**OCCUPATIONAL SAFETY AND MITIGATION OF WORKPLACE HAZARDS IN CIVIL ENGINEERING COMPANIES IN UGANDA**

**A Case study of Terrain Group of Companies Uganda, Limited**

**BY**

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# DECLARATION

I Henry Lwigale declare that the information presented in this Dissertation is original as a result of independent investigation. Where it is indebted to the work of others, due acknowledgement has been made

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# APPROVAL

I, Associate Professor E.B Mugerwa certify that this dissertation has been under my supervision and is now ready for submission to the School of Business Administration of Nkumba University for examination.

Signature Date

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**DR. ERIE.B. MUGERWA**

**(SUPERVISOR)**

# DEDICATION

I wish to dedicate this dissertation to my entire family and mostly to wife Betty and my children Hilda and Harry. I would love to sincerely thank them for their overwhelming support during the time of my study and I pray to God to continuously bless them.

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# LIST OF ABBREVIATIONS

**TGC** Terrain Group of Companies Uganda Limited

**ANOVA** Analysis of Variance

**C.V.I** Constant Validity Index

**EAP** East African Piling

**GDP** -Gross Domestic Product

**HSE** Health and Safety Environment

**ILO** International Labor Organization

**NAOT** National Audit of Tanzania

**NIOSH**  National Institute of Safety and Health

**OARU** Occupational Accident Research Unit

**OPD**  Out Patient Department

**ORFs** Occupational Risk factors

**OSH** Occupational Health and Safety

**OSHA** Occupational Health and Safety Authority

**PRFs**  Personal Risk Factors

**PSC**  Psychological Safety Climate

**QIT**  Quality Improvement Team

**SPSS** Statistical Package for Social Sciences

**TPL** Terrain plant limited

**TSL** Terrain service limited

**UNRA** Uganda National Roads Authority

**WHO**  World Health Organization

# ABSTRACT

The study examined the occupation safety and mitigation of work place hazards in Civil Engineering companies in Uganda, a case of Terrain Group of Companies. With the objectives of the study which were; to assess how Terrain Group Uganda conducts regular health and safety inspections to mitigate work place hazards, to assess how has Terrain Group Uganda established safety committees in order to mitigate work place hazards, to examine how Terrain Group Uganda trains employees to be aware of work hazards to mitigate work place hazards

The study adopted a case study research design with both qualitative and quantitative methods of data collection and was carried in Terrain Group of Companies. The study population was 210 out of which a sample of 136 respondents was selected as study sample and it was randomly selected. Questionnaires and interviews were used as data collection methods.

The results of the study revealed a moderate positive and significant correlation between health and safety inspection and mitigation of work hazards (r= 0.550, p=0.000), a low positive relationship between health and safety committees and mitigation of work place hazards (r= 0.416, p=0.000) and a moderate significant relationship between employee health and safety training and mitigation of work place hazards in Terrain Group of companies (r= 0.577, p= 0.000).

In conclusion, the findings of the study indicated that, health and safety inspection, health and safety committees and health and safety training are influential factors towards mitigation of work place hazards in Terrain Group of companies.

The study recommends that continuous inspection and improvement of occupational safety and health must be promoted to ensure that company health and safety policy, regulations and technical standards to prevent occupational injuries, diseases and deaths are adapted periodically to achieve social, technical and scientific progress and other changes in the world of work.

# CHAPTER ONE

# INTRODUCTION

# Background to the study

This study is about occupation safety and mitigation of workplace hazards in civil engineering companies in Uganda. It is based on a case study of Terrain Group of Companies Uganda limited.

Terrain Group of Companies Uganda has been selected for this study because it is a good representative of other civil engineering companies in the country and has been listed among the top midsized companies in the engineering industry, this is because it has been reported to handle a number of construction and civil engineering projects that have driven the country’s economic growth since its inception in 1993 (Muwonge, 2018). Yoon, et al (2013) notes, that construction industry has a significant impact on the health and safety of workers. The construction industry is both economically and socially important.

Occupation safety and mitigation of workplace hazards in civil engineering companies warrants research because it is observed that there is a continuous increase in rates of accidents that occur in construction industry whose consequences to stakeholders such as workers, organisations and society are hazardous (Mwesigwa, 2018). This means that occupational safety and health should become a much higher priority as people are an organisation’s most valuable assets and their safety is to be considered as greatest responsibility. Construction, workers perform a great diversity of activities each one with a specific associated risk. The worker who carries out a task is directly exposed to its associated risks and passively exposed to risks produced by nearby co-workers.

An article by WHO (2013) noted that occupational health and safety have great importance in the employees work environment because nowadays human resource is the most valuable asset that an organization does have and the existence of bad occupational health and safety environment greatly affect the job performance of employees. Furthermore, international labour organisation (ILO, 1999), asserts that known injuries, accidents and health related illness on the construction sites frequently exceeds those in any other industries. In addition, Cassio (2016) revealed that in light of the growing evidence of great loss and suffering caused by occupational diseases and ill health across many employment sectors, safety is of concern to managers at least partly because of increased number of deaths and accidents at work. Therefore, the occupational safety and health programs are designed to minimise the impact of work related illness and accidents arising from the work.

Dessler (2017) explained that much as there is awareness about occupational safety, it is realized that in most of the work places there is reluctance or little consideration of occupational safety and health of the work force. A lot of work place hazards occur through accidents where lives are lost, injuries sustained leading to wastage in terms of downtime and failure to meet targets plus heavy litigation costs.

Warner, (2009) revealed that there should be achievement of health and safe place of work by reducing the rates and severity of occupational accidents, diseases, work place violence, stress related illness, and improving the quality of work for the employees. Thus, the current study is important because it creates awareness on how the company and other organizations in Uganda can effectively provide a safe working environment as mechanism to mitigate work place hazards.

According to the Terrain Group work safety manual 2014, the following are the company’s safety guidelines objectives of Terrain Group of companies;

1. To conduct regular health and safety inspections so as to ensure that employees always work in a safe environment.
2. Establishing and regularly reviewing occupational health & safety environmental through safety committees.
3. To train employees to be aware of workplace hazards and provide adequate control of health and safety risks arising from work activities.
4. To maintain safe and healthy working conditions, provide and maintain plant, equipment and machinery, and ensure safe storage/use of substances.
5. Complying with all applicable health, safety and environmental legislations, regulations, codes of practice and other requirements relevant to our company’s operations.

The study examines whether the following three of the above are being achieved by Terrain Plant Uganda limited.

1. To conduct regular health and safety inspections so as to ensure that employees always work in a safe environment.
2. Establishing and regularly reviewing occupational health & safety environmental through safety committees.
3. To train employees to be aware of work hazards and provide adequate control of health and safety risks arising from work activities.

# Statement of the problem

In spite of the above-articulated objectives, there are challenges that are faced by Terrain Group Uganda limited regarding occupation safety and health. A number of cases are, sadly mentioned involving a total of 48 workplace accidental injuries for the period 2016 to 2018 according to the results obtained from the Company Annual Reports (2016, 2017, and 2018). Occupational safety and health programs have not been well adhered to by the responsible officers in the company in different departments which has resulted into continued accident and exposure of hazardous conditions to employees (Mwesigwa, 2018). Health and safety committees in different departments were not fully functional and also the training of employees on the use of various equipment and tools deserved a better consideration.

Absenteeism for health reasons was also cited by the audit report as among the many reasons that often disrupt the performance. Sick or injured employees are likely to perform less, if in any case they are willing let alone being able to work resulting into low levels of employee performance in the company (Terrain Group Audit report, 2018). Thus, this caught the researcher’s attention to conduct a study on occupation safety and mitigation of work place hazards in construction companies in Uganda.

# Purpose of the study

The purpose of this study was to examine occupational safety and mitigation of workplace hazards in Civil engineering companies in Uganda basing on Terrain Group of Companies Uganda Limited as a case study.

# Objectives of the study

The study was guided by the following research objectives;

1. To assess how TGC Limited conducts regular health and safety inspections to mitigate work place hazards
2. To assess how has TGC Limited established safety committees in order to mitigate work place hazards.
3. To examine how TGC Limited trains employees to be aware of work hazards to mitigate work place hazards.

# Research questions

1. How does TGC Limited conduct regular health and safety inspections to mitigate work place hazards?
2. How has TGC Limited established safety committees in order to mitigate work place hazards
3. How does TGC train employees to be aware of work hazards to mitigate work place hazards?

# Hypothesis

The study tested the following hypothesis

**Ho:** There is no significant relationship between occupational safety and mitigation of work place hazards in Terrain Group limited.

**H1:** There is a significant relationship between Occupational safety guidelines and mitigation of work place hazards in Terrain Group limited.

# Scope of the study

The study examined occupation safety and mitigation of work place hazards in Terrain group of companies. Specifically the study focused on; how Terrain Group Uganda conducts regular health and safety inspections to mitigate work place hazards; how has Terrain Group Uganda established safety committees in order to mitigate work place hazards; and how Terrain Group Uganda trains employees to be aware of work hazards to mitigate work place hazards

# Significance of the study

The study intends to provide the Government of Uganda with an insight on how to review, design, develop and implement new occupational safety and health legislation. Also, in ensuring that the new law on OSHA is adhered to by all employers and organizations to reduce work related accidents, injuries and diseases.

The findings intend to be useful to policy makers, practitioners, and implementers who could use the results of the study to identify and bridge the gap within occupational safety programs in the workplace. This may help in improving performance and reducing accidents and work related illness.

The findings of the study may enable the management to identify the various occupational safety programs hence relevant information on the way of mitigating work place hazards by enhancing the safety and health standards on the job.

The research may be of benefit to other researchers as they may use it as a reference guide when carrying out a similar study on occupational health and mitigation of work place hazards. It intends to be of help them identify the gap left by the researcher in the course of carrying out this study.

Academicians/scholars intend to benefit from the study since it may add value to the existing body of knowledge by stimulating new areas for further research through the findings and subsequent recommendations.

# Setting of the study

The study was carried out at Terrain Group Uganda Limited which is part of Terrain Group East Africa operating in Uganda, Kenya, Tanzania, Rwanda, and South Sudan. The headquarters for Terrain Group Uganda is located at Lweza on Plot 93, in Wakiso District. It is about 10 KM from Kampala along Entebbe Road or about 30KM from Entebbe airport to Kampala.

The study used a time scope of four years that is from 2015 to 2019, because it is with in this period when all planned activities under different objectives of the study were delivered and completed.

It is a partnership organization with 100% Ugandan Shareholding. Its organizational structure has the executive director, managing directors for the respective companies, and departmental heads. Terrain Group Uganda is one of the predominant civil engineering companies in Uganda mainly dealing in the provision of engineering services and comprises the following companies; Terrain Services Ltd, Terrain Plant Ltd and East African Piling Ltd.

Terrain Plant Limited (TPL) was formed in 1997 and has grown into one of Uganda’s most reliable provider of power engineering solutions like Generators and Construction Equipment for both domestic and industrial usage, Industrial Equipment and Spares for the Petroleum Industry have also been added to their ever-expanding list of products and services and has been listed in the Top 100 Mid-Sized Companies for Uganda since 2009.

From the product guide, TPL supplies robust and efficient equipment that have stood the test of time in tough African conditions (Mwesigwa, 2018). Equally worth noting is that their competitive rates, reliability of products and quick response to their customer requirements are some of the attributes that have enabled the company to grow and be a choice to many. TPL’s generators and construction equipment carry a One-year Manufacturer’s warranty and TPL will always do its best to ensure that a minimum of inconvenience is experienced in the unlikely event of warranty claim.

TPL carries a good stock of service parts and fast-moving spares on all equipment (sold by TPL) so as to provide reliable product support and after-sales-service. As from the HRM policy (2016), another important factor in the company’s success has been combined capability and long experience of its staff and this expertise has been recognized as one of the leading forces in the provision of reliable service, on which TPL’s reputation is based.

In the area of procurement, TPL provides strategic sourcing and tactical buying services for goods and services in support of the Oil and Construction Industries. Using advanced sourcing methods, global market knowledge, TPL seeks to obtain the best pricing, quality, and service available for its clients. If you want something and don’t see it, ask! Chances are TPL can procure and handle freight logistics for you on one-off or standing orders. Ask to speak with TPL’s Product and Development Manager.

In addition to pre-purchase surveys and advice, Terrain Plant Ltd offers Preventive Maintenance packages and contracts tailored to suit the customer’s specific needs bearing in mind that preventive maintenance is a proven and effective way to minimize unplanned downtime and maximize availability.

East African Piling (EAP) Ltd was formed in 2005 and basically handles mechanical and related services provision, civil engineering and construction specifically dealing in rotary, Sheet Piling Contractor with Design capacity as well. EAP Ltd strives to be among the leading contractors in the fields of Mechanical and Civil Engineering, Cranage Lifting and drilling by exceeding its customers’ expectations in quality, cost and efficiency (8M construction digest, 2016).

Regarding occupation safety and health, their core considerations are applying best practice HSE standards, protecting personnel and assets and the communities where we work (8M construction digest, 2016).

The company is the only dedicated piling contractor based in the region which is locally registered and so handling most of piling contract works with most engineering companies.

Terrain Services Ltd formed in 1993 is a Civil and construction company dealing in design and build capacity**,** it isregistered in Uganda, Kenya, South Sudan and Tanzania

Terrain Services Ltd provide design assistance in the following as from their service and product guide and according to the Company’s Web ([www.terraingroup.org](http://www.terraingroup.org)). Road works Terrain Services limited specialize in the fields of road mapping and it is the one that does National roads mapping with UNRA, earthworks and heavy engineering plus hire services for the Equipment and plant machinery, bridges and drainage design–TSLU is one of the bridge and drainage construction contractors in Uganda undertaking design and build capacity.

# Structure of the dissertation

Chapter one presents an introduction to the study

Chapter two presents study literature. It highlighted literature survey, literature review and the conceptual framework of analysis.

Chapter three presents research methodology. It highlighted research design and data collection and management.

Chapter four presents the demographic characteristics of the respondents.

Chapter five presents findings on objective one which is to assess how Terrain Group Uganda conducts regular health and safety inspections so ensure that employee always work in a safe environment

Chapter Six presents’ findings on objective two which is to examine how Terrain Group Uganda establishes and regularly reviews occupation health and safety environment through safety committees in order to mitigate work place hazards

Chapter seven presents findings for objective three which is to examine how Terrain Group Uganda trains employees to be aware of work hazards and provides adequate control of health and safety risks arising from work activities.

