



An Assessment of Occupational Health and Environmental Safety on Job Performance at the Marampa mines Limited Lunsar. Sierra Leone

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Abstract

For a long time, the issue of occupational health and environmental safety have remained neglected, which leads to poor service delivery in many working environments. The aim of the study, therefore, was an assessment of occupational health and environmental safety on job Performance at Marampa Mines Limited Lunsar.

The study was centred on; identifying any inadequacies in the occupational health and environmental safety measures practices use at the Marampa Mines Limited, determining the effect of occupational health and environmental safety hazards exposures on the work environment at the Mines, examining the roles of the employees, employers in the execution of health and safety programmes in the mining company, assess the level of compliance of occupational health and environmental safety practices by employers and employees.

Data for this research was collected during the period July 30 to September 30, 2022. A descriptive, cross-sectional design with both quantitative and qualitative (mixed method) approaches of the methods was used in conducting the research. The participant's staff at the Marampa Mines Limited Lunsar. The sample size for the study was seventy-nine (79) staff members, chosen from a total population of one hundred (100), comprising five (5) management members and seventy-four (74) subordinates.

The self-administered questionnaire with close-ended questions was used to collect data. Data were analyzed using Microsoft excel and presented with tables, graphs, pie charts and descriptions.

The result supported that 76% of environmental and safety measures practices are put in place in their department. The study found that enhancing awareness among staff on occupational safety and health improves the work environment.

However, there were challenges which affect the successful occupational health and safety at Marampa Mines Limited Lunsar. This was according to the respondents' views, risk of a runaway chemical reaction, training and education of environmental safety and monitoring and inspection.

This study could serve as reference material for either decision-makers of health and environmental safety policies or students in academic research.

Keywords: Marampa Mines Limited Lunsar, Occupational health and safety, Job performance.

Introduction

This study was an assessment of occupational health and environmental safety on job Performance at Marampa Mines Limited Lunsar. Formerly, the workplace was filled with risks and health hazards due to unsafe environments and work practices. It was, therefore, important to understand what health and safety are and what impact it has on employees' performance at the workplace. The study showed how health and safety are related to employee performance, how the employee responds to unhealthy and unsafe work performance practices and what should be done to enhance safety measures for increased safe job performance.

The staff of any industry are key resources to that industry's success. Human asset in the 21st century is considered the most important asset of any company (Hafiza, Shah, Jamsheed & Zaman, 2011). Mining staff, in particular, account for a significant component of the budget of higher productive institutions and has a major role to play in achieving the objectives of the industry (Kuranchie-Mensah & Amponsah-Twiah, 2016).

Since all organizations are concerned with what should be done to achieve sustained high levels of performance through people, it means giving close attention to how individuals perform can best be motivated through, the work they do and the organizational context within which they carry out that work cannot be understated (Wilkinson et al., 2010). Without increased motivation and morale of the employees, the organisation risks losing valuable employees and will be at a disadvantage in attracting potential top talents (Dessler, 2013).

Activities of the production process are inseparable from the use of machines. This put a burden on an employee to be able to use these machines with care to prevent the occurrence of errors in running the machines that could cause accidents. Nevertheless, not only the feasibility of the engine must be considered, but also the environment surrounding the location in which the process of production occurs. When these things are not addressed, then it does not cover the possibility that employees would experience accidents during the production process. These facts alone can put a company to preserve and maintain occupational safety and health (OSH) to be at the centre of their attention (Rotanindo et al., 2012).

Therefore, employee productivity and occupational environmental health and safety have been important fields of interest in the industry, especially in developing countries like Sierra Leone.

Some common characteristics of such industries include inappropriate workplace design, ill-structured jobs, the mismatch between job demands and workers' abilities, adverse environments, poor human-machine system design, and inappropriate management programs. These factors lead to workplace hazards, poor employee health, mechanical hardware injuries, and disabilities, which reduce worker productivity and work/product quality and increase the cost (Shikdar & Sawaqed, 2003). Identifying the reasons for the high rate of accidents and poor industrial safety track records is crucial in developing countries. The lack of experience in developed countries' technology and machinery is quoted as a cause (Kaynak et al., 2016).

Employee health and safety programs should be a major priority for management because they save lives, increase productivity, and reduce costs. These health and safety programs should stress employee involvement, continued monitoring, and an overall wellness component (Jonathan, 2016). Work safety requires that safe working conditions should not create a significant risk of people being rendered unfit to perform their work. Health and safety at work are therefore aimed at creating conditions, capabilities, and habits that enable the worker and his/her organization to carry out their work efficiently and in a way that avoids events which could cause them harm (Garcia-Herrero et al., 2012). Safe working conditions affect the habits of workers, which in turn impacts efficiency. This implies that employees working in a safe condition are likely to perform in a way that will not cause them harm. (Jonathan, 2016)

According to (Takala, 2002) the director of the ILO's safe work program, one of the suspects in the high-rated incidents stated the lack of training and skills in developing nations. Most people in these economies have never worked in heavy industry and only some of them have little experience with hazards like electricity (Perez-Floriano & Gonzalez, 2007).

McLain and Jarrell (2007) suggested that the perceived compatibility of safety and production demands has a positive impact on safe work behaviour and reduced the interference of safety hazards performing other tasks. This is an additional benefit in case of compatibility with safe working behaviour.

This determination can be demonstrated through various ways; e.g. personal care for the health and safety of workers, implementation of workplace safety training programs, participation of occupational safety committees in management, considering safety in work design, and part of job design.

Michael et al. (2005) suggested reviewing the work rate. Shift work disrupts the "sleep-wake" cycle. Sleepiness and tiredness lead to low performance as regards work health and safety (Dorrian et al., 2011). These kinds of ill-designed working systems are abundant in industries. Negligence of ergonomic principles may lead to manpower unproductiveness and accidents. An ergonomically inadequate enterprise may result in physical and emotional stress, low productivity, and poor-quality work outputs (Shikdar & Sawaqed, 2003).

Studies suggested that workers with a negative safety climate perception (e.g., high workload, job pressure) were akin to attempting unsafe acts, which in turn increased the susceptibility of workers to accidents. Similarly, workers with anxiety and stress, due to unsafe work, tended to have lower safety motivation and adaptation, inflicting a higher rate of accidents. Furthermore,

workers with a positive perception of their workplace safety inflicted lesser accidents. The strong commitment of organizations to workplace safety allows an increase in desired worker behaviours and attitudes as well as a decrease in problems associated with occupational safety (Morris et al., 2005). Organizational behaviour is directly associated with the organizational safety climate perception of the workers, which positively influences safe working behaviours of workers and decreases the frequency of accidents, in respective order. Such improvements also support the general well-being and motivation of the workers. This job satisfaction must be addressed technically in the literature (Gyekye, 2005). Health and Safety Rules (SAHR) can be associated with organizational commitment and alienation of workers. Therefore, it can be said that job performance remains to be an important notion in organizational studies and scientific research.

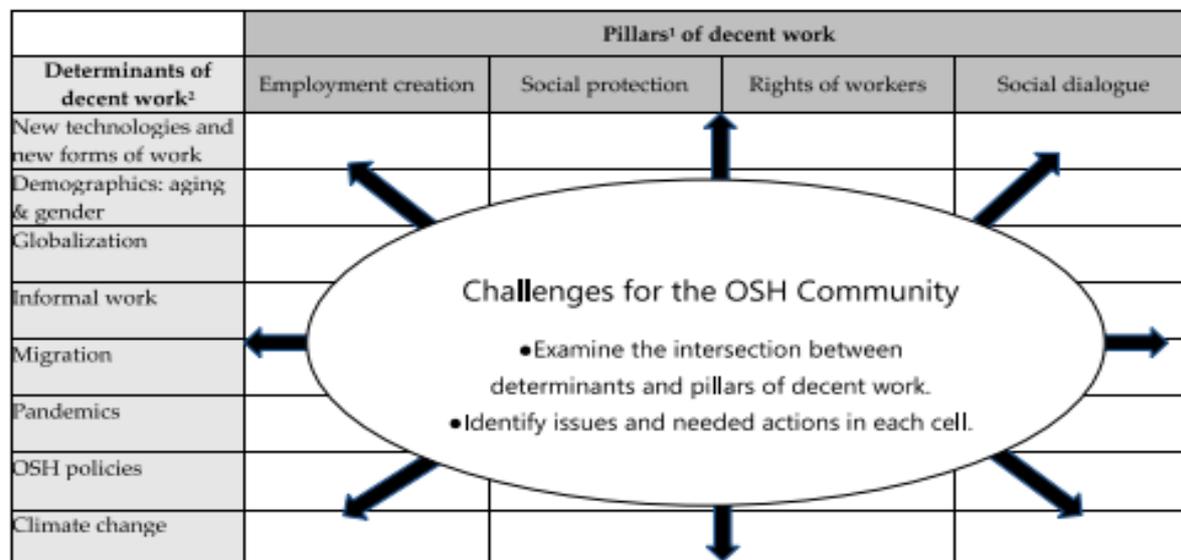
This present study aims to contribute to the literature by assessing occupational health and environmental safety on job performance at the Maramapa Mines Limited Lunsar.

Conceptual framework

This study employs the occupational health and environmental safety (OHES) conceptual framework (Figure 1). This framework was developed to address workplace safety. The Committee on Department of Homeland Security Occupational Health and Operational Medicine Infrastructure, et al., (2014) said, "When Congress passed the Occupational Safety and Health Act of 1970 with the intent of ensuring safe and healthful working conditions in the United States, it found that "personal injuries and illnesses arising out of work situations impose a substantial burden upon, and are a hindrance to, interstate commerce in terms of lost production, wage loss, medical expenses, and disability compensation payments." The underlying assumption is that occupational health and environmental safety influence job performance.

The OHES conceptual framework proposes that occupational health and environmental safety, health and safety measures, health and safety practices and remedies, and compliance with health and safety practices by employers and employees have an impact on job performance in the workplace. Therefore, this study employs OHES to examine the job performance of miners in Maramapa mines Limited Lunsar, Sierra Leone.

The reality is, that non-compliance with occupational safety standards implied the failure to act following a formal requirement such as the use of Personal Protective Equipment mining permits and machinery guards, whereas poor occupational safety conditions were the resultant hazards due to non-compliance. Finally, the legalization and normalization of the mines help to improve occupational conditions through inspections, training and safe work procedures which ensures that safety issues are better managed.



Source: Schulte, et al. (2022, p. 3)

Figure 1. Occupational Safety and Health Staging Framework for Decent Work (World Bank Group, 2019; ILO, 1999)

Literature Review

Webb's (1989) study of the workstation of changes demonstrated a 1,000 per cent productivity increase in less than three months, for the cost of \$5000. Brown et al (1991), Material handling equipment, findings show; an 85% productivity increase; a cost-benefit ratio of 1 to 10. According to the National Safety Council (USA), the College of Insurance and the National Institute for Occupational Safety and Health industry stress count for \$32 billion annually in work-related accidents. According to the Chartered Institute of Personnel Development-CIPD (2007), an absence management survey showed that sickness absence accounts for 8.4% of working time equivalent to 8 working days for each employee each year. 50 The average cost of sickness absence is \$ 659 per employee per year, with absence being one of the HR professionals. Over 5,500 US workers died annually in the early 2000s in workplace accidents, at work roughly 5.1 cases per 100 full-time workers in the United States per year. A related survey involved a survey of about 16,000 employees in Australia, this study focused on the relationships between occupational injuries, and employee satisfaction. The researcher measured satisfaction with items such as "I am satisfied with management treatment" they measure occupational injuries by "having respondents indicating whether they had experienced an injury in the past year" (Dessler, 2005). A study of brain injury in residents of San Diego County, California in 1981 showed that at least 2 million people incur such injuries each year with nearly 500,000 resultant hospital admissions from traumatic head injuries (Gennarelli and Kotapa, 1992). In the year 2003 for example, 226 people lost their lives in the United Kingdom because of accidents sustained at work, most as a result of falls and motor vehicle accidents. The study shows that 6000 people are estimated to have been dying each year from cancers caused by working conditions. Again, over a million people are reported by the Health and Safety Executive to suffer from some form of work-related illness each year (Olowookere & Sang, 2016). The Health and Safety Executive (nd) estimated in 2021/2022, 36.8 million working days are lost due to non-fatal work-related injuries in Great Britain. Furthermore, 30.8 million people say suffer from an

illness they believe was caused by their work (Health and Safety Executive, nd). Muscular disorders including repetitive strain injury (RSI) and back pain are by far the most reported illness with 1.2 million affected and the numbers are rising. The next biggest problem is Stress, which 500,000 people say is so bad that it is making them ill (Armstrong, 2009). Research has established that measures and interventions must be provided to identify and eliminate workplace hazards as well as to the re-adaptation of workers who suffered workplace injuries (Lanoie, 1992). For example, in 1992 the Institute spent C \$17.9 million and approximately 126 employees being policy implementation.

