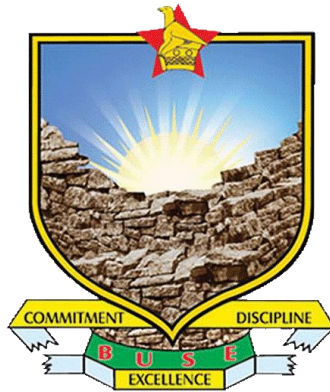


**BINDURA UNIVERSITY OF SCIENCE EDUCATION**  
**FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCES**  
**DEPARTMENT OF ENVIRONMENTAL SCIENCE**



**CHALLENGES FACED BY SAFETY, HEALTH, ENVIRONMENT, AND QUALITY  
(SHEQ) REPRESENTATIVES IN MINING INDUSTRY.**

**A CASE STUDY OF SHAMVA MINE**

**BY**

**ESTHER MUSARURWA(B212139B)**

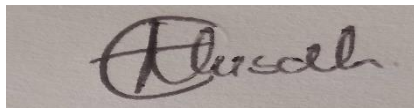
**SUPERVISED BY**

**MR. P. NHOKOVEDZO**

**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS OF THE BACHELOR OF SCIENCE HONORS DEGREE IN  
SAFETY HEALTH AND ENVIRONMENTAL MANAGEMENT**

## DECLARATION

I Esther Musarurwa do now declare that this research project is my work and additional sources have been properly and fully acknowledged using references. This dissertation has not been submitted before for any degree or examination at any other university. I am responsible for this research and its articulation alone. In no way do any of the mentioned persons in the acknowledgment bear any direct responsibility for this work.

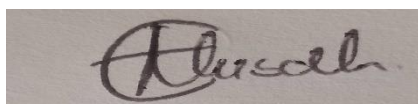


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## APPROVAL FORM

This undergraduate thesis entitled “Research on challenges faced by Safety, Health, Environment, and Quality (SHEQ) Representatives in the mining industry, a Case Study of Shamva Mine”, prepared and submitted by Esther Musarurwa in partial fulfillment of the BSc (Hons) Safety Health and Environmental Management, has been examined and recommended for acceptance by Bindura University of Science Education.



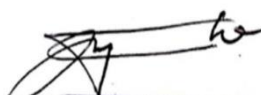
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## **DEDICATION**

This piece of work is a tribute to my family, whose unwavering love and support have been the foundation of all my achievements. To my father, News Nyazema Musarurwa who taught me the value of hard work and perseverance, and to Mildred Pfupa, my sisterinlaw whose constant encouragement gave me the strength to keep going, even during the most challenging times. I am forever grateful for your presence in my life. To my family and friends, who have been there for me every step of the way, providing support and motivation when I needed it most and have always helped me out in times of woe and distress and taught me to follow the path of truth, justice, and honesty. I could not have achieved this without your love and support.

To all SHEQ representatives working tirelessly in hazardous environments to ensure the safety and wellbeing of others, this work is also dedicated to you. Your dedication and resilience inspire me, and I hope that this research will contribute to improving the conditions in which you work.

## **ACKNOWLEDGEMENTS**

I would like to express my deepest gratitude to everyone who has contributed to the successful completion of this dissertation. First and foremost, I wish to thank my supervisor, Mr P. Nhokovedzo, for their invaluable guidance, insightful feedback, and unwavering support throughout this research. Your expertise and encouragement have been instrumental in shaping this study.

I also extend my sincere thanks to the management and staff at Shamva Gold Mine for granting me access to their facilities and for participating in this study. Special thanks to the SHEQ representatives who took the time to share their experiences and challenges, without which this research would not have been possible.

A heartfelt thank you to my family and friends for their patience, understanding, and continuous encouragement during this journey. Your support has been a source of strength and motivation.

Finally, to everyone who has played a role, however small, in the completion of this dissertation, I thank you from the bottom of my heart.

## **ABSTRACT**

This study explores the challenges faced by Safety, Health, Environment, and Quality (SHEQ) representatives in promoting workplace safety within the mining sector, focusing on Shamva Gold Mine in Zimbabwe. Despite the adoption of international safety standards such as ISO 45001 and ILO Convention No. 176, persistent safety incidents suggest a gap between theoretical safety frameworks and practical implementation on the ground. Using theories such as Conflict Theory, Social Learning Theory (SLT), and Systems Theory, this research investigates how poor social dialogue, limited stakeholder engagement, and inefficient communication hinder effective Occupational Health and Safety (OHS) practices.

Quantitative and qualitative findings reveal that although SHEQ representatives and workers are actively involved in incident investigations (86.6%) and most feel free to express their safety concerns (95.5%), several systemic issues remain. Meetings to address OHS matters are mostly held monthly (89.6%), with resolution of concerns often delayed for two weeks to a month (37.3%), highlighting resource and communication constraints. Furthermore, 44.8% of respondents were unsure whether social dialogue improves safety outcomes, while 32.8% disagreed entirely, indicating a lack of confidence in the current consultative processes.

Although incident reporting was found to reduce recurrence and improve compliance (61% of respondents), inadequate discussion of safety issues was reported to create complacency, erode employee trust, and reduce hazard awareness. A weak positive correlation ( $r=0.302$ ,  $p<0.05$ ) between workers' participation in incident investigation and their freedom to express safety concerns further underscores the need for enhanced engagement mechanisms. Respondents identified the provision of adequate resources (55%) as a key strategy to strengthen collaboration between SHEQ officers, management, and workers.

Overall, the study underscores the importance of addressing the disconnect between policy and practice by improving social dialogue, expediting issue resolution, and equipping SHEQ

representatives with the tools and support necessary to foster a proactive safety culture in the mining industry.



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# CHAPTER 1

## 1.0 Introduction

### 1.1 Background of the Study

The international mining sector is among the most dangerous industries regarding employee health and safety. As stated by the International Labor Organization (ILO), approximately 12,000 workers globally are killed annually in mining accidents (ILO, 2021). Despite advancements in safety protocols and regulatory frameworks, the dangerous character of the industry especially in deep mining continues to result in a high number of deaths and injuries (Akgün, 2015). The application of international safety standards, for instance, ISO 45001 (Occupational Health and Safety Management Systems), and the adoption of ILO conventions (for instance, Convention No. 176 concerning safety and health in mines) have helped mitigate some of the risks. Yet, mining in most developing nations, including Zimbabwe, continues to lag behind in implementing and embracing these international best practices. (Chamber of Mines, 2021).

The mining industry in Zimbabwe is a major contributor to the country's economy, and gold ranks among the country's largest exports (ICMM, 2020). Government initiatives to enhance the sector's safety record are a testament to mining's importance. However, mine accidents remain a serious concern, with the majority of the incidents preventable. In 2020, a report by the Zimbabwe Environmental Law Association (ZELA) noted that 59 fatalities were recorded in the mining sector during the year, while the number of reported mine accidents was over 250 (ZELA, 2020). The increased accident rate in mining can be attributed on the grounds of weak safety measures, inadequate training, inadequate regulatory enforcement, and lack of adequate proper resources for SHEQ representatives (Chimhangwa, 2024).

Once again, internationally, mine accidents keep questioning the safety of employees. Its most recent report, the International Council on Mining and Metals (ICMM) stated that the mining sector in 2020 experienced over 300 fatalities worldwide, with the majority occurring in developing countries (ICMM, 2020). Such statistics confirm the continued safety risks to employees even where safety measures are in place. Economic pressures, lack of investment in safety technology, and unsafe working conditions are some of the causes contributing to such numbers in the world.

In response to these issues, international safety standards such as ISO 45001 have emerged. These standards require systematic approaches to occupational health and safety (OHS) management using hazard identification, risk control, and continuous improvement in safety practice (ISO, 2019). While such safety measures have been employed in many organizations worldwide, mining accidents are still prevalent, and there are clear loopholes in the practice and effectiveness of such standards (ILO, 2020). For instance, despite the use of ISO standards, mining operations in Zimbabwe still report significant accidents, meaning that just compliance is not sufficient to address the issues of safety (Mhlanga, 2023).

The effectiveness of safety systems within mining operations is not only reliant on regulatory systems but also on the combined effort of employees, management, and Safety, Health, Environment, and Quality (SHEQ) representatives. The ISO 45001 standard places particular emphasis on worker involvement in safety decision-making and promotion of a safety culture where employees are encouraged to contribute to hazard identification and decision-making on safety controls (ISO, 2019).

Studies have shown that involvement of workers can significantly reduce accidents since workers get a firsthand experience of hazards and can identify risks that management may overlook (Ali & Shariff, 2016b; Jordan & McKenna, 2020). Social Exchange Theory (SET) prevails that establishing cooperation and mutual trust between workers and managers leads to a more responsive and efficient safety culture (Saunders & Thornhill, 2019). However, despite these theoretical benefits, the actual application of the practices is prevented by hindrances such as communication problems, ineffective safety training, and opposition to organizational change (Lopez et al., 2019). In developing countries in particular, these are extremely magnified problems where there may be less social dialogue focus due to limited resources and weak institutional infrastructures (Chimhangwa, 2024).

