BUNDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE

DEPARTMENT OF ENVIRONMENTAL SCIENCE

INVESTIGATING THE RELATIONSHIP BETWEEN OCCUPATIONAL HEALTH AND SAFETY CULTURE AND ACCIDENT RATES IN THE CONSTRUCTION INDUSTRY. A CASE STUDY OF AFREXIMBANK AFRICA TRADE CENTRE PROJECT.

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A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE BACHELOR OF ENVIRONMENTAL SCIENCE HONORS DEGREE IN SAFETY, HEALTH AND ENVIRONMENTAL MANAGEMENT.

DECLARATION

To be compiled by the student

Registration number B190317A

I Tapiwa T Mugwagwa do hereby declare that this work is entirely the product of my own findings and has never been presented with any academic award. Any reference to previously published work has been clearly indicated.

Signature of the student……Date……

To be compiled by the supervisor

This dissertation is suitable for submission to the faculty and has been checked for conformity with the faculty guidelines.

Signature of the supervisor……Date…….

DEDICATION

This research is dedicated to all those who have inspired, guided, and supported me along the way. Your encouragement and unwavering belief in my potential have been the foundation of this work. Thank you for being part of this journey.

ACKNOWLEDGEMENT

Above all, I am grateful to God for granting me the strength to persevere, even in difficult times. I extend heartfelt appreciation to my loving parents for their unwavering encouragement and support. My gratitude also goes to my Tinotenda and Dennis, whose presence has been truly uplifting.

I am deeply thankful to my supervisor, Mrs. L Mabhungu, for her invaluable support, intellectual guidance, and motivation throughout this study. The insightful discussions he facilitated allowed me to benefit from his vast knowledge and expertise in research.

Special recognition goes to my friends, Lilliosa and Mukanya , for their steadfast support. I also sincerely appreciate my workmates for their encouragement and assistance, which made a significant impact on this journey. Your contributions have been invaluable, and I am truly grateful.

ABSTRACT

Background

Occupational Safety and Health culture is essential for reducing accidents in the workplace and ensuring employee welfare. This research explores safety trends and elements of OSH and their correlation with workplace accident rates at the Afreximbank Africa Trade Centre Project from January 2023 to January 2025. The study aims to determine whether a stronger safety culture leads to fewer workplace incidents, helping to identify areas for improvement in safety management.

Materials and Methods.

A quantitative research approach was employed, utilizing structured questionnaires and workplace accident reports to collect data. A total of 171 questionnaires were distributed to employees, with 150 valid responses analyzed, achieving an 87.72% response rate. The study examined accident rates, safety perceptions, and management engagement. IBMS SPSS Statistics 20 software was used to assess the relationship between OSH culture and workplace incidents, ensuring a robust evaluation of safety trends.

Results

Employee perceptions towards OSH culture were moderate to strong, with positive ratings in regards to management response to safety, safety communication, and employee involvement, but problems in relation to slow corrective measures and non-workable safety regulations were perceived. The Chi-square test indicated a statistically significant relationship ($p < 0.05$) between the OSH culture and accident rates, which reflects the urgent necessity of adopting proactive safety programs.

Conclusion

This paper shows that improved OSH culture results in fewer accidents at work. Regular safety education will also help to reduce injury cases in the Afreximbank Africa Trade Centre Project by improving safety management effectiveness, safety communication, and safety rules and regulations. These results provide useful knowledge on OSH and help to justify ongoing efforts to invest in OSH culture as a means of ensuring that long-term.

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CHAPTER 1 INTRODUCTION

1.1 BACKGROUND TO THE STUDY

The Afreximbank Africa Trade Centre under construction in Harare is Zimbabwe's largest and most complex construction project ever (Jaafar et al., 2018). Numerous subcontractors now work side by side, and their overlapping schedules create serious occupational health and safety headaches. Because site conditions change hour by hour and crews follow different safety rules, the number of on-site injuries is climbing fast (Fan et al., 2017).

Most incidents are routine bruises, yet serious events often stem from falls, flying materials, or faulty machinery (Asanka and Ranasinghe, 2015). The risks multiply when teams ignore agreed procedures, shift briefings are poor, and basic training is almost nonexistent. To improve the perception of the construction sector, one effective measure is to ensure a safe working environment (Jamal Khan et al., 2005). The construction sector suffers major setbacks due to its high accident rate, both in terms of labour and property, amounting to millions of ringgit annually (Singh et al., 1999). Maintaining workplace safety and health is crucial, especially in construction, as any incident on a construction site can negatively affect both the organization and other stakeholders. As noted by (Arifin et al. 2021), construction project sites are dynamic and constantly evolving as the project progresses, introducing various hazards and concerns throughout the construction process (Lin et al., 2011). A good occupational health and safety culture is a valuable tool in the prevention of accidents and contributes to creating a healthy working environment.

The safety culture involves the collective values, attitudes, and practices that affect safety in an organization (Fan et al., 2017). It involves shared tacit understandings and beliefs influencing the habitual ways of thinking and behaving for all members in the organization (Eela, 2022). The culture of an organization is, fundamentally, the shared narratives, unspoken norms, and collective mindset influencing the way people think and behave in their daily jobs (Eela, 2022). When that culture is focused on safety, accidents go down, workers feel better, and overall production tends to rise. On the flip side, an apathetic or lax attitude towards safety means more injuries, more downtime, and a team that isn’t working at 100% (Juhari & Arifin, 2020).

It can be hard to create such a strong culture at many large sites as that of the Afreximbank Africa Trade Centre Project, because it becomes difficult to get tens of subcontractors all working next to one another to comprehend the same safety guides and regulations (Asanka and Ranasinghe, 2015).

When comparing occupational health and safety culture at the projects and its relationship with the number of accidents registered within the period of 1 January 2013 to 9 July 2014, this study provides a detailed examination. The contractor doing the bulk of the work is Shapoorji Pallonji Group, an Indian company founded in 1865 that now has a worldwide presence. Ten local sub-contractors, it was then contractors that handled the brick-laying, pouring, steel-fixing, plumbing, electrical tubing, and so on. The current on-site workforce is about 670. By examining what actually causes accidents on a site and inspecting how safety is practiced now, the project aims to identify weak spots in the firm's safety culture and to provide "clear, practical action steps" that managers and workers can follow immediately. The results need to be considered as an input in the broader discussion of how to improve the workplace health and safety culture in construction and to reduce accidents toward creating a work environment that allows everyone to feel safe every day (Asanka & Ranasinghe, 2015).

1.2 PROBLEM STATEMENT

The construction industry is recognized for its high-risk nature, with workplace accidents remaining a persistent challenge despite advancements in safety standards and regulations (ILO, 2018). The Afreximbank Africa Trade Centre Project, a prominent construction initiative, embodies these challenges as it involves diverse and concurrent activities executed by multiple subcontractors. This complexity creates a high-risk environment where safety practices vary and are often inconsistently enforced.

In 2023, the project experienced a fatal incident involving a worker who was electrocuted during operations, underscoring the severity of the safety challenges on-site. Additionally, the project records an average of three first-aid cases per week, ranging from minor cuts and bruises to sprains caused by equipment misuse or slips. On a monthly basis, the site also encounters several lost-time injuries, which result in workers missing days or weeks of work, further disrupting operations and project timelines.

These incidents highlight critical gaps in the existing occupational health and safety culture, which is essential for fostering a safe working environment. Addressing this gap is imperative for reducing accidents, improving safety practices, and ensuring the well-being of all workers involved. This study, therefore, seeks to investigate the interplay between OHS culture and accident rates on the Afreximbank Africa Trade Centre Project, aiming to identify weaknesses and propose actionable improvements to enhance safety culture and reduce incidents.

1.3 AIM

To assess the relationship between Occupational Health and Safety culture and accident rates at the Afreximbank Africa Trade Centre Project.

1.4 RESEARCH OBJECTIVES

- To determine the accident rates at the Afreximbank Africa Trade Centre Project from year January 2023 to January 2025
- To determine the prevailing Occupational Health and Safety culture at Afreximbank Africa Trade Centre Project.
- To investigate the statistical relationships between specific components of Occupational Health and Safety culture and accident rates

1.5 HYPOTHESIS

Adherence to Occupational Health and Safety culture practices, including frequent safety training, proper use of personal protective equipment, and effective communication among subcontractors, significantly reduces accident rates.