Empirical Reviews in Africa

According to the World Health Organization, Regional Committee for Africa (Report, 2008), In the African Region work-related threats to human health and life are becoming increasingly evident. A report from Regional Director for Africa shows that workers in gold mining in an East African country reported abnormally high concentrations of total mercury in the urine samples of miners exposed to mercury vapour during the burning of gold-mercury amalgams. In the same country, there were injury rates between 10 and 18 per 1 000 workers in the mining, building and construction industries. In the same report, Director for Africa added that, in another East African country, there has been a rate of 7.6 clinical health complaints per worker per year from women working in manufacturing industries. In West Africa, a study revealed abnormal lead levels in blood and urine samples of smelters, automobile mechanics and petroleum retailers. Between 1990 and 1998, one southern African country reported 2 200 accidents and sixteen deaths in agriculture and forestry. The cost of road injuries is estimated at 1% of the gross national product in low-income countries. Work injuries and fatalities caused by cumulative fatigue resulting from lack of sleep, night driving and shift work have also contributed to road traffic injuries. Despite all these work-related health findings, including psychosocial issues, only 5% to 10% of workers in developing countries and 20% to 50% of workers in developed countries have access to occupational health services. In 2001, a survey conducted by the WHO Regional Office in Africa showed the lack of comprehensive occupational health services for workers in the Region despite various WHA resolutions. Of the countries surveyed, 63% conducted risk management; 41% provided information and education; 26% conducted pre-placement medical examinations; 33% provided clinical services for vaccinations, special examinations, and treatment; 7% conducted research, provided an examination for compensation, developed human resources, providing education and counselling on HIV/AIDs and use of tobacco, and collected data related to the health of workers. Policies and legislation on occupational health and safety do indicate a commitment to workers' health. The regional survey showed that 48% of the countries have occupational health legislation 53 and 37% have legislation about labour and health, but in both cases, there is a lack of adequate human resources to monitor applications. The high incidence of endemic disease, conditions related to the use of tobacco and other harmful substances, malnutrition as well as the absence of routine medical check-ups makes workers more vulnerable to uncontrolled biological hazards. The world health report 2002 shows that in the African Region, more than 40% of hepatitis B and hepatitis C cases and more than 3% of HIV infections are caused by risk at work. Some industries in some southern African countries report the negative impact of HIV/AIDs in workplaces.

Legislative Framework of OSH in Sierra Leone

There are no specific Constitutional Provisions made for OSH in the Constitution of Sierra Leone for the safety and Ecological health of workers, although, under Part xvii, the Constitution addresses the "health and safety of the Individual but not in all areas of OSH", and issues of public health and public safety have not been included. The main laws on occupational health and safety in Sierra Leone include;

Sierra Leone No. 12 Mines and Minerals Act, 2009 (Sierra Leone.org, 2010).

Duty of holders of the mineral right to ensure the safety of workers.

Every holder of a mineral right shall-

- a) provide and promote conditions for safe operation and a healthy working environment;
- b) institute measures necessary to secure, maintain and enhance health and safety;
- c) ensure, as far as reasonably practicable, that the mine is commissioned, operated, maintained and decommissioned in such a way that workers can perform their work without endangering the health and safety, of themselves or any other person;
- d) ensure that persons who are not employees, but who may be directly affected by the activities at the mine are not exposed to any hazards to their health and safety;
- e) ensure that all persons working at the mine have the necessary skills, competence and resources to undertake their work safely and to ensure the safety of others;
- f) if the mine is not being worked, take all reasonable steps to continuously prevent injury, ill-health, loss of life and damage of any kind from occurring at or because of the mine; and
- g) establish a policy for the compensation of injured workers

Duties of workers a mine

Every person who works at a reconnaissance, exploration or mining operation shall-

- a) comply with all measures and procedures prescribed or instituted by or on behalf of the holder of a mineral right to ensure health and safety at the mine;
- b) take reasonable care to protect their health and safety and the health and safety of other persons who may be affected by any act or omission of that person;
- c) use and take proper care of all health and safety facilities and equipment provided for the protection, health and safety of that person and other workers;
- d) report promptly to his immediate supervisor, if any, or to the relevant authority, any situation which he believes could present a risk to health and safety and which is not within his competence to control;
- e) co-operate with any person to permit compliance with the duties and responsibilities placed on that person in terms of this Act; and
- f) comply with such health and safety measures as may be prescribed.

Rights of workers at mines

Every person who works at a mine shall have a right to leave the mine when circumstances arise that appear to him, with reasonable justification to pose a danger to the health or safety of that person.

Duty to report the accident

1. Where there is an accident in connection with any operations under a mineral right involving the loss of life or serious injury to any person the holder of the mineral right shall report to the Director or an authorised officer as soon as possible.
2. For subsection (1), the expression serious injury means injury likely to result in the injured person being incapacitated from doing his usual work for at least fourteen calendar days.
3. Every holder of a mineral right shall keep and maintain records of every report made under subsection (1) for at least five years.
4. Every person who contravenes subsection (1) commits an offence and shall be liable on conviction-
 - a. in the case of an individual, to a fine, not less than three thousand dollars, or its equivalent in leones, or imprisonment for a term of two years, or both; or
 - b. in the case of a body corporate to a fine, not less than thirty thousand dollars or its equivalent in leones.

Health and safety regulations

1. The Minister shall by statutory instrument make regulations for securing as far as practicable the health and safety of employees and other persons at reconnaissance, exploration and mining operations.
2. Without prejudice to the generality of subsection

Regulations may provide for-

- a. promoting a culture of health and safety;
- b. providing for the enforcement of health and safety measures;
- c. giving effect to international legal obligations of the Republic relating to mining health and safety;
- d. providing for appropriate systems of employee, employer and government participation in health and safety matters;
- e. providing for effective monitoring systems and inspections, investigations and inquiries to improve health and safety in the mining sector;
- f. promoting training and human resources development;
- g. regulating employers' and employees' duties to identify hazards and eliminate, control and minimise the risk to health and safety;
- h. entrenching the right to refuse to work in dangerous conditions;
- i. the safety of the public and the safety and welfare of persons employed in mines and the carrying on of mineral operations in a safe proper and effective manner;
- j. the reporting of accidents;
- k. the protection of shafts, pits, tunnels, excavations and other dangerous places in mines; and
- l. the examination of mines by authorized officers (Mines & Act, 2010).

Research Gap

Most of the studies that have been conducted on occupational health and safety focused on the enforcement of rules and laws on OHS, compliance with OHS, perceptions of OHS, training on OHS and the importance of OHS in industry. Therefore, there seems to be a gap in the studies as the authors did not look at how occupational health and environmental safety on job performance can prevent the occurrence of accidents and injuries in the mining industries. An assessment of occupational health and environmental safety would enable workers to understand training on health and safety and their behaviour and attitude towards health and safety rules would change positively and this would lead to the prevention of accidents and injuries in mining companies. Furthermore, very few studies have been conducted on occupational health and safety in the mining industries, especially how the implementation of an assessment of occupational health and environmental safety on job performance and how could lead to positive behavioural change thereby reducing accidents and injuries in the mining companies. This study is intended to try to influence employers and owners to emphasize OHS programmes in their organization to gain competitive advantages and achieve sustainable development. It is because of these gaps that the study will be undertaken.

Methods and Materials

This research adopted a cross-sectional design to collect data from the sampled respondents. Data for this research was collected during the period July 30 to September 30, 2022. A standardized instrument was designed and used to collect data from the respondents.

Study site

The Marampa mine is a Brownfield Haematite Iron Ore Mine located approximately 150km northeast of Freetown in Sierra Leone, West Africa. 100% owned by London Mining, the project includes a 319km² exploration licence that borders the Marampa mining lease, which was mined extensively between 1933 and 1975 by the Development Corporation of Sierra Leone (DELCO). The property was acquired by London Mining in 2006. Marampa Mines Limited a subsidiary of Gerald Group Limited, is engaged in the development and production of iron ore concentrate from estimated resources of approximately 1.7B tonnes at Marampa in the Port Loko District of the northern province of Sierra Leone. The Company, 90% owned by the Gerald Group, with the remaining 10% owned by the Government of Sierra Leone, is committed to being a globally competitive, world-class iron ore concentrate producer.

[Marampa Haematite Iron Ore Mine - Mining Technology \(mining-technology.com\)](http://mining-technology.com)

Lunsar community

Lunsar is a town in Marampa Chiefdom, Port Loko District in the Northern Province of Sierra Leone. It is the largest town in Port Loko District by population. The Britannica estimate of the population of Lunsar is 36,108. The town is one of the main commercial and business hubs in the North of Sierra Leone. Lunsar lies approximately 50 miles east of Freetown and about 18 miles

southeast of the district capital of Port Loko. The inhabitants of Lunsar are largely from the Temne ethnic group. ([Lunsar - Wikipedia](#))

Study population

The target population for the collection of the data for the research were employees and employers in various departments and units. The office staff, production staff, administration workers, guards, environmental health and compliance officers etc formed the sample frame for the study. One hundred staff made up of the study population. However, during the period of the study, only seventy-nine staff members were at the post. The rest were on either maternity leave or annual leave. Based on the nature of the study population, convenience sampling was used to collect data from the sampled population. The sample size for the study was seventy-nine (79) staff members, chosen from a total population of one hundred (100), comprising five (5) management members and seventy-four (74) subordinates. A self-administered questionnaire with close-ended questions was used to collect data. The data were entered, retrieved, and analyze using the Statistical Packages for the Social Sciences for Windows, Version 28.0. Descriptive statistics and cross-tabulations were used to analyze the data, and 5% was used to determine the level of statistical significance. The data were presented using tables and graphs.

Results and Findings

The study targeted 100 respondents, out of whom 79 were reached and their views collected, this gives a questionnaire return rate of 79%, which was good enough for analysis and reporting. Mugenda and Mugenda, (2003) noted that a response rate of 50% is acceptable for analysis and adequate for inference purposes.

Response turnout Rates

Table 1 represents the number of questionnaires administered, and returned, and the response rate based on location.

Table 1: Response Rate to Questionnaire per mine

Name of site	The number of questionnaires administered	The number of filled questionnaires returned	Number of Questionnaires not returned	Response rate %
Site 1	50	50	0	100%
Site 2	50	29	0	58%
Total	100	79	0	79%

Table 2: General information of study participants at the mines

Option	No. of Respondents	Percentage %
Supervisor	23	29%
Employee	48	61%
Other (Specify)	8	10%
Total	79	100%

Table 2 above shows general information about employers, employees, and others at Marampa Mines Limited who were administered questionnaires. The analysis shows that (29%) of the respondents were supervisors, (61%) of the respondents were an employee who gives a higher percentage and (10%) represents others and that sum up (100%) of the respondents.

Table 3: General information of participants on the educational level

Educational level		
Option	No. of respondents	Percentage %
Primary education	4	5%
Secondary education	11	14%
Vocational/Technical	12	15%
Diploma education	7	9%
Graduate Education	45	57%
Total	79	100%

Table 3 above shows general information on employers and employees at the educational level at Marampa Mines Limited. The majority represent graduate education (57%), technical/vocational education with (15%), diploma education represents (14%), secondary education represents (14%), and primary education represents (9%) of respondents which sums to (100%). This justifies the use of the questionnaire method as many respondents were able to fill out the questionnaires.

Table 4: General information of participants on work experience

Option	No of Respondents	Percentage
Less than two years	17	22%
Two years	10	13%
More than two years	52	66%
Total	79	100%

Table 4 above shows general information on employers' and employees' work experience at Marampa Mines Limited. The majority of the respondents had worked at the mining company for more than two years.

1. Inadequacies of occupational health and environmental safety measures practices

A question that sought to find out from respondents the inadequacies of occupational health and environmental safety measures practices

Table 1.1: understanding of occupational health and environmental safety

Option	No. of Respondents	Percentage %
Employees' overall welfare	5	6%
Employers' overallwelfare	8	10%
Both employer's and employee's overallwelfare	11	14%
Employers, employees and third-party overallwelfare	47	59%
others, please	8	10%
Total	79	100%

From table 1.1., it can be observed that 5 respondents representing 6% indicated that occupational health and safety is welfare for employees in the mines, 8 respondents representing 10% indicated that occupational health and safety welfare is for only employers, another 8 respondents who represent 10% also indicated that occupational health and safety comprises both employees and employers. However, it can be observed that 47 respondents who represent 59% indicated that occupational health and safety comprises employees, employers and third parties.

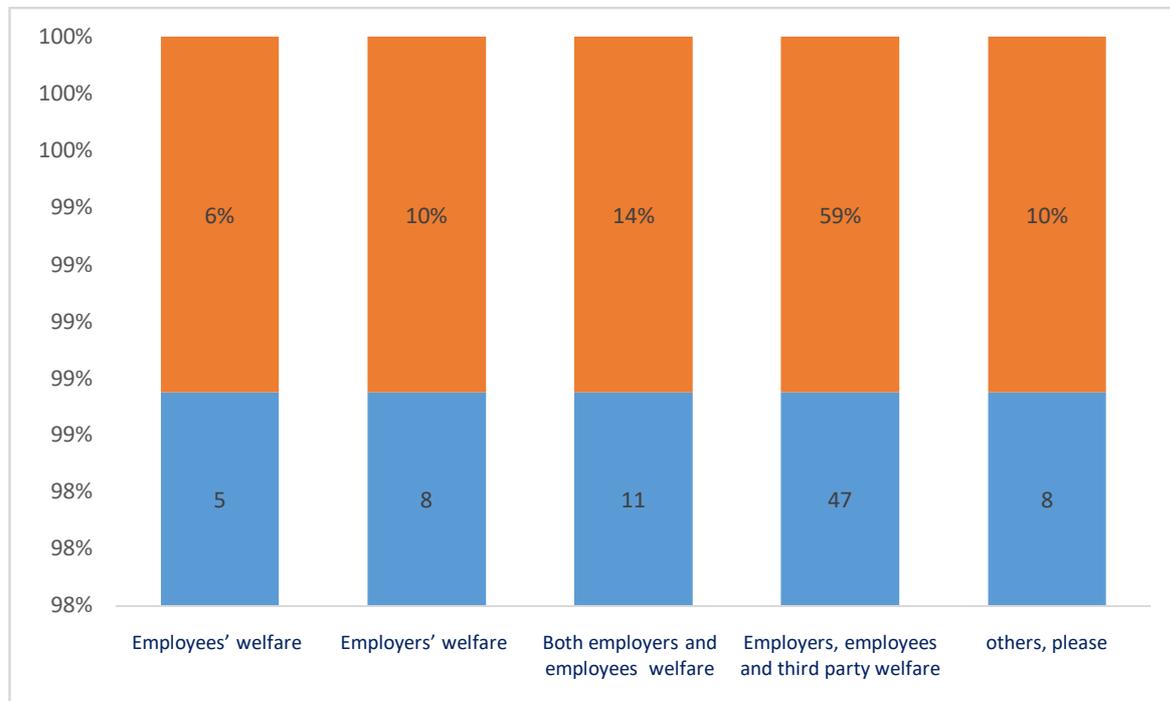


Figure 2: understanding of occupational health and environmental safety

The table and graph show that staff understand that health and safety is a comprehensive issue that matters to management, and the workforce, and considers the security of all other stakeholders as well. The Cambridge Advanced Learner's Dictionary defines "welfare" as "well-being". Therefore, health and safety are strictly aspects of employee welfare, which have been separately identified as being significant areas of welfare provision for some time.