## **1.2 Problem Statement**

Despite the implementation of global safety standards, such as ISO 45001 and ISO 14001, mining accidents continue to occur all over the globe, with one of the highest fatality rates of all industries (International Labour Organization [ILO], 2020). Mining in Zimbabwe continues to be a high-risk venture, and no exception is Shamva Gold Mine where workers are exposed to very risky conditions in the way of accidents, improper safety measures, and lack of

communication between workers and management (Mhlanga, 2023). It has been documented that despite these standards, things do happen, which shows a disparity between name compliance and good safety practice (Chamber of Mines, 2021). The challenges faced by SHEQ delegates, such as minimal worker participation and limited social dialogue, hinder the effectiveness of safety interventions, resulting in sustained safety failures (Ali & Shariff, 2016b). Lack of universal participation in decision-making by all stakeholders, particularly developing countries, makes these safety challenges worse (Lopez et al., 2019). Thus, this research aims to close the knowledge gap on how improved communication, social dialogue, and employee participation can enhance the safety performance at Shamva Gold Mine, providing possible remedies to remedy these endemic problems and, in the long run, minimize mining incidents (Jordan & McKenna, 2020).

### **1.3.1 Aim**

The primary aim of this study is to analyze the challenges faced by Safety, Health, Environment, and Quality (SHEQ) representatives in ensuring workplace safety at Shamva Gold Mine, Zimbabwe, with specific focus on strengthening social dialogue and worker participation to improve the results of safety.

### **1.3.2 Objectives**

- The most basic challenges faced by SHEQ representatives at Shamva Gold Mine in ensuring the effective implementation of safety practices.
- Determine the impact of inadequate social dialogue and employee participation on the effectiveness of safety practices in Shamva Gold Mine.
- Detail actions to enhance the interaction between SHEQ representatives, management, and workers to increase safety outcomes at Shamva Gold Mine.

### **1.4 Relevance of the Study**

This study is significant to different stakeholders including regulatory institutions, mining companies, SHEQ representatives, and policy-makers engaged in mining in Zimbabwe. Through comprehension and fixing problems related to SHEQ representatives, this research will provide insights that can be useful in augmenting safety protocols, reducing accidents, and

increasing the embracement of safety protocols in the mining industry. The results can help in creating more effective safety policies, ensuring proper engagement of workers in decision-making, and increasing management's participation in safety plans. In addition, the study can bolster theoretical findings on social dialogue and stakeholder participation in the management of mining safety and also serve as a basis for additional studies on the same. The study can be applied to advise more effective safety management practices and facilitate greater compliance with international safety standards, resulting in a safer and sustainable mining sector.

### **1.5 Research Questions**

1. What are the primary challenges for SHEQ representatives to ensure workplace safety in Shamva Gold Mine, and how will these challenges influence operational safety, staff health, and environmental sustainability?
2. How is the lack of proper social dialogue and employee involvement in the decision-making process of safety a contributor to the prevailing safety issues and accidents at Shamva Gold Mine?
3. How much is the extent of interaction of management with SHEQ representatives and workers influencing the efficiency of safety controls and the safety culture in Shamva Gold Mine?

### **1.5 Hypotheses**

- H1: There is a positive correlation between the level of engagement of SHEQ representatives and the reduction of safety accidents in Shamva Gold Mine.
- H2: Lack of effective social dialogue and workers' participation in safety decision-making are key factors for the persistence of safety issues at Shamva Gold Mine.
- H3: Active engagement of management with SHEQ representatives and staff in safety decisions facilitates effective implementation of safety measures at Shamva Gold Mine.

## 1.6 Assumptions

- SHEQ members in Shamva Gold Mine have necessary information and experience to identify safety hazards and contribute to inputs for safety procedures.
- Management and employees are willing to engage in the social dialogue process and contribute their inputs on safety management.
- The safety information obtained during the research accurately reflects the prevailing safety issues and challenges at Shamva Gold Mine.
- Application of ISO standards to mining operations is otherwise intended for improving safety protocols and environmental harmony, but will differ in practice.

## 1.7 Limitations

- **Limited Scope:** The study is only conducted on Shamva Gold Mine, and this may not necessarily reflect the challenges and dynamics for other mining operations in Zimbabwe or worldwide.
- **Small Sample Size:** The research will employ a small sample of participants (SHEQ representatives, employees, and management) due to time and resource limitations, which can affect the results' generalizability.
- **Data Availability:** Sensitive safety data such as accident reports and internal safety assessments may not be available for examination, which can restrict analysis depth.
- **Potential Bias:** Subjective nature of qualitative data gathering methods (e.g., interviews) can lead to researcher bias or reluctance of participants to provide sensitive safety-related issues.
- **Time Constraints:** Research is conducted within a given time frame, and it is not feasible to track trends over a lengthy period of time or evaluate the efficiency of safety procedures over a time span.

## 1.8 Delimitations

- **Geographical Focus:** The research is confined to Shamva Gold Mine only and does not extend to other mines or locations, which could provide a broader perspective of the issues faced by SHEQ representatives.

- **Safety Focus:** The study will concentrate solely on safety issues and will not worry about other aspects of SHEQ responsibilities, such as environmental sustainability or quality control.
- **Quantitative Methodology:** The study will be based primarily on qualitative methods (document analysis, interviews), which can limit the scope of the study and exclude broader quantitative studies that may provide additional information.
- **Focus on Stakeholder Group:** The study will specifically focus on SHEQ representative, workers, and management interactions and rule out other stakeholders such as regulatory bodies or external safety auditors.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 Introduction**

The chapter synthesizes available literature on the difficulties faced by Safety, Health, Environment, and Quality (SHEQ) representatives in the mining sector (Chakraborti, 2018), focusing on the role of social dialogue and its impact on accident incidence (International Council on Mining and Metals [ICMM], 2019). The review comprises theoretical frameworks, empirical studies (Quansah, Zhu, & Obeng, 2022), and identifies gaps in research applicable to the problem statement: "The challenges facing SHEQ representatives, specifically a lack of worker participation, no general communication and involvement in decision-making processes, and a lack of social dialogue, hinder the effectiveness of safety procedures, resulting in recurrent safety failures such as accidents and fatalities."

### **2.2 DEFINITION OF TERMS**

#### **2.2.1 SHEQ**

SHEQ is a coordinated management system utilized by organizations to align and improve performance in safety, health, environment, and quality domains (Zwetsloot et al., 2020). It is a holistic strategy to organizational management, ensuring that operations are conducted in a manner that protects workers, has minimal impact on the environment, and delivers high-quality products or services (Vinodkumar & Bhasi, 2010). The integration of these four elements is essential for sustainable business practice and operational excellence (Jørgensen & Knudsen, 2006).

#### **2.2.2 SHEQ Representatives**

The SHEQ representatives play the role of organizational members who are responsible for promoting, monitoring, and enforcing safety, health, environmental, and quality standards (Chakraborti, 2018). The SHEQ representatives act as a point of contact between management

and employees to verify that safety matters are addressed and employees are actively involved in improving SHEQ performance (ILO, 2011). Their activities include inspections, training, incident investigation, and participation in decision-making on SHEQ (Hale, 2003).

### **2.2.3 Social Dialogue**

Social dialogue comprises all types of negotiation, consultation, or exchange of information between government, employer, and worker representatives on issues of common interest relating to economic and social policy (ILO, 2019). Social dialogue in SHEQ is discussions and collaboration for the improvement of workplace safety, health, environmental protection, and quality standards (ICMM, 2019). Successful social dialogue creates trust, promotes shared responsibility and leads to more sustainable and equitable solutions (Anner, 2012).

### **2.2.4 Worker Participation**

Worker participation refers to the direct involvement of workers in decision-making related to their work, for instance, safety, health, and the environment (European Agency for Safety and Health at Work, 2012). It involves providing workers with a voice to express their views, make contributions towards solutions, and influence organizational policy and practice (Wilkinson et al., 2014). As far as creating a safety culture, employee morale, and organizational performance are concerned, worker participation is essential (Cotton, 1993).

### **2.2.5 Stakeholder Engagement**

Stakeholder engagement is the act of involving individuals or groups who are affected by or can influence an organization's operations, decisions, policies, or practices (Freeman, 1984). It involves stakeholder identification, their interests and concerns, and the establishment of communication and collaboration channels (AccountAbility, 2005). Effective stakeholder engagement is key in establishing trust, reducing risks, and achieving sustainable results (Reed, 2009).

### **2.2.6 Accident**

An accident is an unexpected event which results in injury or ill-health to people, damage to property, or loss to a process (Hollnagel, 2018). Accidents typically arise from the coming together of multiple factors like unsafe acts, unsafe conditions, and organizational deficiencies (Reason, 1990). An understanding of the root causes of accidents is required so that effective prevention measures can be implemented and safety performance improved (Heinrich, 1931).

