	√	√
	Training workers on safety issues PPE as a risk assessment tool to reduce accidents	√	√	√	√	√	√
	Law enforcement	√	√	√	√	√	√
	Allocation of more funding so that the work places are inspected regularly	√	√	√	√	√	√
	Management to invest in safety and health activities	√	√	√	√	√	√
	Maintenance of machinery	√	√	√	√	√	√
	Setting up a standalone department for safety and health	√	√	√	√	√	
	Investing in technology	√	√	√	√	√	√
	Observing safety measures (be a brother's keeper)	√	√	√	√	√	√
	Giving annual reports on accidents	√	√	√	√	√	√

**Appendix 2: Accidents and diseases notification by nature of Injury trend 2003-2014**



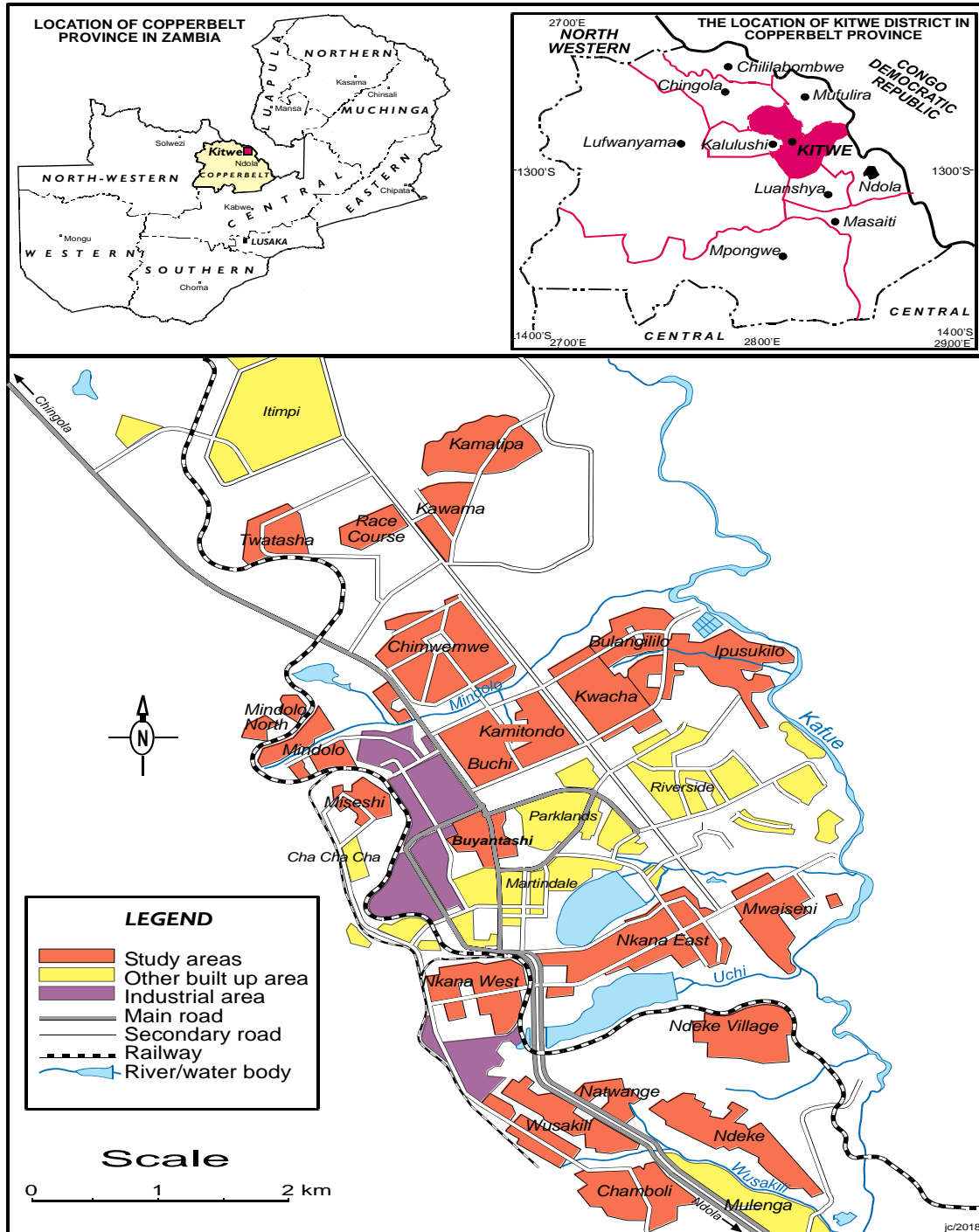
### Appendix 3 Statistical analysis summary table