2. Health and environmental safety measures programmes in the mining site

A question that sought to find out from respondents if there were any health and environmental safety measures programmes in the mining site.

Table 2.2: Health and environmental safety measures programmes in the mining site

Option	No. of Respondents	Percentage %
Yes	77	97%
No	2	3%
Total	79	100%

From table 2.2 above, 77 respondents representing 97% indicated that there are health and environmental safety programmes in the mining site and 2 respondents representing 3% indicated that there are no health and environmental safety measures programmes in the mining site.

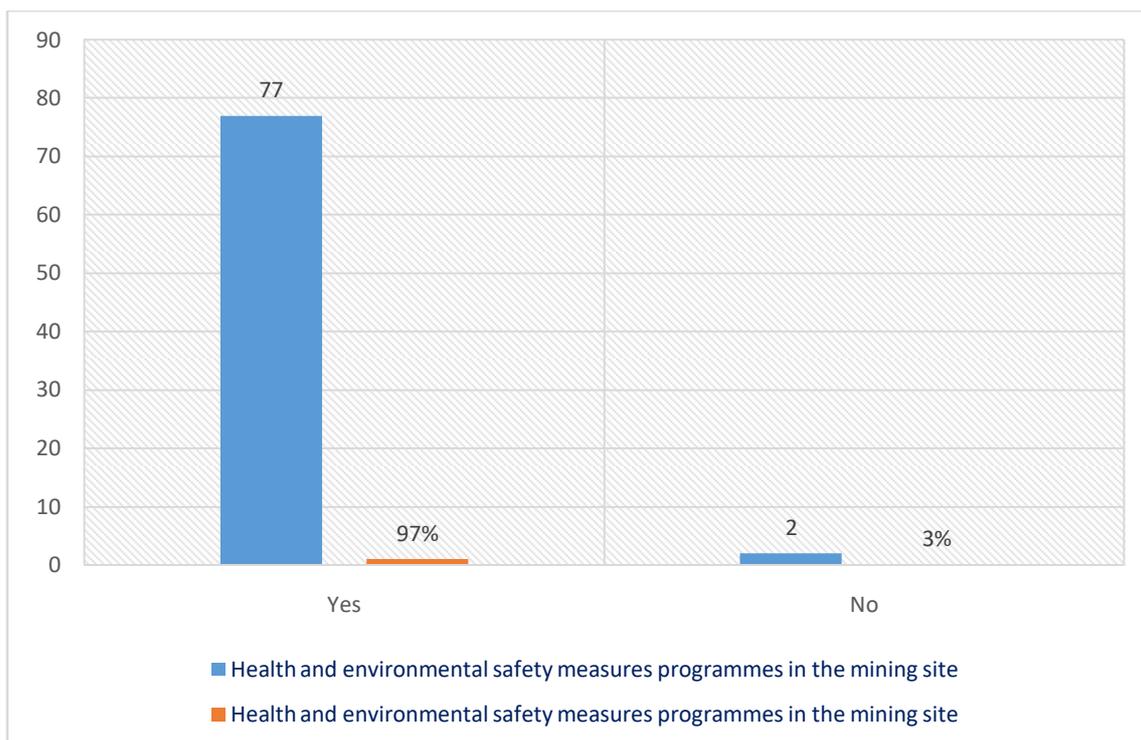


Figure 3: A graph of health and environmental safety measures programmes in the mining site

From the graph, the responses indicate that staff are aware of the health and environmental safety measure programmes in the mining site (Figure 3).

3. Some of the safety measures put in place in your department

A question that sought to find out from respondents what some of the health and environmental safety measures are put in place in their department.

Table 3.3: Safety measures put in place in the department

Option	No of Respondents	Percentage %
Safety training as part of orientation on first employment	8	10%
Proper disposal of waste	4	5%
Regular monitoring of safety and health standards to ensure they are complied with	7	9%
Using protective clothing		0%
Prompt reporting of accidents/injuries		0%
Re-training on safety and health practices		0%
All of the above	60	76%
Others	0	0%
Total	79	100%

From the table above, 60 respondents representing 76% indicated that environmental and safety measures practices are put in place in their department. However, less training was done in most of the areas.

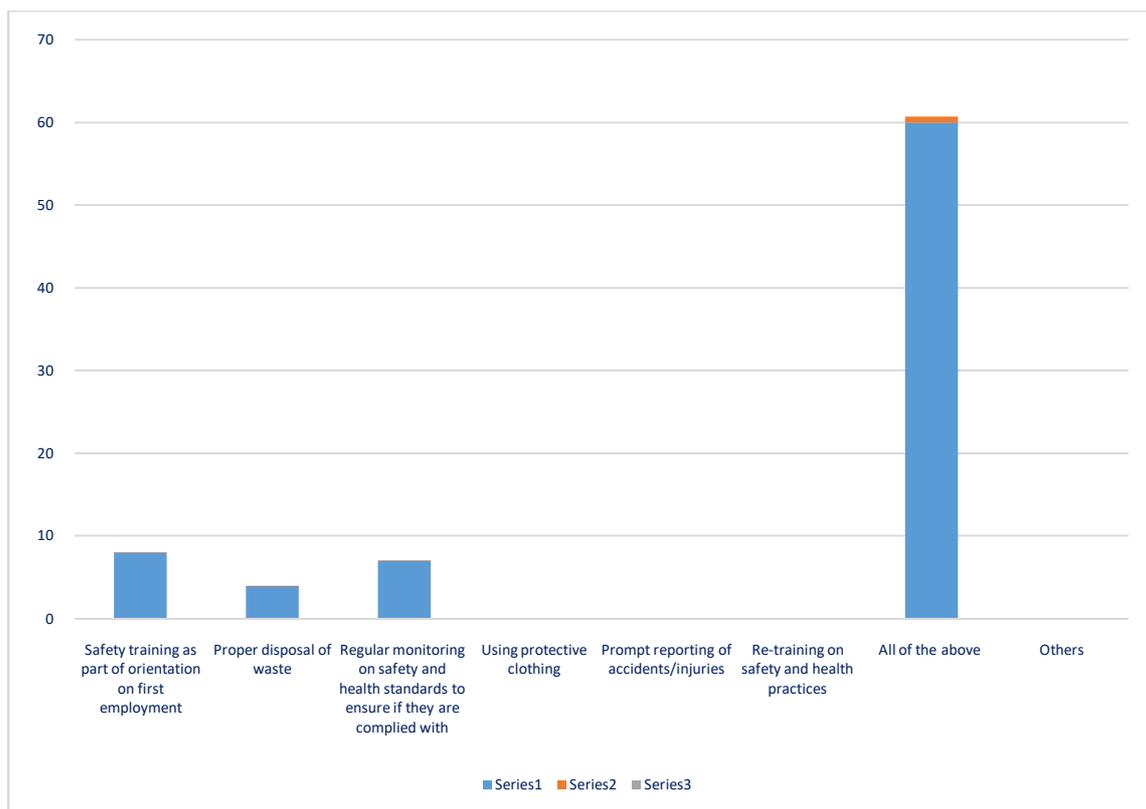


Figure 4: A graph describing safety measures put in place at various departments

From graph 4, the findings revealed that staff are aware of the safety and environmental measures put in place. However, much need to be done in the training of health and safety.

4. Satisfaction with the current occupational health and environmental safety measures put in place

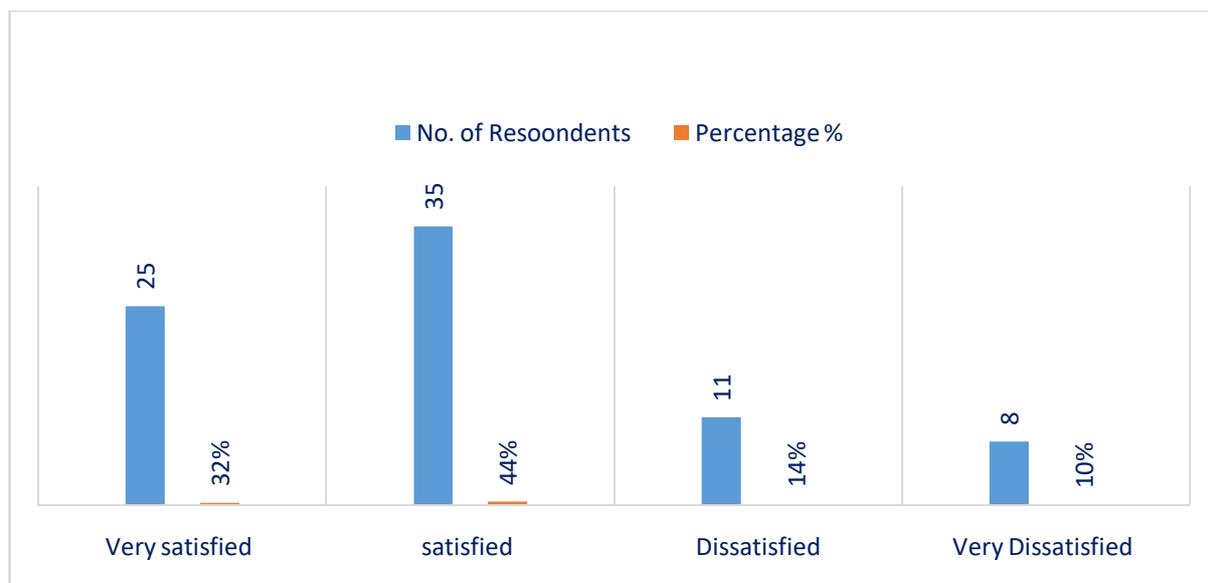
A question was intended to find out from respondents how satisfied they are with the current occupational health and environmental safety measures.

Table 4.4: Satisfaction of current occupational health and environmental safety measures

Option	No. of Respondents	Percentage %
Very satisfied	25	32%
satisfied	35	44%
Dissatisfied	11	14%
Very Dissatisfied	8	10%
Total	79	100%

Source: Researcher's Survey, (2022)

From table 4.4, it can be observed that 35 respondents representing 44% indicated that they are satisfied with the current occupational health and safety measures in place, whereas 11 respondents with 14% stated that they are dissatisfied with the current occupational health and safety measures in place in the mines.



Source: Researcher’s survey, (2022)

Figure 5: Graph with current occupational health and environmental safety measures

The responses from the graph and table above indicated that much is being done about occupational health and safety.

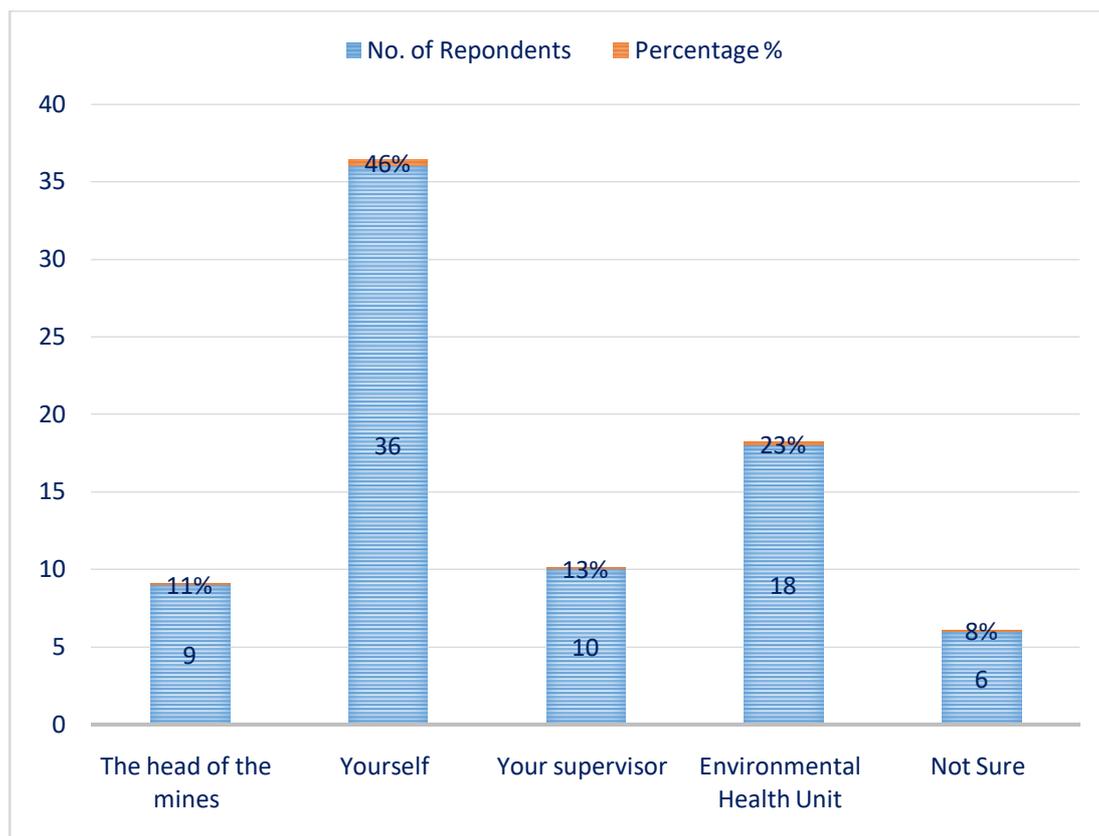
5. Responsibility for occupational health and environmental safety measures in the performance of your duties

A question that was intended to find out from respondents who is responsible for occupational health and environmental safety measures.