Chapter eight links the findings to literature review and suggests the way forward.

Chapter nine presents summary and conclusions to the study.

# CHAPTER TWO

# STUDY LITERATURE

# Introduction

This chapter presents study literature. It highlights literature survey, literature review and conceptual framework of the study.

# Literature survey

Few studies have focused on Terrain group Uganda but none have been in the area of the present study. Below are reviewed some of these studies on Terrain group Uganda and other construction companies in Uganda.

Kimbugwe (2010) did a study on project monitoring and project implementation schedule at Terrain Group of companies. He noted that participating in monitoring and evaluation is an opportunity to Terrain Group of companies to influence the design and execution of development projects. Furthermore Kimbugwe (2010) argued that by providing feedback on whether programs are achieving aims in line with community needs and desires, M&E is a powerful accountability mechanism. However, Kimbugwe’s study did not focus on mitigation of workplace hazards, and how a company can conduct regular health and safety inspections to mitigate work place hazards

Muhwezi (2012) did a study on organizational culture and employee performance in Terrain Group of companies. The study used a case study design and the results of the study found out that organization culture affects the way people and groups interact with each other, with clients, and with stakeholders. In addition, organizational culture may affect how much employees identify with an organization. Organizational culture represents the collective values, beliefs and principles of organizational members and is a product of such factors as history, product, market, technology, and strategy, type of employees, management style, and national culture. Organization culture includes the organization’s vision, values, norms, systems, symbols, language, assumptions, environment, location, beliefs and habits. Noticeably this study focused on the construction industry in Uganda in general but not on occupation safety. The current study identified and filled this gap

Nirmal (2016) researched on the factors affecting timely completion of construction projects in Uganda, where they found that construction projects need more time extending from one year to several years as per the most objectives and also identified so many hindrances or barriers which may obstruct the smooth operation of works. It was also found that much as the local contractors do have the technical capacity to undertake projects they do not have the financial capacity and as such it was recommended on the funding mechanisms used in financing these projects. The study failed to mention on literature on occupational safety in the engineering companies, this identified gap was filled under the current study.

# Literature review

Issues relating to occupational safety and mitigation of work place hazards are not unique to Terrain Group of Companies Uganda. Scholars have covered the study in similar organizations outside Uganda. These studies have put forward models that are relevant to understand the issues involved in Terrain Group of companies. These are reviewed below with aim of constructing a conceptual framework of analysis for the current study.

According to Goal-Freedom Alertness Theory by Kerr (1950) safe work performance is the result of psychologically rewarding work environment. Under this theory, accidents are viewed as low-quality work behaviour occurring in an unrewarding psychological climate, this contributes to a lower level of alertness. According to the theory, a rewarding psychological climate is one where workers are encouraged to participate, set sustainable goals and choose methods or safety programs to attain those safety and health goals, they must be allowed to participate in raising and solving problems.

Heinrich et.al (1980) revealed that, Goal-Freedom Alertness Theory essentially states that management should let workers have well defined goals and freedom to pursue those goals. The result is a higher level of alertness and a focus on the tasks at hand. The theory suggests that managers and supervisors should try and make work more rewarding for workers. They may use a variety of managerial techniques including positive reinforcements, goal setting participative management and clear work assignments.

Heinrich et.al (1980) supports the theory by stating workers will be safe in a positive work environment. They argue that safe performance is compromised by a climate that diverts the attention of workers. They confirm that hazards divert the workers attention during work hours and thus the diversion increases susceptibility to injury. Heinrich et. al (1980) reiterates further that managers and supervisors can actively work to alleviate hazards in the work environment. Reaction of workers to unsafe conditions depends on the fact that whether or not the worker identifies the unsafe condition so as to minimize job hazards.

According to safety climate theory by Law et al. (2011), psychological safety climate (PSC) is defined as shared perceptions of organizational policies, practices, and procedures for the protection of employees’ psychological health and safety that emanates largely from management practices. The PSC theory further states that the job demands-resources framework and suggests that organizational level PSC influences work conditions and subsequently psychological safety climate draws upon perspectives from the work of stress, psychological risk, and organizational climate literatures.

Dollard and Bakker (2010) noted that PSC is a facet - specific component of organizational climate relating to freedom from psychological harm at work. It is further said that it reflects management commitment to worker’s psychological health and the priority they give to safeguarding psychological health as opposed to production demands. PSC is likened to organizational climate in that it is conceived as a property of the organization, consisting of aggregated perceptions of individuals within that organization regarding management commitment to protecting their psychological health and safety. According to James et al. (2017), the PSC constructs stems largely from the idea that individuals ascribe meaning to their work environment, that is, their working conditions, management systems, pay, co-worker relationships, and treatment equity.

According to social cognitive theory, Bandura (2001), talks about it being a broadened version of the Social Learning Theory in which it factors in the principle of observational learning and vicarious reinforcement. According to the theory, learning occurs in a social environment through a dynamic mechanism where the person, environment and behavior interact with each other (LaMorte, 2016). The theory emphasizes on a social environment that socializes both externally and internally.

Social cognitive theory is a consideration of the unique individualism and behaviors that a person acquires in a social environment in relation to his final behavior. The theory is a consideration of an individual’s experiences in the past which predicts his future behavior. People’s experiences of the past have an impact on what they expect in the present as they behave in a particular manner. The theory states that when people observe a model performing a behavior and the consequences of that behavior, they remember the sequence of events and use this information to guide subsequent behaviors. Bandura (2001), stated that, from a social cognitive point of view, people are exposed to different interdependent circumstances every day, determine the best approach to these situations, assess their perceived competence (self-efficacy) to execute their intentions, determine if the behavior they perform will produce the desired outcome (outcome expectancy), and finally, decide the vitality of obtaining the outcome (outcome value).

Bandura (2001), advised that, in order to have the greatest impact on employees’ self-efficacy, a shift in emphasis is required. Instead of trying to scare employees into health safety, they should be provided with requisite tools so as to exercise personal control over their health habits. Thus, in order to have an effect on employees’ safety self-efficacy, safety education ought to ensure that employees are empowered with skills through training that allows them to safely perform their duties at work.

According to case management theory, Award (2016) voiced his concern regarding the history of the Industrial Revolution not being a very pretty one from the stand point of employee health and safety. It was not really thought to be an issue to an employer for almost two centuries. The object was profit and employees were seen as an expendable resource. It might have been this disregard for health and safety that had as much to do as money with the attraction of communism. Today, worker health and safety is more than just the morally right thing, it is the profitable thing, and it is the law. Occupational health case management is one of the tools being used to insure a safe work place for all.

According to Award, (2016), construction is one of the most dangerous occupations in the world, incurring more occupational fatalities than any other sector in both the [United States](https://en.wikipedia.org/wiki/United_States) and in the [European Union](https://en.wikipedia.org/wiki/European_Union) In 2009, the fatal occupational injury rate among construction workers in the United States was nearly three times that for all workers. [Falls](https://en.wikipedia.org/wiki/Falling_(accident)) are one of the most common causes of fatal and non-fatal injuries among construction workers. Kim (2016), also retaliate that proper safety equipment such as harnesses and guardrails and procedures such as securing ladders and inspecting scaffolding can curtail the risk of occupational injuries in the construction industry . Due to the fact that accidents may have disastrous consequences for employees as well as organizations, it is of utmost importance to ensure health and [safety](https://en.wikipedia.org/wiki/Safety) of workers and compliance with HSE construction requirements. Health and safety legislation in the construction industry involves many rules and regulations. For example, the role of the Construction Design Management (CDM) Coordinator as a requirement has been aimed at improving health and safety on-site.

According to research done by Kim, (2016), small sized plants were found to have the highest incidence of work-related injuries in Taiwan. These work-related injuries and accidents were significantly associated with insufficient knowledge and unsafe behaviours for both employers and employee. Those who did not take occupational health education programs were fivefold more likely to encounter occupational injuries than those who took programs. Due to financial and technical disadvantages, most of the small to medium sized industries in Taiwan were less capable of providing health and safety equipment and programmes to the workers. Workers thereby did not have enough training for managing their risks in the worksite. They learned challenges companies face while implementing their work safety guidelines.

Hammer (2015), states that knowledge and skills regarding occupational health and safety (OHS) were informally learned from co-workers and employers. Therefore, employers' comprehension of occupational health was not only an important source of employees' knowledge and behaviour related to workplace health and safety but also a significant determinant of the level of good safety and health of the workplace. While several articles had discussed the employees' knowledge and perception related to occupational health, investigations on employers have been lacking.

Kerzner, (2017), notes that Programs such as these are often adequate tools in building a strong educational platform for new safety managers with a minimal outlay of time and money. Further, most hygienists seek certification by organizations which train in specific areas of concentration, focusing on isolated workplace hazards. The American Society for Safety Engineers (ASSE), American Board of Industrial Hygiene (ABIH), and [American Industrial Hygiene Association](https://en.wikipedia.org/wiki/American_Industrial_Hygiene_Association) (AIHA) offer individual certificates on many different subjects from forklift operation to waste disposal and are the chief facilitators of continuing education in the OSH sector.

According Brauer (2016), in the U.S. the training of safety professionals is supported by [National Institute for Occupational Safety and Health](https://en.wikipedia.org/wiki/National_Institute_for_Occupational_Safety_and_Health) through their [NIOSH Education and Research Centers](https://en.wikipedia.org/wiki/NIOSH_Education_and_Research_Centers). In Australia, training in OSH is available at the vocational education and training level, and at university undergraduate and postgraduate level (Brauer, 2016). Such university courses may be accredited by an Accreditation Board of the Safety Institute of Australia. The Institute has produced a Body of Knowledge which it considers is required by a generalist safety and health professional, and offers a professional qualification based on a four-step assessment.

According to Hofmann (2017), most of the diseases, injuries, and other health conditions experienced by working people are multifactorial. The underlying evidence for the role of various risk factors in the overall health of working people is frequently underused in developing interventions, and most research focuses on a single risk factor through the lens of a single discipline or topic. For example, an investigator interested in smoking may treat all other factors as confounders or effect modifiers when assessing smoking–disease relationships. Thus, smoking is the primary focus, and the overall impact of all risk factors is not directly considered or studied.

According to distraction theory by Hinze (1997), he states that safety is situational. Because mental distractions vary, the responses to them may have to differ to maintain safe performance. Additionally, hazards or physical conditions with inherent qualities that can cause harm to a person may or may not be recognized by the worker and influence safety of the task. The theory applies to a situation in which recognized safety hazard or mental distractions exist and there is a well-defined work task to perform. In the absence of hazards there is little to prevent workers from completing their tasks. However in the presence of hazards, work is greatly complicated. The theory has two components, first dealing with hazards posed by unsafe physical conditions and the other dealing with a worker preoccupation with issues not directly related to the task being performed. The theory basically states that when a worker has lower probability of injury then there is higher level of task achievement. When a worker has a higher focus on a mental distraction, the worker has a higher probability of injury and a lower level of task achievement. To avoid injury and achieve high levels of productivity, workers must avoid mental distractions.

Petersen (1996) states, that manager must consider human capabilities from health and safety viewpoint when assigning tasks to their employees. He argues that accidents have identifiable socio-technical cause resulting in human performance. Employers should take account of their capabilities and the level of training, knowledge and experience on health and safety in the workplaces.

Petersen (1996) confirms that organizations should design human error oriented accidents prevention programs without slowing productivity or compromise performance since accidents and incidents in workplaces are unplanned and unwanted occurrences involving movement of persons, objects or materials which may result in injury, damage or loss to property or people.

Also of profound consideration is Ergonomics which is an applied science that studies the interaction between people and the work environment. It focuses on matching the job to the worker the study and design of work environment to address physiological and physical demands on individuals. In the work setting, ergonomic studies look at such factors as fatigue, stress, tools, equipment layout and placement of control (Robert and John, 2004). Ergonomics involves improvement of safety by making the job more comfortable and less fatiguing through ergonomics. Ergonomics considers changes in the job environment in conjunction with physical and psychological capabilities and limitations of employees (Jackson et. al, 2000).

Similarly, Chatterjee, (2016) in assessing argues workplace risk factors (ORFs), personal risk factors (PRFs) are treated as confounders or sources of bias, and the complete range of workplace risk factors and PRFs that affect the safety and health of working people are rarely comprehensively studied. It’s important to understand the interactions between risk factors as it may help to target and determine the effectiveness of health protection and health promotion interventions.

Kjellen and Larsson (1981) developed an accident causation model as a result of research work within the Occupational Accident Research Unit (OARU) of the Royal Institute of Technology in Stockholm, Sweden to serve as a common conceptual; work for the members of the OARU, and as a basis for research into the loment of a systematic safety management system. The model operates on two s of the accident sequence and the underlying determining factors. ; Accident sequence is a chain of deviations in the planned production process or environment that results in an injury or property loss.

Dawson, Poynter and Stevens’ (1983) on the basis of their study of the safety programmes of eight petrochemical facilities in Great Britain, proposed a safety garment model designed around technical controls and motivational controls. Dawson et al (1983) defined technical controls as controls that are employed against specific hazards. These controls might involve modifying physical or technical characteristics of working environment, modifying specific behaviour patterns of individuals or picturing the way workers and the environment interact. Motivational controls were defined as controls that are concerned with the development and maintenance of general ' awareness and management support of technical controls.

According to Armstrong (2012), occupational safety and health deals with ill health arising from working conditions/or environment that slowly accumulate to lead to deterioration of workers’ health. However, occupational safety is concerned with prevention of accidents and minimizing the aspect of work environment that has the potential of causing immediate violent harm to the employees.

Dessler, (2017) explained that concern for safety should begin at the highest level within the organization, managers and the supervisors. In engineering field, multi task operations in civil and construction, mechanical and production, electrical and electronic, environment and chemical engineering require differing skills, experiences and awareness short of which result into increased risks and hazards. While in operation, it requires safeguarding the personnel in order to reduce the likely risks and accidents that may arise from the constant use of heavy and light machines, chemicals and extreme environment conditions (Health and safety executive, 2017).

Nyirenda, (2015) revealed that occupational safety is an area concerned with the development, promotion, and maintenance of the workplace environment, policies and programs that ensure the mental, physical and emotional wellbeing of employees, as well as keeping the workplace environment relatively free from actual or potential hazards that could injure employees.