Variable Name	Degree of freedom	P-value
<b>Level of educations</b>		
Type of injury	22	.004
Injury suffered	4	.706
Challenges after injury	8	.539
Longevity of injury	8	.398
Effect on life		
<b>Age</b>		
Type of injury	22	.201
Injury suffered	4	.001
Challenges after injury	8	.067
Longevity of injury	8	.000
Effect on life	6	.547
<b>Family size</b>		
Type of injury	55	.086
Injury suffered	10	.000
Challenges after injury	20	.633
Longevity of injury	20	.008
Effect on life	15	.517
<b>Marital status</b>		

Type of injury	33	.009
Injury suffered	6	.000
Challenges after injury	12	.000
Longevity of injury	12	.000
Effect on life	9	.822
<b>Industry</b>		
Type of injury	44	.676
Injury suffered	8	.213
Challenges after injury	16	.884
Longevity of injury	16	.812
Effect on life	12	.400
<b>Compensation</b>		
Type of injury	22	.048
Injury suffered	12	.400
Challenges after injury	8	.420
Longevity of injury	8	.112
Effect on life	6	.000
<b>Labour laws effectiveness</b>		
Type of injury	33	.429
Injury suffered	6	.553
Challenges after injury	12	.045
Longevity of injury	12	.171
Effect on life	9	.000

## Appendix 4: MAP SHOWING THE STUDY AREA

Map of Kitwe District showing the study area.



Source: Kitwe District Council (2016).

## Appendix 5: TIME FRAME

#	DATE/MONTH	YEAR	ACTIVITIES
1	31 <sup>st</sup> May	2018	Submission of draft research reports/dissertations to the supervisor
2	15 <sup>th</sup> June	2018	Feedback on draft reports/dissertation from supervisor
3	22 <sup>nd</sup> June	2018	Submission of final draft of research reports/dissertations for examination
4	25 <sup>th</sup> June-6 <sup>th</sup> July	2018	Examinations of research reports/dissertations
5	9-13 <sup>th</sup> July	2018	Oral examinations
6	16-20 <sup>th</sup> July	2018	Board of examiner's meetings
7	23 <sup>rd</sup> -31 <sup>st</sup> August	2018	Correction of research reports/dissertations by students
8	31 <sup>st</sup> August	2018	Submission of final research reports/dissertations

## Appendix 6: BUDGET

No.	Item	Quantity	Unity Price ZMW	Amount ZMW
1	Ethical Clearance Fee		1,000.00	1,000.00
2	Books/Stationary		400.00	400.00
3	Printing and Photocopying Questionnaire		500.00	500.00
4	Logistics	10 days	2000.00	2000.00
5	Transport	4 trips	12.67	7,983.00
6	Toll Gates	4 trips	120	480.00
8	Research Assistants	6	650	3900.00
9	Lunch		1000.00	1000.00
10	Internet		500.00	500.00
11	Report Printing and Binding	8	200.00	1600.00
12	Miscellaneous			1000.00
<b>TOTAL</b>				<b>20,366.00</b>

## **Appendix 7: INFORMATION SHEET**

**Dear participant,**

I, Everlyn Namumba, a Master of Disaster Studies student at the Mulungushi University, School of Agriculture and Natural Resources in partial fulfillment of the programme of study in disaster management. Students are expected to undertake research in any area of disaster that will contribute to the provision of disaster awareness and improve on the body of knowledge.

**Research Title: Assessing the Impact of Occupational Health Hazards and Injuries on Livelihoods: A Case of Kitwe District.**

The main aim of this study is to assess and determine the socio-economic impact of occupational health hazards and injuries on livelihoods of affected workers and families of Kitwe District. The information obtained from this study will be of beneficial use to different concerned stakeholders, researchers, policy makers to mention but a few. The collected data will help the above few mentioned stakeholders in finding ways to inform the development of more effective strategies for improving workplace safety for workers in Kitwe District. The information will also be obtained by use of a data entry. The data entry will not include contact details like name and telephone number(s), as they will not be required. The study will absolutely have no risk involved; hence no harm may be caused on the participants of the study. All the obtained information in this study will be strictly confidential.