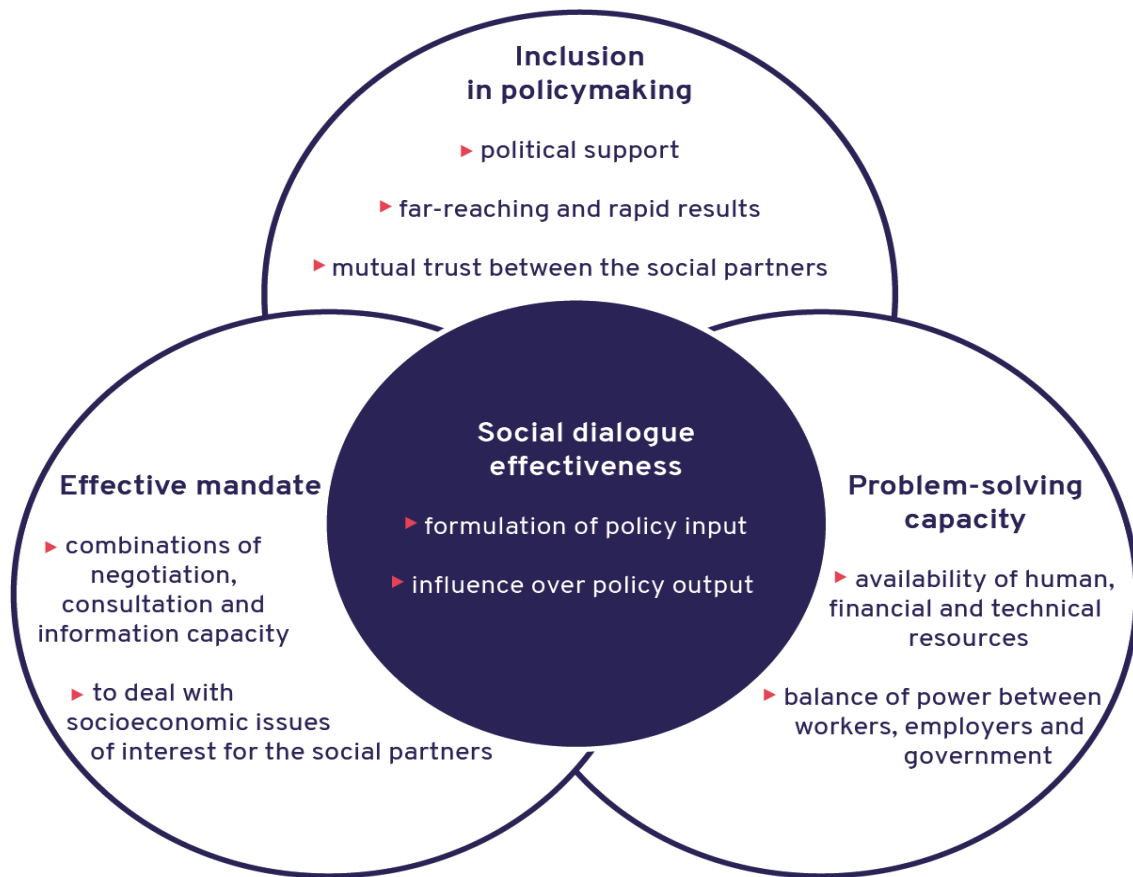
## **2.3 THEORETICAL FRAMEWORKS**

### **2.3.1 Social Dialogue Theory**

Social Dialogue Theory emphasizes the importance of communication and collaboration between employers, employees, and their representatives in identifying solutions to workplace problems (ICMM, 2019). In the mining industry, social dialogue can lead to improved safety outcomes by enhancing mutual trust and understanding (Chakraborti, 2018). However, problems such as low worker engagement, lack of general communication, and lower involvement in decision-making can undermine the effectiveness of social dialogue (Jiskani et al., 2020), leading to recurrent safety failures and accidents.

Inadequate worker engagement and social dialogue is among the major challenges to SHEQ representatives. Employee involvement in safety discussion and decision-making is crucial to the recognition of potential hazards and the adoption of preventive actions. Literature indicates that successful safety management requires a teamwork approach, whereby employees are encouraged to contribute to safety discussion (Turan et al., 2020). However, the majority of the mining organizations in Zimbabwe, for example, Shamva Gold Mine, are characterized by low worker commitment because of red-taped organizational framework, poor communication, and management-worker trust issues (Ma for I'm on & Mudzengi, ). This results in the inability to undertake actual actions toward workplace safety issues.

*Figure 1: Enabling conditions for helpful social dialogue*



### 2.3.2 Safety Culture and Leadership Theories

Leadership plays a vital role in shaping the safety culture of mining organizations (Zhang et al., 2022). Leadership theories in safety management explain that supervisors' safety behavior has a significant influence on employees' safety performance (Quansah, Zhu, & Obeng, 2022). Inadequate leadership support and communication can result in a lack of safety motivation among workers, which causes accidents to be more likely to happen (Chakraborti, 2018). Additionally, safety culture theories highlight the common attitudes, beliefs, and practices regarding safety within an organization (Jiskani et al., 2020). Inadequate safety culture that is characterized by poor communication and minimal worker participation can cause safety breakdowns.

### **2.3.3 Social Support Theory**

Social Support Theory posits that the presence and quality of peer and supervisor support can influence employees' performance and well-being. Within the context of the mining sector, poor supervisor support has been identified as a significant risk factor for employees' safety and health (Chakraborti, 2018). Poor support can lead to increased stress and reduced safety compliance, thereby the high likelihood of accidents.

## **2.4 EMPIRICAL LITERATURE REVIEW**

The mining sector, being inherently risky and operationally demanding, needs strict safety, health, environment, and quality (SHEQ) management systems (Zwetsloot et al., 2020). SHEQ representatives ensure the implementation and management of such systems, acting as a vital interface between management and the workforce (Chakraborti, 2018). SHEQ representatives frequently face significant challenges in the performance of their roles, particularly regarding social dialogue and the subsequent impact on accident occurrence (ICMM, 2019).

Social dialogue, being the interaction and negotiation between employers, workers, and governments, is essential to guaranteeing a healthy and safe working environment (ILO, 2019). Effective social dialogue ensures that safety concerns are identified and addressed, promotes joint responsibility, and aids in creating a safety culture (ICMM, 2019). Conversely, poor social dialogue can undermine safety procedures, leading to increased risk and accident incidence (European Agency for Safety and Health at Work, 2018).

The discussion will cover the reasons social dialogue is ineffective, such as inadequate worker participation, inadequate communication, and insufficient support from management (Jiskani et al., 2020). It will also cover the relationship between these factors and the incidence of accidents and how improved social dialogue can guarantee a safer working environment (Zhang et al., 2022). By synthesizing empirical evidence from various mining environments, this review seeks to establish best practices and guide strategies for optimizing the effectiveness

of SHEQ representatives and developing a culture of safety through constructive social discourse (Quansah, Zhu, & Obeng, 2022).

Chakraborti (2018), Conducted a hermeneutic phenomenological study in Western Australia, concluding that management support is the most important factor for the work of Safety and Health Representatives to be successful (Chakraborti, 2018). Findings show that management support can be enhanced to obtain improved workplace safety outcomes (Chakraborti, 2018).

Also, Quansah, Zhu, and Obeng (2022), Investigated supervisor behavior, safety motivation, and perceived job insecurity as they influenced underground miners' safety citizenship behavior in Ghana (Quansah, Zhu, & Obeng, 2022). Results showed that supervisor behavior significantly influenced safety motivation and safety citizenship behavior (Quansah, Zhu, & Obeng, 2022), indicating the influence of leadership on safety performance.

Besides, Jiskani et al. (2020), Assessed the attitude of miners towards the safety climate in Pakistani surface mining (Jiskani et al., 2020). The study of Jiskani et al. (2020) revealed that workers' participation is the main driver towards the establishment of an acceptable safety climate within the organization (Jiskani et al., 2020), emphasizing broad inclusive safety practices.

Zhang et al. (2022), Examined the impact of leadership safety behavior on employees' safety performance in Chinese mining firms (Zhang et al., 2022). The study confirmed that safety training and safety reward significantly impacted safety compliance and participation (Zhang et al., 2022), showing the impact of leadership on safety performance.

In addition, International Council on Mining and Metals (2019), Emphasized the function of effective grievance mechanisms, based on dialogue and engagement, in handling grievances and concerns at a local level in the mining sector (ICMM, 2019). The report emphasizes the importance of robust grievance mechanisms for addressing safety issues (ICMM, 2019).

## 2.5 LITERATURE GAPS

Despite extensive exploration of the challenges SHEQ professionals face within the mining sector (Chakraborti, 2018; Quansah, Zhu, & Obeng, 2022; Jiskani et al., 2020; Zhang et al., 2022; ICMM, 2019, various gaps remain:

- **Insufficient Worker Participation:** Many studies highlight the lack of employee participation in safety decision-making (Jiskani et al., 2020), creating a disparity between safety policy and practice.
- **Poor Communication and Interaction:** Effectiveness of safety measures is typically compromised by poor communication channels and limited interaction between management and workers (Chakraborti, 2018).
- **Lack of Social Dialogue:** Absence of effective mechanisms for social dialogue impedes the identification and address of safety issues (ICMM, 2019), and hence, repeated accidents and loss of life.