LaFlamme (1990) devised a four-level model based on a systems approach comprising of work organization, working situation, accidental sequence and the accident. According to LaFlamme, work organization is a spatial variable, while working situation, accident sequence and the accident are temporal variables. The work organization level involves structural background factors (human and technical) that influence safety performance. The factors at this level concern the design, organization, implementation and control of work processes. The factors at the second level, working situation, concern the nature of the tasks to be performed, the work environment, the machines and tools required and the characteristics of the persons who will do the work. The third level, accident sequence, starts when a disturbance occurs in the working situation (system). The sequence can be interrupted by any of the components in the system involved. If the accident sequence is interrupted, the system will recover to a safe state again, otherwise it will end as an accident (the fourth level) resulting in an injury, property loss or near miss.

According to Hola,& Szostak (2014) Effective occupation hazard controls protect workers from workplace hazards; help avoid injuries, illnesses, and incidents; minimize or eliminate safety and health risks; and help employers provide workers with safe and healthful working conditions. The processes described in this section will help employers prevent and control hazards identified in the previous section.

Hola,& Szostak (2014) revealed that to effectively control and prevent hazards, employers should: involve workers, who often have the best understanding of the conditions that create hazards and insights into how they can be controlled; identify and evaluate options for controlling hazards, using a "hierarchy of controls; use a hazard control plan to guide the selection and implementation of controls, and implement controls according to the plan; develop plans with measures to protect workers during emergencies and no routine activities; and evaluate the effectiveness of existing controls to determine whether they continue to provide protection, or whether different controls may be more effective.

Jackson et al (2000) revealed that wealth of information exists to help employers investigate options for controlling identified hazards. Before selecting any control options, it is essential to solicit workers' input on their feasibility and effectiveness.

Jackson et al (2000) revealed that to control work place hazards in a particular organizations, the organisation should collect, organize, and review information with workers to determine what types of hazards may be present and which workers may be exposed or potentially exposed as explained below.

According to NIOSH (2013) employers should select the controls that are the most feasible, effective, and permanent. NIOSH (2013) further revealed that this can be accomplished by; Eliminate or control all serious hazards (hazards that are causing or are likely to cause death or serious physical harm) immediately; Use interim controls while you develop and implement longer-term solutions; Select controls according to a hierarchy that emphasizes engineering solutions (including elimination or substitution) first, followed by safe work practices, administrative controls, and finally personal protective equipment; Avoid selecting controls that may directly or indirectly introduce new hazards. Examples include exhausting contaminated air into occupied work spaces or using hearing protection that makes it difficult to hear backup alarms and use a combination of control options when no single method fully protects workers.

A hazard control plan describes how the selected controls will be implemented. An effective plan will address serious hazards first. Interim controls may be necessary, but the overall goal is to ensure effective long-term control of hazards. It is important to track progress toward completing the control plan and periodically (at least annually and when conditions, processes or equipment change) verify that controls remain effective.

The hazard control plan should include provisions to protect workers during no routine operations and foreseeable emergencies. Depending on your workplace, these could include fires and explosions; chemical releases; hazardous material spills; unplanned equipment shutdowns; infrequent maintenance activities; natural and weather disasters; workplace violence; terrorist or criminal attacks; disease outbreaks (e.g., pandemic influenza); or medical emergencies. No routine tasks, or tasks workers don't normally do, should be approached with particular caution. Prior to initiating such work, review job hazard analyses and job safety analyses with any workers involved and notify others about the nature of the work, work schedule, and any necessary precautions.

# Conceptual framework

The conceptual framework below presents the relationship between independent variable (occupation health and safety) and dependent variable (mitigation of work place hazards) in construction companies.

Figure 2.1: The Conceptual Framework

**Independent Variable Dependent Variable**

**Occupational safety**

* Awareness of occupational Safety guidelines
* Health and safety inspection
* Health and safety committees

**Mitigation of work hazards**

* Reduction in work place accidents
* Safe working environment
* Employee productivity

**Intervening Variable**

**Intervening Variables**

* Organization policy
* Experienced trainers
* Regulations
* Professional ethical conduct
* Perception and needs

**Source: Adopted from Law et al. (2011) and modified by the researcher**

The above conceptual model indicates a relationship between occupation safety and mitigation of work place hazards in this study. The study independent variables as indicated in the above model include; health and safety inspections, health and safety committees, employee safety training and employee assistance programmes. The study dependent variables are Reduction in work place accidents, safe working environment and employee productivity.

.Though, there are several intervening variables which examine whether there is a relationship between occupation safety and mitigation of work hazards. These factors must be made available or effectively utilized by managers to ensure the organization perform better.

# CHAPTER THREE

# METHODOLOGY

# Introduction

This chapter presents the methodology that was used in the execution of the research. It highlights the research design, area of study, study population, sample size, sample technique, data collection methods, data collection procedures, data collection instruments, validity and reliability of data, data processing and analysis and the study limitations.

# Research design

According to Owen (1996) a research design is an outline of how an investigation is carried out and indicates how data is to be collected, what instruments to be used and how the data was collected and analyzed. Under this section the following are identified, and explained research approach, research strategy, and research duration and research classification.

# Research approach

In the research approach the researcher used a phenomenological approach where researcher directly asked questions to the respondents with the aim of yielding valuable data. This research approach allowed the interviewer to probe the richness of respondent’s emotions and motivations of related to the topic. The research approach was important because it was used to test the validity of the research hypothesis.

# Research strategy

The study used a case study as the research strategy. This involved a detailed examination of how TGC Limited mitigates workplace hazards to ensure occupational safety. Answering the research questions would be impossible in the wide scope of the construction companies. It could only be possible if the researcher focused on a selected case study.

# Research duration

This study was longitudinal while focusing on a period 2015-2019 that reflected a representation of events over a given period of time, which helped to gather the required data. The question and answer process gave the researcher the flexibility to collect data and not only on the subject’s activities and behavior pattern, but also on the leader’s and teams’ attitudes.

# Research classification

The study used quantitative and qualitative techniques. It involved collecting and converting data into numerical form, hence used of statistical calculations where conclusions were drawn. In order to predict possible relationship between the variables, the study used various instruments such as self-administered questionnaire and materials such as observation check lists. It also described, explained, discussed and interpreted the data collected.

# Study limitation

**Time constraint**: The researcher faced a problem of inadequate time required for the research study. Comprehensive research study involves a great deal of collecting, analyzing and processing data hence requiring a lot of time which may not be enough for the researcher. However, the researcher overcame this limitation by designing a work plan or timeframe which served as a guide in time management.

**Non-response**: The researcher faced a problem of non-response from some respondents because they were too busy some saw no personal benefit from their participation. The researcher overcame this limitation by administering as many questionnaires as possible so as to eliminate any chance of bias and then talking to respondents to request and encourage them provide the necessary data.

**Financial constraint**: The researcher faced a problem of inadequate funds to cater for the study costs such as transport and stationery. The researcher used a relatively small but adequate sample so as to minimize on the costs.

# Data collection and management

# Study population

The study population included employees of TGC Limited in the following departments: Administration and Human Resource, construction and garage, Accounts & Finance, maintenance and production, Marketing and sales department plus the support staff. These make up a total of 210 respondents.

# Sample size

A sample size of 136 respondents was selected from the total population using simple random and purposive sampling. This sample constitutes employees of various departments in Terrain Group Uganda limited. They were obtained using the table for determining the sample of a given population, which was developed by Krejcie & Morgan (1970).

Table 3. 1: Showing the sample size

|  |  |  |  |
| --- | --- | --- | --- |
| **Category** | **Population** | **Sample size** | **Sampling technique** |
| Administration and Human Resource | 10 | 10 | Census |
| Construction staff | 100 | 80 | Purposive sampling |
| Accounts & Finance | 10 | 10 | Census |
| Maintenance and production | 50 | 24 | Simple random sampling |
| Marketing and sales | 15 | 14 | Simple random sampling |
| Support staff | 25 | 24 | Simple random sampling |
| Total | 210 | 136 |  |

Source: Human Resource, Terrain group Uganda, modified using Krejcie & Morgan (1970)

# Sampling technique

Simple random sampling was used to select respondents from the maintenance and production, marketing and sales and from support staff. In this study the staff respondents ’were randomly selected to eliminate elements of bias in the research process by giving almost all respondents an equal chance to participate in the study.

The researcher used purposive method of sampling to select construction staff respondents. This was dictated by the nature of the study which aims at getting information from specific respondents whose duties and responsibilities are directly related with occupational safety.

# Data collection methods

# Questionnaire

This is the discussion in written form where by the responses of the participants are put on paper provided by the researcher; the questionnaires were in two forms, namely: The open-ended questionnaire, in which the responses by the participants are free according to their understanding and the close ended questionnaire, in which responses were provided by the researcher and the participants choose one of them accordingly, for example, agree or disagree. The researcher designed questionnaires and distribute them among the target participants. These included mainly employees of TGC Limited, and Administrators. The researcher gave the respondents three days to fill the questionnaires. Questionnaire was used because data can be collected relatively quickly and the researcher does not need to be present when the questionnaires are being completed.

# Interview

This involved face-to-face interaction between the researcher and the participant through discussion. The interviews were in two ways, namely; structured interviews, in which the responses by the participants are brief and specific and unstructured interviews, where the responses are long, elaborated and not specific. The interviews were conducted in groups and individuals in order to get firsthand information. Interviews were carried out because they are useful to obtain detailed information about personal feelings, perceptions and opinions. They also allowed more detailed questions to be asked.

# Data collection tools

# Interview guide

The interview guide is a list of questions a researcher asks participants during the interview (Angus, 2000). The researcher designed structured interview guide where each respondent was asked the same question in the same order. Respondents from management team were the most emphasised to answer questions from the interview guide. The researcher clearly expressed the purpose of the interview and started with the neutral questions to facilitate free flow of information.

# Self-administered questionnaires

Smedts (2009) asserts thata self-administered questionnaire (SAQ) refers to a questionnaire that has been designed specifically to be completed by a respondent without intervention of the researchers. The questionnaire comprised of statements requiring the respondents to opt for one out of the five opinions using the 5-point Likert scale with strongly disagree=1, disagree=2, not sure=3, agree=4 and strongly agree=5. The questionnaires were distributed to all 101 respondents from monitoring team, evaluation team and management team because they are assumed to have prior knowledge about the study variables and the questionnaire approach was self-administered

# Validity and reliability of instruments

# Validity of Instruments

This involved Data quality control by looking at the steps to ensure that the data collected had minimal errors. Validity is the extent to which research instruments measure what they are intended to measure (Oso & Onen, 2017). Reliability is the extent to which a research instrument yields consistent results across the various items when it is administered again at a different point in time (Sekaran, 2003).

CVI = No. of items rated relevant

Total no. of items

CVI =29/33 = **0.879**

The high content validity of 0.879 compared to 0.7 implies that the content in the questionnaire items is rated high. So the tool ably captured the required information.

# Reliability

Reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials (Mugenda & Mugenda, 1999). The Cronbach alpha tests the reliability, and according to Amin (2005), the instruments are reliable if they are more than 0.70. Cronbach recommends analysis for Alpha values for each variable under study. According to Sekaran (2010), Alpha values for each variable understudy should not be less than 0.6 for the statements in the instruments to be deemed reliable.

SPSS version 19 was used to conduct reliability test. Reliability is determined through the interpretation of Cronbach’s alpha, a reliability coefficient that indicates how well the items in a set are positively correlated to each other

Table 3. 2: Reliability statistic

|  |  |
| --- | --- |
| Item | Cronbach Alpha Value |
| Health and safety inspections | 0.900 |
| Health and safety committees | 0.850 |
| Employee health and safety training | 0.800 |
| Mitigation of work place hazards | 0.933 |
| Overall for the questionnaire | 0.871 |

**Source: (Primary data, 2019)**

Table 3.2 reveals that all variable items had Chronbach Alpha Values greater than 0.7 indicating that the tools had high reliability. The overall value for items in the questionnaire is 0.871. This therefore implies that the research the research instruments were valid.

# Data collection procedure

The researcher obtained an introductory letter from the Research Coordinator, Nkumba University which was presented to Terrain Group Ugandaand respondents prior to starting any interview or filling-in questionnaires. Sensitization of the respondents for the study sought in order to enable efficient and effective data. This enabled the researcher to carry out the study without fear and substantive information was therefore obtained.

# Data processing

The collected data was edited, coded and cross checked for completeness using Ms Excel and exported to Statistical Package for Social Sciences version 19 for analysis.

# Data Analysis

Analysis was run to generate frequency tables, and charts showing frequencies, percentages, means and standard deviations. These tables were copied and pasted directed from SPSS to the report in Ms Word.

# Ethical consideration

The researcher ensured voluntary participation of the respondents and avoided the use of offensive, discriminatory, or other unacceptable language in the formulation of data collection instruments. In addition, the researcher maintained the highest level of objectivity in discussions and analysis throughout the research.

# CHAPTER FOUR

# DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

# Introduction

This chapter presents the findings on the demographic characteristics on respondents in Terrain group in relation to their age, gender, level of education, department of work and duration of work in the organization. The information is presented in form of tables showing frequency and percentage.

# Findings on response rate

Higher survey response rates help to ensure that survey results are representative of the target population. Table 4.1 below represents response rates of the targeted population

Table 4. 1: Showing response rate

|  |  |  |
| --- | --- | --- |
| **Response Rate** | **Frequency** | **Percentage** |
| Response | 108 | 79.4 |
| Non Response | 28 | 20.6 |
| **Total** | **136** | **100.0** |

**Source: (Primary data, 2019)**

According to the finding of the study as presented in table 4.1 above, the study realized a response rate of 93.9 % (108) out of the targeted 115 respondents, whereas 7 (6.1%) of the targeted responses did not give response to the study. Thus, the study obtained a good response as recommended by Mugenda and Mugenda (2011) that a response rate of 50% is good as a representative of the sample and that above 70% is excellent.

# Background and characteristics of respondents

The study looked at gender, age, level of education, department of work and tenure of services of the respondents in Terrain Group of companies. This information was presumed to be vital because it all has an influence on occupation safety and mitigation of work place safety at Terrain group of companies limited.