Supposing you do not want to participate in this study, you will not face any consequences because your participation is voluntarily. You will also not face any consequences if you wish to withdraw from the study for any reasons, you can do so at any time. For any clarifications, questions and concerns, **you are free to contact me as well as any of the contact details stipulated below:**

Researcher: Tel +260 977 494 470

Supervisor: Dr F, Mushabati: Tel +260 965 819 003

**Thank you for considering participating in this study.**

**Appendix 8: INFORMED CONSENT FORM**

I hereby confirm that I have understood the nature and purpose of this study and what is involved. I am also knowledgeable that information given to by the family as well as our personal details will be kept confidential and that I will face no consequences if I decide to withdraw at any point. Ample time has been given to me to make clarifications, ask questions and raise any concerns were possible. Henceforth, at my own free will, I declare to participate in this research.

Signature (Participant).....Date.....

Witness.....Date.....

Signature (Researcher).....Data.....

**Persons to contact for anything:**

Miss Namumba Everlyn, Mulungushi University, school of agriculture and natural resources.  
Mobile phone +260977494470, Email:evelynnamumba@gmail.com

Mushabati Festus. (Dr), Mulungushi University School of Medicine and Health Sciences (SoMHS). Mulungushi University (MU) Zambia. Mobile Phone; 0965819003.  
Email:festusmushabati@gmail.com

## Appendix 9a: SEMI-STRUCTURED QUESTIONNAIRE

### Participant's

Code.....

You are kindly requested to answer the following questions either by filling the blank or by ticking in the appropriate bracket for each question. Please answer every question.

**(Fill in the blanks below and tick accordingly).**

### SECTION A: SOCIAL DEMOGRAPHIC DETAILS

1. Gender

Male [ ] Female [ ]

2. Age

18 to 25 [ ] 26 to 40 [ ] over 40 [ ]

3. Marital Status

[ ] Single [ ] married [ ] Divorced [ ] Widowed

4. Family size

1-2 [ ] 3-5 [ ] 6-8 [ ] More than 8 [ ]

5. Head of household? [ ] Yes [ ] No

6. Bread winner? [ ] Yes [ ] No

7. Last employment year

Before 1990 [ ] 1991-2000 [ ] 2001-2010 [ ] 2011-2015 [ ]

8. For how long were you in employment?

Up to 1 year [ ] 2-5yrs [ ] 6-10yrs [ ] More than 10yrs [ ]

9. How did you leave employment?

Discharged [ ] Retired [ ] Death [ ] Medical [ ]

10. What is the highest level of education

Primary [ ] Secondary [ ] Tertiary [ ]

**SECTION B: WORKPLACE INJURIES**

11. What type of accident occurred?

Fatal [ ] Non-Fatal [ ]

12. What kind of injury did you suffer?

Head injury [ ] Brain Injury [ ]  
Spinal code injury [ ] Cuts / Laceration [ ]  
Abrasion [ ] Muscle strain [ ]  
Fracture [ ] Dislocation [ ]  
Inhaling toxic fumes [ ] Burns [ ]  
Multiple Injuries [ ]

13. Which body part was affected when you were injured?

Head [ ] Hands [ ] Stomach [ ] Lungs [ ]  
Waist [ ] Legs [ ] Chest [ ] Multiple parts [ ]

14. How long have you been living with this injury?

Less than 2 years [ ] 3-4 years [ ] 5-10 years [ ] more than 10 years [ ]

15. Who was your employer? .....

16. Do you think your workplace had adequate safety structures in place?

Yes [ ] No [ ] Fairly [ ]

17. If not or fairly, what do you feel was missing in question 15?

.....  
.....  
.....

**SECTION C: IMPACTS OF INJURIES ON LIVELIHOODS**

18. Did the relevant body compensate you?

Yes [ ] No [ ]

19. If yes was the compensation package enough?

Yes [ ] No [ ]

20. How has your life been affected by the injury/loss of employment?

Difficult [ ] Better [ ] Still the same [ ]

21. Do you receive any external support?

Yes [ ] No [ ]

22. What problems are you facing now which you did not face when you were in employment?

.....  
.....  
.....