1.6 JUSTIFICATION

The Afreximbank Africa Trade Centre Project is a large, multi-storey building with numerous workers, making it an ideal environment to investigate safety behaviors and attitudes (Arifin et al., 2021). Because the work is both complex and massive, researchers can identify specific safety hurdles and create straightforward, targeted plans to address them. And there are many subcontractors, each running its own safety routine and paperwork, providing scholars with the

ability to compare how well these different systems actually work, side by side. It is possible that researching the Centre project in this manner may give an indication of how more coherent, collective safety logic could be knitted into the fabric of the primary project management, cascaded down to all of the subcontractors (Eela, 2022). Outside of the academy, the Centre is anticipated to increase trade and to provide critical services throughout the Southern African region. For that reason, a strong safety culture is just as important when it comes to the health of the crew as it is for the project and the reputation of those behind it. A workplace where safety is automatic, hardly thought about, is in most cases one with fewer accidents, more productivity and a better quality of life, rewards that may in the long term contribute to the overall benefits that this groundbreaking development can offer for the area in question (Jamal Khan et al., 2005).

1.7 LIMITATION

This study is limited by a number of practical and theoretical constraints which may influence its results. There could still be limitations in the reliability of the accident data, or anything related to the under-reporting or error-reporting of any incident, particularly minor injury or near-miss, which might be biased (Hosseinian et al., 2012). Furthermore, the findings may have low transferability to other construction projects, since safety measures, project sizes and working environments may differ much. Measurement of occupational health and safety culture is largely reliant on self-reporting of workers (and sub-contractors) who is subjected to bias and social desirability (Lingard and Rowlinson, 2005).

Furthermore, outside factors like weather, employee turnover, or different safety policies from subcontractors could complicate efforts to identify the effect of OHS culture on its own. Time limits and limited access to complete safety records, training logs, or real-time monitoring tools may also restrict how deeply the analysis can go and hinder the investigation of long-term trends. It is important to keep these limitations in mind when interpreting the findings and their relevance (Hosseinian et al., 2012).

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

This chapter examines key literature on OHS Culture in the construction industry and its relationship to workplace accidents. Given the risks in this industry, OHS culture is an important factor determining the outcomes of safety performance. The chapter begins by explaining what OHS culture is and why it is important in construction scenarios. It then goes on to describe common factors contributing to workplace accidents, using global and regional statistics contained in reports published by various organizations and researchers. Key elements influencing the number of accidents, including knowledge, personal protective equipment, and communication, is described. The chapter also introduces theories that help to explain the dynamics of safety culture. Lastly, it identifies what is currently missing in the literature, particularly the relationship between OHS culture and accident rates at the Afreximbank Africa Trade Centre Project.

2.2 RELATIONSHIP BETWEEN OCCUPATIONAL HEALTH AND SAFETY CULTURE AND WORKPLACE ACCIDENTS

The foundation of our society is education, and education is or has been the word for knowledge to fill in individual minds and the growing support for personal development. It equips people with the necessary tools, knowledge, and skills they need to cater well for themselves and to live useful work lives in the society (Lingard and Rowlinson, 2005). Beyond that book learning, education teaches people how to think in sophisticated ways that can be used to solve problems and create things; things that amount to that which we call creativity. Schools of all types equip people of all ages with knowledge and training to help prepare them to meet future demands. This is how an education contributes to the belief in lifelong learning and surrounds us with the disciplines that lead to success in our work and personal lives. For when we put resources behind education, we build a foundation for future personal and professional success. We invest in the future of society, providing talented individuals with the opportunity to reach their full potential (Choudhry & Fang 2008).

A strong OHS culture can be the result of leaders that lead by example to promote safety. One way this can be achieved is to invest sufficient resources in safety instruments, training and legislative

measures (Cartam et al. 2000). And it needs all staff to be involved. They not only know the rules of safety but they participate in solutions and an effort for its success (Lingard and Rowlinson, 2005). Effective OHS culture fosters open and honest communication.

It's even a point of pride in the culture, to spot hazards early and manage risk. One must strive for continuous improvement with feedback on benchmarks and lessons learned and the addition of new best practices to safety (Choudhry and Fang 2008). Construction is just one of those high-risk locations where accidents tend to happen due to a constantly changing environment and numerous job support operations. Therefore, the construction industry should have a solid OHS culture and should maintain a persistent demand. Studies have concluded that organizations with a good safety culture experience lower levels of workplace accidents. They have happier and more productive employees. For instance, Fernandiz-Muniz et al. (2020) identified strong OHS culture to lower the likelihood of injuries by way of safer behavior, enhanced compliance, and greater risk awareness. In short, a low OHS culture is believed to reflect poor training, poor communication, and inconsistent enforcement, which, in turn, may make a significant contribution to the poor safety performance (Lingard and Rowlinson, 2005). Safety is the responsibility of everyone at the job site. Everybody has to be a partner in the process if any safety system is to have a chance of working. It includes all stakeholders from managers to subcontractors (Asanka et al., 2015).

Working Together It's when safety folk and operations folk work together that the safety procedure is still valid when the task becomes bigger or more complicated. Some construction companies in their optimal safety state account for more than 50% of injuries, resulting in low productivity and an enormous impact on cost. When the OHS culture is embraced by the project, the project is secured, lives are saved, and injuries are thwarted. Work-related accidents are typified as unplanned incidents that occur at work resulting in injury or ill health, and in some cases death (Smallwood et al., 2001). Safety risk management is a significant issue in many industries. Yet the construction industry is one of the deadliest industries to work in given the constantly shifting work site conditions, the heavy equipment, and the numerous subs. Accidents range from minor (e.g., cuts and bruising) to moderate and severe (e.g., such as a fall, electric shock, or structural collapse) (Smallwood et al., 2001).

The damage done by accidents in the workplace is rarely limited to an individual getting hurt. Furthermore, delays amount to significant commercial and economic losses, including medical expenses, lost work, legal expenses, as well as project delays. If they also suffer potential accidents more frequently this will result in low morale and trust among the workers and the team becomes less a unity (Smallwood et al., 2001). Prevention against OHS hazards needs to be proactive, involving a multitude of measures and a good OHS culture must be established (Hämäläinen et al., 2006). It simply implies that the hazards need to be identified in any project work beforehand. Security oversees the safety indoctrination of workers and employees. Safety measures must be followed. You have to keep in touch. Furthermore, accurate and traceable exercise of reporting accidents shall be undertaken to see the trends and root out cause and measures for improvement (Durnwald, 2012). Prevention of industrial accidents indulges a multiplicity of tactical dimensions underlain in the working of strong OHS (Hämäläinen et al., 2006). This includes proactive identification of hazards, continuous safety training, and rigorous implementation of protocols as well as promoting communication at all levels. Furthermore, accurate and honest reporting of accidents should be performed to allow analysis of trends, root causes, and targeted improvements (Durnwald, 2012).

The question for businesses is not if the costs of workplace accidents should be addressed (ethically, we have a duty to do so), but when, how, and why should it be in our businesses' best interest to do so? Organizations can improve worker wellness, productivity, and compliance through fewer accidents. Within the framework of the Afreximbank Africa Trade Centre Project, and the prioritization of the safety of those working on and with the project, the dynamics that lead to workplace accidents and their root causes need to be understood in order to recommend what practical steps can be taken to enhance the culture of safety and reduce risks (see Hämäläinen et al., 2006).

2.3 STRATEGIES FOR IMPROVING OCCUPATIONAL HEALTH AND SAFETY CULTURE AND REDUCING ACCIDENT RATES

For the enhancement of the quality of safety and health of the work environment and to diminish the frequency rate of accidents in construction, active integrated methods in terms of both actual practices and theories are needed (Abdelhamid and Everett, 2000). Normally, the strong OHS

culture ensures high-level management visibility, extensive training programs, good communication among the workers, ETC. These are the main drivers of the organizational changes with which the introduction of safety-related technology in the industry is associated (Petersen, 2016).

Leadership commitment is the foundation of a safety culture. Workers are affected by how much they see their managers' commitment to safety. As Mearns and Yule (2021) argue, once leaders visibly demonstrate their care for safety, employees are less likely to reciprocate that care and to engage in the safe practices that such leaders also expect from their leaders. That this 'top-down' approach ensures that safety will be perceived as a real organization value and not merely as rule-driven (Abdelhamid and Everett, 2000).

The development of sound OHS culture through effective communication, as if it is a hinge. Open and clear channels of information give the employees the opportunity to voice concerns about safety, report hazards and know if they are ordered to change the safety procedures (Petersen, 2016). These could include regular toolbox talks, safety briefings, and multilingual communication approaches to make sure everyone feels included, particularly in diverse work groups. The study of Meliá et al. (2019) found that businesses with strong internal communication channels experienced fewer incidents as employees were satisfied that they were involved and could contribute to safety plans.