# Findings on gender of respondents

The researcher wanted to find out whether the gender of the respondents that participated in the study and the results are presented in table 4.2 below;

# Table 4. : Showing gender of respondents

|  |  |  |  |
| --- | --- | --- | --- |
| **Gender of respondents** | | **Frequency** | **Percent** |
| Valid | Male | 82 | 75.9 |
| Female | 26 | 24.1 |
| Total | 108 | 100.0 |

**Source: (Primary Data, 2019)**

From the study results, out of the 108 respondents that participated in the study, 82 (75.9%) were males and 26(24.1%) were females. This shows that the biggest percentage of respondents who participated in this study were male compared to their female counter parts. Nevertheless, views of both genders were captured during the study on occupation health and mitigation of work safety in Terrain group of companies hence valid and unbiased study responses were obtained.

# Findings on age of respondents

The respondents were asked to identify the age brackets in which they belonged and the results are presented in table below.

# Table 4. : Showing distribution of respondents by age

|  |  |  |  |
| --- | --- | --- | --- |
|  | | Frequency | Percent |
| Valid | 18-25 Years | 17 | 15.7 |
| 26-30 Years | 21 | 19.4 |
| 31-35 years | 32 | 29.6 |
| 36-40 Years | 28 | 25.9 |
| 40 Years and above | 10 | 9.3 |
| Total | 108 | 100.0 |

Source: (Primary data, 2019)

Findings of the study as presented in table 4.3 above indicates that majority of the respondents who participated in this study, 32(29.6%) were between the age of 31-35 years, 28(25.9%) were between 36-40 years, 21(19.4%) were between 26-30 years, 17(15.7%) were between 18-25 years and 10 (9.3%) were 40 years above. This reveals that, all age groups were significantly represented in the study and this gave the researcher balanced and valid responses which was good for this study.

# Findings on level of education of respondents

The respondents were also asked to identify their level of education and the results are presented in the table below.

# Table 4. : Showing distribution of respondents by level of education

|  |  |  |  |
| --- | --- | --- | --- |
| **Level of education** | | **Frequency** | **Percent** |
| Valid | Certificate | 21 | 19.4 |
| Diploma | 37 | 34.3 |
| Bachelor’s degree | 41 | 37.9 |
| Master and above | 9 | 8.3 |
| Total | 108 | 100.0 |

**Source: (Primary data, 2019)**

From the study findings, majority of respondents that participated in the study, 41(37.9%) were degree holders, 37(34.3%) were diploma holders, 21(19.4%) were certificate holders and 9 (8.3%) had master’s degree and other qualifications which were identified as post graduate diplomas and CPA. This implies that majority of respondents who participated in this study were degree holders followed by those with diplomas and certificates. The findings revealed that majority respondents who participated in this study from Terrain Group of companies where certificate, diploma and degree holders. This is because certificate and diploma holders go through specialized training which Terrain group of companies needs especially in its production and maintenance department and this contributes to mitigation of work place hazards and enhance the company growth and development. However, all the respondents who participated in this study had attained some level of education hence they had prior knowledge on the questions that were put before them. This enabled the researcher to obtain valid and unbiased opinions which was good for this study.

# Findings on department of work of respondents

The researcher was interested in finding out the d of each of the department of work of each of the respondent that participated in the study. The results are presented in the table below;

# Table 4. : Showing distribution of respondents by Department of work

|  |  |  |  |
| --- | --- | --- | --- |
|  | | Frequency | Percent |
| Valid | Human Resource and Administration | 10 | 9.3 |
| Marketing Sales and sales | 14 | 13.0 |
| Accounts and finance | 14 | 13.0 |
| Maintenance and production | 36 | 33.3 |
| Construction | 22 | 20.4 |
| Support staff | 12 | 11.1 |
| Total | 108 | 100.0 |

Source: (Primary data, 2019)

When asked to indicate their department of work at Terrain group of companies, majority of respondents 36(33.3%) were from maintenance and production department, 22(20.4%) were from construction department, 14(13.0%) were from marketing sales and sales and accounts and finance departments respectively, 12(11.1%) were support staff and 10(9.3%) were from human resource and administration departments at Terrain Group of companies. The findings as presented in 4.5 above have indicated that majority of the respondents who participated in this study were from maintenance and production department followed by construction department and this is because Terrain group of companies is a civil engineering organization thus it employ many employees in its maintenance and production department so as to ensure company success. Nevertheless the researcher obtained views of respondents from various departments of work at Terrain Group of companies hence valid and unbiased responses were obtained.

# Findings on tenure of service in the organization

The researcher was interested in finding out whether the length of time the respondents had spent in the organization. The results are presented in the table below;

# Table 4. : Showing tenure of service in the organization

|  |  |  |  |
| --- | --- | --- | --- |
|  | | Frequency | Percent |
| Valid | 0 – 5 years | 38 | 35.2 |
| 6 – 10 years | 47 | 43.5 |
| 11 – 14 years | 12 | 11.1 |
| 15 – 19 years | 8 | 7.4 |
| 20 years and above | 3 | 2.8 |
| Total | 108 | 100.0 |

Source: (Primary data, 2019)

The study found out that majority of the respondents that participated in the study; 47(43.5%) had worked with the organization for a period of 6 to10 years while 38 (35.2%) had been in the organization for the period between 0-5 years. Also represented were 12(11.1%) of respondents who had worked for a period of (11-14) years, 8(7.4%) had worked with the organization for a period between 15-19 years and 3 (2.8%) who had been in the organization for a period of 20 years and above. Majority of the respondents that participated in the research had worked in Terrain Group of Companies for a period of 6 to 10years and hence they have prior knowledge on the subjects under the study, hence valid responses were obtained.

# CHAPTE FIVE

# REGULAR HEALTH AND SAFETY INSPECTIONS TO MITIGATE WORK PLACE HAZARDS IN TGC LIMITED

# Introduction

This chapter presents the research findings which are in line with how Terrain Group Uganda conducts regular health and safety inspections to mitigate work place hazards. To establish how Terrain Group Uganda conducts regular health and safety inspections to mitigate work place hazards, the respondents were introduced to different items to have their say. Their responses were computed by making an aggregate of responses given by respondents to the items and 5point Likert scale (1=Strongly Disagree, 2=Disagree, 3=Not sure, 4=Agree and 5=Strongly Agree).

Mean scores greater than 4.5 implies that the respondents strongly agreed to the statement, means between 3.5 and 4.5 implies that the respondents agreed to the statement, means between 2.5 and 3.5 implies that the respondents were not sure about the statement, mean between 1.5 and 2.5 implies that respondents disagreed to the statement and mean scores less than 1.5 implies that the respondents strongly disagreed to the statement. A standard deviation greater than 1 implies a significant variance meaning there was no consensus in the responses while a standard deviation less than 1 shows that there was no significance variance hence consensus in responses.

# Table 5. : Statistics on how Terrain Group Uganda conducts regular health and safety inspections to mitigate work place hazards

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Statement** | **1 (%)** | **2 (%)** | **3 (%)** | **4 (%)** | **5 (%)** | **Mean** | **Std Dev** |
| **Key** | **SD** | **D** | **N** | **A** | **SA** |  |  |
| There is a specific committee that carries out Health and Safety inspections in Terrain Group of Companies Uganda Limited | 0 | 3.7 | 0 | 65.7 | 30.6 | 4.23 | .635 |
| All equipment is regularly inspected and maintained | 0 | 4.6 | 0 | 73.1 | 22.2 | 4.13 | .628 |
| There is a procedure for reporting faulty equipment | 0 | 3.7 | 0 | 70.4 | 25.9 | 4.19 | .614 |
| In Terrain Group of Companies Uganda Limited, all guards are in place on machinery | 0 | 3.7 | 0 | 65.7 | 30.6 | 4.23 | .635 |
| In Terrain Group of Companies Uganda Limited, dangerous machines are only operated by properly trained staff | 2.6 | 4.6 | 0 | 73.1 | 19.4 | 4.02 | .797 |
| In Terrain Group of Companies Uganda Limited, a checklist helps to ensure that no problem is missed | 6.5 | 11.1 | 0 | 59.3 | 23.1 | 3.81 | 1.112 |
| In Terrain Group of Companies Uganda Limited, there is a first aid box | 10.2 | 14.8 | 1.9 | 48.1 | 25.0 | 3.63 | 1.287 |
| The first aid box is fully equipped and accessible to staff | 5.6 | 6.5 | 0 | 63.9 | 24.1 | 3.94 | 1.003 |
| **Overall Mean/SD** |  |  |  |  |  | **3.77** | **0.917** |

**Source: (Primary Data, 2019).**

Respondents were asked whether there is a specific committee that carries out Health and Safety inspections in Terrain Group of Companies Uganda Limited and the study results indicated 65.7% of the respondents agreed, 30.6% strongly agreed, 3.7% disagreed, there was none response for not sure and strongly disagreed respectively . A mean score of 4.23 and standard deviation of 0.635 were obtained implies that majority of the respondents agreed with the statement. This means that here is a specific committee that carries out Health and Safety inspections in Terrain Group of Companies Uganda Limited and this contributes to the mitigation of work place hazards in Terrain Group of Companies Uganda Limited and this contributes to high level of organization performance.

The study respondents were asked whether all equipment is regularly inspected and maintained and the study results indicated that, 73.1% of the respondents agreed, 22.2% strongly agreed, 4.6% disagreed, there was none response for not sure and strongly disagreed respectively. A mean score of 4.13 and standard deviation of 0.628 were obtained implies that majority of the respondents agreed. This implies that at all equipment is regularly inspected and maintained at Terrain Group of Companies Uganda and this contributes to the reduction of work place hazards contributing to high level of employee commitment and performance.

Respondents were asked whether there is a procedure for reporting faulty equipment in Terrain Group of Companies Uganda and the study results indicated, 70.4% of the respondents agreed, 25.9% strongly agreed, 3.7% disagreed, there was none response for not sure and strongly disagreed respectively which implies that majority of the respondents were consistent in their responses. This implies that there is a procedure for reporting faulty equipment in Group of Companies Uganda which help to identify faulty equipment’s as well as repairing or replacing them which enable the company to mitigate work place hazards and this contributes to the overall company success and performance.

Respondents were asked whether in Terrain Group of Companies Uganda Limited, all guards are in place on machinery and the study results indicated that, 65.7% of the respondents agreed, 30.6% strongly agreed, 0% not sure, 3.7% disagreed and 0% strongly disagreed . A mean score of 4.23 and standard deviation of 0.635 were obtained implies that majority of the respondents agreed with the statement. This means that, in Terrain Group of Companies Uganda Limited, all guards are in place on machinery and this help the company to minimize machine accidents which contributes to the mitigation of work place hazards in the company hence contributing to the company growth and development.

Study participants were asked whether in Terrain Group of Companies Uganda Limited, dangerous machines are only operated by properly trained staff and the study results indicated, 73.1% of the respondents agreed, 19.4% strongly agreed, 0% not sure, 4.6% disagreed and 2.6% strongly disagreed . A mean score of 4.02 and standard deviation of 0.797 were obtained implies that that most of the respondents agreed with the statement. This means that in Terrain Group of Companies Uganda Limited, dangerous machines are only operated by properly trained staff and this help the company to properly identify and mitigate work place hazards contributing to better organization performance.

Respondents were asked in Terrain Group of Companies Uganda Limited, a checklist helps to ensure that no problem is missed, the study results indicated that, 59.3% of the respondents agreed, 23.1% strongly agreed, 0% not sure, 11.1% disagreed and 6.5% strongly disagreed. A mean score of 3.81 and standard deviation of 1.112 were obtained implies that respondents agreed with the statement. This implies that, in Terrain Group of Companies Uganda Limited, a checklist helps to ensure that no problem is missed and management ensures that all safety procedures are followed and all occupation risks are addressed so as to mitigate occupation hazards which lead to improved organization performance.

Study respondents were further more asked whether in Terrain Group of Companies Uganda Limited, there is a first aid box and the study results indicated that, 48.1% of the respondents agreed, 25.0% strongly agreed, 1.9% were not sure, 14.8% disagreed and 10.2% strongly disagreed. A mean score of 3.63 and standard deviation of 1.287 were obtained implies that responses were consistent. Since majority of the respondents agreed with the statements, it means that in Terrain Group of Companies Uganda Limited, there is a first aid box which is used to provide first aid to employees in case of occupation hazards and this enable the company to mitigate work place hazards in Terrain group of companies which contributes to work place safety and general company success and performance.

The study respondents were furthermore asked whether the first aid box is fully equipped and accessible to staff and the study results indicated, 63.9% of the respondents agreed, 24.1% strongly agreed, 6.5% disagreed,0% not sure and 5.6% strongly disagreed. A mean score of 3.94 and standard deviation of 1.003 were obtained implies that most of the respondents agreed with the statement. This means that Terrain group of companies, the first aid box is fully equipped and accessible to staff in case of any emergency or work place hazard and this help the company to mitigate and minimize work place hazards which leads to improved staff and organization performance.

Generally the findings shows a moderately scale of agreement (Mean 3.77, SD= 0.917) with all statements concerning health and safety inspection implying that the variable had relevance to the problem under study. This also implies that health and safety inspection contributes to the mitigation of work place hazards at Terrain Group of Companies.

# Inferential findings on correlation and regression

To establish how TGC Limited conducts regular health and safety inspections to mitigate work place hazards, the researcher carried out a correlation and linear regression test. The results are presented in the tables below;

# Table 5. : Showing correlation between health and safety inspection and mitigation of work place hazards

|  |  |  |  |
| --- | --- | --- | --- |
|  | | Health and Safety Inspections | Mitigation of work hazards |
| Health and Safety Inspections | Pearson Correlation | 1 | .550\*\* |
| Sig. (2-tailed) |  | .000 |
| N | 108 | 108 |
| Mitigation of work hazards | Pearson Correlation | .550\*\* | 1 |
| Sig. (2-tailed) | .000 |  |
| N | 108 | 108 |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | |

**Source: (Primary Data, 2019)**

Correlation results in table 5.2 above show that there is a positive moderate significant associative relationship between health and safety inspections and mitigation of work hazards in Terrain Group of companies (r = 0.550, Sig= 0.000). The positive correlation implies that health and safety inspections contributes to the mitigation of work place hazards in Terrain group of companies and the availability of health and safety inspections contributes to mitigation of work place hazards in Terrain group of companies. Therefore, there is a statistical relationship between health and safety inspections and mitigation of work place hazards in Terrain Group of companies.