Option	No. of Respondents	Percentage %
The head of the mines	9	11%
Yourself	36	46%
Your supervisor	10	13%
Environmental Health Unit	18	23%
Not Sure	6	8%
Total	79	100%

Source: Researcher’s survey, (2022)

As shown in table 5.5.6 9 respondents representing 11% of respondents indicated that occupational health and safety is the ultimate responsibility of the head of the mines. On the other hand, 36 respondents representing 46% indicated that occupational health and safety is more of an individual staff member's responsibility than management, supervisors or any other person, department, or unit. 10 respondents representing 13% indicated that occupational health and safety is the responsibility of their supervisors, whereas 18 respondents representing 23% showed that the environmental health unit is responsible for their health and safety in the hospital and 6 respondents representing 8% indicated not sure.



Source: Researcher's survey, (2022)

Figure 6: A graph indicating who is responsible for occupational health and safety measures

The analyses shown from the table and graph above showed it is obvious to see that staff recognize the fact that as individuals their health and safety are in their own hands. This is in line with Gany, Desler et al. (1942), who state that employers are responsible for taking every reasonable precaution to ensure the health and safety of their workers. This is called the "due diligence" requirement.

6. Occupational Safety and health hazards and risk Exposure in the work environment

This section analyses interprets, presents and discusses findings about the second objective of the study; to determine the effects of occupational safety and health hazards exposure on the work environment in Marampa Mines Limited

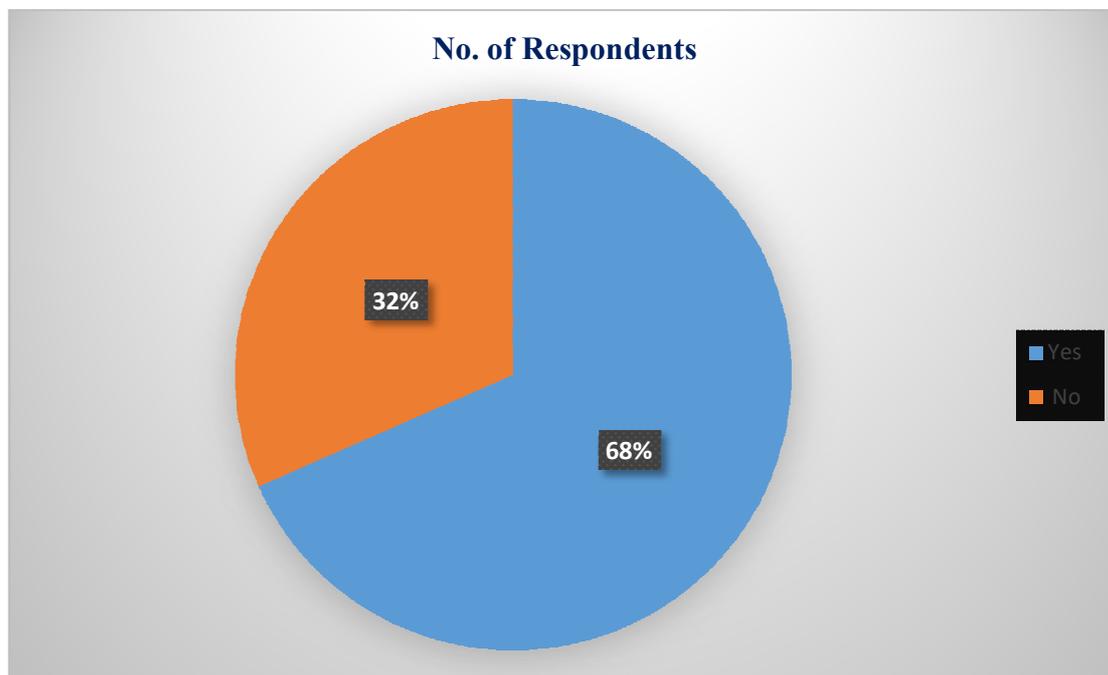
A question that was intended to find out from respondents if there is a risk of an object falling from a height (potential or gravitational energy)

Table 6.1 a risk of an object falling from a height

Option	No. of Respondents	Percentage %
Yes	54	68%
No	25	32%
Total	79	100%

Source: Researcher's survey, (2022)

From the table above, 54 respondents representing 68% indicated that there is an object falling from height and 25 respondents representing 32% indicated that there is no object falling.



Source: Researcher’s survey, (2022)

Figure 7: A pie chart describing the risk of an object falling from a height

The analyses from the table and pie chart above shows it is obvious to see that staff recognize the fact that there is a risk of an object falling from height at the mines site.

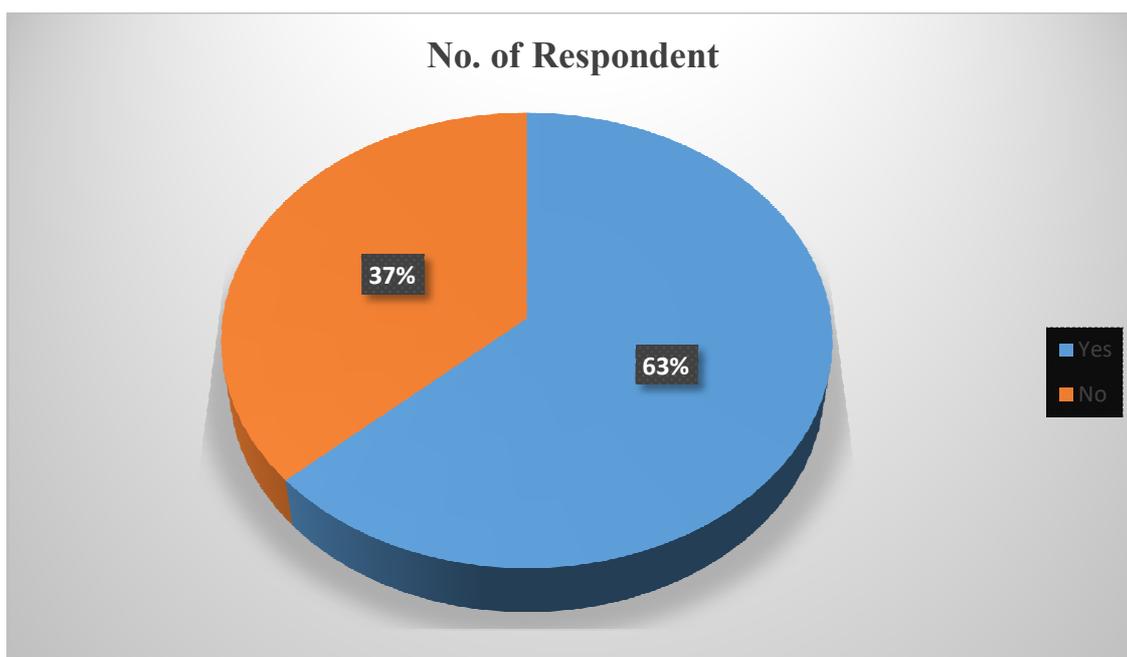
A question that was intended to find out from respondents if there is a risk of a run-away chemical reaction or a release of compressed gas or steam

Table 6.2: risk of a run-away chemical reaction or a release of compressed gas or steam

Option	No. of Respondent	Percentage %
Yes	50	63%
No	29	37%
Total	79	100%

Source: Researcher’s survey, (2022)

From the table above, 50 respondents representing 63% indicated that there is a risk of a run-way chemical reaction or release of compressed gas or steam from the mining sites and 29 respondents representing 37% indicated that there is no run-way chemical or release of compressed gas or steam from the mining sites.



Source: Researcher’s survey, (2022)

Figure 8: A pie chart of risk describing a run-away chemical reaction or a release of compressed gas or steam

The analyses from the table and pie chart above indicate it is obvious to see that staff recognize the fact that there is a risk of a run-away chemical reaction or a release of compressed gas or steam at the mining sites. It was revealed from a similar study according to Ng'ang'a et al. (2013), that waste from mining sites may contain potentially hazardous chemicals depending on the source, drinking water treatment processes and industries or mining sites discharging to the sewer, including chlorinated organic solvents and pesticides, PCB’s, polycyclic aromatics, petroleum hydrocarbons, flame retardants, nitrosamines, heavy metals, asbestos, dioxins and radioactive materials.

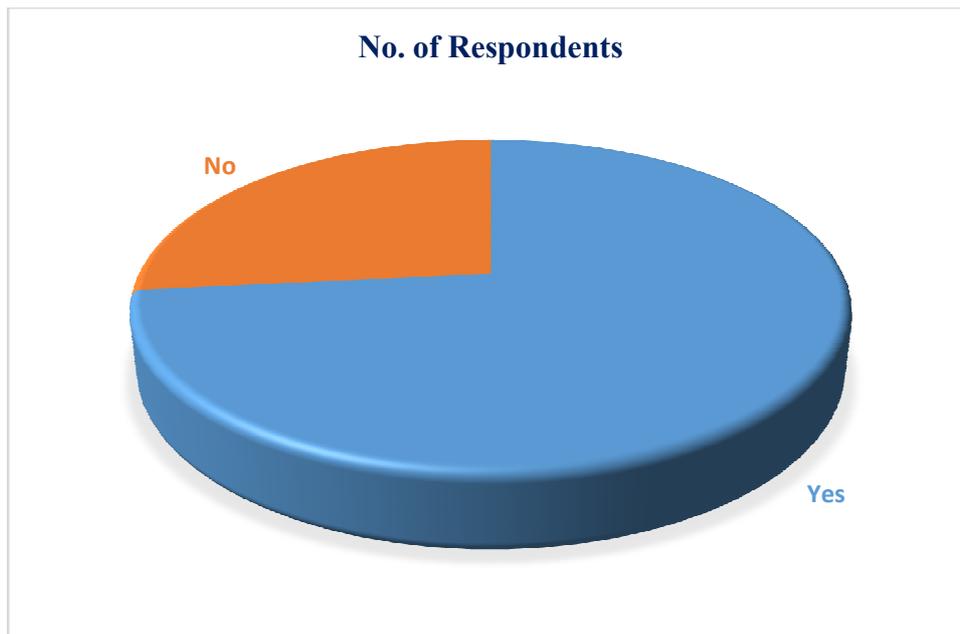
A question was intended to find out from respondents if there is exposure to hazards in the workplace that cause injury, illness, or other adverse health effects at the mining sites.

Table 6.3: exposure to hazards in the workplace

Option	No. of Respondents	Percentage %
Yes	58	73%
No	21	27%
Total	79	100%

Source: Researcher’s survey, (2022)

From the table above, 58 respondents representing 73% indicated that there is exposure to hazards in the workplace that cause injury, illness, or other adverse health effects from the mining sites and 21 respondents representing 27% indicated that there is no exposure to hazards in the workplace that cause injury, illness, or other adverse health effects from the mining sites.



Source: Researcher’s survey, (2022)

Figure 9: A pie chart describing exposure to hazards in the workplace

The analyses from the table and pie chart above show it is obvious to see that employers and employees recognise the fact that there is exposure to hazards in the workplace that cause injury, illness, or other adverse health effects from the mining sites. This meant that if the exposure to hazards and risks is reduced the work environment would improve. Similar research conducted by Ng'ang'a et al. (2013) explains the indirect proportionality; that there are aspects of the work environment that have the potential of causing immediate and sometimes violent harm to a worker hence affecting performance; these include poorly maintained equipment, unsafe pieces of machinery, and exposure to hazardous chemicals among others.

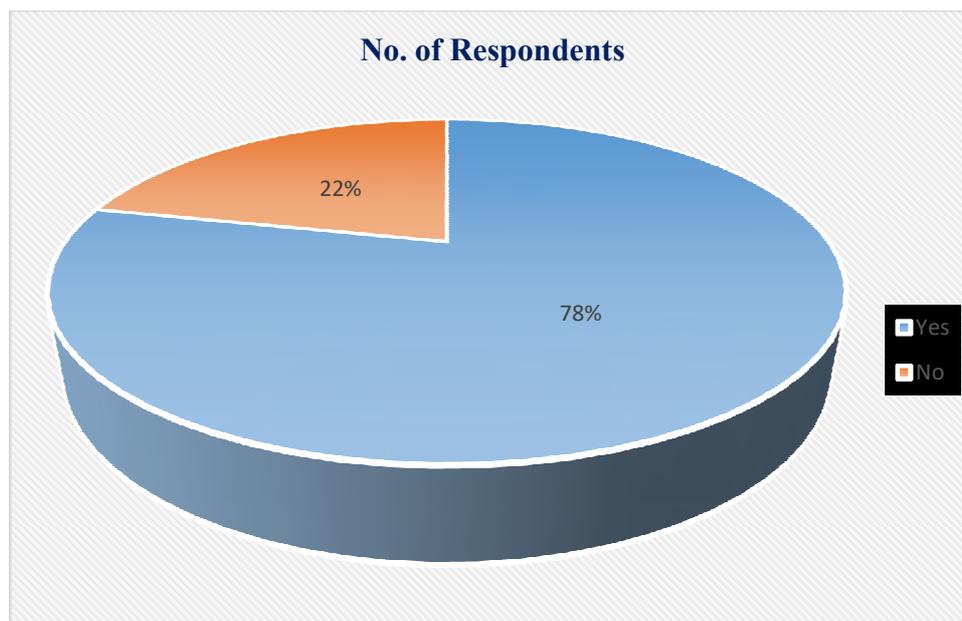
A question that was intended to find out from respondents if there is inadequate or poor lighting at the workplace

Table 6.4: inadequate or poor lighting at the workplace

Option	No. of Respondents	Percentage %
Yes	62	78%
No	17	22%
Total	79	100%

Source: Researcher’s survey, (2022)

From the table above, 62 respondents representing 78% indicated that there is adequate or good lighting at the workplace from the mining sites and 17 respondents representing 22% indicated that there is no Inadequate or good lighting at the workplace from the mining sites.