23. Do you think our labour laws are protective enough?

Yes [ ] No [ ] Fair [ ]

24. If **not** what do you think is missing?

.....  
.....

25. What do you think an employee should do to avoid occupational accidents?

.....  
.....  
.....

26. What do you feel employers should do better to avoid accidents in the work place?

.....  
.....  
.....

27. What do you think government should do to better protect its citizens against occupational accidents and injuries?

.....  
.....  
.....

**Thank you very much for your participation in this research**

## **Ichipandwa 9b : ICIPEPALA CHAKU FWAILIKISHAPO ILYASHI**

**Icishibilo.....**

Tulemilomba ukwasuka amepusho ayali panshi mukulemba mundende iishilembelwemo nangula ukuchongamo. Mufwile mwalemba pamepusho yonse nokwasuka pamepusho yonse.

(Lembeni umushilembelwe no ukuchongamo mukulingana).

### **ICHIPUTULWA CHA CIMO (SECTION A): DEMOGRAPHIC DETAILS**

1. Imibele ya Muntu umwaume nangula Umwanakashi  
Umwaume [ ] Umwanakashi [ ]
2. Imyaka  
18 to 25 [ ] 26 to 40 [ ] ukupitilila 40 [ ] mukanfwilwa [ ]
3. Ubwikashi bwa Chuupo  
[ ] umushimbe [ ] uwaupwa [ ] ukulekewa [ ] Uwafwilwa
4. Ubukulu bwalupwa  
1-2 [ ] 3-5 [ ] 6-8 [ ] ukupitilila 8 [ ]
5. Ndi mutwe wa ng'anda [ ] sumina [ ] kana
6. Bushe ni mwe mufwaya ifyakulya? [ ] sumina [ ] kana
7. Mwaka nshi mwalekelesheko uku bomba?  
Before 1990 [ ] 1991-2000 [ ] 2001-2010 [ ] 2011-2015 [ ]
8. Mwabombele Imyaka inga?  
Umwaka umo [ ] Imyaka 2-5 [ ] Imyaka 6-10 [ ] ukucila Imyaka 10 [ ]
9. Bushe mwalekele shani inchito?  
Nalitanfiwa [ ] Imyaka yalikumene [ ] Nimfwa [ ] Kulwala [ ]
10. Bushe mwafika pesa muma sambililo yenu?  
Primary [ ] Secondary [ ] Tertiary [ ]

**ICHIPUTULWA CA BUBILI (SECTION B): UKUCHENWA KWA PA NCHITO**

11. Kuchenwa kwamusangonshi mwaisangilemo?

Kwamfwa [ ]

Tekwamfwa [ ]

12. Bushe ukuchenekwa kwa musangoshi? Kwa.....

Head injury [ ]

Brain Injury [ ]

Spinal code injury [ ]

Cuts / Laceration [ ]

Abrasion [ ]

Muscle strain [ ]

Fracture [ ]

Dislocation [ ]

Inhaling toxic fumes [ ]

Burns [ ]

Multiple Injuries [ ]

13. Chipandwanshi chamubili icha chenekwe?

Mutwe [ ] Maboko [ ] Mumala [ ] Bapwapwa [ ]

Musana [ ] Molu [ ] Chifuba [ ] Mubili Onse [ ]

14. Bushe mwaikala Imyaka iinga noku chenwa uku?

Imyaka iibili tailakwana [ ] Imyaka ine tailakwana [ ]

Imyaka isano tailakwana [ ] Imyaka ukuchila ikumi [ ]

15. Nikwisa mubomba nangula mwalebomba?.....

16. Bushe muletontokanya uko mwalebomba kwali ukuchingililwa Kwa imwe mwebabifi?

Sumina [ ] Kana [ ] Te Sana-sana [ ]

17. Nga chakutila awe ifyo mulemona ifya bulilepo finshi?

.....  
.....  
.....