# Table 5. : Showing model summary for health and safety inspection and mitigation of work place hazards

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .550a | .302 | .295 | .63903 |
| a. Predictors: (Constant), Health and Safety Inspections | | | | |

**Source :( Primary Data, 2019)**

The regression results as presented in table 5.3 above show the adjusted R square value is 0.295; it implies that health and safety inspection contributes only 29.5% to the mitigation of work place hazards in Terrain Group of companies; the remaining 70.5% of mitigation of work place hazards is explained by other factors. This hence means that there is a relationship between health and safety inspection and mitigation of work place hazards in Terrain group of companies.

# Table 5. : Showing ANOVA values for health and safety inspection and mitigation of work place hazards

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 18.726 | 1 | 18.726 | 45.856 | .000b |
| Residual | 43.287 | 106 | .408 |  |  |
| Total | 62.013 | 107 |  |  |  |
| a. Dependent Variable: Mitigation of work hazards | | | | | | |
| b. Predictors: (Constant), Health and Safety Inspections | | | | | | |

**Source: (Primary Data, 2019)**

Results of the study in table 5.4 above indicate that the regression model predicts the dependent variable significantly well. There is a statistical significance of the regression model indicated by F=45.856 and P=0.000 which is less than 0.01. This is also supported by the regression mean square value of 18.726 compared to the residual mean square of 0.408. This implies that there is a positive moderate relationship between health and safety inspections and employee Mitigation of work hazards at Terrain Group of companies which contributes to the overall company growth and development.

# Table 5. : Showing coefficients of health and safety inspection and mitigation of work place hazards

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| B | Std. Error | Beta |
| 1 | (Constant) | 1.048 | .406 |  | 2.583 | .011 |
| Health and Safety Inspections | .678 | .100 | .550 | 6.772 | .000 |
| a. Dependent Variable: Mitigation of work hazards | | | | | | |

**Source: (Primary Data, 2019)**

Results from table 5.5 give t values and Beta. The t-values test the relationship that the coefficient is different from 0. To reject this, you need a t-value greater than 1.96 (for 95% confidence). The t-value for health and safety inspections is 6.772 which are greater than 1.96. This implied that health and safety inspections contributes to the mitigation of work place hazards in Terrain group of companies considering a significant factor (Sig =0.000). Also the standardized beta coefficient of 0.550 imply that one unit improvement in mitigation of work place hazards is caused by 0.550 units increase in health and safety inspections in Terrain Group of Companies Limited based on the equation Y=βx + C where Y= Mitigation of work place hazards (Dependent variable), x = Health and Safety Inspections (Independent variable, β = 0.550 and C= constant). This therefore, means that there is a moderate statistical relationship between Health and Safety Inspections and mitigation of work place hazards in Terrain group of companies.

# Respondents views on Health and Safety inspections and mitigation of work place hazards

These are views of different Health and Safety inspections and mitigation of work place hazards in Terrain Group of companies. The views were recorded in during interviews.

One of the respondent revealed that; *“the company does not conduct regular inspections at the workplace, the inspections have not helped in developing health and safety strategies and initiatives that are tailored to the company safety needs and also the employees are not involved in the process*” and this expose employees to hazardous substance at Terrain Group of companies.

Another respondent revealed that; *“Through health and safety inspection Terrain Group of company’s management is able to locate hazardous work places and inform, the employees to be aware of such environment.”*

Another Respondent revealed that *“The management of our company conducts health and safety inspection on a daily basis and provides protective wears to employees who work in unsafe environment.*

# CHAPTER SIX

# ESTABLISHING SAFETY COMMITTEES IN ORDER TO MITIGATE WORK PLACE HAZARDS

# Introduction

This chapter provides a detailed account of the descriptive statistics obtained from the field of study. It presents the detailed findings obtained using the questionnaire administered to respondents in Terrain Group Uganda so as to find out the effectiveness of safety committees on mitigation of work place hazards.

# How Terrain Group Uganda establishes safety committees in order to mitigate work place hazards

The second objective of this study was to determine how Terrain Group Uganda establishes safety committees in order to mitigate work place hazards. Respondents were provided with a number of statements and asked to indicate to what extent they agreed with them. To obtain this data, a 5 point Likert Scale was used. According to the scale, 1 point was accorded to strongly disagree; 2 points = disagree; 3 points = not sure; 4 points = agree; and 5 points = strongly agree.

Mean scores greater than 4.5 implies that the respondents strongly agreed to the statement, means between 3.5 and 4.5 implies that the respondents agreed to the statement, means between 2.5 and 3.5 implies that the respondents were not sure about the statement, mean between 1.5 and 2.5 implies that respondents disagreed to the statement and mean scores less than 1.5 implies that the respondents strongly disagreed to the statement. A standard deviation greater than 1 implies a significant variance meaning there was no consensus in the responses while a standard deviation less than 1 shows that there was no significance variance hence consensus in responses

# Table 6. : Statistics on how Terrain Group Uganda establishes safety committees in order to mitigate work place hazards

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Statement** | **1 (%)** | **2 (%)** | **3 (%)** | **4 (%)** | **5 (%)** | **Mean** | **Std Dev** |
| **KEY** | **SD** | **D** | **N** | **A** | **SA** |  |  |
| Terrain Group of Companies Uganda Limited has a health and safety committee | 0.9 | 20.4 | 0 | 56.5 | 22.2 | 3.79 | 1.042 |
| Terrain Group of Companies Uganda Limited has a well written safety policy | 1.9 | 21.3 | 14.8 | 48.1 | 13.9 | 3.51 | 1.037 |
| In Terrain Group of Companies Uganda Limited the health and safety policy is available to all employees | 2.8 | 23.1 | 20.4 | 38.9 | 14.8 | 3.40 | 1.085 |
| Terrain Group of Companies Uganda Limited has an accident record system | 2.8 | 12.0 | 13.9 | 48.1 | 23.1 | 3.77 | 1.029 |
| In Terrain Group of Companies Uganda Limited, there is a senior management representative responsible for health and safety | 23.1 | 26.9 | 4.6 | 33.3 | 12.0 | 2.84 | 1.415 |
| Employees in Terrain Group of Companies Uganda Limited have the ability to approach management on issues of concern with regards to their health and safety | 0 | 25.0 | 9.3 | 44.4 | 21.3 | 3.62 | 1.083 |
| In Terrain Group of Companies Uganda Limited, the Health and Safety committee investigates work accident | 3.7 | 23.1 | 13.9 | 42.6 | 16.7 | 3.45 | 1.131 |
| In Terrain Group of Companies Uganda Limited, the Health and Safety committee provide investigation program upon accident report | 4.6 | 18.5 | 4.6 | 50.0 | 22.2 | 3.67 | 1.152 |
| **Overall Mean/SD** |  |  |  |  |  | 3.52 | 1.141 |

**Source*: (*Primary Data, 2019*).***

Respondents were asked whether Terrain Group of Companies Uganda Limited has a health and safety committee, the study results indicated that, 56.5% of the respondents agreed, 22.2% strongly agreed, 20.4% disagreed, 0% not sure and 0.9% strongly disagreed. A mean score of 3.79 and standard deviation of 1.042 were obtained implies that majority of the respondents agreed with the statement. This implies that TGC Limited has health and safety committees which are used to assess the work place environment from time to time so as to ensure that employees work in a safe and healthy environment so as to mitigate work place hazards.

Respondents were asked whether terrain Group of Companies Uganda Limited has a well written safety policy and the study results indicated that 48.1% of the respondents agreed, 13.9% strongly agreed, 14.8% were not sure, 21.3 disagreed and 1.9% strongly agreed. A mean score of 3.51 and standard deviation of 1.037 were obtained implies that respondents agreed with the statement. This means that Terrain Group of Companies Uganda Limited has a well written safety policy which all employees follow and this help them to properly identify and report any hazardous conditions to the management or to their immediate supervisors and this contributes to the mitigation of work place hazards in the company contributing to improved organization growth and development.

Respondents were also asked whether in Terrain Group of Companies Uganda Limited the health and safety policy is available to all employees and the study results indicated that, 38.9% of the respondents agreed, 14.8% strongly agreed, 20.4% were not sure, 23.1% disagreed and 2.8% strongly disagreed. A mean score of 3.40 and 1.085 were obtained implies that majority of the respondents were not consistent in their responses with the statement. This implies that, in Terrain Group of Companies Uganda Limited the health and safety policy is not available to all employees thus the management of the company needs to avail to employees the health and safety policy so as to enable them to be aware of the safety and health practices and procedures at the work place so as to mitigate work place hazards.

Respondents were furthermore asked whether Terrain Group of Companies Uganda Limited has an accident record system and the study results indicated that, 48.1% of the respondents agreed, 23.1% strongly agreed, 13.9% were not sure, 12.0% disagreed and 2.8% strongly disagreed. A mean score of 3.77 and standard deviation of 1.029 were obtained implies that majority of the respondents agreed with the statement. This shows that Terrain Group of Companies Uganda Limited has an accident record system whereby the accidents that have occurred in the company are properly documented which help the management to take necessary decisions regarding the control of the occurrence of such accidents and plan effectively on how to eliminate all work place hazards so as to enhance high level of employee safety at work.

Respondents were further more asked whether in Terrain Group of Companies Uganda Limited, there is a senior management representative responsible for health and safety and the study results indicated, 33.3% of the respondents agreed, 12.0% strongly agreed, 4.6% were not sure, 26.9% disagreed while 23.1% strongly disagreed. A mean score of 2.84 was obtained and a standard deviation of 1.415 were obtained implies that majority of respondents disagreed with the statement. This implies that in Terrain Group of Companies Uganda Limited, there is no senior management representative responsible for health and safety and this expose employees to hazardous conditions and this limit their fully commitment towards work resulting into low organization effectiveness.

Respondents were also asked whether employees in Terrain Group of Companies Uganda Limited have the ability to approach management on issues of concern with regards to their health and safety and the study results indicated that, 44.4% of the respondents agreed, 21.3% strongly agreed, 9.3% were not sure, 25.0% disagreed and 0% strongly disagreed. A mean score of 3.62 and standard deviation of 1.084 were obtained implies that most of the respondents agreed with the statement. This means that, employees in Terrain Group of Companies Uganda Limited have the ability to approach management on issues of concern with regards to their health and safety at work place and this enable the management of the company to plan effectively so as to mitigate all work place hazards in the company for better employee performance.

Respondents were asked whether in Terrain Group of Companies Uganda Limited, the Health and Safety committee investigates work accident and the study results indicated that, 42.6% of the respondents agreed with the statement, 16.7% strongly agreed, 13.9% were not sure, 23.1% disagreed while 3.7% of the respondents strongly disagreed. A men score of 3.45 and standard deviation of 1.131 were obtained implies that most of the respondents agreed with the statement. This means that in Terrain Group of Companies Uganda Limited, the Health and Safety committee investigates work accident and this contributes to the effective mitigation of work place hazards for better company success.

Respondents were also asked whether in Terrain Group of Companies Uganda Limited, the Health and Safety committee provide investigation program upon accident report and the study results indicated, 50.0% of the respondents agreed, 2.2% strongly agreed, 4.6% were not sure, 18.5% disagreed and 4.6% strongly disagreed. A mean score of 3.67 and Standard deviation of 1.152 were obtained impales that, majority of the study respondents agreed. This shows that in Terrain Group of Companies Uganda Limited, the Health and Safety committee provide investigation program upon accident report and this enable the management of the company to design and put in place proper health and safety guidelines which enhance high level of organisation efficiency and effectiveness.

Generally the findings shows a moderately low scale of agreement (Mean 3.52, SD= 1.141) with the attributes statements of the dependent variable implying that the variable had relevance to the problem under study.

# Correlation between Health and safety committees and mitigation of work place hazards

In order to determine how Terrain Group Uganda establishes safety committees in order to mitigate work place hazards, the study computed bivariate Pearson Correlation and the results are presented in table 5.2 below.

# Table 6. : Showing Correlation between Health and safety committees and mitigation of work place hazards

|  |  |  |  |
| --- | --- | --- | --- |
|  | | Health and Safety Committees | Mitigation of work hazards |
| Health and Safety Committees | Pearson Correlation | 1 | .416\*\* |
| Sig. (2-tailed) |  | .000 |
| N | 108 | 108 |
| Mitigation of work hazards | Pearson Correlation | .416\*\* | 1 |
| Sig. (2-tailed) | .000 |  |
| N | 108 | 108 |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | |

**Source: (Primary data, 2019)**

Results in table 6.2 above show the relationship between Health and safety committees and mitigation of work place hazards. It shows that through bivariate means, the correlation task Health and safety committees and mitigation of work place hazards is (r) = 0.416. This implies that there is a moderate positive relationship between the two variables since the p-value is 0.000 which is less than 0.01 (p < 0.01). The positive value implies that the availability of health and safety committees contributes to the mitigation of work place hazards in Terrain Group of companies limited.

# Table 6. : Showing model summary for Health and safety committees and mitigation of work place hazards

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .416a | .173 | .165 | .69549 |
| a. Predictors: (Constant), Health and Safety Committees | | | | |

**(Source: Primary Data, 2019)**

The regression results as presented in table 6.3 above show the, adjusted R square value of 0.165; it implies that the existence of health and safety committees only contributes 16.5% towards mitigation of work place hazards in Terrain Group of companies, the remaining 73.5% of mitigation of work place hazards is being explained by other factors. This implies that a provision of health and safety committees contributes to the mitigation of work place hazards in Terrain group of companies.

# Table 6. : Showing ANOVA values for Health and safety committees and mitigation of work place hazards

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 10.739 | 1 | 10.739 | 22.202 | .000b |
| Residual | 51.274 | 106 | .484 |  |  |
| Total | 62.013 | 107 |  |  |  |
| a. Dependent Variable: Mitigation of work hazards | | | | | | |
| b. Predictors: (Constant), Health and Safety Committees | | | | | | |

**Source: (Primary Data, 2019)**

Results of the study in table 6.4 above indicate that the regression model predicts the dependent variable significantly well. There is a statistical significance of the regression model indicated by F= 22.202 and Sig =0.000 which is less than 0.01. This is also supported by the regression mean square value of 10.739 compared to the residual mean square of 0.484 which is significant to zero. This therefore confirms that, there is a positive moderate relationship between health and safety committees and the mitigation of work place hazards in Terrain group of companies limited.