Source: Researcher’s survey, (2022)

Figure 10: A pie chart describing adequate or good lighting at the workplace

The analyses from the table and pie chart above show it is obvious to see that employers and employees recognise the fact that there is adequate or good lighting at the workplace from the mining sites.

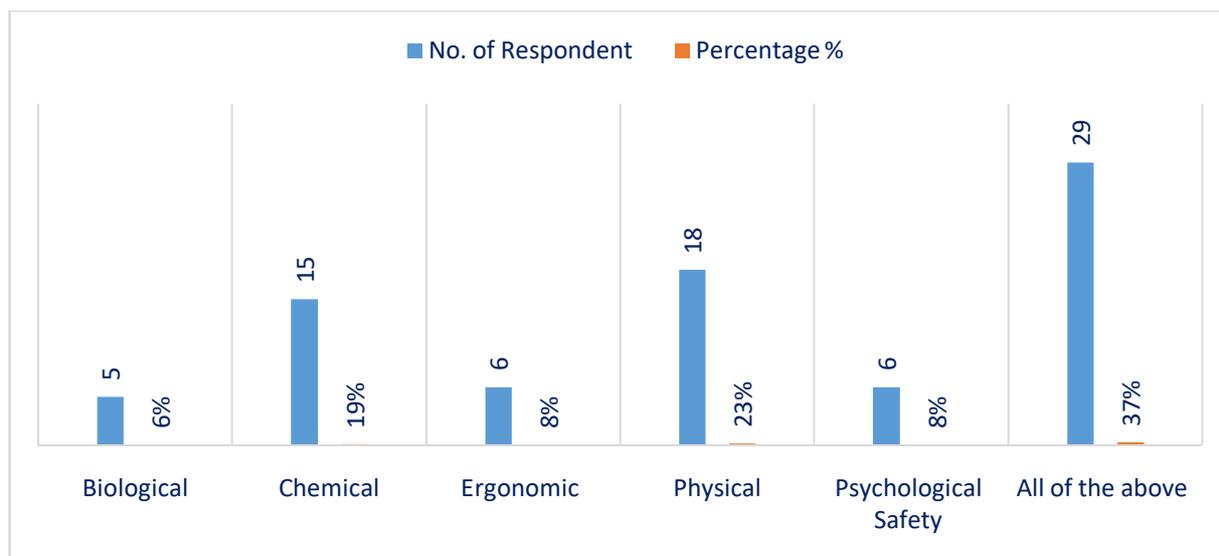
A question was intended to find out from respondents what type of hazards they are exposed to at the workplace.

Table 6.5: type of hazards exposed to at the workplace

Option	No. of Respondent	Percentage %
Biological	5	6%
Chemical	15	19%
Ergonomic	6	8%
Physical	18	23%
Psychological Safety	6	8%
All of the above	29	37%
Total	79	100%

Source: Researcher’s survey, (2022)

From the table above, 5 respondents at 6% stated that they were exposed to biological, 15 respondents at 19% were exposed to chemical hazards at the workplace, 6 respondents at 8% stated ergonomic, 18 respondents at 23% stated physical, 6 respondents at 8% stated that they were exposed to psychological safety while 29 respondents at 37% which is the highest rated all of the above at the workplace.



Source: Researcher’s survey, (2022)

Figure 11: A graph describing the type of hazards exposed at the workplace

The analyses from the table and graph above show, it is obvious to see that employers and employees recognise the fact that they are exposed to all the hazards at the workplace from the mining sites.

According to EUROFOUND (2007), a great percentage of workers in current jobs are exposed to work-related health risks. They contended that the effect of occupational well-being and security of workers depended on the types of hazards faced. These include physical hazards such as radiation, and noise, chemical hazards such as asbestos, and disinfectants, ergonomic hazards such as raising of bulky equipment, poor work postures, irregular work situations such as night work, shifts/rotations, irregular workdays and finally workplace violence such as harassment. The Bureau of Labour Statistics in the US reported that in 2011, 58,860 job-place injuries and illnesses made workers absent from work.

7. The role of the employees, and employers in the execution of health and safety programmes

This section analysis interprets, presents, and discusses findings about the third objective of the study; To examine the roles of the employees, and employers in the execution of health and safety programmes in the mining company at Marampa Mines Limited.

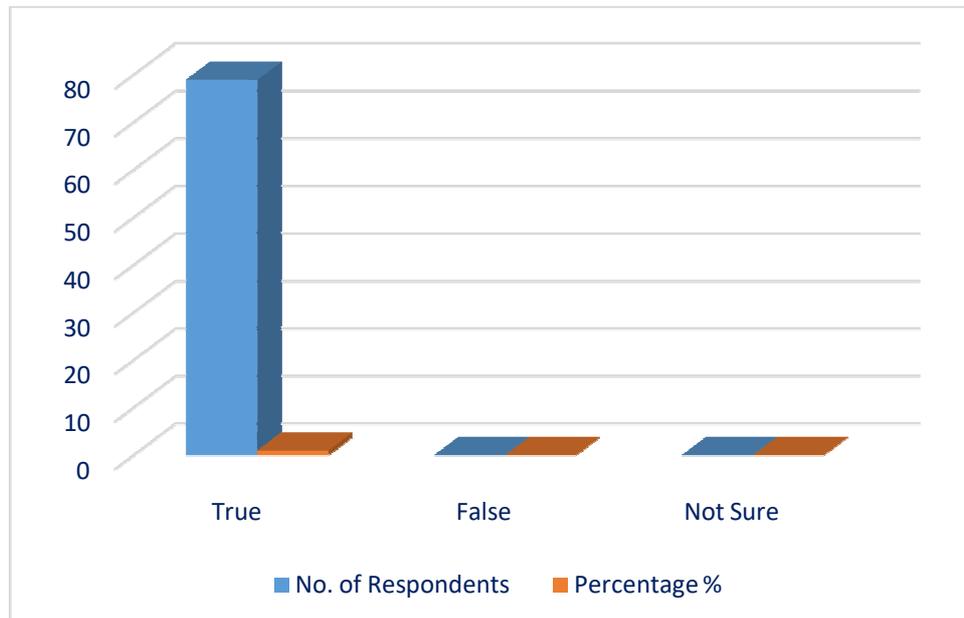
A question that was intended was to find out from respondents if Staff is required to put on protective clothing in the performance of their duties at the workplace.

Table 7.1: Staff are required to put on protective clothing in the performance of their duties

Option	No. of Respondents	Percentage %
True	79	100%
False	0	0%
Not Sure	0	0%
Total	79	100%

Source: Researcher’s survey, (2022)

From table 7.1, all 79 respondents, representing 100% indicated that they are required to put on protective clothing in the performance of their duties.



Source: Researcher’s survey, (2022)

Figure 12: A graph describing Staff are required to put on protective clothing in the performance of their duties

From the table and graph above, staff know that they are to protect themselves well while performing their lawful duties to avoid accidents and injuries.

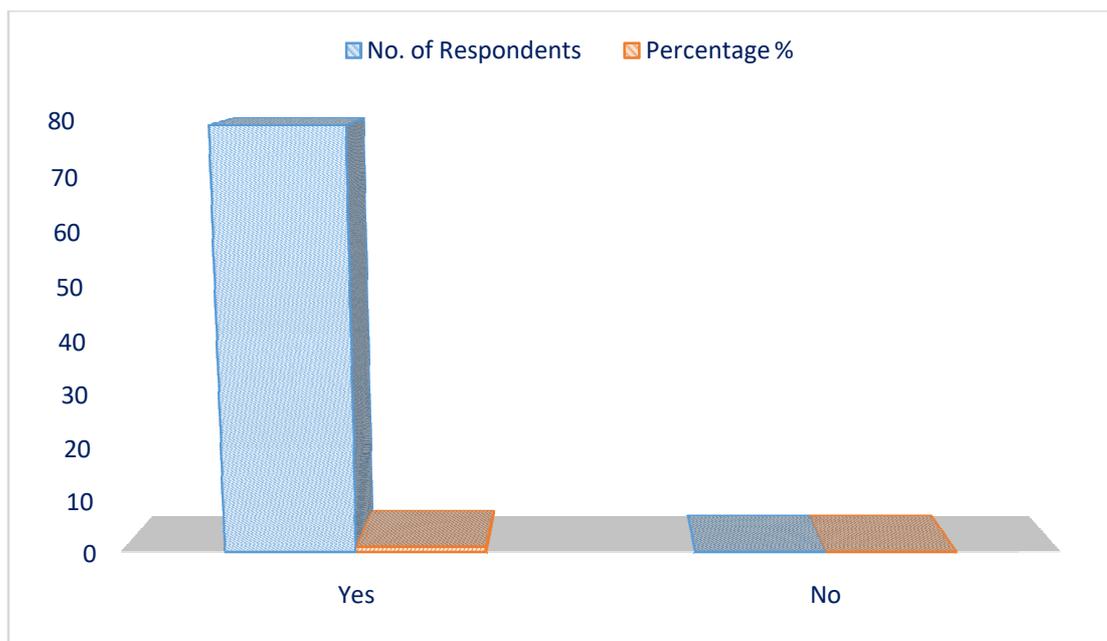
A question that sought to find out from respondents if they agree that both employers and employees have responsibilities and rights for effective occupational health and safety.

Table 7.2: responsibilities of employees and employers

Option	No. of Respondents	Percentage %
Yes	79	100%
No	0	0%
Total	79	100%

Source: Researcher’s survey, (2022)

From table 4.7.2 above, it can be realized that all 79 respondents, representing 100% indicated that both employees and employers have responsibilities and rights for effective occupational health and safety.



Source: Researcher’s survey, (2022)

Figure 13: Responsibilities of employees and employers

From the table and graph above, staff know that they are to that both employees and employers have responsibilities and rights for effective occupational health and safety.

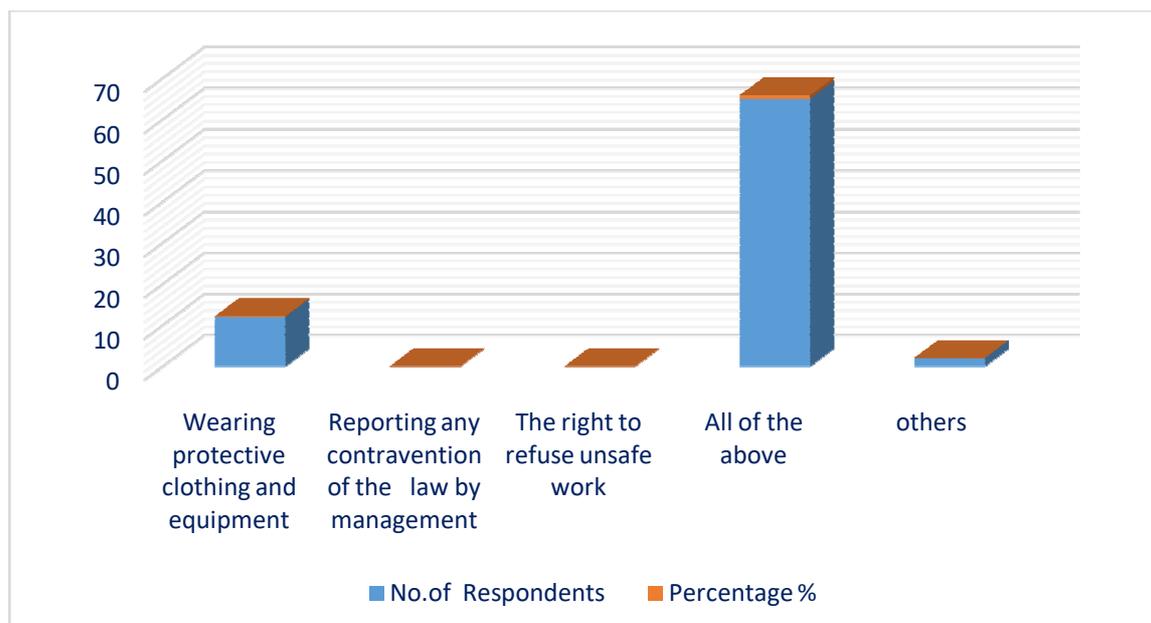
A question that sought to find out from respondents what some of the responsibilities and rights of employees are.

Table 7.3: some of the responsibilities and rights of employees

Option	No. of Respondents	Percentage %
Wearing protective clothing and equipment	12	15%
Reporting any contravention of the law by management	0	0%
The right to refuse unsafe work	0	0%
All of the above	65	82%
Others	2	3%
Total	79	100%

Source: Researcher’s survey, (2022)

From table 7.3 above, it can be realized that 65 respondents, representing 82% indicated all the above are rights and responsibilities of the employees, while 12 respondents representing 15% indicated that wearing protective clothing and equipment should be the rights and responsibilities of the employees at the workplace.



Source: Researcher’s survey, (2022)

Figure 14: A graph describing some of the responsibilities and rights of employees

From the table and graph above, it is clear that employees know they have the rights and responsibilities to all of the above responsibilities and rights for effective occupational health and safety at the workplace.