**ICHIPUTULWA CA BUTATU (SECTION C): IFYO UKU CHENWA KWALETA MUBWIKASHI BWENU**

18. Bushe balimipele amalipilo pakuchenwa kwenu?

Sumina [ ] Kana [ ]

19. Nga mwasumina bushe ubwafwilisho bwalifye bwino?

Sumina [ ] Kana [ ]

20. Finshi fya chitika mubumi bwenu paku chenwa nokuleka inchito?

Ifibi [ ] ifisumako [ ] tapaba ubupusano [ ]

21. Bushe mulapokelelako ubwafwilisho ukufuma kwi?

Ulupwa ne Fibusa [ ] Ubuuteko [ ] Ku Church [ ] Ku NGOs [ ]

22. Mafyanshi mulepitamo nombamba ayo tamwakwete elyo mwale bomba?

.....  
.....

23. Bushe amafunde ya nchito yala tucingilila?

Sumina [ ] Kana [ ]

24. Ngateifyo bushe finshi fyabulilapo?...

25. Bushe

umubonfi bafwile acingilila shani amasanso pa nchito?

.....  
.....

26. Bushe finshi mulemona aba twingisha inchito bafwile bachita pakuti amasanso ya panchito yelabako?

.....  
.....

27. Bushe ubuteko, finshi bufwile bwachita pa tucingilila abekala Chalo ku amasanso yapa nchito no ku chenwa?

.....  
.....

**Natotela Sana pa kubulamo ulubali pakufwailisha ilyashi**

**Appendix 10: INTERVIEW GUIDE (REGULATORY BODIES AND EMPLOYERS)  
ASSESSING THE IMPACT OF OCCUPATIONAL HEALTH HAZARDS AND  
INJURIES ON LIVELIHOODS OF AFFECTED WORKERS: A CASE OF KITWE  
DISTRICT.**

I am a post graduate student of Master in Disaster Studies in the school of Agriculture and Natural Resources at Mulungushi University conducting a research on the above subject matter. Kindly answer these questions freely in this interview. The information you are going to provide will be purely for academic purposes and will be used as such. This implies that confidentiality shall be exercised seriously.

1. What is your Institution/Organization all about?  
.....  
.....
2. Which Ministry do you report to as an Institution/Organization?  
.....
3. What is your comment on occupational health hazards and injuries in Zambia?  
.....  
.....
4. What are the common occupational injuries in Zambia?  
.....  
.....
5. Which sector(s) record the highest number of occupational accidents and injuries?  
.....
6. What are the common causes of occupational accidents and injuries in Zambia?  
.....  
.....
7. Generally, what are the safety precautions observed by most work places in the country?  
.....  
.....
8. How are these in line with the guidelines provided by government?  
.....  
.....

9. What policies are in place concerning occupational health hazards and injuries?

.....  
.....

10. How effective is government's policy on workplace safety?

.....  
.....

11. Do you think the workforce in Zambia is adequately protected under the current labour laws?

.....  
.....

12. Who gives notice of occupational accidents and how is it notified?

.....  
.....

13. What type of employers/ employees is eligible to be compensated?

.....  
.....

14. As a support entity, what more do you feel your organization should do to effectively influence a safer work environment?

.....  
.....

15. What challenges do you face as an organization?

.....  
.....

16. Are there any studies documented about occupational accidents and injuries?

.....  
.....

**Thank you very much for your participation in this research**

## Appendix 11: LETTERS



### MULUNGUSHI UNIVERSITY

#### OFFICE OF THE DEAN

#### SCHOOL OF MEDICINE AND HEALTH SCIENCES

P o Box 60009, Livingstone

TEL: 260 -21- 3325022 Email: [deansomhs@mu.ac.zm](mailto:deansomhs@mu.ac.zm)

14<sup>th</sup> December, 2017.

**THE CHAIRPERSON**  
TROPICAL DISEASES RESEARCH CENTRE (TDRC) ETHICS COMMITTEE  
P.O BOX 71769  
NDOLA, ZAMBIA.

Dear Sir/Madam

**RE: SUBMISSION OF STUDENT PROTOCOL FOR ETHICAL REVIEW (NAMUMBA EVERLYN, SID No. 201602100).**

The above mentioned student is applying for ethical review of her Masters in Disaster Studies (MDS) research project protocol titled '**Assessing the impact of workplace injuries in Livelihoods: a case of Chamboli Township in Kitwe District**' which has being approved by her Supervisor for ethical review. Please see her application and attached protocol with the rest of the requirements for your consideration.

On behalf of the Director, Postgraduate and Research I wish to thank you for your continued assistance you render to both our students and Academic Staff in reviewing their research protocols.