These gaps align with the problem statement: "The challenges faced by SHEQ representatives, i.e., a lack of worker participation, no integrated communication and participation in decision-making, and a lack of social dialogue, hinder the efficiency of safety procedures, resulting in repeated safety failures such as accidents and fatalities."

Addressing these gaps requires a multilateral approach, including enhancing workers' involvement (Jiskani et al., 2020), communication channels (Chakraborti, 2018), and effective social dialogue mechanisms (ICMM, 2019) to facilitate effective safety protocol implementation and accident reduction in the mining sector.

The theoretical framework guiding this study relies on the synthesis of social dialogue theory (ICMM, 2019), theories of safety culture and leadership (Zhang et al., 2022; Quansah, Zhu, & Obeng, 2022), and social support theory (Chakraborti, 2018). These theories cumulatively support the exploration of how communication, leadership, and support structures influence the performance of SHEQ representatives in the mining sector.

The literature review demonstrates that even though a significant body of research has been conducted on the challenges facing SHEQ representatives (Chakraborti, 2018; Quansah, Zhu, & Obeng, 2022; Jiskani et al., 2020; Zhang et al., 2022; ICMM, 2019; [Insert Zimbabwean scholar's name and citation here, if available]), areas such as worker participation, communication, and social dialogue must be investigated further. The dominant narrative emphasizes the need to have more cooperative and supportive mechanisms in place to advance safety outcomes (Chakraborti, 2018; ICMM, 2019). Future research needs to fill the gaps to develop more beneficial strategies for SHEQ professionals within the mining sector, particularly in the unique context of Zimbabwe.

## **CHAPTER 3. METHODOLOGY**

### **3.1 Introduction**

The chapter clarifies the research methodology employed to study the challenges faced by representatives of Safety, Health, Environment, and Quality (SHEQ) in the mining sector. A thorough and transparent methodology is crucial in guaranteeing the study results are reliable and valid (Creswell & Creswell, 2018). The chapter outlines the research design, data collection strategies, sampling plan, data analysis procedures, and ethical considerations that guided the study.

Given the complex and intricate nature of the research problem, (Challenges faced by SHEQ Representatives in the mining sector, A case study of Shamva Mine), qualitative and quantitative mixed-methods were most appropriate. These approaches facilitate elaborate comprehension of challenges faced by SHEQ representatives through integration of statistical analysis and rich qualitative data, exploring the day-to-day lives of SHEQ representatives, quantifying the effect of individual challenges. This research approach was adopted after a review of the literature on research methods in occupational health and safety (Saunders et al., 2019) and attempts to address the research needs identified in Chapter 2.

The subsequent portions of this chapter provide an elaborate description of every aspect of the research approach, why they were selected, and how they help in the achievement of the research objectives. Through adequate explanation of the methodological framework, this chapter forms the foundation for analysis and interpretation of the reported research outcomes presented in subsequent chapters.

### **3.2 Description of the Study Area**

The site lies within the Shamva Mining District of Mashonaland Central, Zimbabwe. The area is characterized by a generally hilly terrain with scattered flat spaces reserved for mining activities. The climate is semi-arid with a prominent rainy season from November to March

and dry season thereafter. The hydrologic cycle in the area comprises seasonal rivers and aquifers that are buried underground, and these are highly significant water sources for domestic and industrial purposes. The mining operations in Shamva target the production of gold, and the mining operations comprise small-scale and large-scale operations. The mining operations are located in nearby vicinity with the surrounding local communities, whose source of water for domestic consumption is from the nearby water bodies. The district has an estimated population of 12,000, and most of them depend on mining activities for their survival. This study aims to assess the challenges faced by representatives of Safety, Health, Environment, and Quality (SHEQ) in such mining activities, focusing specifically on employees' involvement in decision-making and also the handling of safety. A general map showing the geographic location of the Shamva mining district, and also a local map showing sampling points, has been included in this section.

### **3.2 Research Design**

Research design is the overall plan or blueprint that defines how a research study is going to be conducted. It encompasses the data gathering, analysis techniques, and the overall strategy to answering the research questions or hypotheses testing. Well-designed research design ensures that the study is sound methodologically and that the findings are valid and reliable (Creswell & Creswell, 2018). Experimental, correlational, descriptive, and exploratory research designs are typical examples of research designs (Saunders et al., 2019). A mixed-method research design combines qualitative and quantitative approaches in this study. Mixed-methods design was used because it allows detailed study of the problems that SHEQ representatives are facing on Shamva Mine using both numerical data and experiential understanding. Quantitative research involves the use of questionnaires to provide data regarding safety culture, while qualitative interviews will be utilized to study the lived experiences and insights of SHEQ representatives. This approach ensures that statistical data

and rich, context-focused insight are both collected. Mixed-method designs have been successfully applied in similar safety management studies, for instance, by McMahon et al. (2021), to gain an understanding of complex phenomena that is holistic.

### **3.3 Study Population and Sample Size**

#### **3.3.1 Study population**

The study population refers to the whole group of individuals or events sharing common attributes relevant to the research question. This population is also the target sample from which a sample will be drawn for the study (Fraenkel & Wallen, 2019). Having information about the study population is crucial to ensure that the results of the research are generalizable to a broader context. The study population in this case comprised employees who work at Shamva gold mine. The mine had a total number of employees equal to 846 (Human resources, 2023).

#### **3.3.2 Sampling**

Sampling is the process of choosing a representative group of individuals from a complete population to utilize in a research study. Sampling intends to obtain a sample that represents and well captures the nature of the population (Creswell & Creswell, 2018). There are two general types of sampling methods: probability sampling, where each member of the population has an equal chance of being selected, and non-probability sampling, where selection is subjective (Saunders et al., 2019). To draw a sample of respondents to answer the question, the researcher had to use probability-sampling techniques based on stratified random sampling. This guaranteed the accuracy and reliability of the data by guaranteeing that all the respondent stratum were represented in the data that was gathered. The chosen probability sampling method almost guaranteed that the final results would be utilized for the entire population of the Shamva gold mine. Mining, Engineering, Technical Services, Human Resources, Finance, Security, SHEQ, and Metallurgy were the seven (7) groups into which the

researcher divided the participants. A 10% sampling intensity sample was drawn from each stratum or category (Table 3.1).

### 3.3.3 Sample Size

Sample size refers to the number of respondents covered in a study. The choice of an appropriate sample size is crucial since it affects the statistical power of the study and validity of the findings. The larger the sample size, the better the accuracy of the findings and allows for more substantial statistical analysis (Cohen, 2019). Based on the number of workers in all the seven departments of Shamva Mine, the researcher applied a 10% sampling intensity. The sampling intensity is the proportion of the number of units in the sample to the total number of units in the population (Shaheen, 2019). Thus, 10% of the population is generally a reasonable maximum sample size (Shaheen, Gupta, & Kumar, 2016). Kashkalani, Maleki, Tabibi, and Nasiripour (2017) advise that sample intensity can be beneficial if a researcher desires to possess an intensive insight into a phenomenon. Hence, in order to make research fascinating, a sufficiently intense sample needs to be employed (Suri, 2017). According to the Human resources department (HR, documents, 2023,) the mine accommodates 846 workers and seven (7) departments in total which consist of, mining (543), Engineering (121), Technical services (100), Human Resources (34), Finance (24), Security (22), SHEQ (10), and Metallurgy (2) respectively.

### 3.3.4 Determination of Sample Size and Recruitment of Participants

**Table 1: Determination of Sample size**

| Department                | Target Population | Sample |
|---------------------------|-------------------|--------|
| <b>Mining</b>             | 543               | 54     |
| <b>Engineering</b>        | 121               | 12     |
| <b>Technical services</b> | 100               | 10     |

|                        |     |    |
|------------------------|-----|----|
| <b>Human Resources</b> | 34  | 3  |
| <b>Finance</b>         | 24  | 2  |
| <b>Security</b>        | 22  | 2  |
| <b>SHEQ</b>            | 10  | 1  |
| <b>Metallurgy</b>      | 2   | 1  |
| <b>Total</b>           | 846 | 85 |

The sample size for this study was determined using Slovin's formula, a standard approach for sample size determination in social science research.

Slovin's formula is given as:

$$n = N / (1 + Ne^2)$$

Where:

n= expected sample size

N= population ( the population size (estimated at 846 for the target group of all employees at Shamva Mine from all departments)

e = level of precision (the margin of error (set at 0.05 for this study).

Using the formula, the sample size required was calculated to be 271. To accommodate non-response, an additional 10% was added to the sample size, making the final desired target sample size 355. Sampling was done using stratified random sampling to ensure representation for every mining operation. Recruitments involved canvassing Shamva district mining operations, obtaining clearance from concerned authorities, and inviting participation by SHEQ representatives and management staff. Inclusion criteria are active involvement in safety management and a minimum of one year's experience in the mining industry.