# Table 6. : Showing coefficients of Health and safety committees and mitigation of work place hazards

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| B | Std. Error | Beta |
| 1 | (Constant) | 2.021 | .376 |  | 5.374 | .000 |
| Health and Safety Committees | .497 | .106 | .416 | 4.712 | .000 |
| a. Dependent Variable: Mitigation of work hazards | | | | | | |

**Source: (Primary data, 2019).**

Results from table 6.5 give t values and Beta. The t-values test the relationship that the coefficient is different from 0. To reject this, you need a t-value greater than 1.96 (for 95% confidence). The t-value for health and safety committees is 4.712 which is greater than 1.96. This implies the presence of health and safety committees contributes to the mitigation of work place hazards in Terrain Group of companies limited considering a significant factor (Sig =0.000). Also the standardized beta coefficient of 0.416 imply that one unit increase in the mitigation of work place hazards is caused by 0.416 units increase in availability of health and safety committees in Terrain Group of companies based on the equation Y=βx + C where Y= (Dependent variable), x = health and safety committees (Independent variable, β = 0.416 and C= constant .

# Respondents views on how Terrain Group Uganda establishes safety committees in order to mitigate work place hazards

These are views of different respondents concerning safety committees and mitigation of work place hazards in Terrain Group of Companies. The views were recorded in during interviews.

One of the respondent revealed that*; “*The *health and safety committee has not allowed participation of employees in its activities, identified health and safety issues to be addressed or make improvements hence employees are not confident with the composition of health and safety committee in Terrain Group of companies.”*

Other employees revealed that *“*

*Also from the interview, according to one of the respondents, “Safety committee allows participation of employees in its activities which help to eliminate and mitigation of work place hazards.*

# CHAPTER SEVEN

# TRAINING EMPLOYEES TO BE AWARE AND MITIGATE WORK PLACE HAZARDS IN TGC LIMITED

# Introduction

This chapter presents the findings and interpretation of how does a Terrain Group Uganda train employee to be aware of work hazards and provide adequate control of health and safety risks arising from work activities. The study findings are presented in form of tables showing, mean scores, standard deviation, correlation and regression analysis.

# How TGC Limited trains employees to be aware of work hazards to mitigate work place hazards

The aim was to determine how TGC Limited trains employees to be aware of work hazards to mitigate work place hazards. Respondents were provided with a number of statements and asked to indicate to what extent they agreed with them, using the scale: 1 point = strongly disagree; 2 points = disagree; 3 points = not sure; 4 points = agree; and 5 points = strongly agree. Mean scores greater than 4.5 implies that the respondents strongly agreed to the statement, means between 3.5 and 4.5 implies that the respondents agreed to the statement, means between 2.5 and 3.5 implies that the respondents were not sure about the statement, mean between 1.5 and 2.5 implies that respondents disagreed to the statement and mean scores less than 1.5 implies that the respondents strongly disagreed to the statement. A standard deviation greater than 1 implies a significant variance meaning there was no consensus in the responses while a standard deviation less than 1 shows that there was no significance variance hence consensus in responses.

# Table 7. : Statistics on how TGC Limited trains employees to be aware of work hazards to mitigate work place hazards

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Statement** | **1 (%)** | **2 (%)** | **3 (%)** | **4 (%)** | **5 (%)** | **Mean** | **Std Dev** |
| **Key** | **SD** | **D** | **SA** | **A** | **SA** |  |  |
| Terrain Group of Companies Uganda Limited provides training on what to do in an emergency | 5.6 | 22.2 | 2.8 | 50.0 | 19.4 | 3.56 | 1.194 |
| Employee Safety Training has helped to establish a safety culture in which employees themselves help to promote proper safety procedures while on the job | 2.8 | 36.1 | 0.9 | 46.3 | 13.9 | 3.32 | 1.183 |
| In Terrain Group of Companies Uganda Limited, new employees are properly trained and this embraces the importance of work place safety | 6.5 | 29.6 | 0 | 47.2 | 16.7 | 3.58 | 1.251 |
| The management provides training to improve supervisors capability in conducting work program | 0.9 | 31.5 | 0 | 46.3 | 21.3 | 3.56 | 1.171 |
| Terrain Group of Companies Uganda Limited provides protective gears to its staff | 2.8 | 30.6 | 0 | 53.7 | 13.0 | 3.64 | 1.138 |
| In case of a work related accident, Terrain Group of Companies Uganda Limited provides medical support to the injured employee | 1.9 | 28.7 | 1.9 | 48.1 | 19.4 | 3.55 | 1.155 |
| The protective clothing are comfortable and well fitting | 1.9 | 25.9 | 0 | 50.5 | 22.2 | 3.67 | 1.122 |
| Terrain Group of Companies Uganda Limited provides certain incentive to employee implementing company’s safety management | 1.9 | 30.6 | 0 | 50.0 | 17.6 | 3.51 | 1.156 |
| **Overall Mean/SD** |  |  |  |  |  | **3.55** | **1.172** |

***(*Source*:* Primary Data, 2019*)***

Most aspects of health and safety training were rated high. Respondents were asked whteher Terrain Group of Companies Uganda Limited provides training on what to do in an emergency and the study results indicated that, 50.0% of the respondents agreed, 19.4% strongly agreed, 2.8% were not, 22.2% disagreed and 5.6% strongly disagreed. A mean score of 3.56 and standard deviation of 1.194 were obtained implies that majority of the respondents agreed with the statement. This implies that Terrain Group of Companies Uganda Limited provides training on what to do in an emergency and this enables employees to always be alert while dealing with hazardous substance which contributes to the elimination of work place hazards in the company.

When the respondents were asked whether employee Safety Training has helped to establish a safety culture in which employees themselves help to promote proper safety procedures while on the job and the findings revealed that, 46.3% of the respondents agreed, 13.9% strongly agreed, 0.9% was not sure, 36.1% disagreed and 2.8% strongly disagreed. A mean score of 3.32 and standard deviation of 1.183 was obtained, implies that respondents were not sure as to whether employee safety training has helped to establish a safety culture in which employees themselves help to promote proper safety procedures while on the job in TGC Limited which limit the level of employee performance and expose workers to the hazards while at work.

In a similar way, regarding whether In Terrain Group of Companies Uganda Limited, new employees are properly trained and this embraces the importance of work place safety, the results revealed that, 47.2% of the respondents agreed, 16.7% strongly agreed, 0% not sure, 29.6% disagreed and 2.8% strongly agreed. A Mean score of 3.58 and standard deviation of 1.251 was obtained indicating that majority of respondents agreed. This implies that, In Terrain Group of Companies Uganda Limited, new employees are properly trained and this embraces the importance of work place safety which contributes to the elimination of work place hazards in Terrain group of companies.

Respondents were further asked whether the management provides training to improve supervisors capability in conducting work program and the findings of the study indicated that, 46.3% of the respondents agreed, 21.3% strongly agreed, 0% not sure, 31.5% disagreed and 0.9% strongly disagreed. A mean score of 3.56 and standard deviation of 1.171 were obtained, implies that, in Terrain Group of companies, management provides training to improve supervisor’s capability in conducting work program and this contributes to the elimination of work place hazards resulting into high level of organisation performance.

Study respondents were further asked whether Terrain Group of Companies Uganda Limited provides protective gears to its staff, findings revealed that, 53.7% of the respondents agreed with the statement, 13.0% strongly agreed, 0% not sure, 30.6% disagreed and 2.8% strongly disagreed. A mean score of 3.64 and standard deviation of 1.138 were obtained implies that there was a positive response. This implies that Terrain Group of Companies Uganda Limited provides protective gears to its staff and this enable the staff to be protected from hazardous environment thus elimination of work place hazards.

Study respondents were asked whether in case of a work related accident, Terrain Group of Companies Uganda Limited provides medical support to the injured employee and the study results indicated that, 50.5% of the respondents agreed, 22.2% strongly agreed, 0% not sure, 25.9% disagreed and 0% strongly disagreed. A mean score of 3.55 and standard deviation of 1.155 were obtained implies that majority of the respondents agreed with the statement. This means that, Terrain group of companies provides medical support to the injured employees in case of a work related accident and this enhance staff commitment towards work as well as elimination of work place hazards.

Study respondents were further asked whether the protective clothing are comfortable and well fitting and the study results indicated that, 50.0% of the respondents agreed, 17.6% strongly agreed, 0% not sure, 30.6% disagreed and 1.9% strongly disagreed. A mean of 3.67 and standard deviation of 1.155 were obtained implies that most of the respondents agreed with the statement. This indicates that Terrain group of companies provides comfortable and fitting protecting clothing that help to eliminate work place hazards and enhance improved organisation performance.

Respondents were asked whether Terrain Group of Companies Uganda Limited provides certain incentive to employee implementing company’s safety management and the study results indicated that, 50.0% of the respondents agreed, 17.6% strongly agreed, 0% not sure, 30.6% disagreed and 1.9% strongly disagreed. A mean score of 3.51 and standard deviation of 1.156 were obtained implies that majority of the respondents agreed. This implies that, Terrain Group of Companies Uganda Limited provides certain incentive to employee implementing company’s safety management hence elimination of work place hazards in the company.

Generally the findings of the study as presented in table 7.1 above showed a moderately scale of agreement by the respondents on all aspects of health and safety training (Mean 3.55, SD= 1.172) with the attributes statements of the dependent variable implying that the variable had relevance to the problem under study.

# Inferential statistics on correlation and regression

To establish how Terrain Group Uganda trains employees to be aware of work hazards to mitigate work place hazards, the researcher carried out a correlation and linear regression test. The results are presented in the tables below.

Table 7. 2: Showing correlation between employee safety training and mitigation of work place hazards

|  |  |  |  |
| --- | --- | --- | --- |
|  | | Employee Safety Training | Mitigation of work hazards |
| Employee Safety Training | Pearson Correlation | 1 | .577\*\* |
| Sig. (2-tailed) |  | .000 |
| N | 108 | 108 |
| Mitigation of work place hazards | Pearson Correlation | .577\*\* | 1 |
| Sig. (2-tailed) | .000 |  |
| N | 108 | 108 |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | |

**(Source: Primary Data, 2019)**

Findings of the study in table 7.2 above show the relationship between employee safety training and mitigation of work place hazards. It shows that through bivariate means, the correlation between skill employee safety training and mitigation of work place hazards is (r) = 0.577. This implies that there is a moderate positive relationship between the two variables since the significant value is 0.000 which is less than 0.05 (p < 0.05. This therefore shows that employee safety training contributes to mitigation of work place hazards in Terrain Group of companies.

# Table 7. : Showing model summary for employee safety training and mitigation of work place hazards

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .577a | .333 | .327 | .62470 |
| a. Predictors: (Constant), Employee Safety Training | | | | |

**(Source: Primary data, 2019)**

The regression results as presented in table 7.3 above show the adjusted R square value of 0.327, it implies that employee safety training contributes 32.7% towards the mitigation of work place hazards in Terrain Group of companies; the remaining 67.3% of mitigation of work place hazards is being influenced by other factors. This thus implies that there is a significant positive relationship employee safety training and mitigation of work place hazards.

# Table 7. : Showing ANOVA values for employee safety training and mitigation of work place hazards

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 20.647 | 1 | 20.647 | 52.907 | .000b |
| Residual | 41.366 | 106 | .390 |  |  |
| Total | 62.013 | 107 |  |  |  |
| a. Dependent Variable: Mitigation of work place hazards | | | | | | |
| b. Predictors: (Constant), Employee Safety Training | | | | | | |

**(Source: Primary Data, 2019)**

Results of the study in table 7.4 above indicate that the regression model predicts the dependent variable significantly well. There is a statistical significance of the regression model indicated by F= 52.907 and Sig =0.000 which is less than 0.05. This is also supported by the regression mean square value of 20.647 compared to the residual mean square of 0.390 which is significant to zero. This thus confirms that, there is a moderate positive relationship between employee safety Training and mitigation of work place hazards.

# Table 7. : Coefficients of employee safety training and mitigation of work place hazards

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| B | Std. Error | Beta |
| 1 | (Constant) | 2.156 | .229 |  | 9.406 | .000 |
| Employee Safety Training | .455 | .063 | .577 | 7.274 | .000 |
| a. Dependent Variable: Mitigation of work place hazards | | | | | | |

**(Source: Primary Data, 2019)**

Results from table 7.5 give t values and Beta. The t-values test the relationship that the coefficient is different from 0. To reject this, you need a t-value greater than 1.96 (for 95% confidence). The t-value for employee Safety Training is 7.274 which are greater than 1.96. This implies that employee safety training contributes to the mitigation of work place hazards in Terrain group of companies considering a significant factor (Sig =0.000). Also the standardized beta coefficient of 0.577 imply that one unit increase in mitigation of work place hazards in Terrain of companies limited is caused by 0.577 units increase in employee Safety Training based on the equation Y=βx + C where Y= Mitigation of work hazards (Dependent variable), x = employee Safety Training (Independent variable, β = 0.577 and C= constant . This therefore means that there is a significant positive relationship between employee Safety Training and mitigation of work place hazards in Terrain of companies.

# Respondents views on how TGC Limited trains employees to be aware of work hazards to mitigate work place hazards

These are views as given by different respondents concerning the relationship between Safety Training and mitigation of work place hazards in Terrain Group of companies. The views were recorded in the semi-structured parts of the questionnaires and during interviews.

According to one of the respondents, “Health safety training programmes are put in place to examine a specific area of the organization, an operational department at Terrain Group of companies so as to ensure conducive work environment”

*Another respondent stated that, “*Accidents are as a result of unsafe acts or practices (the human element that results from poor attitudes, physical conditions and lack of knowledge or skills to enable one to work safely)*.”*

*One of the respondents stated that, “*the company complies with legal requirements of the government of Uganda concerning health and safety inspection”. This is in line with Akpan, (2011), who found out that safety management systems are integrated mechanisms designed to control the risks that may affect worker safety in organizations and at the same time to ensure that the company complies with the regulations.

*One respondent stated that, “*Terrain Group of companies usually conducts safety training for all employees on safety equipment use” This is based on Wells and Greenall (2005), who found that reductions in hazard exposures in the industry were a result of complex interactions between legislative changes. It is therefore necessary for employees to acquire knowledge regarding investment in new machinery and changes in work practice and thus the need for safety training.*”*

*Another respondent stated that, “*Terrain Group of companies always relies on safety training programs to make the best use of human resources comparing values of its employees and thus ensures their safety at work”. This is in line with Barnett (2000), who found out that regardless of the new worker’s attitude, it is the management’s responsibility to provide the new worker the necessary information about the company and job, and safety training in the correct and safe performance of the job.