Sincerely yours

Dr. FESTUS MUSHABATI  
**MAIN SUPERVISOR**

- cc. Director – Postgraduate and Research Studies.  
Dean – School of Agriculture and Natural Resources.  
Head – Disaster Management Training Centre, SANR.

**TROPICAL DISEASES**  
Tel/Fax +260212 615444  
P O Box 71769  
[tdrc-ethics@tdrc.org.zm](mailto:tdrc-ethics@tdrc.org.zm)  
NDOLA, ZAMBIA



**RESEARCH CENTRE**

**TDRc ETHICS REVIEW COMMITTEE**  
**IRB REGISTRATION NUMBER : 00002911**  
**FWA NUMBER : 00003729**

TRC/C4/01/2018

15<sup>th</sup> January 2018

Namumba Evelyn  
Computer number 201602100  
Mulungushi University  
School of Agriculture and Natural Resources

Dear Evelyn

**RE: ETHICAL APPROVAL OF STUDY PROTOCOL**

Reference is made to the protocol entitled "Assessing the impact of workplace injuries on livelihoods: A case of Chamboli Township in Kitwe District."

On behalf of the Chairman of the TDRc Ethics Review Committee, I am pleased to inform you that your protocol was reviewed and granted ethical approval.

Note that your study is prospective and no personal identifiers must be part of your data collection process.

Obtain informed consent from study participants and ensure confidentiality. The data that you will collect will be for research purpose only. Seek support from Workers Compensation for support and for access.

This approval is valid for the period 15<sup>th</sup> January 2018 to 15<sup>th</sup> January 2019.

The Committee wishes you success in academic work and execution of the study.

Yours faithfully  
**TROPICAL DISEASES RESEARCH CENTRE**

Shepherd Khondowe  
**SECRETARY – TDRc Ethics Review Committee**

cc: Chairman – TDRc Ethics Review Committee





**WORKERS' COMPENSATION FUND CONTROL BOARD**

COMPENSATION HOUSE  
CORNER BROADWAY/MOFFAT ROAD  
P O BOX 71534, NDOLA ZAMBIA

Telephone: 02-613858

Fax: 02-610487

E-mail: [cchaponda@workers.com.zm](mailto:cchaponda@workers.com.zm)

In any future correspondence  
on this subject, please quote:

Ref No: **HR/TR/05**

**STRICTLY CONFIDENTIAL**

Wednesday 31<sup>st</sup> January, 2018

Ms Everlyn Namumba  
c/o Mulungushi University  
School of Agriculture and Natural Resources  
P O Box 80415

**K A B W E**

Dear Ms Namumba

**RE: APPROVAL TO CONDUCT INTERVIEWS AT WORKERS'  
COMPENSATION FUND CONTROL BOARD - KITWE BRANCH**

I am pleased to inform you that Management has granted you authority to conduct interviews for your research at the Workers' Compensation Fund Control Board, Kitwe Branch Offices.

Please be advised that the information obtained during this exercise should be treated with the strictest confidence it deserves and should be used for academic purposes only. You will therefore be required to fill the Oath of Confidentiality at our offices.

On behalf of Management and indeed on my own behalf, I wish you success in your research.

Yours sincerely,

Chipoya Chaponda

**MANAGER HUMAN RESOURCES AND ADMINISTRATION**

cc WCC  
DFM  
MO (N)  
SBM - Kitwe Branch

/ccm



**MULUNGUSHI UNIVERSITY**  
**SCHOOL OF AGRICULTURE AND NATURAL RESOURCES**  
**DIRECTOR OF POSTGRADUATE STUDIES AND RESEARCH**

P.O BOX 80415, Kabwe. TEL: 0215-223750.

The Permanent Secretary,  
Ministry of Labour and Social Security,  
New Government Complex,  
ATT: Director Occupation Safety and Health Department,  
21<sup>st</sup> December, 2017  
Lusaka.

Dear Sir/Madam,

**RE: REQUEST TO CONDUCT AN INTERVIEW AT YOUR INSTITUTION.**  
**EVERLYN NAMUMBA, SIN NO. 201602100.**

I write to introduce Everlyn Namumba, a second year Master of Disaster Studies Student at Mulungushi University School of Agriculture and Natural Resources, Kabwe whose research titled: **“Assessing the Impact of Workplace Injuries on Livelihoods: A Case of Kitwe District”** has been cleared by the school for data collection.