A similar study carried out by Thobora et al. (2015) supported this finding by explaining that employees have the rights and responsibilities to be adequately instructed and trained in safe systems of work such as safe methods for carrying out tasks, safe use of equipment or substances, use of health and safety control measures and personal protective equipment, accident reporting and emergency procedures and their responsibilities for health and safety.

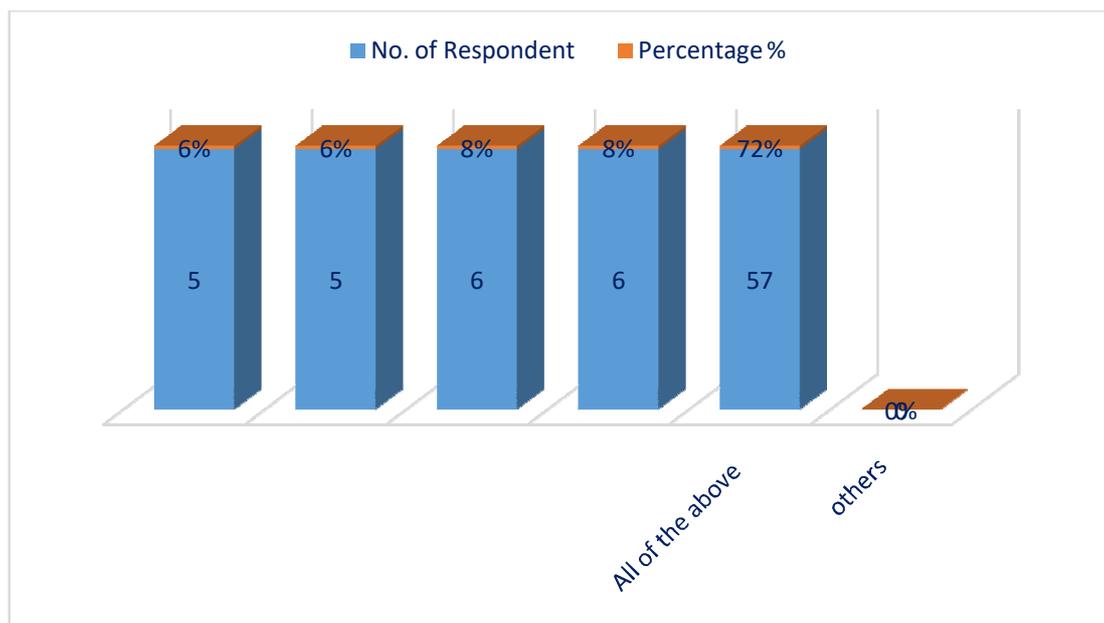
A question that sought to find out from respondents what some of the responsibilities and rights of employers are.

Table 7.4: some of the responsibilities and rights of employers

Option	No. of Respondent	Percentage %
Filing government accident reports	5	6%
Maintaining records on health and safety issues	5	6%
Posting safety notices and legislative information	6	8%
Providing education and training on health and safety	6	8%
All the above	57	72%
Others	0	0%
Total	79	100%

Source: Researcher’s survey, (2022)

From table 7.4 above, it can be realized that 57 respondents, representing 72% indicated all of the above are rights and responsibilities of the employers, which represents the highest views of respondents to be the rights and responsibilities of the employers at the workplace.



Source: Researcher’s survey, (2022)

Figure 15: A graph describing some of the responsibilities and rights of employers

From the table and graph above, it is clear that employers know they have the rights and responsibilities to the above responsibilities and rights for effective occupational health and safety at the workplace.

This representation was in line with a similar study conducted by Thobora et al. 2015 that revealed that employers are expected to carry out a training needs analysis and then provide to employees in appropriate languages as part of their rights and responsibilities: the information, instruction, training and supervision necessary for them to work safely. In identifying training and literacy of the employees, the plant and substances used, hazards identified, and risk assessment conducted.

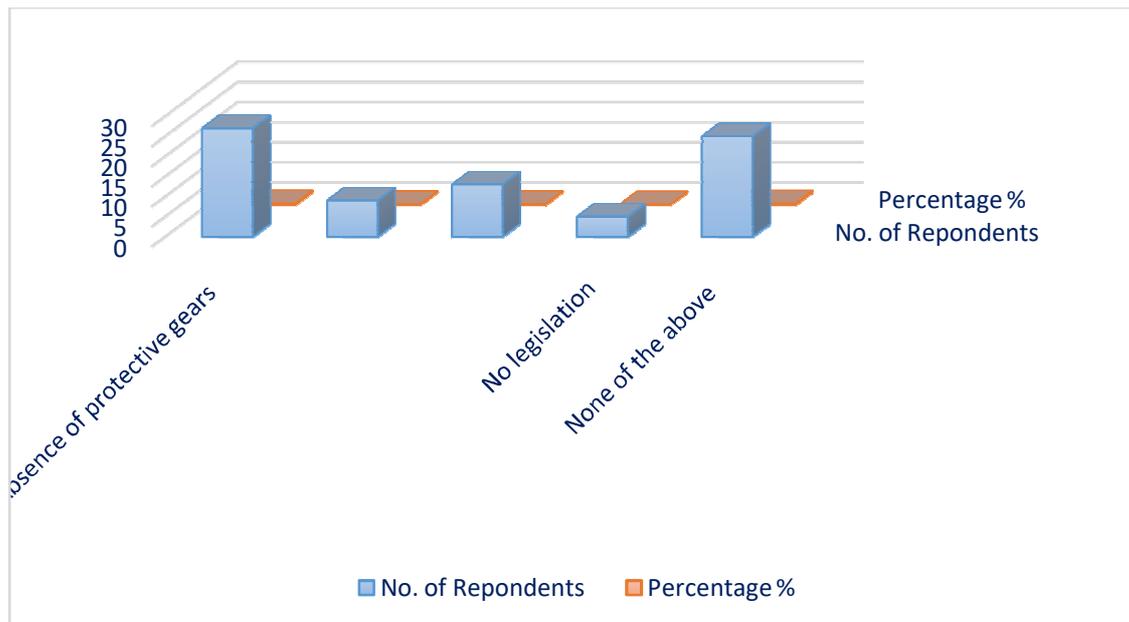
A question that sought to find out from respondents if any sign of ignoring the health and environmental safety practices of employees in the mining sites.

Table 7.5 sign of ignoring health and environmental safety practices

Option	No. of Respondents	Percentage %
Absence of protective gears	27	34%
Increase number of work-related accidents	9	11%
New diseases due to working conditions	13	16%
No legislation	5	6%
None of the above	25	32%
Total	79	100%

Source: Researcher’s survey, (2022)

From table 7.5 above, it can be realized that 27 respondents, representing 34% indicated that there is an absence of protective gear, while 25 respondents representing 32% stated none of the above health and environmental safety practices was not ignored at the workplace.



Source: Researcher’s survey, (2022)

Figure 16: A graph describing signs of ignoring health and environmental safety practices

From the table and graph above, it is noted that the employer did not ensure that personal protective equipment was available to all employees at all times.

8. The level of compliance with occupational health and environmental safety practices by employers and employees.

This section analysis interprets, presents, and discusses findings about the fourth objective of the study; to assess the level of compliance with occupational health and environmental safety practices by employers and employees.

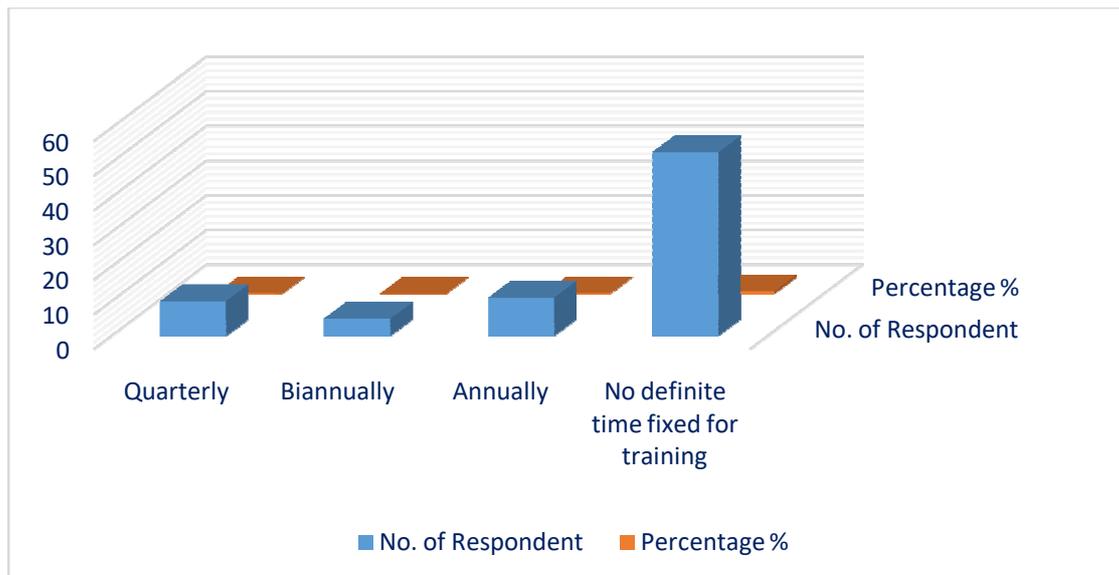
A question was intended to find out from respondents how regular training is organized for staff on occupational health and environmental safety.

Table 8.1 Training organized for staff on occupational health and environmental safety

Option	No. of Respondent	Percentage %
Quarterly	10	13%
Biannually	5	6%
Annually	11	14%
No definite time fixed for training	53	67%
Total	79	100%

Source: Researcher’s survey, (2022)

From the table above, 10 respondents representing 13% showed that training is organized for them every quarter. 5 respondents representing 6% showed that training is organized biannually, and 11 respondents representing 14% revealed training is annual. While 53 respondents representing 67% indicated that management has definite time schedules for safety training.



Source: Researcher’s survey, (2022)

Figure 17: A graph describing training organized for staff on occupational health and environmental safety

It can be seen from the table and graph above that the employers organised training on health and safety, but this process is not regularized. Staff must be aware of training schedules on health and safety and participate fully in them. A similar study was conducted by Tsui and Gomez-Mejia (1988) where they state that one way to encourage employee safety is to involve all employees at various times in safety training.

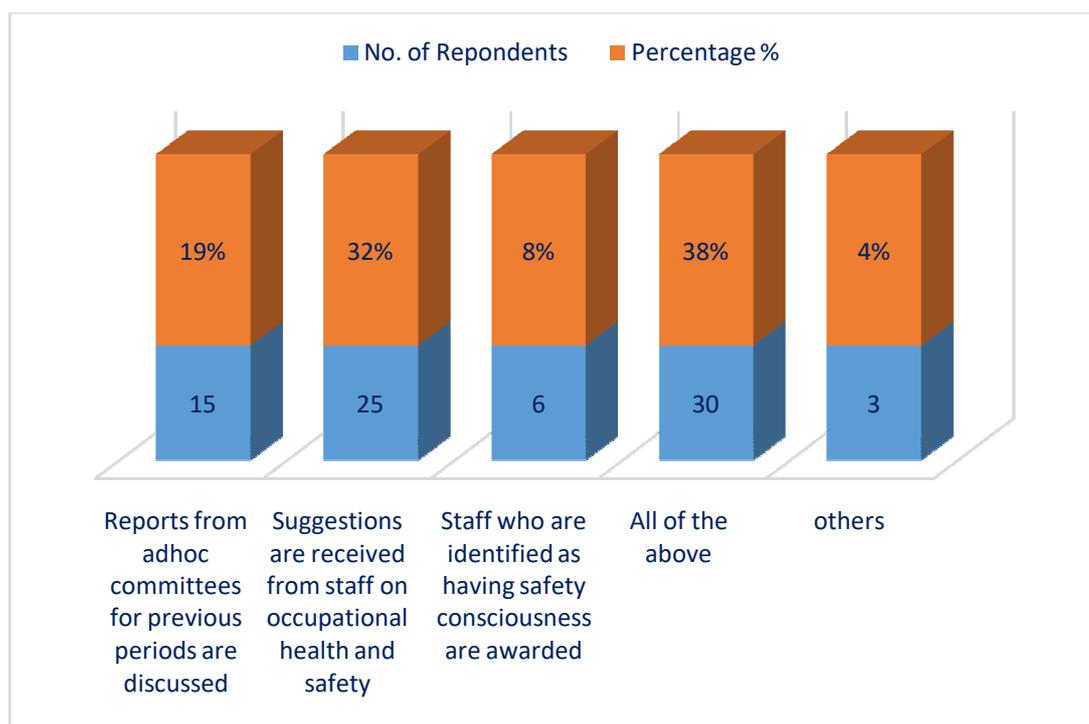
A question that was intended to find out from respondents what specific health and environmental safety issues are discussed during the training

Table 8.2: specific health and environmental safety issues discussed during the training

Option	No. of Respondents	Percentage %
Reports from ad-hoc committees for previous periods are discussed	15	19%
Suggestions are received from staff on occupational health and safety	25	32%
Staff who are identified as having safety consciousness are awarded	6	8%
All the above	30	38%
Others	3	4%
Total	79	100%

Source: Researcher’s survey, (2022)

From the table above, 30 respondents representing 38% showed that all the above health and environmental safety issues are discussed during the training, whereas 25 respondents representing 32% showed that Suggestions are received from staff on occupational health and safety training, while 3 respondents representing 4% revealed others which is the least.



Source: Researcher’s survey, (2022)

Figure 18: A graph describing specific health and environmental safety issues discussed during the training

It can be seen from the table and graph above that all the specific health and environmental safety issues are discussed during the training but with more emphasis on Suggestions received from staff on occupational health and safety as it is the second highest.