### **3.4 Research Instruments**

To gather data, a pre-structured questionnaire to be filled by the respondents independently was used for the quantitative aspect of the research. The questionnaire was designed after going through the literature on safety management systems and SHEQ practices (e.g., Ahamed et al., 2016; McMahon et al., 2021). The instrument contained closed and Likert scale items that were intended to ascertain the adequacy of safety controls and workers' involvement in decision-making. A semi-structured interview guide was utilized in the qualitative section to gain a well-defined understanding from SHEQ representatives regarding their experience and problems in safety management.

### **3.5 Validity and Reliability**

#### **3.5.1 Validity**

Validity refers to the extent to which a research instrument measures what it is intended to measure. It must be used to ensure that the results based on the research are authentic and legitimate (Creswell & Creswell, 2018). Different types of validity, including content validity, construct validity, and criterion-related validity, each look at differing areas of measurement accuracy (Saunders et al., 2019). A pilot test was conducted in order to pre-test the questionnaires for validity purposes in this research. The questionnaires were subsequently revised and modified to cater to areas of study of relevance. Pilot tests seek to test accuracy, applicability, and relevance of the questionnaire through the elimination of irrelevance items that fail to satisfy the specified criteria (Polit & Beck, 2012).

#### **3.5.2 Reliability**

Reliability is the measure of how consistently a research instrument captures stable and persistent results over time. A reliable measure returns the same result when measured under the same conditions, a consideration that ensures credibility of research findings (Cohen, 2019). Statistical measures such as Cronbach's alpha are commonly used by researchers to establish

reliability in the measurement of a measurement instrument's internal consistency (Field, 2018).

The two tools were pilot-tested with a few participants (10 people) to establish ambiguities and assess reliability. Pre-testing was conducted within the mine, and participant feedback helped refine the instruments. The tools were face-to-face used during visits to the site.

### **3.5 Ethical Considerations**

Research ethics defines principles that help guide researchers to work responsibly and in good conscience within research studies. Ethical practice entailed obtaining informed consent from participants, confidentiality, and causing minimal harm (American Psychological Association, 2020). That ethical practice is paramount for ensuring the public's confidence and the credibility of the research process. Ethical principles under the American Psychological Association (APA, 2017) and ethical research in Zimbabwe guided this study. Informed consent would be obtained from all the participants, and they would be aware of their right of confidentiality and anonymity. Their participation was voluntary, and they were assured that their answers would only be used for academic purposes. Ethical clearance was obtained from the ethics review committee at Bindura University Of Science Education. In addition, the study adhered to the practices of respect for persons, beneficence, and justice so that the participants were not subjected to any harm during the study.

### **3.6 Data Collection**

Data collection is the systematic process of gathering information from diverse sources to yield responses to research questions or hypotheses (Creswell & Creswell, 2018). The traditional methods of data collection are surveys, interviews, observation, and document analysis. The choice of using a single or several data collection methods depends on the research design and on the nature of the research questions. Data collection was done in two phases. In the first phase, a survey questionnaire distributed to SHEQ representatives, management staff of

sampled mining operations and other employees from some mining operations. The survey captured the safety practice, workers' involvement in safety decisions, and the issues faced by SHEQ representatives. The second phase consisted of semi-structured interviews with a sample of survey participants in order to further understand their experiences and perceptions related to safety management. The interviews were done in the field at the mining operations in order to establish the barriers towards effective safety management and worker participation.

The surveys were conducted at the start of the study, and interviews were done afterward to allow for expansion of survey results. All data collection activities were carried out in a three-month period, and the major data collection area was the Shamva mining area.

### **3.7 Data Management**

Data management involves the management, storage, and analysis of information collected in a research study. Appropriate management of data ensures the accuracy, accessibility, and security of the data throughout the research process (Saunders et al., 2019). This includes data entry, cleaning, and preparation for analysis, as well as data integrity and confidentiality. Data collection was done electronically using survey software and maintained in a secure, password-protected database. Data cleaning included checking completeness, consistency, and logical errors. Missing and inconsistent information were recorded and rectified through follow-up communication with the participants or imputation, if necessary. Data validity was ensured through the employment of pre-tested instruments, and inconsistency in the data was handled through cross-matching responses from diverse sources (e.g., interview transcripts and survey answers). To make the data valid, all the tools were calibrated and the responses anonymized in the course of analysis to prevent bias.

For quantitative analysis, descriptive statistics of frequency distributions and percentages was used to provide summary of survey responses, while inferential statistics of Chi-square tests was used to determine if there are significant differences in association between SHEQ

representatives' challenges and safety management practices. For qualitative data, thematic analysis was used to identify key themes and findings from interview transcripts such that the analysis is thorough and scientific.

This chapter outlines the methods and procedures that directed the research process for comprehensive, ethical, and reliable research concerning the challenges faced by SHEQ representatives in Shamva Mine in Zimbabwe.

## **CHAPTER FOUR**

### **PRESENTATION OF RESULTS**

#### **4.1 Introduction**

This chapter provides a presentation, discussion and analysis of research findings the impact of whistleblowing on corruption. Furthermore, analysis and discussion is guide by objectives of the study and supported by literature highlighted in chapter two. This chapter presents findings from demographic data and Challenges faced by Safety, Health, Environment, and Quality (SHEQ) Representatives in the mining industry, a Case Study of Shamva Mine.

#### **4.2 Questionnaires Response rate**

The study realised a response rate of 78.8%. It was realised after 67 questionnaires were successfully returned from possible 85 distributed.

Table 4.1: Questionnaires response rate

| <b>Distributed questionnaires</b> | <b>Returned questionnaires</b> | <b>Response Rate (%)</b> |
|-----------------------------------|--------------------------------|--------------------------|
| 85                                | 67                             | 78.8                     |

Source: Primary data (2025)

#### **4.3 Background Information**

This section presents the respondents' background information. The information sought in this study included gender, age, department and level of education.

**Table 2: Background information**

| <i>Variable</i>           | <i>Categories</i>  | <i>Frequency</i> | <i>Percent</i> | <i>Mean</i> | <i>Standard dev.</i> |
|---------------------------|--------------------|------------------|----------------|-------------|----------------------|
| <i>Gender</i>             | Male               | 57               | 85.1           | 1.15        | .359                 |
|                           | Female             | 10               | 14.9           |             |                      |
|                           | <b>Total</b>       | <b>67</b>        | <b>100</b>     |             |                      |
| <i>Age</i>                | 21-30 years        | 32               | 47.8           | 1.60        | .629                 |
|                           | 31 to 40 years     | 30               | 44.8           |             |                      |
|                           | <41                | 5                | 7.5            |             |                      |
|                           | <b>Total</b>       | <b>67</b>        | <b>100</b>     |             |                      |
| <i>Education level</i>    | Certificate        | 20               | 29.9           | 2.22        | .885                 |
|                           | Diploma            | 12               | 17.9           |             |                      |
|                           | Degree             | 35               | 52.2           |             |                      |
|                           | <b>Total</b>       | <b>67</b>        | <b>100</b>     |             |                      |
| <i>Section/department</i> | Mining             | 34               | 50.7           | 3.01        | 2.495                |
|                           | SHEQ               | 3                | 4.5            |             |                      |
|                           | TSD                | 1                | 1.5            |             |                      |
|                           | Engineering        | 15               | 22.4           |             |                      |
|                           | Human Resources    | 3                | 4.5            |             |                      |
|                           | Technical Services | 1                | 1.5            |             |                      |
|                           | Finance            | 4                | 6.0            |             |                      |
|                           | Security           | 4                | 6.0            |             |                      |
|                           | Maintenance        | 2                | 3.0            |             |                      |
|                           | <b>Total</b>       | <b>29</b>        | <b>100</b>     |             |                      |

The findings in Table 4.2 show that majority (85.1) of the respondents were males while 14.9% were females. This implies that mining industry is dominated by males. Furthermore, findings shows that a large representative of the study (47.8%) were aged 21 to 30 years indicating that people in mining were mostly the youth. In addition, majority (52.2%) of the respondents in the study area had attained a degree, thus, respondents were well educated. Furthermore, 50.7% of respondents were in the mining department. This shows that mostly of workforce in the study area were involved in mining.