Therefore, the student requests to commence data collection through interviews on subject above. The student is expected to observe confidentially and all research ethical principles during and after the interview. The information obtained shall be used for academic purposes only.

Yours Sincerely,

Dr A Phiri

Director of Postgraduate and Research Studies.

- cc. Dean- School of Agriculture and Natural Resources.
- c.c Head- Disaster Management and Training Centre



**MULUNGUSHI UNIVERSITY**  
**SCHOOL OF AGRICULTURE AND NATURAL RESOURCES**  
**DIRECTOR OF POSTGRADUATE STUDIES AND RESEARCH**

P.O BOX 80415, Kabwe. TEL: 0215-223750.

The Commissioner,  
Workers' Compensation Fund Control Board,  
Compensation House,  
P.O Box 71534  
Ndola.

21<sup>st</sup> December, 2017

Dear Sir/Madam,

**RE: REQUEST TO CONDUCT AN INTERVIEW AT YOUR INSTITUTION.  
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Director of Postgraduate and Research Studies.

cc. Dean- School of Agriculture and Natural Resources.

c.c Head- Disaster Management and Training Centre.



**MULUNGUSHI UNIVERSITY**  
**SCHOOL OF AGRICULTURE AND NATURAL RESOURCES**  
**DIRECTOR OF POSTGRADUATE STUDIES AND RESEARCH**

P.O BOX 80415, Kabwe. TEL: 0215-223750.

The Director Country Office,  
International Labour Organization,  
Zambia, Lusaka.

21<sup>st</sup> December, 2017

Dear Sir/Madam,

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Director of Postgraduate and Research Studies.

cc. Dean- School of Agriculture and Natural Resources.  
c.c Head- Disaster Management and Training Centre



**MULUNGUSHI UNIVERSITY**  
**SCHOOL OF AGRICULTURE AND NATURAL RESOURCES**  
**DIRECTOR OF POSTGRADUATE STUDIES AND RESEARCH**  
P.O BOX 80415, Kabwe. TEL: 0215-223750.

The Chief Executive Officer  
Mopani Copper Mines  
P.O Box 22000  
Kitwe.

24th January, 2018

Dear Sir/Madam,

**RE: REQUEST TO CONDUCT AN INTERVIEW AT YOUR INSTITUTION.**

**EVERLYN NAMUMBA, SIN NO. 201602100.**

I write to introduce Everlyn Namumba, a second year Master of Disaster Studies Student at Mulungushi University School of Agriculture and Natural Resources, Kabwe whose research titled: **"Assessing the Impact of Workplace Injuries on Livelihoods: A Case of Kitwe District"** has been cleared by the school for data collection.

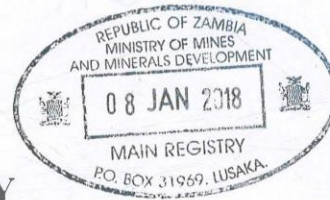
Therefore, the student requests to commence data collection through interviews on subject above and also meeting with accident victims. The student is expected to observe confidentially and all research ethical principles during and after the interview. The information obtained shall be used for academic purposes only.

Yours Sincerely,

Dr. A. Phiri

Director of Postgraduate and Research Studies.

cc. Dean- School of Agriculture and Natural Resources.  
c.c Head- Disaster Management and Training Centre



**MULUNGUSHI UNIVERSITY**

**SCHOOL OF AGRICULTURE AND NATURAL RESOURCES  
DIRECTOR OF POSTGRADUATE STUDIES AND RESEARCH**

P.O BOX 80415, Kabwe. TEL: 0215-223750.

The Permanent Secretary,  
Ministry of Mines and Minerals Development,  
Lusaka.

5<sup>th</sup> January, 2018

Dear Sir/Madam,

**RE: REQUEST TO CONDUCT AN INTERVIEW AT YOUR INSTITUTION. EVERLYN NAMUMBA, SIN NO. 201602100.**

I write to introduce Everlyn Namumba, a second year Master of Disaster Studies Student at Mulungushi University School of Agriculture and Natural Resources, Kabwe whose research titled: **“Assessing the Impact of Workplace Injuries on Livelihoods: A Case of Kitwe District”** has been cleared by the school for data collection.