Another significant tenet is involving workers. It is known that the involvement of the employees in planning, decision-making, and safety audits creates a culture of ownership and responsibility (Hosseinian et al., 2012). Workers engaged in safety committees or maintain help for hazard assessments are more likely to comply with safety rules and to encourage others to do so. That non-exclusionist strategy can help to gain respect for therapy and reach safety culture for everybody as Fernández-Muñiz et al., 2014)

The knowledge arising from technology application will also possibly lead to new ways of solving safety problems of the construction sector (Abdelhamid and Everett, 2000). Tools such as wearable activity monitors to assess the health and fatigue of workers, real-time hazard detection, and a mobile app for incident reporting can help with safety. Sophisticated methods, like predictive analytics, make it feasible to systematically analyze the historical accident data to detect risk

patterns and support measures to prevent them (Guo et al. (2022), the use of DIs in the safety management system is justified.

Last but not least, and on the list of investments in OHS, is that of continuous improvement, which has a fundamental place in the maintenance as well as the development of OHS culture. Organizations are recommended to perform a safety perception update according to the needs of the company, consult with their workers, and make use of performance measures and indicators for improvement (Hosseinian et al., 2012). When a drill is established upon previous lessons, and invention is full-time in effort to meet developing perils, the safety of the program of an organization is a certainty.

These methods are an integrated strategy to enhancing OHS culture and accident rates (Abdelhamid and Everett, 2000). You can help your customers create a safer working environment, and minimize costly interruption to service by taking a proactive holistic approach to safety standards. The expedient use of such strategies in the Afreximbank Africa Trade Centre Project can lead to improved worker safety and project performance (Hosseinian et al., 2012).

2.4 BENEFITS AND CHALLENGES OF A SAFETY CULTURE

Safety culture is a significant factor that influences work conditions, employees' actions, and the effectiveness of OHS policies within a workplace. Positive safety culture exists where there is imbued with strong leadership, open communication, continuous training, proactive risk management, and employee involvement (Reason, 1997). One way to do that is by prioritizing safety so that workers are not afraid to speak up about dangers and concerns. In this positive outlook, the number of accidents and injuries at work will be reduced, as well as the profitability (Geller, 2001). This facilitates obedience to safety legislation by enhancing the degree of organizations' adherence to industry norms and legal mandates (Hale et al., 2010). This cascade focuses on the fact that regular safety training increases employee knowledge and preparedness to respond to OHS incidents contributing to risk management (Hudson, 2003).

There is also a greater focus on the psycho-social aspects, how mindsets influence safety performance as we are trying to find interventions that work (which are notions of interventions in culture or leadership which have a modest/limited impact on harm, which people love and want to persist. The difference between safety cultures (companies where workers have fewer accidents

versus more accidents) is triggering a series of financial rewards (lower insurance premiums or even reputational benefit – businesses are both economically more virtuous and a more appealing employer); responsible investors like people who are reckless.

But an industry culture of safety does not have its all-positive ramifications. When safety is ignored, relegated to the backwaters of enforcement, or is simply not understood on how to properly manage one's inbuilt hazards and risks, a poor safety culture starts, and it will hinder one's performance in almost every aspect.

According to Pidgeon (1998), a culture of blame was listed as one of the key indicators of adverse safety culture, especially when the workers were hesitant to report accidents for fear of retaliation. That process is an appalling disincentive to reporting and entails that an organization be able to address only the edges of potential safety issues. Another reason is the lack of correct job training resulting in ignorance (knowledge gaps) caused by unsafe practices vitally leading to risks in the workplace (Vinodkumar & Bhasi, 2010).

An inadequate safety culture is manifested as no regard for a safe environment (Zohar, 1980), accidents, and unsafe work practices. When reported dangers are forgotten by management or protocols not being suddenly enforced across the entire firm employees had to deal with and adjust to a lazy approach towards seriousness, injuries tend to emerge within businesses (Hollnagel, 2014). Organizations with deficient safety cultures struggle to accomplish the above balance and are commonly driven by the demands of tight schedules and deadlines, which may result in compromising the health and safety of employees (Cooper, 2000).

2.5 THE ROLE OF SAFETY CULTURE IN ACCIDENT PREVENTION

Studies on organizational safety culture have also delved into how to build a proper new cultivation, OHS outcomes related to the item alongside leadership. In fact, contributions from research have demonstrated that safety culture is the result of multilevel drivers including organizational systems, social identity among employees and employee behavior (Zohar 1980). Evidence indicated that the presence of a strong safety culture will be associated with better safety performance, especially when accompanied by well-established systems for managing safety. Moreover, leadership commitment and employee participation are recognized as fundamental principles for maintaining

an OHS culture. Such insights serve as a basis for further development of theory and practice in high-risk industries (Hopkins 2006).

Safety culture is a topic that has been studied in many studies on construction, they emphasized the characteristics of safety culture and its factors as well how to advance it. In Table 2.1 we show some of the main research papers published on safety culture, including the methods and results used (Table 2.

Table 2.1 Summarizes key research studies that provide insights into various aspects of safety culture, including influencing factors, methodologies, and findings

Research topic	Methods used	Findings	Author (s)	Date
An analysis of health and safety culture and practices in South African construction SMEs, highlighting key characteristics and implementation strategies.	A combination of semi-structured and structured questionnaires was employed in a comprehensive study utilizing non-probability sampling within a descriptive survey framework.	The health and safety culture in small and medium-sized enterprises (SMEs) encompasses a strong commitment to workplace safety, active support for health initiatives, strategic goal-setting and evaluation, the establishment of effective safety processes, and continuous leadership assessment and improvement.	Agumba and Haupt	2009
The study's overall conclusions involved an	An evaluation toolkit for health and safety that has been approved by the Health and Safety	Findings excellent health and safety management is a feature of successful harmonization of	Wamuziri	2006

assessment of the safety culture within the construction sector.	Executive.	technological and managerial systems, including human components		
Improving Safety Performance in Construction through Cultural Change'.	The methods used in this study included administering an open-ended questionnaire and doing a thorough evaluation of pertinent literature.	In order to provide a set of validated measuring techniques for safety culture in the construction sector, it was suggested that more study be done.	Wamuziri	2008
'Factors that influence safety culture in construction'.	Semi-structured interviews were used to gather data in a qualitative manner.	The elements shaping safety culture in construction are grouped into six key categories: organizational influences, individual behaviors, team dynamics, project-specific aspects, management strategies, and supervisory practices. These factors collectively impact whether a safety culture is strong or weak within the industry.	Wamuziri	2013

Strengthening a robust safety culture in construction	Case studies and a critical assessment of the literature comprised the research approach used in the study.	It was advised that companies implement a holistic approach that emphasizes developing employees' attitudes and beliefs that promote safe behavior and, eventually, a strong safety culture, in addition to enhancing the physical working environment, safety risk assessments, and workers' safety knowledge.	Zou	2011
Health and safety Culture'	A multi-level measuring technique that makes it possible to measure the current safety atmosphere at the workgroup, project, and organizational levels.	Although there are many models of H&S culture, there has been little empirical evaluation of what makes a good or bad safety culture. It is especially important to consider the validity of an H&S culture model in the specific national and industry content in which it is to be used. The dominant culture of an organization can influence the priority placed on health and safety (H&S) and ultimately determine the effectiveness	Lingard, Zhang, Harley, Blismas, and Wakefield	2014

		and performance of the organization's H&S system.		
Occupational Safety Issues in Residential Construction Surveyed in Wisconsin, United States	Data was collected by means of a questionnaire	According to the results, home building contractors should make more use of fall safety devices.	Choi and Carlson	2014