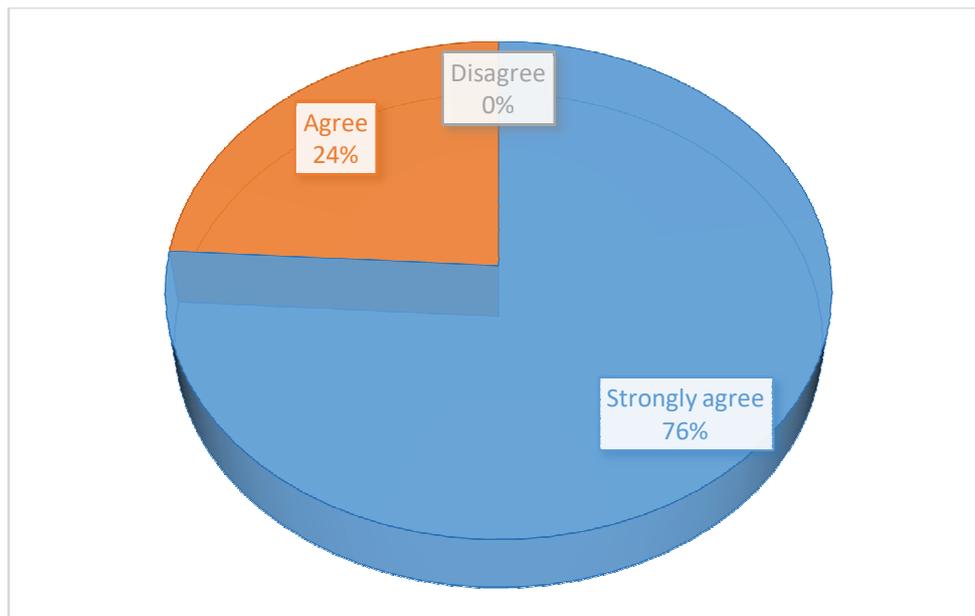
A question that was intended to find out from respondents if they think that monitoring, inspection, and evaluation of safety practices are prerequisites for effective occupational health and environmental safety.

Table 8.3 monitoring, inspection and evaluation of safety practices are prerequisites for effective occupational health and environmental safety

Option	No. of Respondents	Percentage %
Strongly agree	60	76%
Agree	19	24%
Disagree	0	0%
Total	79	100%

Source: Researcher’s survey, (2022)

From the table above, 60 respondents representing 76% strongly agreed that monitoring, inspection, and evaluation of safety practices are prerequisites for effective occupational health and environmental safety and 24 respondents representing 24% agreed that monitoring, inspection, and evaluation of safety practices are prerequisite for effective occupational health and environmental safety.



Source: Researcher’s survey, (2022)

Figure 19: A pie Chart describing monitoring, inspection and evaluation of safety practices is a prerequisite for effective occupational health and environmental safety

From the table and pie chart, staff strongly agreed that monitoring, inspection, and evaluation of safety practices are prerequisites for effective occupational health and environmental safety. Gabriel et al. (2013) their research affirmed that accidents and injuries are reduced in organizations through massive investment in occupational health and safety practices.

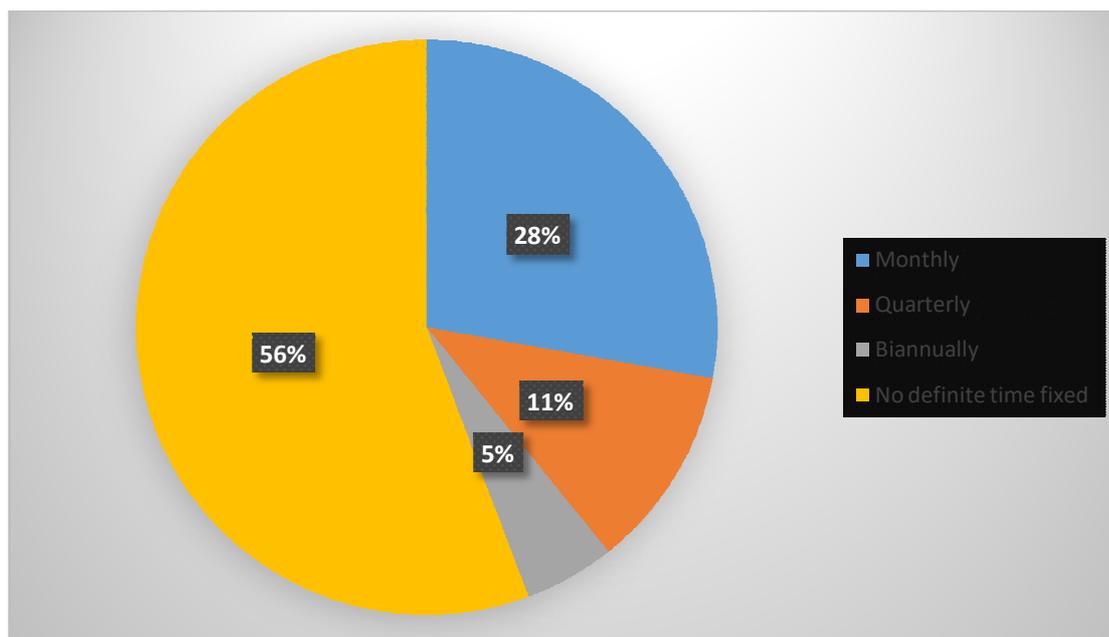
A question that was intended to find out from respondents how often is monitoring, inspection and evaluation conducted.

Table 8.4 monitoring, inspection and evaluation conducted

Option	No of Respondents	Percentage %
Monthly	22	28%
Quarterly	9	11%
Biannually	4	5%
No definite time fixed	44	56%
Total	79	100%

Source: Researcher’s survey, (2022)

From the above table, 22 respondents representing 28% indicated that monitoring, Inspection and evaluation of health and safety practices are conducted on monthly basis. 9 respondents representing 11% indicated quarterly, and 4 representing 5% indicated biannually. However, 44 respondents which represent 56% showed that there is no definite schedule for monitoring, inspection and evaluation of health and safety practices in the mine sites.



Source: Researcher’s survey, (2022)

Figure 20: A pie chart describing monitoring, inspection and evaluation conducted

From the table and pie chart, staff indicated that though monitoring, inspection and evaluation are carried out, it is not done on a routine basis. It is important to conduct monitoring on a routine basis so that results can be compared accurately.

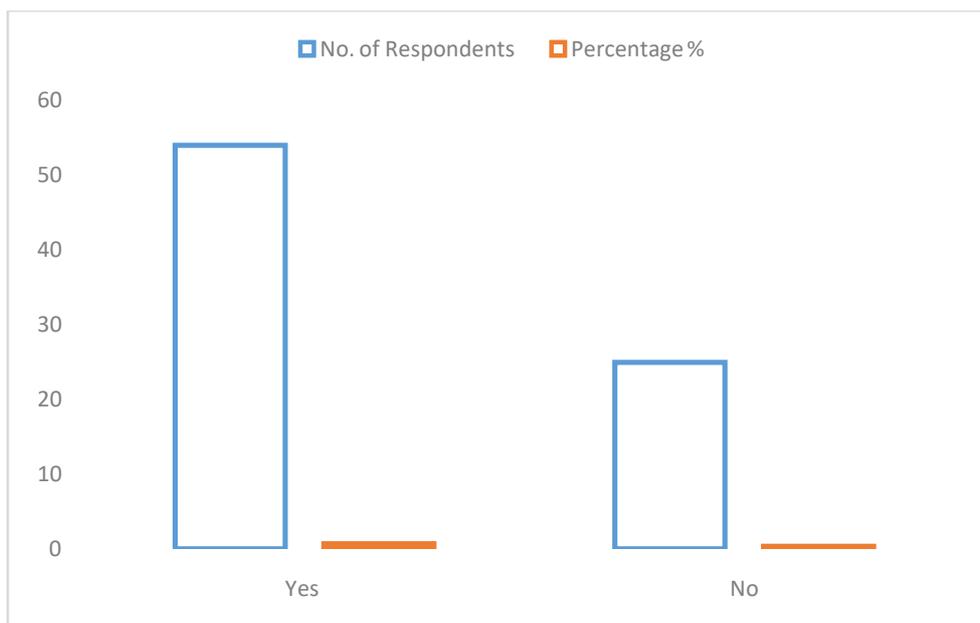
A question that was intended to find out from respondents how satisfied they with what management is doing currently to improve upon occupational environmental health and safety in the Mines.

Table 8.5 level of satisfaction with health and safety

Option	No. of Respondents	Percentage %
Yes	54	68%
No	25	32%
Total	79	100%

Source: Researcher’s survey, (2022)

From the table above, 54 respondents representing 68% indicated that they are satisfied with what management is doing currently to improve occupational environmental health and safety in the Mines and 25 respondents representing 32% indicated that they are not satisfied with what management is doing currently to improve upon occupational environmental health and safety in the Mines.



Source: Researcher's survey, (2022)

Figure 20: A graph describing the Level of satisfaction with health and safety

From the table and graph above, a large percentage of staff indicated that they're satisfied with what management is doing currently to improve occupational environmental health and safety in the Mines. However, much need to be done as compared to the percentage of staff who said they are not satisfied with what management is doing currently to improve occupational environmental health and safety in the Mines.

A question that was intended to find out from respondents to indicate some of the things they think management to improve upon occupational health and environmental safety in the mines.

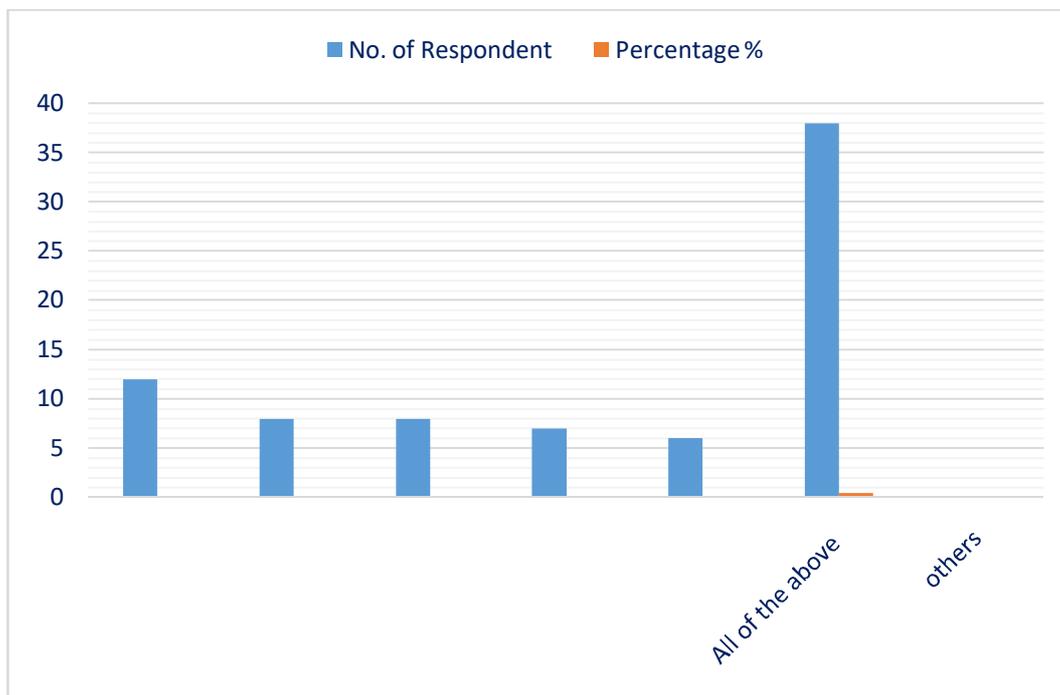
Table 8.6: things management to improve upon occupational health and environmental safety in the mines

Option	No. of Respondent	Percentage %
Engagement of safety expert to re-design occupational health and safety policies for the mines	12	15%
Constantly reviewing health and safety practices	8	10%
Improve good housekeeping and sanitation	8	10%
Creating the environment for staff to freely report on occupational health and safety	7	9%
Supervision and safety management	6	8%
All the above	38	48%
Others	0	0%
Total	79	100%

Source: Researcher's survey, (2022)

From the table above, 38 respondents representing 48% indicated that management should work on all the activities mentioned above to improve occupational environmental health and safety in the mines. Whereas 12 respondents representing 15% which is the second highest indicated that

management should engage safety experts to re-design occupational health and safety policies for the mines.



Source: Researcher’s survey, (2022)

Figure 21: Graph describing things management to improve upon occupational health and environmental safety in the mines

From the interpretation of the table and graph, staff are satisfied with current arrangements to improve occupational health and safety. Occupational health and safety measures should form part of the company's human resource practices and there should be constant efforts in improving upon existing measures.