# CHAPTER EIGHT

# TOWARDS HARMONIZING OCCUPATION SAFETY AND MITIGATION OF WORK PLACE HAZARDS IN TGC LIMITED

# Introduction

This chapter presents the harmonization towards occupation safety and mitigation of work hazards in Terrain Group of companies. The findings are presented in line with study objectives and made a contribution towards the harmonizing the key aspects and variables as the researcher’s contribution to the current study. Harmonizing is defined as the adjustment of differences and inconsistence among different measurements, methods, schedules, specification or systems to make them uniform or mutually compatible (Business dictionary, 2010).

# How TGC Limited conducts regular health and safety inspections to ensure that employee always work in a safe environment

Findings of the study indicated that 65.7% of respondents agreed that there is a specific committee that carries out Health and Safety inspections in Terrain Group of Companies Uganda and this contributes to the mitigation of work place hazards in Terrain Group of Companies. Tis was further supported by a mean score of 4.23 and standard deviation of 0.635 which implies that implies that majority of the respondents agreed.

This finding is in line with Price (2007) for asserted that, Health and Safety Inspections are programmes designed to examine a specific area of the organization, an operational department or a manufacturing process to locate and define any faults in the system, equipment, plant or machines, or any operational errors that might be a danger to health or source of accidents.

The study findings revealed that in Terrain group of company’s equipment is regularly inspected and maintained at by the company and this contributes to the reduction of work place hazards contributing to high level of employee commitment and performance. This finding concurs with Eva and Oswald (1981) who emphasized that when accidents occur, they should be investigated by the employer’s safety committee. Investigation at the scene should be done as soon as possible after an accident to ensure that the conditions under which the accident occurred have not changed significantly.

David and Stephen (1999), indicate that unhealthy work environment is a concern to us all. If workers cannot function properly at their jobs because of constant headaches, watering eyes, breathing difficulties, or fear of exposure to materials that may cause long term health problems, productivity will decrease.

According to Robinson (2016), health and safety inspections are important so as to ensure employees work in a safe environment all the time. Health and safety inspections is an active process of inspecting work place environment and becoming aware of and making choices toward a more successful existence.

More so Jackson et. al, (2000) argued that companies have invested in wellness programs at record rates and such programs appear to be paying off in terms of morale, performance, absentee rates and health care costs.

On the other hand Mejia *et. al* (2010) argues that organizations have become more interested in preventive programs. Recognizing that they can have an effect on their employees behaviour and lifestyle off the job, companies are encouraging aging employees to lead healthier lives and also attempt to reduce health care costs through formal employee wellness programs. Wellness programs may be simple and inexpensive as providing information about stop-smoking clinics and weight loss programs or as comprehensive and expensive as professional health screening and multi-million dollar fitness facilities. The findings of this study have demonstrated that health and safety inspection contributes immensely towards the elimination of work place hazards in Terrain Group of companies and therefore it’s paramount for the management of Terrain group to regularly conduct health and safety inspection so as to enhance high level of employee and organisation performance.

From the study findings the researcher recommends that health and safety inspections in Terrain Group of Companies and similar programmes must aim at both prevention and protection of the occurrence of work place injuries and accidents. Efforts must be focused above all on primary prevention at the workplace level. Workplaces and working environments should properly inspect and reviewed to be safe and healthy.

The study recommends that continuous inspection and improvement of occupational safety and health must be promoted to ensure that company health and safety policy, regulations and technical standards to prevent occupational injuries, diseases and deaths are adapted periodically to social, technical and scientific progress and other changes in the world of work. It is also suggested that TGC Limited should development and implement activities that align to the Occupational Safety and Health Act.

# Influence of health and safety committees and mitigation of work place hazards in TGC Limited

Study findings revealed majority of respondents agreed that Terrain Group of Companies Uganda Limited has a health and safety committee which assesses the work place environment from time to time so as to ensure that employees work in a safe and healthy environment so as to mitigate work place hazards. This finding is in line with Dessler (2013) who revealed that, cooperation between management and workers or their representatives at the workplace, in the field of occupational health and safety, is an essential element in maintaining working environment. Joint health and safety committees provide a valuable framework for discussion and for concerted action to improve safety and health.

Results of the study further more indicated that respondents agreed that Terrain Group of Companies Uganda Limited has a well written safety policy allow employees follow it properly and this help them to properly identify and report any hazardous conditions which contributes to the mitigation of work place hazards in the company contributing to improved organization growth and development.

According to Armstrong (2012) suggest that health and safety committee should help in conducting risk assessments and safety audits and make suggestions on improving health and safety performance. Employers should establish safety committees after consultation with trade union representatives and post a notice stating the composition of the committee and indicating what areas the organization will embrace. The overall objective of the safety committee is the promotion of cooperation between employers and employees in investigating, developing, and carrying out measures to ensure the health and safety at work of the employees'.

Jackson et.al, (2000) noted that, the human resource department can serve as the coordinator of a committee composed of several employee representatives. Where union exists, the committee should have union representation as well (Jackson et.al, 2000).

NAOT (2012), the report conducted on occupational health and safety in Tanzania identified that, employers are reluctant to form the Occupational Health and Safety Committees at their workplaces because of the fear that the OHS committee members /representatives will report accidents and diseases or poor working environment to OSHA which may result into the imposition of sanctions to them. If these committees could be established and made strong and effective, they could play vital role in ensuring that OHS situations in workplaces substantially improves.

According to Government of Canada Labor Program (2014), health and safety committees and representatives play a vital role in preventing work-related injuries and diseases, and are an important part of what is called the internal responsibility system. This system, based on cooperation between employers and employees, improves the overall understanding of occupational health and safety issues in the workplace. Queensland Government (2014), provided further on this matter by saying that, OHS representatives and committees provide the means for representation and participation of workers in health and safety matters at the workplace. Worker representation facilitates consultation, involving workers and giving them a voice in health and safety matters.

Cole, (1997) According to him, Regulations relating to safety representatives also includes obligations regarding the establishment and operation of safety committees in the workplace. The overall objective of a safety committee is the promotion of cooperation between employers and employees in investigating, developing and carrying out measures to ensure the health and safety of the employees at work.

The study suggests that management of TGC Limited should include line and specialist managers, whilst the employee’s side should include some safety representatives. Meetings should be regular enough to cope with the demands of the environment concerned. The author identifies key functions of safety committees.

# How does TGC Limited train employees to be aware of work hazards and provide adequate control of health and safety risks arising from work activities?

Study findings indicated that majority of respondents agreed that; Terrain Group of Companies Uganda Limited provides training on what to do in an emergency and this enables employees to always be alert while sealing with hazardous substance which contributes to the elimination of work place hazards in the company; employee Safety Training has helped to establish a safety culture in which employees themselves help to promote proper safety procedures while on the job in Terrain group of companies which limit the level of employee performance and expose workers to the hazards while at work; in Terrain Group of Companies Uganda, new employees are properly trained and this embraces the importance of work place safety; and in Terrain Group of companies, management provides training to improve supervisor’s capability in conducting work program and this contributes to the elimination of work place hazards resulting into high level of organisation performance.

Alli (2017) was of the view that, Education and training are vital components of safe, healthy working environments. Workers and employers must be made aware of the importance of establishing safe working procedures and about how to do so. Trainers must be trained in areas of special relevance to particular industries, so that they can address the specific occupational safety and health concerns. NAOT (2012), on a report concerning the status of OHS provided that, the OHS Act No. 5 of 2003, requires training should be provided to all workers. Also the OHS National Policy of 2009 points out that training should be provided at least once in every two years to all workers on the hazards prevailing in their workplaces and safety measures needed to be taken to avoid injury.

Beach (2010) concludes that, young workers, untrained workers, and workers who are new at the job have substantially higher frequencies of work injuries than older workers, trained workers and more experienced workers. Van Zelst investigated the effect of each of these factors separately in a large plant in Indiana and found out that the average monthly accidents rate of about 1,200 workers decline steadily for the first five months on the job, after which the rate remained nearly constant for approximately a five year period. He also found that when newly hired workers were given formal job training, the initial accident frequency was also lower for this trained group and that the group declined to a normal expected level of accident frequency in three months instead of five months for un-trained employees.

Beach (2010) is also of the view that safety education for all levels of management and employees is a vital ingredient for any successful safety program. Education in this context concerns the development of proper objectives and attitudes toward safety. It deals with basic fundamentals and reasons why. Training is more concerned with immediate job knowledge, skills, and work methods. Top and middle management requires education in the fundamentals of safety and the need for effective accident prevention program. The safety director and his staff must undertake to provide extensive education and training for first line supervisors. The supervisors must understand their key roles in the safety effort, namely that they are primarily responsible for preventing occupational accidents and thus each supervisor must conduct his own safety training for his employees which help to eliminate work place hazards in organizations.

Tzu and Gomez-Mejia (1988), state that one way to encourage employee safety is to involve all employees at various times in safety training. Safety training can be done in various ways. This includes; Regular sessions with supervisors, managers, and employees often are coordinated by HR staff members. And another way may be showing videos, television broadcasts and internet- based resources all are means used to conduct safety training. Tsui & Gomez-Mejia (1988) suggested that to reinforce safety training, continuous communication to develop a safety consciousness is necessary. Merely sending safety memos is not enough. Producing newsletters, changing safety posters, continually updating bulletin boards and posting information in visible areas also are recommended.

Beach (1985), observed that supervisors are playing a major part in providing education and training to the workers as he stated that, at the employee level, there are two principles, one being to develop safety consciousness and favorable attitudes toward, safety and the second one is to achieve safe work performance from each employee on the job. The supervisors are supposed from the moment a person is hired, oriented by the person’s supervisor should cover such areas as the need for safe work performance, the hazards in his own department and job, the necessity for prompt reporting of any personal injuries, desirability of reporting unsafe conditions to the supervisor, and the general causes of accidents. Each new worker must be taught how to perform his job safely; this frequently takes a form of on the job training. Instructions in safe working procedures must be integrated with instructions designed to achieve acceptable output and quality performance.

Manyele, Ngonyani & Eliakimu, (2017) conducted a research on occupational health and safety at hospitals in Tanzania reported that, OHS status was inadequate in most workplaces in Tanzanian hospitals. Special efforts including training, exposure to information and creation of awareness, are recommended for improving occupational health and safety in hospitals in Tanzania. It is important that all hospital workers are taught and trained in safety measures. There is a lack of formal training on OHS in the country. Special efforts, including training, exposure to information, awareness rising, are recommended for improving OHS in hospitals. In their study, which was conducted in Tanzania’s hospitals observed that none of the 430 respondents had received training on OHS as a profession.

Flippo, (1984) stated that in large part of the safety program must be devoted to the process of educating the employee to act, think and work safely. There are many avenues that this education can take such as the induction of new employees, emphasis of safety points during training sessions, particularly on the job training, special efforts made by the first level supervisors, establishment of employee safety committees, holding of special employee safety meetings, the use of the organization's periodical and the use of charts, posters and display emphasizing the need to act safely.

Flippo (1984) explained in detail that, if safety is the major goal of the organization, then the time to begin safety education is in hiring process. Part of the induction procedure can be devoted to the safety policies and rules of the achievement of the highest standards of health and safety in the workplaces is important because the elimination or at least minimization of health and safety hazards and risks is the moral as well as legal responsibility of the employers. The tangible benefits from better health and safety management include higher productivity, lower absences, avoiding the cost of accidents and litigation, meeting clients demands and improved staff morale and employee relations.

Dessler, (2005), stated that, safety training is another way of reducing unsafe acts, especially for new employees. You should instruct them in safe practices and procedures, warn them of potential hazards, and work on developing a safety-conscious attitude. For example, in America OSHA has published two useful booklets, “Training Requirements under OSHA” and “Teaching Safety and Health in the Workplace. The author explained further that you can’t just provide training and assume it will be successful. OSHA standards require demonstrated proficiency in numerous areas. For example OSHA‟s respiratory protection standard requires that each employee be able to demonstrate how to inspect, put on, remove, use and check respirator seals so as to eliminate work place hazards. Therefore organizations and companies like Terrain Group of companies are ought to provide safety and health training to employees from time to time so as to ensure that employees are aware of work place hazards and this help to in the mitigation of work place hazards for better organisation performance.

The researcher found out that education and training are vital components of safe, healthy working environments. Workers and employers must be made aware of the importance of establishing safe working procedures and of how to do so. Trainers must be trained in areas of special relevance to particular departments at Terrain Group of Companies, so that they can address the specific occupational safety and health concerns.

Clearly, some overlap exists among these general principles. For example, the gathering and dissemination of information on various facets of occupational safety and health underlies all the activities described. Information is needed for the prevention as well as the treatment of occupational injuries and diseases. It is also needed for the creation of effective policies and to ensure that they are enforced. Education and training demand information. Workers, employers and competent authorities have certain responsibilities, duties and obligations. For example, workers must follow established safety procedures; employers must provide safe workplaces and ensure access to first aid; and the competent authorities must devise, communicate and periodically review and update occupational safety and health policies.

# CHAPTER NINE

# SUMMARY OF FINDINGS AND CONCLUSIONS

# Introduction

This chapter presents the summary and discussion of findings. The findings are discussed in relation to the study objectives, case study and reviewed literature. The summary gives an overview of the research from which conclusions and recommendations are drawn.

# Summary of the study findings

The summary is made basing on the study objectives which were; to assess how Terrain Group Uganda conducts regular health and safety inspections so ensure that employee always work in a safe environment.; To assess how TGC Limited establishes and regularly reviews occupation health and safety environment through safety committees in order to mitigate work place hazards ; and to examine how TGC Limited trains employees to be aware of work hazards and provide adequate control of health and safety risks arising from work activities.

# Conducting regular health and safety inspections to mitigate work place hazards in TGC Limited

Pearson’s correlation coefficient between health and safety inspections and mitigation of work place hazards (table 5.2) shows that there is a moderate positive relationship between the two variables with r = 0.550 and p = 0.000. This show that conducts of health and safety inspections contributes to the mitigation of work place hazards in Terrain Group of companies. Therefore this implies that there is a statistical relationship health and safety inspection and mitigation of work place hazards in Terrain Group of Companies,

Findings of the study in relation to the Adjusted R square in table 5.3 revealed that and safety inspection contributes only 29.5% to the mitigation of work place hazards in Terrain Group of companies; the remaining 70.5% of mitigation of work place hazards is explained by other factors. This hence means that there is a relationship between health and safety inspection and mitigation of work place hazards in Terrain group of companies.