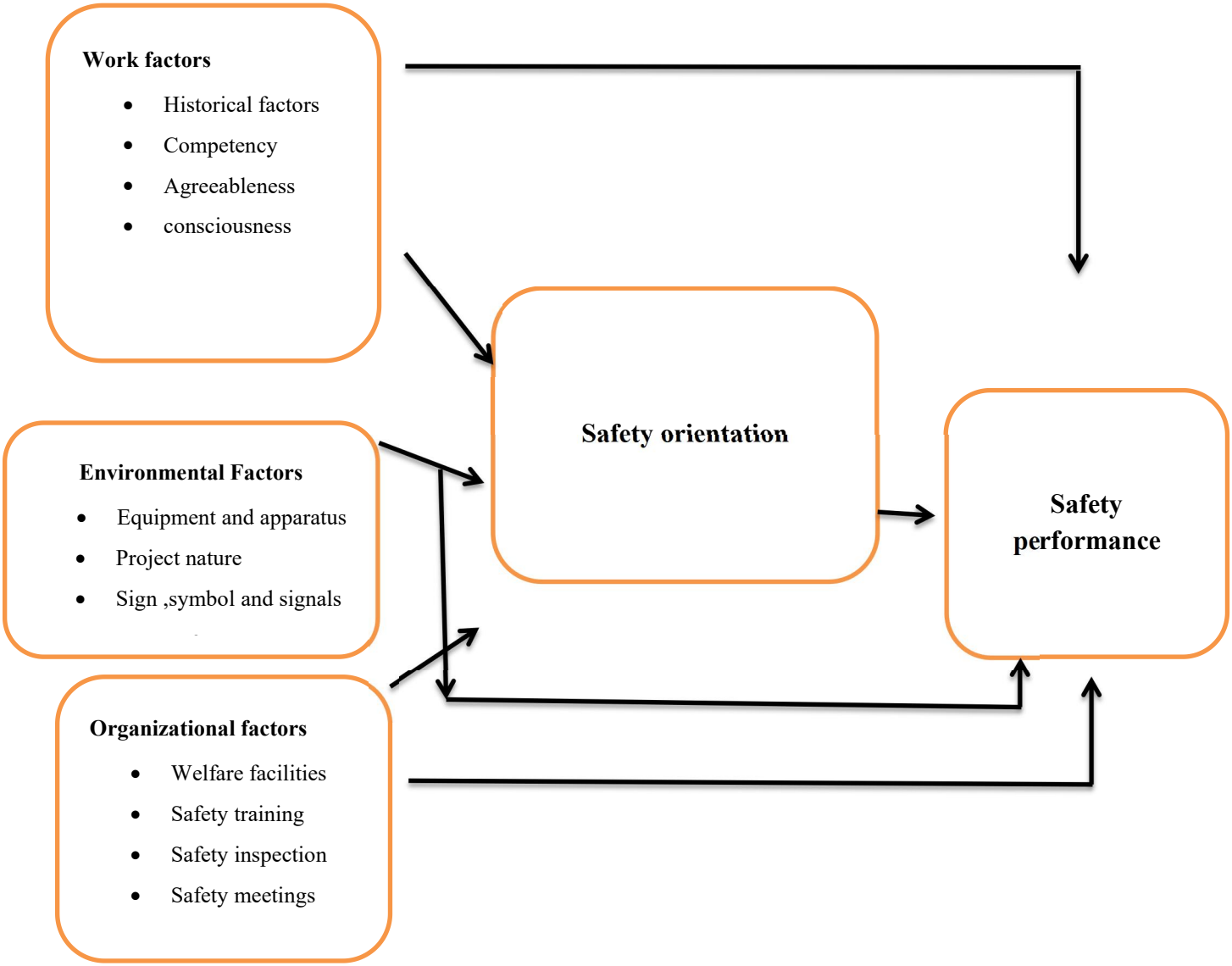
2.6 CONCEPTUAL FRAMEWORK: FACTORS AND COMPONENTS AFFECTING SAFETY PERFORMANCE

A conceptual framework for understanding the factors and components affecting safety performance is built upon both organizational and individual dimensions (Paul, 2013). Leadership commitment is fundamental at the organizational level; when leaders put safety first, they establish a culture that affects how resources are allocated and decisions are made. Another important component is safety management systems, which offer organized procedures, transparent guidelines, and compliance tools to guarantee uniformity in safety procedures (Riffenburgh, 2022).On the individual level, employee engagement is pivotal. When employees actively participate in safety initiatives, they contribute to hazard identification, risk assessment, and the development of preventive measures. Proactive safety behaviors, fostered by continuous training and a sense of ownership, are essential to achieving sustainable safety outcomes (Paul, 2013).

Additional components such as organizational culture, communication systems, and accessibility to resources play significant roles in shaping safety performance. A positive safety culture encourages openness, collaboration, and accountability, while effective communication ensures the timely sharing of safety information and feedback. Adequate resources, including equipment, technology, and training, empower employees to carry out safety practices effectively (Riffenburgh, 2022).

Figure 2.1 illustrates the key factors and components affecting safety performance, providing a structured overview of the interconnected variables that influence safety practices and their effectiveness. Understanding the factors and components that influence safety performance is critical in developing an effective safety culture. Various elements, such as organizational leadership, employee behavior, and external environmental conditions, play a significant role in determining workplace safety outcomes.

Fig 2.1 Factors and Components Affecting Safety Performance



CHAPTER 3: METHODOLOGY

3.1 STUDY AREA DESCRIPTION

The study was conducted at the Afreximbank Africa Trade Centre Project a construction site in the Harare Central business .The study site block situated at latitude -17.8181, Longitude 31.0556, **is** bordered by Herbert Chitepo and Oliver Tambo (Livingstone) Avenue, seventh and Eighth Street. The Afreximbank Africa Trade Centre Project, a landmark construction initiative in Harare, Zimbabwe, represents a hub of diverse and complex construction activities. With multiple subcontractors engaged in simultaneous operations. The main contractor for the project is Shapoorji Pallonji Group. Ten other local subcontractor companies are involved, performing various activities such as bricklaying, concrete pouring, steel fixing, plumbing, and electrical tubing. These subcontractors are Allied Automation, BN contactors, Broadhaven, Onel Elect Solutions, B and S carpenters, Professional Construction Company, Elite Plasters, Gateway Construction, Africa Steel and Global Shopfitters Zimbabwe.This research covered the main contractor company and all the subcontractors on the project..

The Afreximbank Africa Trade Centre Project consists of several key departments, including Project Management, Engineering & Design, Procurement, Health & Safety, Quality Control, Construction Operations, Financial Management, Human Resources, Logistics & Supply Chain, and Environmental Sustainability. All of these departments are important for a good and successful project execution. Project Management Department monitors the construction process to ensure completion on time, in budget and as specified. This involves architectural designs and engineering plans, making sure that the look is good at it gets built as wellbeing functional in such a way complying with all regulations. Procurement and Logistics Department, to handle the procurement of material and equipment long with timely delivery at optimized cost. The Health, Safety and Environment Department in turn works to limit hazards at work, enforce safety measures as well as environmental regulations. The Quality Assurance Department, on the other hand, is responsible for ensuring that all processes and outcomes adhere to quality standards by systematically evaluating; human resources department ensures recruitment also employee welfare as well protecting ethics in a workplace.

3.2 RESEARCH DESIGN

This research employed a descriptive cross-sectional survey design, in which the relationship between OSH culture and accident rate in the construction industry is examined. Workers' perception regarding managerial commitment, communication, training, and compliance with safety regulations to safety at work would also be appraised using the Safety Climate Questionnaire. The cross-sectional approach provides the opportunity to collect data at a specific time and examine the relationships between OSH culture and accident rates across the sites. Data on accident rates was obtained, including quantitative data on the frequency, severity, and type of accidents. The official safety report will be used as a source of data.

3.3 DETERMINATION OF ACCIDENT RATES AT THE AFREXIMBANK AFRICA TRADE CENTRE PROJECT

To work out how often accidents happened at the Afreximbank Africa Trade Centre site, we combed through official safety reports that logged every workplace incident from January 2023 to January 2025 (Appendix 2). Those records showed how many events occurred month by month, giving a clear picture of rising or falling accident trends. We also looked at how serious each event was, sorting them by the level of injury or damage caused. Put together, this information helped us spot recurring problems and judge whether the sites health-and-safety rules were actually keeping workers safer as construction moved forward.

3.4 DETERMINATION OF THE PREVAILING OSH CULTURE AT AFREXIMBANK AFRICA TRADE CENTRE PROJECT.

The assessment of the prevailing Occupational Safety and Health culture at the Afreximbank Africa Trade Centre Project aimed to evaluate the attitudes, perceptions, and behaviors surrounding safety practices among workers and management. This evaluation was carried out using the Safety Climate Questionnaire. The study population for the Safety Climate Questionnaire consists of employees working at the Afreximbank Africa Trade Centre Project in Harare, Zimbabwe. The total workforce comprises 300 employees across 10 subcontracting companies specializing in various construction activities. These companies include Allied Automation (40 workers), BN Contractors (25 workers), Broadhaven (18 workers), Onel Elect Solutions (30 workers), B and S Carpenters (20

workers), Professional Construction Company (30 workers), Elite Plasters (50 workers), Gateway Construction (40 workers), and Africa Steel & Global Shopfitters Zimbabwe (47 workers). The questionnaire will target workers, site supervisors, safety officers, project managers, and subcontractor representatives to assess OHS culture perceptions within the construction site.

3.5 SAMPLE SIZE AND SAMPLING PROCEDURE

To ensure both precision and moderate number of participants, the sample size for the study was calculated based on Slovin's formula (Slovin 1960), taking a 5% margin error into account. The sample size formula gave 171 participants for a workforce of around 300 employees. This number gives a good reflection of the worker base, providing valuable insights to OHS culture at site. Stratified random sampling was used and stratification ensured that in percentages, all sub-contractor companies under the trade centre are represented equally to allow for generalisation of findings across different subcontractor company as selected at Afreximbank Africa Trade Centre.