#### 4.4 Key challenges faced by SHEQ representatives at Shamva Gold Mine in ensuring the effective implementation of safety protocols

**Table 3: Key Challenges faced by SHEQ representatives**

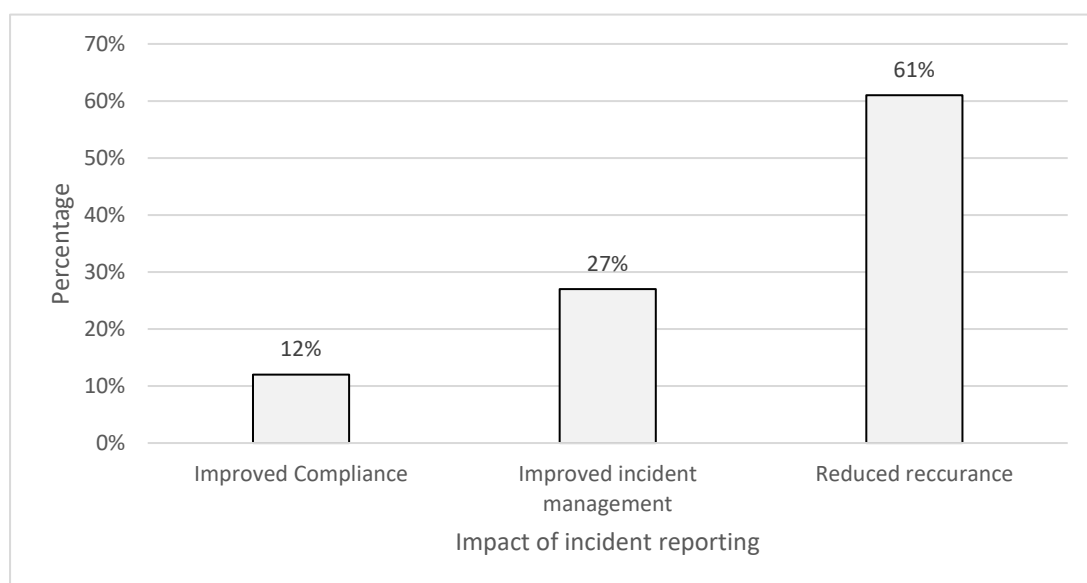
| <i>Variable</i>                                                   | <i>Categories</i> | <i>Frequency</i> | <i>Percent</i> | <i>Mean</i> | <i>Standard dev.</i> |
|-------------------------------------------------------------------|-------------------|------------------|----------------|-------------|----------------------|
| <i>Platform to discuss OHS issues</i>                             | Yes               | 67               | 100            | 1.0         | .0                   |
|                                                                   | No                | 0                | 0              |             |                      |
|                                                                   | <b>Total</b>      | <b>67</b>        | <b>100</b>     |             |                      |
| <i>SHE meetings</i>                                               | Yes               | 67               | 100            | 1.0         | .0                   |
|                                                                   | No                | 0                | 0              |             |                      |
|                                                                   | <b>Total</b>      | <b>67</b>        | <b>100</b>     |             |                      |
| <i>Frequency of meetings</i>                                      | Daily             | 2                | 3.0            | 2.87        | .423                 |
|                                                                   | Weekly            | 12               | 7.5            |             |                      |
|                                                                   | Monthly           | 35               | 89.6           |             |                      |
|                                                                   | <b>Total</b>      | <b>67</b>        | <b>100</b>     |             |                      |
|                                                                   |                   |                  |                |             |                      |
| <i>Participation in meetings by SHE rep</i>                       | Yes               | 67               | 100            | 3.01        | 2.495                |
|                                                                   | No                | 0                | 0              |             |                      |
|                                                                   | <b>Total</b>      | <b>29</b>        | <b>100</b>     |             |                      |
| <i>Follow up on issue raised</i>                                  | Yes               | 67               | 100            | 1.0         | .0                   |
|                                                                   | No                | 0                | 0              |             |                      |
|                                                                   | <b>Total</b>      | <b>67</b>        | <b>100</b>     |             |                      |
| <i>Period it takes to close issues raised during SHE meetings</i> | Less than a week  | 5                | 7.5            | 2.87        | .423                 |
|                                                                   |                   |                  |                |             |                      |
|                                                                   | 2-4 Weeks         | 25               | 37.3           |             |                      |
|                                                                   | 1 month           | 25               | 37.3           |             |                      |

|                                              |              |           |            |       |
|----------------------------------------------|--------------|-----------|------------|-------|
| Communication with employees on SHE findings | 2-3 months   | 12        | 17.9       |       |
|                                              | <b>Total</b> | <b>67</b> | <b>100</b> |       |
|                                              | Yes          | 67        | 100        | 3.01  |
|                                              |              |           |            | 2.495 |
|                                              | <b>Total</b> | <b>29</b> | <b>100</b> |       |

The results shows key challenges faced by SHEQ representatives at Shamva Gold Mine in ensuring the effective implementation of safety protocols. The results indicated that 89.6% of the meetings are done on monthly basis with few done on daily and weekly basis due to limited resources. Furthermore, majority of respondents (37.3%) indicated that it takes 2 weeks to one month to close issues raised during SHE meetings.

#### 4.5 Impact of inadequate social dialogue and worker participation on the effectiveness of safety measures at Shamva Gold Mine

Results shows that 73.1% of respondents indicated they discuss OHS issues with the management every month. Furthermore, 91% respondents indicated that social dialogue work in ensuring effective OHS at work. In addition, 86.6% of respondents participate in incident investigation and reporting. In addition, 95.5% respondents indicated that workers are free to share their views on OHS issues. Similarly, 95.5% of respondents highlighted that workers are consulted on OHS issues.



**Figure 1: Impact of incident reporting**

Results in Figure 4.1 shows that incident reporting led to reduced recurrence, improved incident management and improved compliance. Majority of respondents (61%) of respondents highlighted that incident reporting reduces recurrence of incidents.

Furthermore, participants indicated that inadequate discussion of health safety and environmental issues affect safety at the mine in various ways.

One participant mentioned that *“it can create a culture of complacency regarding safety standards”*

Another participant alluded that *“Employees may feel undervalued if their safety concerns are ignored”*

Another participant highlighted that *“It can lead to a lack of awareness about potential hazards among workers.”*

#### 4.5.1 Inferential statistics

Table 4.4: Inferential statistics

**Table 4: Inferential Statistics**

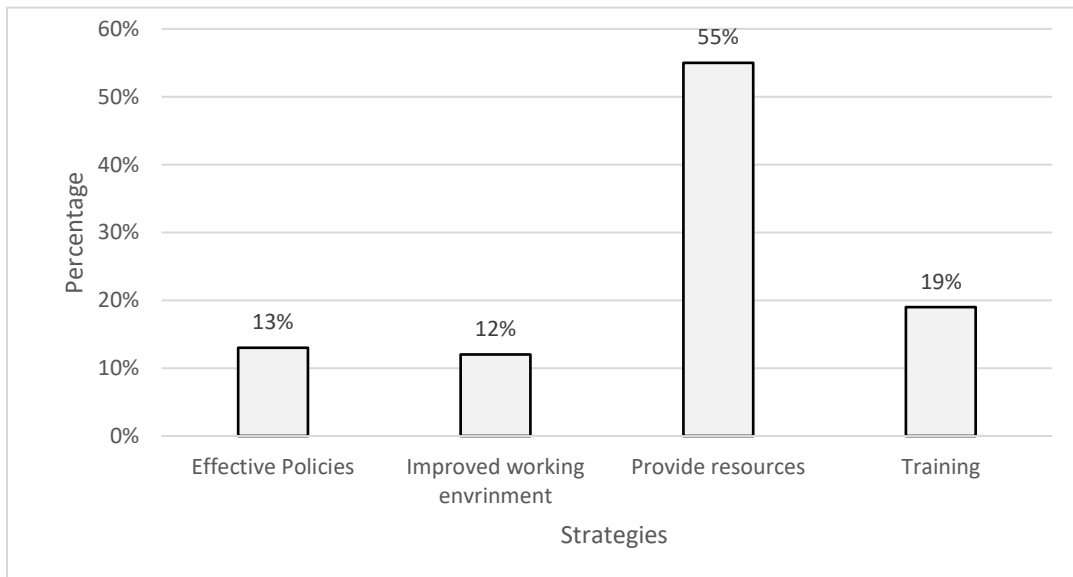
|                                                                     |                 | Discussion on OHS<br>issues with the<br>management | Workers<br>participation in<br>incident<br>investigation<br>and reporting | Employees are free<br>to share views with<br>regards to OHS<br>matters |
|---------------------------------------------------------------------|-----------------|----------------------------------------------------|---------------------------------------------------------------------------|------------------------------------------------------------------------|
| Discussion on OHS issues<br>with the management                     | Pearson         | . <sup>a</sup>                                     | . <sup>a</sup>                                                            | . <sup>a</sup>                                                         |
|                                                                     | Correlation     |                                                    |                                                                           |                                                                        |
|                                                                     | Sig. (2-tailed) |                                                    | .                                                                         | .                                                                      |
|                                                                     | N               | 67                                                 | 67                                                                        | 67                                                                     |
| Workers participation in<br>incident investigation and<br>reporting | Pearson         | . <sup>a</sup>                                     | 1                                                                         | .302*                                                                  |
|                                                                     | Correlation     |                                                    |                                                                           |                                                                        |
|                                                                     | Sig. (2-tailed) | .                                                  |                                                                           | .013                                                                   |
|                                                                     | N               | 67                                                 | 67                                                                        | 67                                                                     |
| Employees are free to share<br>views with regards to OHS<br>matters | Pearson         | . <sup>a</sup>                                     | .302*                                                                     | 1                                                                      |
|                                                                     | Correlation     |                                                    |                                                                           |                                                                        |
|                                                                     | Sig. (2-tailed) | .                                                  | .013                                                                      |                                                                        |
|                                                                     | N               | 67                                                 | 67                                                                        | 67                                                                     |

\*. Correlation is significant at the 0.05 level (2-tailed).

a. Cannot be computed because at least one of the variables is constant.