Study findings in table 5.4 indicated that the regression model predicts the dependent variable significantly well. There is a statistical significance of the regression model indicated by F=45.856 and P=0.000 which is less than 0.05. This is also supported by the regression mean square value of 18.726 compared to the residual mean square of 0.408. This implies that there is a positive moderate relationship between health and safety inspections and employee Mitigation of work hazards at Terrain Group of companies which contributes to the overall company growth and development

# Establishing safety committees in order to mitigate work place hazards in TGC Limited

Pearson’s correlation between health and safety committees and mitigation of work place hazards (table 6.2), indicated through bivariate means, the correlation between health and safety committees and mitigation of work place is (r) = 0. 416. This implies that there is a positive relationship between the two variables since the significant value is 0.000 which is less than 0.05 (p < 0.05) and therefore, the availability of health and safety committees contributes to the mitigation of work place hazards in Terrain Group of Companies.

In relation to the adjusted R square value (table 6.3), health and safety committees only contributes 16.5% towards mitigation of work place hazards in Terrain Group of companies, the remaining 73.5% of mitigation of work place hazards is being explained by other factors. This implies that a provision of health and safety committees contributes to the mitigation of work place hazards in Terrain group of companies.

Results of the study in table 6.4 indicated that the regression model predicts the dependent variable significantly well. There is a statistical significance of the regression model indicated by F= 22.202 and Sig =0.000 which is less than 0.05. This is also supported by the regression mean square value of 10.739 compared to the residual mean square of 0.484 which is significant to zero. This therefore confirms that, there is a positive moderate relationship between health and safety committees and the mitigation of work place hazards in Terrain group of companies limited.

# Training employees to be aware of work hazards to mitigate work place hazards in TGC Limited

Pearson’s correlation between employee health and safety training and mitigation of work place hazards (table 7.2), indicated through bivariate means, the correlation between health and safety training and mitigation of work place is (r) = 0. 577. This implies that there is a positive moderate relationship between the two variables since the significant value is 0.000 which is less than 0.05 (p < 0.05) and therefore, the provision of health and safety training contributes to the mitigation of work place hazards in Terrain Group of Companies.

In relation to the adjusted R square value (table 7.3), employee safety training contributes 32.7% towards the mitigation of work place hazards in Terrain Group of companies; the remaining 67.3% of mitigation of work place hazards is being influenced by other factors. This thus implies that there is a significant positive relationship employee safety training and mitigation of work place hazards

Results of the study in table 7.4 above indicate that the regression model predicts the dependent variable significantly well. There is a statistical significance of the regression model indicated by F= 71.818 and Sig =0.000 which is less than 0.05. This is also supported by the regression mean square value of 20.647 compared to the residual mean square of 0.390 which is significant to zero. This thus confirms that, there is a moderate positive relationship between employee safety Training and mitigation of work place hazards.

# Conclusions

From the summary findings above, the study concludes that occupation health contributes to the mitigation of work place hazards in Terrain Group of companies. Further, the study concludes that there is a relationship between health and safety committees, health and safety inspection, employee health and safety training and mitigation of work place hazards in Terrain Group of companies. The following are the conclusions as per the respective objectives.

# Conducting regular health and safety inspections to mitigate work place hazards in TGC Limited

The first objective in this study was to How Terrain Group Uganda conducts regular health and safety inspections so ensure that employee always work in a safe environment. The findings of the study indicated that there is positive significant relationship between health and safety inspection and mitigation of work place hazards in Terrain Group of Companies (r=550 and Sig=0.000). The researcher concludes that health and safety inspection is an influential factor towards mitigation of work place hazards in Terrain Group of companies. Therefore the study concludes that health and inspections contributes to the mitigation of work place hazards in Terrain Group of companies limited.

# Establishing safety committees in order to mitigate work place hazards in TGC Limited

The second objective in this study was to find out how Terrain Group Uganda establishes and regularly reviews occupation health and safety environment through safety committees in order to mitigate work place hazards. The results of this study as presented in table 6.2 indicated that there is a low positive significant relationship between health and safety committees and mitigation of work place hazards in Terrain Group companies (r=0.416 and sig=0.000). Thus the researcher concludes that Health and safety committees are influential factors towards elimination of work place hazards in Terrain group of companies.

# Establishing safety committees in order to mitigate work place hazards in TGC Limited

The third objective of this study was to assess how Terrain Group Uganda trains employees to be aware of work hazards and provide adequate control of health and safety risks arising from work activities. The results of the study as presented in table 7.2 revealed that there is a moderate significant relationship between employee health and safety training (r=0.577 and sig=0.000), it can be concluded that employee health and safety training contributes to the mitigation of work place hazards in terrain group of companies.

# Areas for further research

The study could not exhaust all the elements of occupation safety and mitigation of work place hazards. Thus, future studies may include more variables in the study. Further, since the study concentrated on Terrain Group of Companies only, other studies could consider other government and non-government institutions in Uganda and elsewhere because occupation safety contributes to the mitigation of work place hazards. In addition, enormous sample size should be used for more accurate findings and which is more generalizable country wide.

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# APPENDIX I: QUESTIONNAIRE

Dear Respondent**,** I am a student of Nkumba University, pursuing a Master’s Degree in Business Administration. I am carrying out research on the topic “***Occupational Safety and Mitigation of workplace hazards in civil Engineering companies in Uganda. A case of Terrain Group of companies Uganda Limited”***.You have been chosen to participate in this study and your opinions shall be strictly kept confidential and information provided will be used strictly for academic purposes. You are therefore kindly requested to provide the relevant information in the questionnaire below

**SECTION A: Background Information**

**(Tick where appropriate)**

**1) Gender**

(a) Male (b) Female

**2) Age**

(a) Below 20 years (b) 21-30 years

(c) 31-40 years (d) above 41 years

**3) Highest level of education**

(a) Certificate (b) Diploma (c) Degree

(d) Masters (e) PhD

Others (Specify)………………………………………………………………………………

**4) Department of work**

(a) Administration & Human Resources (b) Construction

(c) Accounts and Finance d) Maintenance and production

(e) Marketing Sales and sales (f) Support staff

**5) Tenure of service in the organization**

(a) Less than 1 year (b) 1-5 years

(c) 6-10 years (d) More than 11 years

**SECTION B: Occupational Safety (INDEPENDENT VARIABLE)**

1. **Health and Safety Inspections**

**Use the scale below to respond to the statements in the table (Tick a box of your choice)**

**Scale**; ***1= Strongly Disagree, 2=Disagree, 3=Not sure, 4=Agree, 5= Strongly Agree***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SN** | **Statement** | **1** | **2** | **3** | **4** | **5** |
| 1 | There is a specific committee that carries out Health and Safety inspections in Terrain Group of Companies Uganda Limited |  |  |  |  |  |
| 2 | All equipment is regularly inspected and maintained |  |  |  |  |  |
| 3 | There is a procedure for reporting faulty equipment |  |  |  |  |  |
| 4 | In Terrain Group of Companies Uganda Limited, all guards are in place on machinery |  |  |  |  |  |
| 5 | In Terrain Group of Companies Uganda Limited, dangerous machines are only operated by properly trained staff |  |  |  |  |  |
| 6 | In Terrain Group of Companies Uganda Limited, a checklist helps to ensure that no problem is missed |  |  |  |  |  |
| 7 | In Terrain Group of Companies Uganda Limited, there is a first aid box |  |  |  |  |  |
| 8 | The first aid box is fully equipped and accessible to staff |  |  |  |  |  |
| **(b)** | **Health and Safety Committees** |  |  |  |  |  |
| 9 | Terrain Group of Companies Uganda Limited has a health and safety committee |  |  |  |  |  |
| 10 | Terrain Group of Companies Uganda Limited has a well written safety policy |  |  |  |  |  |
| 11 | In Terrain Group of Companies Uganda Limited the health and safety policy is available to all employees |  |  |  |  |  |
| 12 | Terrain Group of Companies Uganda Limited has an accident record system |  |  |  |  |  |
| 13 | In Terrain Group of Companies Uganda Limited, there is a senior management representative responsible for health and safety |  |  |  |  |  |
| 14 | Employees in Terrain Group of Companies Uganda Limited have the ability to approach management on issues of concern with regards to their health and safety |  |  |  |  |  |
| 15 | In Terrain Group of Companies Uganda Limited, the Health and Safety committee investigates work accident |  |  |  |  |  |
| 16 | In Terrain Group of Companies Uganda Limited, the Health and Safety committee provide investigation program upon accident report |  |  |  |  |  |
| **(c)** | **Employee Safety Training** |  |  |  |  |  |
| 17 | Terrain Group of Companies Uganda Limited provides training on what to do in an emergency |  |  |  |  |  |
| 18 | Employee Safety Training has helped to establish a safety culture in which employees themselves help to promote proper safety procedures while on the job |  |  |  |  |  |
| 19 | In Terrain Group of Companies Uganda Limited, new employees are properly trained and this embraces the importance of work place safety |  |  |  |  |  |
| 20 | The management provides training to improve supervisors capability in conducting work program |  |  |  |  |  |
| 21 | Terrain Group of Companies Uganda Limited provides protective gears to its staff |  |  |  |  |  |
| 22 | In case of a work related accident, Terrain Group of Companies Uganda Limited provides medical support to the injured employee |  |  |  |  |  |
| 23 | The protective clothing are comfortable and well fitting |  |  |  |  |  |
| 24 | Terrain Group of Companies Uganda Limited provides certain incentive to employee implementing company’s safety management |  |  |  |  |  |
| 25 | Adequate and comfortable working environment as well as safety practices will affect my productivity positively |  |  |  |  |  |
| 26 | All employees are given the opportunity to voice out health and safety concerns |  |  |  |  |  |

**SECTION C: Mitigation of work hazards (DEPENDENT VARIABLE)**

**Use the scale below to respond to the statements in the table (Tick a box of your choice)**

**Scale**; ***1= Strongly Disagree, 2=Disagree, 3=Not sure, 4=Agree, 5= Strongly Agree***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SN** | **Statement** | **1** | **2** | **3** | **4** | **5** |
| **(a)** | **Administrative controls** |  |  |  |  |  |
| 1 | Administrative controls are shift designs that lessen the threat of a hazard to an individual |  |  |  |  |  |
| 2 | Administrative controls change the behavior of people rather than removing the actual hazard |  |  |  |  |  |
| **(b)** | **Personal Protective Equipment** |  |  |  |  |  |
| 3 | Terrain Group of Companies Uganda Limited provides Personal Protective Equipment to its employees |  |  |  |  |  |
| 4 | The Personal Protective Equipment has helped in mitigating work hazards |  |  |  |  |  |
| 5 | In Terrain Group of Companies Uganda Limited, putting on a protective equipment is a requirement not a choice |  |  |  |  |  |
| **(c)** | **Elimination** |  |  |  |  |  |
| 6 | Elimination is the most effective way to control a risk |  |  |  |  |  |
| 7 | In Terrain Group of Companies Uganda Limited, hazardous materials are replaced with less hazardous ones |  |  |  |  |  |

***Thank you for your Co-operation***

# APPENDIX II: INTERVIEW GUIDE

Dear Respondent**,** I am a student of Nkumba University, pursuing a Master’s Degree in Business Administration. I am carrying out research on the topic “***Occupational Safety and Mitigation of workplace hazards in civil Engineering companies in Uganda. A case of Terrain Group of companies Uganda Limited”***.You have been chosen to participate in this study and your opinions shall be strictly kept confidential and information provided will be used strictly for academic purposes. You are therefore kindly requested to respond to the interview guide below.

1. In what ways does your organization practice health and safety? Please state

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

2. In general, are you satisfied with the health and safety practices implemented at Terrain Group of Companies Uganda Limited? Why?

……………………………………………………………………………………………………………………………………………………………………………………………………

…………………………………………………………………………………………………

3. Kindly suggest ways to improve the health and safety of employees at your workplace

……………………………………………………………………………………………………………………………………………………………………………………………………

4. Please state the type of health problems being encountered at the work place

………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

5. Does the organization have a written health and safety policy that includes programs and procedures for environmental, health, safety and working conditions? If yes, what is that policy?

…………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

***Thank you for your Co-operation***

# **APPENDIX III:** **TABLE FOR DETERMINING SAMPLE SIZE FROM A GIVEN** POPULATION

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **N** | **S** | **N** | **S** | **N** | **S** |
| 10 | 10 | 220 | 140 | 1200 | 291 |
| 15 | 14 | 230 | 144 | 1300 | 297 |
| 20 | 19 | 240 | 148 | 1400 | 302 |
| 25 | 24 | 250 | 152 | 1500 | 306 |
| 30 | 28 | 260 | 155 | 1600 | 310 |
| 35 | 32 | 270 | 159 | 1700 | 313 |
| 40 | 36 | 280 | 162 | 1800 | 317 |
| 45 | 40 | 290 | 165 | 1900 | 320 |
| 50 | 44 | 300 | 169 | 2000 | 322 |
| 55 | 48 | 320 | 175 | 2200 | 327 |
| 60 | 52 | 340 | 181 | 2400 | 331 |
| 65 | 56 | 360 | 186 | 2600 | 335 |
| 70 | 59 | 380 | 191 | 2800 | 338 |
| 75 | 63 | 400 | 196 | 3000 | 341 |
| 80 | 66 | 420 | 201 | 3500 | 346 |
| 85 | 70 | 440 | 205 | 4000 | 351 |
| 90 | 73 | 460 | 210 | 4500 | 354 |
| 95 | 76 | 480 | 214 | 5000 | 357 |
| 100 | 80 | 500 | 217 | 6000 | 361 |
| 110 | 86 | 550 | 226 | 7000 | 364 |
| 120 | 92 | 600 | 234 | 8000 | 367 |
| 130 | 97 | 650 | 242 | 9000 | 368 |
| 140 | 103 | 700 | 248 | 10000 | 370 |
| 150 | 108 | 750 | 254 | 15000 | 375 |
| 160 | 113 | 800 | 260 | 20000 | 377 |
| 170 | 118 | 850 | 265 | 30000 | 379 |
| 180 | 123 | 900 | 269 | 40000 | 380 |
| 190 | 127 | 950 | 274 | 50000 | 381 |
| 200 | 132 | 1000 | 278 | 75000 | 382 |
| 210 | 136 | 1100 | 285 | 1000000 | 384 |

***Source:*** *Krejcie & Morgan, (1970)*

**Note:** “N” is population size

“S” is sample size.