After the workforce was first sorted into strata by contractor, a unique number was assigned to each worker then numbers were physical drawn from a draw, the employees corresponding to the numbers were used for the research This approach gives an even spread of opinions, collecting views on the safety climate from frontline laborers, site supervisors, safety officers, project managers, and company delegates alike. Table 3.1 shows how the sample is laid out across the different subcontractors. By weighing each crew according to size, the stratified design secures fair coverage and enables a balanced look at OHS culture across the entire construction site.

Table 3.1 Breakdown of the total workforce and sampled participants:

Subcontractor	Total Employees	Sampled Participants
Allied Automation	40	23
BN Contractors	25	14
Broadhaven	18	10
Onel Elect Solutions	30	17
B and S Carpenters	20	11
Professional Construction Company	30	17
Elite Plasters	50	28
Gateway Construction	40	23
Africa Steel & Global Shopfitters Zimbabwe	47	27
Total	**300**	**171**

3.6 THE SAFETY CLIMATE QUESTIONNAIRE

The OHS culture prevailing at the Afreximbank Africa Trade Centre Project was evaluated through employee perceptions, management behavior, safety policies, and workplace behavior. The study assessed safety commitment, communication, procedure compliance, and risk management practices using structured data collection methods.

A structured Safety Climate Questionnaire was utilized (Appendix 1) to evaluate the OHS culture comprehensively. This questionnaire collected feedback from employees across different subcontractors to assess their views on management's interest in safety, communication about safety

protocols, prioritizing safety versus productivity, the effectiveness of critical rules, and the workplace environment concerning hazard reporting.

The Safety Climate Questionnaire consisted of two sections:

- Section A: Demographic Information – Collected age, gender, job role, and experience in the construction industry.
- Section B: Safety Climate Assessment – Used a structured rating scale (Strongly Disagree to Strongly Agree) to evaluate employees' perceptions across five key safety dimensions: Management Commitment, Safety Communication, Priority of Safety, Safety Rules & Procedures, and Workplace Environment.

The questionnaire was administered in hard copy format to employees involved in the construction project, ensuring accessibility for all workers at the construction site. Responses were collected anonymously to encourage honest feedback, allowing a comprehensive assessment of the prevailing OHS safety culture.

3.7 RELIABILITY AND VALIDITY OF STUDY TOOLS.

The researcher conducted a pre-test to questionnaires before running the real data to see if the questionnaires were acceptable or unaccepted to the respondent in addition, to ensure that only related content was included in the questionnaires in order to enhance the validity and reliability of the information gathered.

The questionnaires were pre-tested by the researcher to ensure the adequacy, accuracy, clarity, relevance and comprehensiveness of the questions before the actual data collection as well as to check for their acceptability and relevancy by being filling to the study participants, such was done to increase the validity and reliability the collected information such that un-necessary information was not included in the questionnaires.

3.8 STATISTICAL ANALYSIS

The study inferential statistical analysis was focused on the quantitative data from the Safety Climate Questionnaire, accident rate to investigate the association between OHS culture and

accident rates at the Afreximbank Africa Trade Centre Project. A chi-square test for independence will be conducted to evaluate whether specific categorical safety variables, such as job role or training levels, are significantly associated with accident occurrences Descriptive statistical methods will be employed to summarize the data effectively, presenting insights through frequencies, percentages, and central tendencies. Graphical representations, including bar charts will be used to visualize key findings and facilitate easier interpretation.

CHAPTER 4 RESULTS

4.1INTRODUCTIONS

This chapter presents the results, analysis, and interpretation of the data collected from the questionnaires distributed to the field, as well as accident reports. The findings are structured in tabular and graphical formats to align with the research objectives and address the statement of the problem.

4.2 ACCIDENT RATES AT THE AFREXIMBANK AFRICA TRADE CENTRE PROJECT FROM JANUARY 2023 TO JANUARY 2025.

In January–June 2023, there were no recordable accidents or lost time injuries, but 3 first aid cases and 1 near miss, indicating a relatively safe period. However, in July–December 2023, incidents increased significantly, with 7 total recordable accidents, 4 lost time injuries, 2 first aid cases, 1 near miss, and 1 fatality, suggesting a decline in safety performance.

In January–June 2024, incidents reduced, with 4 recordable accidents, 2 lost time injuries, and 2 first aid cases, but no near misses or fatalities. In the following months, July–December 2024, there had been more improvements; recordable accidents were 1, no lost time accidents or first aid cases, but there were 2 near misses as well as 1 medical treatment case. In 2025, there was a slight increase in incidents, with 3 recordable accidents, 2 lost time injuries, 1 first aid case, and 1 medical treatment case, with no fatalities recorded. Between June 2023 and January 2025, several workplace incidents occurred. Total recordable accidents were the most common, with 15 cases reported. Lost time injuries and first aid cases both accounted for 8 incidents, showing situations where employees needed medical attention or time off. Medical treatment cases totaled 7, requiring more care than basic first aid. Near misses**,** which were situations that could have led to accidents but didn't, number 5 lastly, one fatality was recorded, marking the most serious incident within this period.

Table 4.1 tracks workplace injuries and incidents across trends over time, spanning from January 2023 to January 2025. It categorizes incidents into 'Total Recordable accidents', 'Lost time injuries' , 'First Aid cases', 'Near misses' , 'Fatalities' , and 'Medical treatment'. The table provides a clear overview of incident patterns and trends, allowing for analysis of safety performance over time.

Table 4.1Trends in Workplace Safety Incidents over Time

Time Frames	Total Recordable accidents	Lost time injuries	First Aid case	Near miss	Fatality	Medical Treatment
January – June 2023	0	0	3	1	0	0
July-December 2023	7	4	2	1	1	2
January – June 2024	4	2	2	0	0	2
July – December 2024	1	0	0	2	0	1
January 2025	3	2	1	1	0	1

4.3 PREVAILING OCCUPATIONAL HEALTH AND SAFETY CULTURE AT AFREXIMBANK AFRICA TRADE CENTRE PROJECT

The OHS culture prevailing at the Afreximbank Africa Trade Centre Project was evaluated through employee perceptions, management behavior, safety policies, and workplace behavior. The study assessed safety commitment, communication, procedure compliance, and risk management

practices using structured data collection methods. The study achieved a high response rate, with 150 out of the 171 distributed questionnaires successfully returned, resulting in an overall response rate of 87.72%. This strong level of participation indicates significant engagement from respondents, suggesting that the survey was well-received and relevant to the target group.

4.3.1 DEMOGRAPHIC CHARACTERISTICS OF RESEARCH PARTICIPANTS

In this survey, the males were the major respondents contributing to 66.6 % of the participants as the construction industry is a male-dominated industry, with females making up only 33.3%.

4.3.2 AGE DISTRIBUTION OF QUESTIONNAIRE RESPONDENTS

The age distribution indicates that the majority of workers fall within the 26–35 years (40%) and 18-25 years (26.6%) age groups, followed by the 36-45 years group (30%) and a smaller proportion aged 46 years and older (13.3%). Figure 4.2 illustrates the age distribution of respondents, categorizing them into various age groups and presenting the percentage of participants within each group. This visual representation provides a clear overview of demographic trends based on age.