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Your Sincerely,

Dr A Phiri

Director of Postgraduate and Research Studies.

cc. Dean- School of Agriculture and Natural Resources.

c.c. Head- Disaster Management and Training Centre.

*AF-Director-MSD*

*You can offer the interviews for academic purposes only.*

*[Signature]*  
*08/01/18*



**MULUNGUSHI UNIVERSITY**  
**SCHOOL OF AGRICULTURE AND NATURAL RESOURCES**  
**DIRECTOR OF POSTGRADUATE STUDIES AND RESEARCH**

P.O BOX 80415, Kabwe. TEL: 0215-223750.

The Commissioner,  
Workers' Compensation Fund Control Board,  
Compensation House,  
P.O Box 71534  
Ndola.

21<sup>st</sup> December, 2017

Dear Sir/Madam,

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Yours Sincerely,

Dr A Phiri

Director of Postgraduate and Research Studies.

cc. Dean- School of Agriculture and Natural Resources.

c.c Head- Disaster Management and Training Centre.



**WORKERS' COMPENSATION FUND CONTROL BOARD**

**OATH OF CONFIDENTIALITY**

I, NAMUMBA EVERLYN do solemnly swear  
(Name(s) in full)

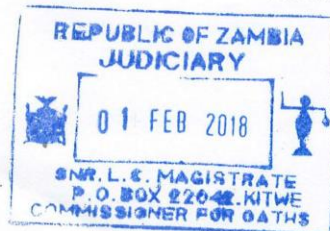
that in my position as an officer or agent of the Workers' Compensation Fund Control Board, I will be honest, trustworthy, fair and without fear or favour of persons according to the Law and to the best of my knowledge, I shall not without authority divulge any information that I shall acquire in the performance of my duties except to a Court of Law or to any other person who is vested with the power to compel the disclosure of such information and that I will give full account of any responsibility entrusted to me whenever such may be required of me.

**SO HELP ME GOD**

Signed: [Signature]

Sworn at: WCFCB KITWE on the 18<sup>th</sup> day of FEB 2018

Before me: [Signature]  
**COMMISSIONER FOR OATHS**



Muyunda Mwindanda



**MULUNGUSHI UNIVERSITY**  
**SCHOOL OF AGRICULTURE AND NATURAL RESOURCES**  
**DIRECTOR OF POSTGRADUATE STUDIES AND RESEARCH**  
P.O BOX 80415, Kabwe. TEL: 0215-223750.

The Director  
Ministry of Labor and Social Securities  
Att: Factories Department  
Kitwe.

22<sup>nd</sup> January, 2018

Dear Sir/Madam,

**RE: REQUEST TO CONDUCT AN INTERVIEW AT YOUR INSTITUTION.**

**EVERLYN NAMUMBA, SIN NO. 201602100.**

I write to introduce Everlyn Namumba, a second year Master of Disaster Studies Student at Mulungushi University School of Agriculture and Natural Resources, Kabwe whose research titled: **“Assessing the Impact of Workplace Injuries on Livelihoods: A Case of Kitwe District”** has been cleared by the school for data collection.

Therefore, the student requests to commence data collection through interviews on subject above and also meeting with accident victims. The student is expected to observe confidentially and all research ethical principles during and after the interview. The information obtained shall be used for academic purposes only.

Yours Sincerely,

  
Dr. A. Phiri

Director of Postgraduate and Research Studies.

cc. Dean- School of Agriculture and Natural Resources.  
c.c Head- Disaster Management and Training Centre



**MULUNGUSHI UNIVERSITY**  
**SCHOOL OF AGRICULTURE AND NATURAL RESOURCES**  
**DIRECTOR OF POSTGRADUATE STUDIES AND RESEARCH**

P.O BOX 80415, Kabwe. TEL: 0215-223750.

The Director.

Occupational Health and Safety Institute in Kitwe,

Zambia, Kitwe.

21<sup>st</sup> December, 2017

Dear Sir/Madam,

**RE: REQUEST TO CONDUCT AN INTERVIEW AT YOUR INSTITUTION.  
EVERLYN NAMUMBA, SIN NO. 201602100.**

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Yours Sincerely,

Dr A Phiri

Director of Postgraduate and Research Studies.

- cc. Dean- School of Agriculture and Natural Resources.
- c.c Head- Disaster Management and Training Centre