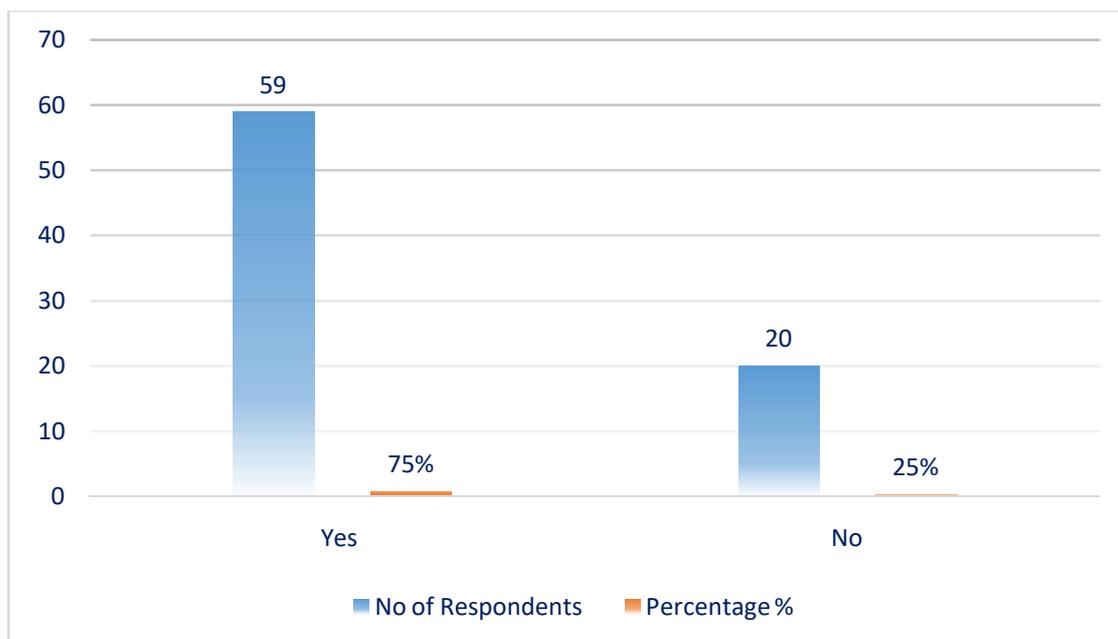
A question was posed to find out from respondents if they do have as individual staff members or their department or unit have a written copy of the occupational health and safety policy of the mines.

Table 8.7 documented Guidelines on health and safety

Option	No of Respondents	Percentage %
Yes	59	75%
No	20	25%
Total	79	100%

Source: Researcher's survey, (2022)

From the table, 59 respondents representing 75 showed that individual staff members or a department or unit have a written copy of the occupational health and safety policy of the hospital. Whereas 20 respondents representing 25% indicated that they do not have a safety policy.



Source: Researcher’s survey, (2022)

Figure 22: A graph describing documented Guidelines on health and safety

From the table and graph, it is clear that most staff have a documentary package to serve as a reference or guide on occupational health and safety.

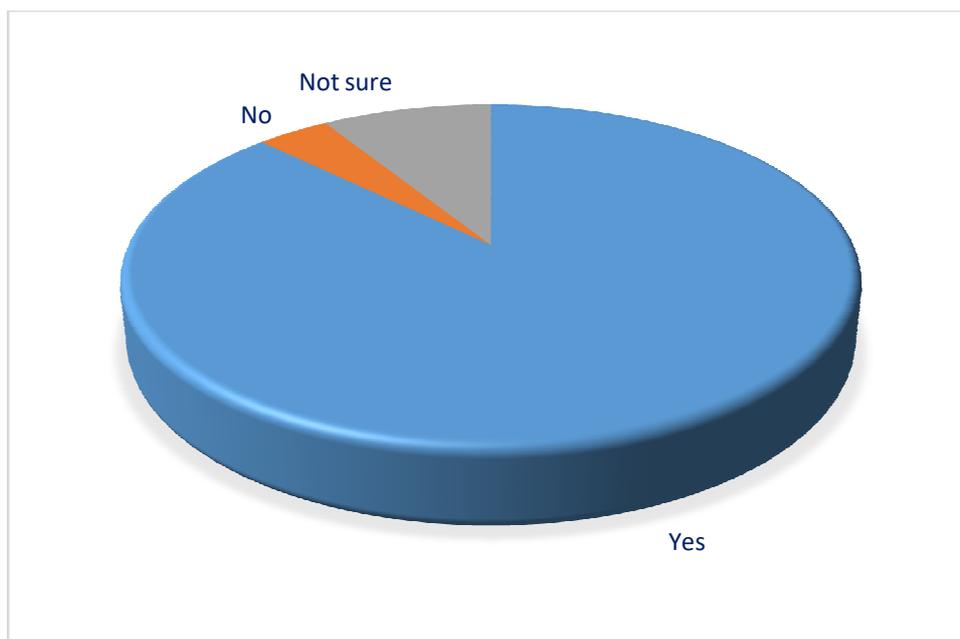
A question that was intended to find out from respondents they think effective occupational health and environmental safety policies have any impact on job performance in the mines

Table 8.8 Effect of occupational health and environmental safety policies on job performance in the mines

Option	No. of Respondents	Percentage %
Yes	69	87%
No	3	4%
Not sure	7	9%
Total	79	100%

Source: Researcher’s survey, (2022)

From the table, 69 respondents representing 87% showed that they think effective occupational health and safety policies have an impact on job performance in the mines, 3 respondents representing 4% indicated no and 7 respondents representing 9% indicated not sure.



Source: Researcher’s survey, (2022)

Figure 23: Effect of occupational health and environmental safety policies on job performance in the mines

From the table and pie chart above, staff recognized effective occupational health and safety policies have an impact on job performance in the mines an organization cannot achieve its objectives without the workforce, hence the health and safety of the workforce should be a priority.

A question that was intended to find out from respondents what benefits the employers and employees will derive from effective occupational health and environmental safety policies in the mines

Table 8.9 benefits the employers and employees will derive from effective occupational

Option	No of Respondents	Percentage %
Reduces accidents	10	13%
Reduces cost of compensation to injured employees	5	6%
Lost or death of staff	4	5%
labour turnover is reduced	8	10%
The corporate image of the mines is enhanced	0	0%
All the above	52	66%
Others	0	0%
Total	79	100%

Source: Researcher’s survey, (2022)

From the table, 52 respondents representing 66% which is the highest showed that the things mentioned above are benefits the employers and employees will derive from effective occupational health and environmental safety policies in the mines.

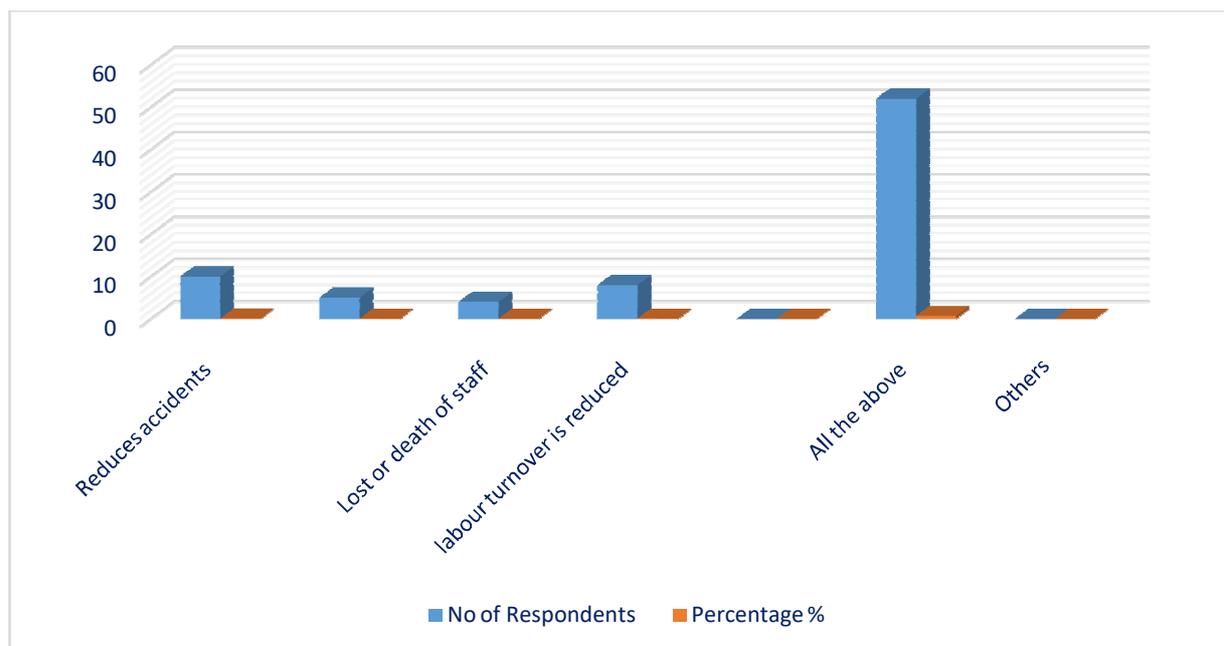


Figure 24: A graph describing benefits the employers and employees will derive from effective occupational

From the table and graph above, staff recognized if all the activities mentioned above are implemented, they will benefit the organisation and their well-being. As indicated by Oxenburgh et al. (2004), the well-being and security of all workers in a working environment are rigidly connected to profitability. Also, Gabriel et al. (2013) concluded in their research the direct benefit of effective occupational health and environmental safety practices reduced absenteeism, reduced mental and physical trauma resulting from fear of unsafe working environments which have positive effects on the performance of employees which increases productivity

Summary, Conclusion and Recommendations

Summary of the Main Findings

This study was undertaken to analyse an assessment of occupational health and environmental safety on job performance at the Marampa mines Limited Lunsar. The study specifically finds the inadequacies in the occupational health and environmental safety measures practices use at the Marampa Mines Limited, the effects of occupational health and environmental safety hazards' exposure on the work environment at the Mines, the roles of the employee, employers in the execution of health and safety programmes in the mining company, level of compliance of occupational health and safety practices by employers and employees

The key findings are summarized as follows:

The inadequacies in the occupational health and environmental safety measures practices use at the Marampa Mines Limited

The findings revealed that Marampa Mines Limited authorities have environmental and safety measures practices put in place in every department, 60 respondents representing 76% supported

that environmental and safety measures practices are put in place in their department. However, less training was done in most of the areas.

From the study, 54 respondents representing 68% indicated that there is an object falling from height and 25 respondents representing 32% indicated that there is no object falling.

The effects of occupational health and environmental safety hazards' exposure on the work environment at the Mines

From the findings, 73% of respondents supported that there is exposure to hazards in the workplace that cause injury, illness, or other adverse health effects from the mining sites and 21 respondents representing 27% supported that there is no exposure to hazards in the workplace that cause injury, illness, or other adverse health effects from the mining sites.

The roles of the employee, and employers in the execution of health and safety programmes in the mining company

From the findings, it can be realized that 27 respondents, representing 34% indicated that there is the absence of protective gear, while 25 respondents representing 32% stated none of the above health and environmental safety practices was not ignored at their workplace.

Level of compliance with occupational health and safety practices by employers and employees

From the findings, 10 respondents representing 13% showed that training is organized for them every quarter. 5 respondents representing 6% showed that training is organized biannually, and 11 respondents representing 14% revealed training is annual. While 53 respondents representing 67% supported that management has definite time schedules for safety training.

From the findings also, 69 respondents representing 87% showed that they think effective occupational health and safety policies have an impact on job performance in the mines, 3 respondents representing 4% indicated no and 7 respondents representing 9% indicated not sure.

The study also found out that occupational health and safety programme has major importance on the performance of the employees and organization, 52 respondents representing 66% which is the highest said it also has other contributions like it eliminating injuries and reckless death, promoting cooperation between employees and management, increase responsibility and sensitivity among employees.

Conclusion

The research shows that respondents were very much aware of the subject matter under discussion as it revealed that there was a greater contribution of occupational health and environmental safety on job performance production, profit to the organization, and satisfaction to the employees. It helps to raise employees' awareness and ties together management and employees' goals for the betterment of the organization.

However, the findings have come out with extraordinary views or suggestions on how the management with occupational health and environmental safety in place can be able to improve and protect their employees from work-related hazards and diseases. This is according to the respondents' views, risk of a runaway chemical reaction, exposures to hazards, signs of ignoring health and environmental safety practices, training and education on environmental safety and monitoring and inspection.

Recommendations

In light of the findings of the study, some recommendations can be drawn from this work.

To the Marampa Mines Limited Management, it is hereby recommended to improve the occupational health and environmental safety system by following the recommendations listed below for job performance and productivity in the company.

- Management must share hazard and risk information with other employers including those on adjoining premises, other site occupiers and all sub-contractors coming onto the premises. Proper dissemination of risk information is important in ensuring a safe and healthy working environment. Ensure correct storage procedures of flammable liquids and other dangerous materials. Management should endeavour to provide safe and proper means of storing dangerous gases in the workplace to protect the safety and health of employees. Correct procedures should be adhered to strictly
- The provision of protective clothing and putting in place safety and health measures are not enough. Management should put in place a regular monitoring team who will go around to check whether the employees really do put on their protective materials given to them before doing their duties and also observe in strict terms safety measures put in place to avoid any mishaps and accidents.
- Education and Training: The health and safety unit of the company should organize regular training, workshops, and seminars on health and safety for staff, publish materials on safety and many other steps to inculcate safety consciousness in the minds of workers. Employees should be made to understand that safety and health practices are the responsibility of both management and staff, and this will go a long way to make the work area safe.
- Monitoring and control of risk: From the results, high levels of risk which affect the health and safety of an individual at work are associated with losses in productivity. These levels of productivity can be reduced or even eliminated should the government pass laws that will regulate the amount of risk associated with certain work activities. Regular monitoring should be conducted with a definite time
- Government, It is recommended that, since the government aims at improving the lives of its citizen, therefore, it has the role to play to make sure everyone in the workplace or around so is protected from any harm which may relate to the working condition or operation at the place by setting the good and favourable condition to both workers and employers/ investors and make sure good policies are in place and also conduct regular inspections to the companies in Sierra Leone.
- Direction for future research from the foregoing results, it is observed that health and safety are vital to labour productivity. A recommendation for future research will involve

conducting a cross-country analysis between companies on the assessment of occupational health and environmental safety on job performance to assess the impact of safety and health on companies' productivity in the country. This is geared at knowing whether the improvement of health and safety will be an indicator of the country's economic growth

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