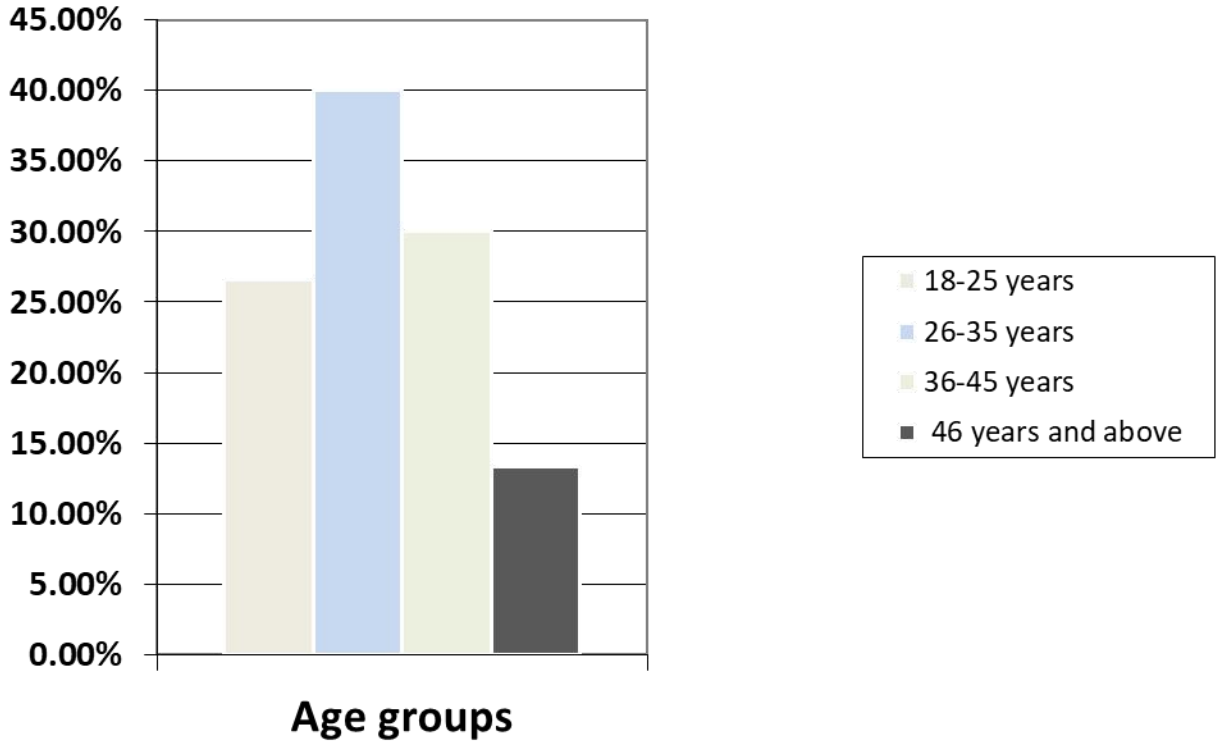


Figure 4.2 Age distribution of questionnaire respondents

4.3.3 JOB ROLE AND EXPERIENCE OF QUESTIONNAIRE RESPONDENTS

In terms of job roles, general labor constitutes the largest category, making up 53% of the workforce, while skilled labor accounts for 20% and management represents 26.6%. Experience levels vary, with the largest proportion of workers having 1–5 years of experience (53%), followed by those with more than 5 years (33%) and less than 1 year (13.3%). Table 4.3 presents an overview of the job roles and experience of the respondents, providing an insight into the demographic characteristics of the sample.

Table 4.2

Job Role	Management	40	26.6%
	Skilled Labor	30	20%
	General Labor	80	53%
Experience	Less than 1 year	20	13.3%
	1-5 years	80	53%
	More than 5 years	50	33.3%

4.3.4 ANALYSIS OF OCCUPATIONAL HEALTH AND SAFETY CULTURE ATAFRIXZIM PROJECT

Respondents rated their perceptions of safety culture elements using a Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree). The safety culture was analyzed by percentages ranges indicating the effectiveness of the culture . Range of 0-20 % suggest a poor safety culture , 20-40% indicates a basic culture which needs improvement, 40-60 % shows a moderately strong culture , 60-100% signifies an excellent , proactive culture .

The results indicate a moderately strong Occupational Safety and Health culture, with an overall mean score of 58.7%. Employees generally rate management responsiveness to safety concerns positively (63.3%), though the speed of corrective actions scores slightly lowers (53.3%). Safety communication is well-regarded (60–63.3%), with supervisors effectively sharing safety information. Safety prioritization receives varied ratings (56–63.3%), with differences in employee perception. Health and safety rules are sometimes viewed as impractical or unnecessary (56.6–58.6%), reflecting differences in how they are applied. Employee involvement in safety is moderate (55.3–57.3%), with respondents indicating encouragement to report unsafe conditions and influence safety outcomes. The scores reflect consistency in safety efforts across various areas, with notable strengths in management engagement and safety communication.

The table 4.3 presents an analysis of OSH culture based on employee responses. It categorizes various safety culture elements and their respective ratings on a Likert scale (1–5), alongside preferred responses and percentage scores. This data provides insight into how employees perceive safety-related management actions, communication, prioritization, and rule practicality in the workplace.

Table 4.3 Occupational Safety and Health culture

Safety Culture Element	Strongly Disagree **1**	Disagree **2**	Neutral **3**	**Agree 4**	Strongly Agree **5**	**Preferred response**	**score %**
Management acts decisively when a safety concern has been raised	**5**	**10**	**15**	**25**	**95**	**5**	**63.3**

In my workplace management acts quickly to correct safety problems	**5**	**20**	**10**	**80**	**35**	**4**	**53.3**
Safety information is always brought to my attention by my line manager/supervisor	**10**	**10**	**20**	**95**	**15**	**4**	**63.3**
There is good communication here about safety issues which affect me	**10**	**15**	**10**	**25**	**90**	**5**	**60**
Management here considers safety to be equally as important as production	**10**	**15**	**95**	**10**	**20**	**3**	**63.3**
I believe safety issues are assigned a high priority	**5**	**30**	**10**	**85**	**20**	**4**	**56**
Some health and safety rules and procedures do not need to be followed to get the job done safely	**20**	**10**	**15**	**20**	**85**	**5**	**56.6**
Some health and safety rules are not really practical	**12**	**20**	**88**	**18**	**12**	**3**	**58.6**
I am strongly encouraged to report unsafe conditions	**12**	**15**	**18**	**22**	**83**	**5**	**55.3**
I can influence health and safety performance here	**10**	**20**	**86**	**19**	**15**	**3**	**57.3**
MEAN SCORE %						**58.7**	

4.4 RELATIONSHIP BETWEEN OCCUPATINOAL SAFETY HEALTH CULTURE AND INCIDENT RATES

This section examines the correlation between accident rate and OSH culture by using the results of the chi-square test. Table 4.5 presents the results of the chi-square test examining the relationship between OSH culture and incident rates at AFRIXM Project. The Chi-square test indicated a statistically significant relationship ($p < 0.05$) between the OSH culture and accident rates. As p-values from the tests are below 0.05, the findings show a significant relationship between OSH culture and incident rates. The analysis is conducted on a trustworthy sample of 150 cases.

Table 4.5 Chi-square test results between Occupational safety culture and occurrence of accidents

Chi-Square test	Value	DF	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.234a	3	0.002
Likelihood Ratio	12.567	3	0.006
Linear-by-Linear	8.912	1	0.003
Number of valid cases	150		

These findings suggest a statistically significant relationship between occupational safety culture and the frequency of accidents. The Chi-Square test shows a statistically significant association ($p<0.05$p is less than 0.05) between the OSH culture and the occurrence of accidents.

CHAPTER 5: DISSCUSSION

5.1 INTRODUCTION

This chapter discusses the study's findings, evaluating workplace safety trends, the prevailing OSH culture, and the statistical relationship between OSH culture and accident rates. The discussion interprets these results in relation to industry standards and safety practices, highlighting both strengths and areas for improvement.

5.2 ACCIDENT RATES AT THE AFREXIMBANK AFRICA TRADE CENTRE PROJECT (JAN 2023 – JAN 2025)

The analysis of accident data over the 25-month period revealed shifting patterns in workplace safety incidents. A key observation was the sharp increase in incident rates during the second half of 2023 specifically, 7 total recordable accidents, 4 lost time injuries, and the only fatality in the entire dataset. This spike suggests a potential lapse in safety protocols or changes in work intensity, such as accelerated deadlines, subcontractor turnover, or expansion into higher-risk construction phases, as discussed by Hinze (2006) regarding accident causality during project peaks.

This decline was reversed in 2024, with notable improvements in the July–December period, which recorded only one total recordable accident and no lost time or first aid cases. This improvement may reflect the effectiveness of internal corrective measures, possibly linked to increased safety training, policy revision, or the establishment of a stronger reporting culture as echoed by Choudhry et al. (2007), who emphasize the value of management's visible safety commitment.

Despite overall positive trends, the presence of 5 near misses and 7 medical treatment cases underscores that latent risk conditions persisted. Near misses, often dismissed, are critical indicators of underlying hazards (Manuele, 2010), and their increase in the latter half of 2024 may warrant attention.

5.3 PREVAILING OCCUPATIONAL HEALTH AND SAFETY CULTURE AT AFREXIMBANK AFRICA TRADE CENTRE PROJECT

Occupational health and safety culture climate at the Afreximbank Africa Trade Centre Project indicates moderately favorable safety circumstances, where the overall average score for the main safety domain is 58.7%. This indicates that although there are basic safety attitudes, it is important to develop and implement a safety culture at all levels of the workforce.

Nevertheless, the decreased performance in timely corrective action (53.3%) suggests that there may be a time-lag between recognizing safety problems and addressing them, revealing a gap in the value chain that may compromise the trust in safety systems. As Griffin and Neal (2000) also cautioned, how employees perceive timely, or in the case of the present study, untimely responses to safety incidents may also diminish engagement.

More interestingly, half of the respondents considered certain safety measures to be not practical or not always required (e.g., 56.6% or 58.6% score) indicating that although compliance exists in definition, in practice, there is selective enforcement of strict rules. This is consistent with the criticism of Reason and Choudhry et al. (2007) to the effect that excessively bureaucratic or misaligned rules tend to be bypassed in dynamic industries like construction.