Results in Table 4.4 shows that a weak positive relationship between Workers participation in incident investigation and reporting and employees feeling free to share views on OHS matters ( $r=302$ ,  $p<0.05$ ). Employees feeling free to share views with regards to OHS matters and workers participation in incident investigation and reporting ( $r=302$ ,  $p<0.05$ ). This implies that when workers participate in incident investigation and reporting, they are more likely to feel free to share their views on OHS matters.

#### 4.6 Strategies to enhance engagement between SHEQ representatives, management, and workers to improve safety outcomes at Shamva Gold Mine



**Figure 2: Ways improve safety outcomes**

Results in Figure 4.2 shows that 55% of respondents highlighted that providing resources as a major strategy enhance engagement between SHEQ representatives, management, and workers to improve safety outcomes at Shamva Gold Mine.

**Table 5: Mine safety and social dialogue**

| Variables | SD | D | N | A | SA | Mean | Std.<br>Deviation |
|-----------|----|---|---|---|----|------|-------------------|
|-----------|----|---|---|---|----|------|-------------------|

|                                                            |      |      |      |      |   |      |      |
|------------------------------------------------------------|------|------|------|------|---|------|------|
| Mine safety and health is improved through Social dialogue | 11.9 | 32.8 | 44.8 | 10.4 | 0 | 2.54 | .841 |
|------------------------------------------------------------|------|------|------|------|---|------|------|

Results in Table 4.4 indicate that 44.8% of respondents are not sure if mine safety and health is improved through social dialogue. While 32.8% of respondents disagree that mine safety and health is improved through social dialogue.

#### 4.7 Chapter Summary

This chapter provided results on key challenges faced by SHEQ representatives in ensuring workplace safety at Shamva Gold Mine, and the impact of operational safety, worker health, and environmental sustainability. The chapter further, provided results on effective social dialogue and worker participation in safety decision-making contribute to the persistent safety issues and accidents at Shamva Gold Mine. It presented results on management's engagement with SHEQ representatives and workers influence the effectiveness of safety measures and the overall safety culture at Shamva Gold Mine.

## **CHAPTER FIVE**

### **DISCUSSION OF RESULTS**

#### **5.1 Introduction**

This chapter provides a discussion and analysis on challenges faced by Safety, Health, Environment, and Quality (SHEQ) Representatives in the mining industry, a Case Study of Shamva Mine.

#### **5.2 Key challenges faced by SHEQ representatives in ensuring workplace safety at Shamva Gold Mine**

The results shows key challenges faced by SHEQ representatives at Shamva Gold Mine in ensuring the effective implementation of safety protocols. The results indicated that 89.6% of the meetings are done on monthly basis with few done on daily and weekly basis due to limited resources. Furthermore, majority of respondents (37.3%) indicated that it takes 2 weeks to one month to close issues raised during SHE meetings this delay in closing issues may give rise to accumulation of incidents. Studies indicate that good safety management requires a collaborative strategy, where workers are encouraged to participate in safety-related discussions (Turan et al., 2020).

#### **5.3 Impact of inadequate social dialogue and worker participation on the effectiveness of safety measures at Shamva Gold Mine.**

Study shows incident reporting lead to reduced recurrence, improved incident management and improved compliance. Majority of respondents (61%) of respondents highlighted that incident reporting reduces recurrence of incidents. This implies that without adequate social dialogue and worker participation recurrent of incidents may be realised. The findings concur with ICMM, (2019), SHEQ representatives often face significant challenges in fulfilling their responsibilities, particularly concerning social dialogue and its subsequent impact on accident occurrence.

Furthermore, Results in Table 4.4 showed a weak positive relationship between Workers participation in incident investigation and reporting and employees feeling free to share views on OHS matters ( $r=302$ ,  $p<0.05$ ). Employees feeling free to share views with regards to OHS matters and workers participation in incident investigation and reporting ( $r=302$ ,  $p<0.05$ ). This implies that when workers participate in incident investigation and reporting, they are more

likely to feel free to share their views on OHS matters. The findings concur with Jiskani et al (2020), found that worker participation is the main factor in establishing an adequate safety climate within the organization emphasizing the need for inclusive safety practices.

#### **5.4 Strategies to enhance engagement between SHEQ representatives, management, and workers to improve safety outcomes at Shamva Gold Mine.**

Results in Figure 4.2 showed that providing resources as a major strategy enhance engagement between SHEQ representatives, management, and workers to improve safety outcomes at Shamva Gold Mine. This implies that resources are key driver to enhance engagement between SHEQ representatives, management, and workers to improve safety outcomes at Shamva Gold Mine. The findings concur with Chimhangwa, (2024) stated that the increasing number of accidents in the mining sector can be attributed to factors such as inadequate safety measures, insufficient training, poor regulatory enforcement, and a lack of adequate resources for SHEQ representatives.

#### **5.5 Chapter Summary**

This chapter provided a discussion and analysis on challenges faced by Safety, Health, Environment, and Quality (SHEQ) Representatives in the mining industry, a Case Study of Shamva Mine. The following chapter presents conclusion, summary and recommendations for the study.

## **CHAPTER SIX**

### **6.1 Introduction**

The chapter presents conclusion, summary and recommendations on problems faced by Safety, Health, Environment, and Quality (SHEQ) Representatives in the mining industry, a Case Study of Shamva Mine.

### **6.2 Summary**

Despite the application of global safety standards, i.e., ISO 45001 and ISO 14001, incidents in the mining industry remain rampant globally, the sector recording one of the highest fatality rates. The principal aim of this study is to explore challenges faced by Safety, Health, Environment, and Quality (SHEQ) representatives in promoting workplace safety at Shamva Gold Mine, Zimbabwe, with a focus on improving social dialogue and worker participation towards achieving greater safety outcomes. The study used a mixed-method research design that included both qualitative and quantitative approaches. The study had a response rate of 78.8%. It was understood after 67 questionnaires were successfully retrieved among possible 85 sent out.

### **6.3 Statement of objectives**

#### **6.3.1 Chief challenges faced by SHEQ representatives in maintaining workplace safety at Shamva Gold Mine**

The study found that 89.6% of meetings were held on monthly frequencies with some being held on daily and weekly frequencies due to insufficient resources.

In addition, most of the respondents (37.3%) stated that it would take 2 weeks to one month to close issues raised during SHE meetings this lag in closing issues might lead to piling up of incidents. Research shows that effective safety management involves a collective approach, whereby employees are encouraged to engage in safety-related discourse (Turan et al., 2020).

#### **6.3.2 Consequences of inadequate social dialogue and staff engagement on the effectiveness of safety interventions in Shamva Gold Mine.**

It was found through research that incident reporting reduces incidence recurrence. That is to say that with no proper social dialogue and worker engagement incidence recurrence may be realized. The research concurred with ICMM, (2019), SHEQ representatives often face tremendous challenges in fulfilling their responsibilities, particularly social dialogue and its consequential effect towards accident occurrence.

Also, showed a low positive correlation between workers' engagement in incident investigation and reporting and employees' ability to express opinions regarding OHS ( $r=302$ ,  $p<0.05$ ).

Employees' ability to express opinions regarding OHS and workers' engagement in incident investigation and reporting ( $r=302$ ,  $p<0.05$ ). This implied that by participating in incident reporting and investigating, workers would be more likely to provide input on OHS matters without hesitation. Findings were consistent with Jiskani et al., (2020), found that worker participation is the main determinant for the existence of an adequate safety climate within the company underlined by the need for extensive safety practices.

### **6.3.3 Strategies for increasing engagement among SHEQ representatives, management, and employees to improve safety outcomes in Shamva Gold Mine.**

Research indicated that provision of resources was a major strategy in increasing engagement among SHEQ representatives, management, and employees to improve safety outcomes in Shamva Gold Mine.

This hence implies that resources are a major force to increase engagement among SHEQ representatives, management, and employees to improve safety outcomes in Shamva Gold Mine. The findings concurred with Chimhangwa, (2024) indicated that the increasing rate of accidents in the mining sector results from factors such as inadequate safety precautions, inadequate training, ineffectual regulatory enforcement, and inadequate SHEQ representatives resources.

### **6.3.4 Key challenges SHEQ representatives face in ensuring workplace safety at Shamva Gold Mine**

The research concludes that the meetings were conducted on a monthly basis with a few conducted on daily and weekly basis because of limited resources. Additionally, it takes 2 weeks to one month to close issues discussed during SHE meetings the delay in closing issues could lead to incidence accumulation. Research shows that effective safety management involves a teamwork approach, where employees are invited to join discussions on safety matters (Turan et al., 2020).