However, the middling ratings in this area of employee involvement and empowerment (55.3–57.3%)—sense of being prompted to point out unsafe conditions or take safety-preserving action—indicate that a culture in which workers are beginning to be valued as full partners has not been fully operationalized. Improvement in this area could eventually lead to more profound cultural changes, as evidenced by Guldenmund (2000), who emphasized the importance of worker ownership in securing a sustainable safety culture.

5.1.3 RELATIONSHIP BETWEEN OCCUPATIONAL SAFETY HEALTH CULTURE AND INCIDENT RATES

A statistically significant relationship between OSH culture and workplace accident rates was found, as indicated by the chi-square tests that were conducted Chi-Square ($p = 0.002$), Likelihood The p-value, < 0.05, give a clear indication that differences in safety culture perception are meaningfully correlated with the report rates.

This finding provides confirmation of the conceptual arguments presented by both Cooper (2000) and Zohar (1980) that safety performance is not just a result of compliance and policy, but reflects the attitudes, values, and behavior of management and employees. At an organization that truly "walks the safety talk," not only are incidents down but safety become a way of life, not just a regulation box to tick away.

At the Afreximbank Africa Trade Centre Project, this association was evident in a temporal manner, with a spike in incidents during the second half of 2023 being associated with score delays in management response and ambivalence regarding the feasibility and practicality of safety rules. As reaction scores for OSH level drew the line at 58% in 2024, the trend of accidents and injuries fell sharply.

This is consistent with Neal and Griffin (2004), who also discovered that organizational commitment to safety increases compliance and decreases incidents. Also, as Guldenmund (2000, p. 23) stated, including workers in (safety) decision-making processes will create a higher sense of equity in safety ownership and less unsafe behavior, a message that is resonated in the moderate ratings given (55–57%) for empowering and having influence over safety behavior in your study.

CHAPTER 6 CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSION

From 2023 to January 2025, the Afreximbank Africa Trade Centre Project recorded fluctuating accident rates that offer key insights into workplace safety trends. The year 2023 emerged as the most critical period, with a spike in incidents that highlighted vulnerabilities in risk control measures and underscored the need for reinforced safety protocols. This surge may have been linked to rapid project scaling or lapses in hazard anticipation. By contrast, 2024 showed meaningful improvement. Recordable accidents and lost-time injuries saw notable reductions, likely due to increased attention to hazard identification, training efforts, and refined OSH practices. However, early 2025 brought a slight rise in reported incidents suggesting that while progress has been made, the consistency of safety measures still requires attention. The evolving data emphasizes that the effectiveness of OSH management directly influences workplace safety, and continuous monitoring is essential to maintain momentum and ensure sustainable safety improvements.

The Occupational Safety and Health culture at Afreximbank Africa Trade Centre reflects a structured and proactive approach, supported by committed leadership and systematic processes. Management plays a central role in promoting safety through regular engagement and by prioritizing health and safety concerns. Safety communication is embedded into daily operations, with supervisors conducting ongoing briefings to raise awareness of existing and emerging hazards. Employees contribute to this culture by reporting unsafe conditions and participating in discussions, which has strengthened collective responsibility. Nonetheless, there are areas of friction: some staff members question the practicality and enforcement of certain regulations, expressing concern about whether safety is consistently prioritized across all levels. Moreover, delays in implementing corrective actions occasionally dampen confidence in the system. These mixed perceptions, while not detracting from the overall strength of the OSH culture, highlight the importance of refining communication strategies and ensuring rapid, visible action to reinforce trust.

Statistical relationships between OSH culture components and accident rates reveal a compelling narrative: when leadership is engaged, communication is clear, and employees are involved, the likelihood of accidents decreases significantly. This connection is supported by industry research

and is reflected in the project's experience over the observed period. In 2023, gaps in safety culture contributed to higher accident rates, while the improvements in 2024 correlate strongly with better management responsiveness and increased worker participation. The slight uptick in 2025 may serve as a reminder that OSH culture is dynamic it must evolve with changing risks, personnel, and project phases. A consistent, adaptive safety culture acts as a buffer against workplace hazards and is vital for mitigating risks as conditions shift. Going forward, strengthening feedback loops, reinforcing accountability, and investing in behavioral safety programs could further enhance the safety climate and ensure that reductions in accidents are sustained long-term.

6.2 RECOMMENDATIONS

Based on the research findings, it is recommended that the Afreximbank Africa Trade Centre Project enhance its responsiveness to safety issues by streamlining the procedures for corrective actions. Timely implementation of these actions will help build trust and confidence among workers while reinforcing the effectiveness of the OSH system. Communication across all organizational levels should also be strengthened to eliminate inconsistencies in safety messaging and ensure clarity, regularity, and alignment of safety priorities.

In addition, focused training programs should be introduced to improve employees' understanding of safety regulations and how they apply in practical, day-to-day situations. This will address concerns around the perceived feasibility of safety rules and empower employees to adhere to them more effectively. Management should play a more visible role in safety initiatives by actively engaging in frontline activities and demonstrating leadership commitment to health and safety standards.

Regular evaluation of key OSH culture components such as employee involvement, communication effectiveness, and feedback mechanisms is essential. This continuous assessment will allow for proactive adjustments and help sustain improvements in safety performance. Accident data should be systematically monitored and analyzed to detect emerging risk patterns early, enabling the implementation of timely interventions that prevent incidents before they occur.

To reinforce consistency in safety culture across departments, standardized practices should be adopted and widely communicated. This will minimize variations in safety perception and execution among employees. Lastly, incorporating behavioral safety programs and recognition systems can encourage positive safety behaviors and cultivate a sense of shared responsibility for workplace wellbeing. These initiatives will serve to motivate individuals to take ownership of safety and foster a collaborative culture that prioritizes risk prevention

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APPENDIX 1 QUESTIONNAIRE

BINDURA UNIVERSITY OF SCIENCE EDUCATION
DEPARTMENT OF ENVIRONMENTAL SCIENCE

Organizational safety culture research questionnaire

Introduction

My name is Mugwagwa Tapiwa .T Reg Number B190317A. I am a Bindura University of Science Education student in my final year from the department of Environmental Science. I wish to evaluate the safety culture at the Afreximbank Africa Trade Centre Project, by soliciting for information on perceived motivational factors leading to the establishment of a safety culture and associated challenges. Findings from the study may be useful for maintaining and continual improvement for your organization's safety culture.

Your responses to this questionnaire will be treated confidential and will be used for academic purposes only. They will not be shared with anyone else without your written permission. Your voluntary participation will be appreciated.

Instructions

1. For the first section, please encircle or strike an X against the number in bold corresponding to your response.
2. For the second section choose the score from the table and fill in the table

Strongly disagree	Disagree	Neither agree nor disagree	agree	Strongly agree
1	2	3	4	5

Section A: Demographic Information

1. What is your age group?

- (a) 18–30
- (b) 31–50
- (c) 51+

2. What is your gender?
   - (a) Male
   - (b) Female
3. What is your job role?
   - (a) Laborer
   - (b) Supervisor
   - (c) Manager
   - (d) Other (specify): _____
4. How long have you been working in the construction industry?
   - (a) Less than 1 year
   - (b) 1–5 years
   - (c) 6–10 years
   - (d) More than 10 years

SECTION B

Safety Climate Assessment Toolkit Short form Questionnaire

Strongly disagree	Disagree	Neither agree nor disagree	agree	Strongly agree
1	2	3	4	5

Questions	**Individual score**
Management acts decisively when a safety concern has been raised	
In my workplace management acts quickly to correct safety problems	
Dimension - **Management Commitment**	

Total Score	
Safety information is always brought to my attention by my line manager/supervisor	
There is good communication here about safety issues which affect me	
Dimension - Communication Total Score	
Management here considers safety to be equally as important as production	
I believe safety issues are assigned a high priority	
Dimension - Priority of Safety Total Score	
Some health and safety rules and procedures do not need to be followed to get the job done safely	
Some health and safety rules are not really practical	
Dimension - Safety Rules and Procedures Total Score	
I am strongly encouraged to report unsafe conditions	
I can influence health and safety performance here	
Dimension Work environment total score	

END OF QUESTIONNAIRE

APPENDICES 2 INCIDENT REGISTER

INCIDENT REGISTER

Project: AATCH

Incident No.	Incident			Description of Incident	Name of Injured Persons	Company	Date Returned to work	Type of Inju
	Date	Time	Location					
1	24-01-23	8:00 Hrs	G floor	The IP trying to lift aluminum board w/o wearing hand gloves his left finger came in contact with sharp edges of board and he sustained with minor cut injury in his finger	Mr Raphik Khan	OSCO	N/A	**First Aid Case**
2	24-01-23	8:00 Hrs	G floor	The IP trying to lift aluminum board w/o wearing hand gloves his right finger came in contact with sharp edges of board and he sustained with minor cut injury in his finger	Mr Shelton Werekwere	OSCO - Allied	N/A	**First Aid Case**
3	26-01-23	12.36 Hrs	G floor	While chipping with hand drill slipped out and struck against reinforcement steel and his left pointing finger sustained with an laceration.	Mr Sean Makaza	OSCO-BHC	N/A	**First Aid Case**
4	2-03-23	14.20 Hrs	Hotel tower	Concrete bucket lid portion hitted rebar column in podium slab while doing with tower crane and resulted in spilling of concrete only	N/A	OSCO - BHC	N/A	**Near Miss**
5	14-06-23	8.32 AM	B-2	Jericho and Lovemore were connecting a 75mm HDPE pipe to a 5.5Kw 380Volts 9amps submersible water pump manufactured by HCP Pumps to dewater basement 2 second lift. After the connection of the HDPE pipe, Jericho asked his colleague Emmanuel Mudungwe to go and switch the pump on. Upon switching using the float switch at the sump which is about 43 metres from Basement 2 Second lift, Jericho and Lovemore were seen falling into the water which is confirmed to be an electric shock through electrical test conduct on the pump and deceased post-mortem. Lovemore managed to come out of the water as he was on the edge of the pool of water. After the pump had been started, there was surge in electric current which made the MCB of the pump	Mr Jericho Runganga	OSCO-Chikara	N/A	**Fatal Case**

				to trip on its own then Jericho was rescued by the first aider who rendered the CPR and followed by taking him to Michael Gelfand Hospital where he was pronounced dead three minutes after arrival. Lovemore was also taken to Michael Gelfand for shock treatment and was hospitalised for 2 days to monitor his condition. Lovemore was in stable condition and was discharged on the 16th of June 2023.				
6	14-06-23	8.32 AM	B-2	Jericho and Lovemore were connecting a 75mm HDPE pipe to a 5.5Kw 380Volts 9amps submersible water pump manufactured by HCP Pumps to dewater basement 2 second lift. After the connection of the HDPE pipe, Jericho asked his colleague Emmanuel Mudungwe to go and switch the pump on. Upon switching using the float switch at the sump which is about 43 metres from Basement 2 Second lift, Jericho and Lovemore were seen falling into the water which is confirmed to be an electric shock through electrical test conduct on the pump and deceased post-mortem. Lovemore managed to come out of the water as he was on the edge of the pool of water. After the pump had been started, there was surge in electric current which made the MCB of the pump to trip on its own then Jericho was rescued by the first aider who rendered the CPR and followed by taking him to Michael Gelfand Hospital where he was pronounced dead three minutes after arrival. Lovemore was also taken to Michael Gelfand for shock treatment and was hospitalized for 2 days to monitor his condition. Lovemore was in stable condition and was discharged on the 16th of June 2023.	Mr. Lovemore Mashingaidze	OSCO - Chikara	18-06-23	**Lost Time Injur**
7	9-05-23	09:35 AM	TC-1	While installing a big armored cable on cable hanger with a coworker on tower crane as they were about to hang the loop they were misunderstood each other think let the loop to go resulting	Mr Eric Master	OSCO-Lawmark cranes	N/A	**Lost Time injur**

				the cable slipping and crushing eric masters finger who stands under Neath.				
8	12-12-23	15.25 Hrs	Store Area	While Operate Mr Gwezere trying to level ground near store by standing on on Back hoe outriggers accidently it lost its traction and slided on a container nearby and sustained with side glass being broken no injuries reported	Mr. Richard Gwezere	OSCO - Chikara	Mr Richard Gwezere	**Prop ty Dam e - glas brok of Bac hoe**
9	22-04-24	11.30 AM	OT L-1	Mr Solomon Joramu was doing housekeeping on first floor of office tower while ascending from a ladder he miss stepped and sprained his ankle	Mr Solomon Joramu	OSCO-Allied	Didn't return IP returned to home and not respondi ng	**Lost Tim Inju**
10	16-05-24	16.25 PM	HT-1	While Mr Prosper doing concrete demolition works at HT-1 while the co worker has seen an 1m ledger that was secured one side of the standard on a scaffold while he is trying to remove that ledger which is obstructing their works accidently it fallen down and hitted on Mr prosper right shoulder and he felt pain on his shoulder	Mr Prosper Manyukisa	OSCO-Allied	17-05-24	**Med l Trea ent Cas**
11	11-06-24	11:00 AM	HT-1	Whilst during the course of breaking works on the HT Corewall, Mr. Magaya Tapfumaneyi, the helper, was using an impact drill. Unintentionally, the drill slipped out and his right hand thumb bumped on the rebar cage and sustained with minor swelling on his right hand thumb	Mr Magaya Tapfumaneyi	OSCO-Allied	12-06-24	**Med l Trea ent Cas**
12	2-07-24	10:30 AM	HT-1	When the employee was trying to remove a U head from scaffolding standard that was left on the floor and try to loosen it from a standard by holding it vertically, the standard's spindle accidently displaced down and his finger got pinched between the spindle Jack and the U head, resulting in a minor bruise on his pointed left finger.	Mr Walter Zvada	OSCO-BN	2-07-24	**Firs Aid Cas**
13	18-07-24	11.00 AM	HT-1 L-1	According to his Indian co-worker, the aforementioned individual was helping Indian workers who were	Mr Munashe Makamba	OSCO-Allied	26-07-24	**Lost Tim Inju**

				removing formwork from the L-1 Hotel tower. He was attempting to get a wooden doka hatch beam from his colleague that was being removed from the concrete soffit when he inadvertently stepped on a hatch beam with protruding nails that was left on the floor nearby. Additionally, the IP had a puncture wound to his right foot.				
14	18-07-24	2.00 PM	B-1	The IP was installing cover blocks on the grade slab of B-1 Zone 2. As he engaged in cover block installations while standing on 6 mm steel that was laid on the floor to make room for a few employees installing steel, his foot became trapped inside the cage and he fell. His safety shoe then came out loose from his feet, and his left foot toe finger came into contact with a tor steel that was protruding from the near grade slab, cutting his left foot toe nail. And he sustained with a cut injury in his left foot toe nail.	Mr Ashok Kumar Prasad.	OSCO	2-08-24	**Lost Time Injur**
15	5-08-24	11.45 AM	I-5 Hotel Tower	Prosper Chimwendo was using a circular saw to cut a piece of hardwood runner on the fifth floor of the Hotel Tower. He supported the runner by placing his right foot on top of it to keep it from moving. He suffered a lacerated wound when he was about to finish cutting the piece of timber because it bucked against the sides of the blade, forcing the circular saw to kick back, and cut his safety shoe and big toe on his right foot. Using the fixed access ladder, Prosper disembarked from the Hotel Tower and proceeded through the Office Tower, informing his brother Grant Chimwendo of his injuries. Grant escorted Prosper to the OSCO HSE Office so that he could report the incident and receive first aid. The injured worker received first assistance from Miss Mary Zhuwawo, who was helped by other staff members to position him on the spine board while he awaited CIMAS Ambulance transportation. When the ambulance arrived, Prosper was transported to Milton Park Hospital so the specialist orthopedic surgeon could examine him more and treat him. On the 7th of August 2024, Prosper was released from the hospital after a	Mr. Prosper Chimwendo	OSCO-Allied	Returned to work on 26-10-24	**Lo Tin Inju**

				two-day admission.				
17	19-02-25	5.30 AM	HC 11th street Gate 3	A taxi with the registration number AED1986 accidentally bumped into the site entrance gate No. 3 in morning hours at 05.30 AM, causing damage to both the gate and the surrounding hoarding. We are in the process of assessing the extent of the damage and the necessary repairs that will need to be completed. We registered a police complaint against it and police came and took the statements of taxi driver Mr Timothy Mukute and the other driver. No personnel injuries were reported during the accident.	N/A	**OSCO**	N/A	Prop y Dam e

APPENDICES 4 Sample Size Calculation Using Slovin's Formula

Slovin's formula is utilized to calculate an appropriate sample size when the total population and a specified margin of error are known:

[n = \frac{N}{1 + N(e^2)}]

Where:

- (n) = Required sample size
- (N) = Total population (300 workers)
- (e) = Margin of error (0.05)

By applying these values:

[n = \frac{300}{1 + 300(0.05^2)}]

[n = \frac{300}{1 + 300(0.0025)}]

[n = \frac{300}{1 + 0.75}]

[n = \frac{300}{1.75} = 171]