### **6.3.5 Effect of weak social dialogue and involvement of employees on the effectiveness of Shamva Gold Mine's safety strategies.**

Analysis concludes that reporting of incidents reduces the frequency of incidents. Furthermore, there is a weak positive relationship between workers' participation in incident reporting and investigation and employees having freedom to give opinions on OHS matters ( $r=302$ ,  $p<0.05$ ).

Employees having freedom to give opinions when it comes to OHS matters and workers' participation in incident reporting and investigation ( $r=302$ ,  $p<0.05$ ).

#### **6.3.6. Initiatives to enhance participation between SHEQ representatives, management, and employees to improve safety performance at Shamva Gold Mine.**

Conclusion of study is that resource provision is a major initiative to enhance participation between SHEQ representatives, management, and employees to improve safety performance at Shamva Gold Mine.

This implies that resources are a major driver to enhance participation between SHEQ representatives, management, and employees to improve safety performance at Shamva Gold Mine. The findings concurred with Chimhangwa, (2024) which stated that the increase in mining accidents can be attributed to factors such as improper safety measures, inadequate training, lack of regulation enforcement, and the lack of adequate resources for SHEQ representatives.

### **6.4 Recommendations**

#### **6.4.1 Key challenges faced by SHEQ representatives in ensuring workplace safety at Shamva Gold Mine**

Since the study concluded that meetings are done on monthly basis with few done on daily and weekly basis due to limited resources. Furthermore, it takes 2 weeks to one month to close issues raised during SHE meetings this delay in closing issues may give rise to accumulation of incidents. The management at Shamva Mine should increase frequency of meetings done on daily and weekly basis to enhance safety.

#### **6.4.2 Impact of inadequate social dialogue and worker participation on the effectiveness of safety measures at Shamva Gold Mine.**

Since the study concluded that incident reporting reduces recurrence of incidents. Furthermore, there is a weak positive relationship between workers participation in incident investigation and reporting and employees feeling free to share views on OHS matters ( $r=302$ ,  $p<0.05$ ). Employees feeling free to share views with regards to OHS matters and workers participation in incident investigation and reporting ( $r=302$ ,  $p<0.05$ ). The management at Shamva Mine should embrace incidence reporting at workplace and allow participation of workers in incident investigation.

#### **6.4.3 Strategies to enhance engagement between SHEQ representatives, management, and workers to improve safety outcomes at Shamva Gold Mine.**

Since the study concluded that providing resources is a major strategy enhancing engagement between SHEQ representatives, management, and workers to improve safety outcomes at Shamva Gold Mine. The management at Shamva Mine should avail adequate resources to all stakeholders on the mine all times to enhance engagement between SHEQ representatives, management, and workers to improve safety outcomes at Shamva Gold Mine.

#### **6.6 Contribution of the study**

The study contributed to the current literature in disclosing the consistency of the findings with previous research and theoretical frameworks, combined with the significant implications for policy and practice, highlighted the importance of considering challenges faced by Safety, Health, Environment, and Quality (SHEQ) representatives in ensuring workplace safety at Shamva Gold Mine, Zimbabwe, with a focus on improving social dialogue and worker participation to enhance safety outcomes.

#### **6.7 Areas of further research**

Since this study focused on challenges faced by Safety, Health, Environment, and Quality (SHEQ) representatives in ensuring workplace safety at Shamva Gold Mine, Zimbabwe, with a focus on improving social dialogue and worker participation to enhance safety outcomes, similar studies can also be carried out in other sectors of the economy, using a different approach for example, in manufacturing industry and the agroforestry sector among other sectors.

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## APPENDICES

### Appendix One: Questionnaire for Companies

My name is Easter Musarurwa I am a student at Bindura University of Science Education. I will be carrying out A STUDY: CHALLENGES FACED BY SAFETY, HEALTH, ENVIRONMENT, AND QUALITY (SHEQ) REPRESENTATIVES IN MINING INDUSTRY PROJECTS. I kindly request you to participate in the study. There are no costs and risks associated with the research. Participation in this study may not benefit you directly but may provide information that may benefit you and others regarding postnatal exercises. Your name and identity will not be revealed or published anywhere. The information will be kept confidential and will be used for the purpose of the study only. Your participation in this study is voluntary and you may withdraw from the study at any time without a penalty. Data collected will not be shared with anyone without your permission.

#### SECTION A: DEMOGRAPHICS DATA

- i. Age: 21-30 years ☐ 31-40 years ☐ >41 years ☐
- ii. Gender: Male ☐ Female ☐
- iii. Level of education: Certificate ☐ Diploma ☐ Degree ☐ other ☐
- iv. Section/Department: .....
- FACED BY SHEQ REPRESENTATIVES AT SHAMVA GOLD MINE IN ENSURING THE EFFECTIVE IMPLEMENTATION OF SAFETY PROTOCOLS
- v. Do you have a platform to discuss occupational health and safety policy issues within your organization? Yes ☐ No ☐
- vi. Do you conduct SHE meetings? ? Yes ☐ No ☐
- vii. If yes above, how often do you conduct such meetings?  
Daily ☐ weekly ☐ monthly ☐ never ☐
- viii. As a SHR rep do you participate in such meetings? Yes ☐ No ☐
- ix. When issues are raised during, SHE meetings how do you address them?  
.....  
.....  
.....
- x. Do you make follow up to check whether the issues raised are addressed or not? ?  
Yes ☐ No ☐
- xi. How long does it take to close issues raised during SHE meetings?  
< week ☐ 2-4 weeks ☐ 1month ☐ 2-3 months ☐ never ☐
- xii. Do you communicate or give feedback to the employees concerning SHE findings?

Yes ☐ No ☐

**SECTION C: THE IMPACT OF INADEQUATE SOCIAL DIALOGUE AND WORKER PARTICIPATION ON THE EFFECTIVENESS OF SAFETY MEASURES AT SHAMVA GOLD MINE**

- xiii. Do you discuss OHS issues with the management at Shamva Gold Mine? Yes ☐ No ☐
- xiv. How often do you discuss OHS issues with the management?  
Daily ☐ weekly ☐ monthly ☐ never ☐
- xv. Does social dialogue work in ensuring effective OHS at work? Yes ☐ No ☐
- xvi. Do workers participate in incident investigation and reporting at work? Yes ☐ No ☐
- xvii. If yes above, do they report incidents when they occur? Yes ☐ No ☐
- xviii. What are the impacts of incidents report from workers at the mine?  
Reduced recurrence ☐ improved compliance ☐ improved incidents management  
Other please specify.....
- xix. Are the employees at Shamva Gold mine free to share their views with regards to OHS matters? Yes ☐ No ☐
- xx. Do you consult employees on OHS issues before implementing safety protocols? Yes ☐ No ☐
- xxi. How does inadequate discussion of HSE issues affect safety at the mine?  
.....  
.....

**SECTION D: STRATEGIES TO ENHANCE ENGAGEMENT BETWEEN SHEQ REPRESENTATIVES, MANAGEMENT, AND WORKERS TO IMPROVE SAFETY OUTCOMES AT SHAMVA GOLD MINE**

- xxii. Are there any ways you can suggest to improve engagement between SHEQ representatives, management, and workers to improve safety outcomes at Shamva gold mine?

|                   |                    |                             |          |
|-------------------|--------------------|-----------------------------|----------|
| Provide resources | Effective policies | Improve working environment | Training |
|-------------------|--------------------|-----------------------------|----------|

Other, please specify

.....

- xxiii. How do you rate the effectiveness of strategies in enhancing engagement between SHEQ representatives, management, and workers to improve safety outcomes at Shamva gold mine?

Scale 1= very high, 2=high, 3=medium, 4= low, 5= very low

| Strategies             | 1 | 2 | 3 | 4 | 5 |
|------------------------|---|---|---|---|---|
| Provision of Resources |   |   |   |   |   |

|                           |  |  |  |  |  |
|---------------------------|--|--|--|--|--|
| Top management Commitment |  |  |  |  |  |
| Training of employees     |  |  |  |  |  |
| Policies implementation   |  |  |  |  |  |
| Effective Legislation     |  |  |  |  |  |

xxiv. How do employees get to know what is expected of them with regards to OHS regulations?

|          |             |    |       |              |
|----------|-------------|----|-------|--------------|
| Managers | Supervisors | HR | Peers | Notice Board |
|----------|-------------|----|-------|--------------|

Other, *please*  
*specify*.....

xxv. Mine safety and health is improved through Social dialogue. Please select the most appropriate answer from the list below.

|                |       |          |          |                   |
|----------------|-------|----------|----------|-------------------|
| Strongly agree | Agree | Not sure | Disagree | Strongly disagree |
|----------------|-------|----------|----------|-------------------|

xxvi. Any comments that you may wish to make relating to this research and/ or any other issues that may be missed or omitted in this questionnaire which you find relevant for the research.

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