

UNIVERSITY OF CAPE COAST

OCCUPATIONAL HEALTH AND SAFETY KNOWLEDGE AND
PRACTICES OF WORKERS IN THE ANGLOGOLD ASHANTI
IDUAPRIEM GOLD MINE GHANA LIMITED, TARKWA

BY

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this University or elsewhere.

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Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

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ABSTRACT

Most African countries are noted for poor occupational health and safety practices. In spite of the numerous occupational health and safety advances in recent years, several occupational accidents, hazards and incidence plague most African countries, including Ghana. This study examines problems and issues related to Occupational Health and Safety at AngloGold Ashanti Iduapriem Gold Mine Ghana Limited, Tarkwa. The findings revealed that though the occupational health and safety policies of the company were adequate and upheld to many of the times, there are reported cases of accidents and incidents which appear on the ascendancy. Recommendations arising out of the study include the need for top personnel of the mining company to strengthen measures to ensure health and safety at the work premises and increase training programmes on health and safety policies for its new employees and refresher courses for serving staff. Stratified sampling as well as random sampling techniques was adopted for the study to select two hundred (200) persons selected across all sections of the company. It was made up of 40 senior members and 160 junior members of staff. As a result of the many different sections of the Company, the researcher used a cross-sectional approach as a research design to capture the practice and views in all sections at a given time.

KEY WORDS

Occupational Accidents

Occupational Diseases

Occupational Hazards

Occupational Health

Safety Knowledge

Safety Practices

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DEDICATION

Dedicated to my parents, Mr and Mrs Bentil, my Siblings, my wife, Hilda and my children Elizabeth and Winfred.

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LIST OF ACRONYMS

AC	Actively Care
CCOHS	Canadian Centre for Occupational Health and Safety
DOSH	Department of Occupational Safety and Health
EAP	Employee Assistance Programs
EPA	Environmental Protection Agency
FDIs	Foreign Direct Investments
HASAWA	Health and Safety at Work Act
ILO	International Labour Organization
OHS	Occupational health and safety
MDGs	Millennium Development Goals
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
SSA	Sub-Saharan Africa
SEGs	Similar Exposure Groups
SPSS	Statistical Product and Service Solutions
STAMP	Systems-Theoretic Accident Model and Processes
VPP	Voluntary Protection Programme
WHO	World Health Organization

WISE

Work Improvement in Small Enterprise

CHAPTER ONE

INTRODUCTION

Background to the Study

Business entities in today's competitive environment are constantly struggling with revolutionary trends in terms of accelerating product and technological changes, global competition, deregulation and demographic changes, and the apparent need to survive by implementing policies and programmes to cope with the ever changing work environment. The issue of safe and conducive workplace environment has been given prominence in recent times because labour experts believe that occupational health and safety measures are pre-requisites for continuance of industrial production (Cole, 2014).

The mining sector is one of the world's most hazardous sectors which make people working in the mines to be exposed to various physical, chemical, mechanical, biological, and psychosocial risk factors (Amponsah-Tawiah K. & Justice Mensah 2016). According to Owiredu (2014) Ghana is one of the West African countries that have become a preferred destination for mineral investment, with the legitimate mining industry accounting for more than 49% of the country's gross foreign exchange earnings. Mining activities, however, present not only economic opportunities for the country but also major challenges, particularly in the area of occupational health and safety (OHS) for employees in this sector (Amponsah-Tawiah et al., 2016). The importance of healthy workplaces are increasingly being recognized as a broad concept influencing

quality of life at the individual level to substantial impacts on public health at the societal level (Helliwell J. F, & Putnam R. D., 2014).

OHS is a multidisciplinary concept that concentrates on the promotion of health, safety, and welfare of people engaged in work or employment (Bhagawati, 2013). According to Amponsah-Tawiah et al (2011) occupational health and safety encapsulates the mental, emotional, and physical well-being of the worker in relation to the conduct of his/her work and, as a result, marks an essential subject of interest impacting positively on the achievement of organizational goals. Available data reveal startling and tremendously high rates of work-related deaths and injuries in both developed and developing nations (Gyekye, 2007). According to the International Labour Organization, (ILO), 2.3 million people die each year owing to work-related accidents or illness, and 350,000 of these deaths are attributable to occupational accidents. Additionally, the ILO estimates that there are 264 million non-fatal accidents each year that result in work-related illnesses, leading to approximately 3 days of absence from work (ILO, 2015).

According to Seo, D. C., Torabi, M. R., Blair, E. H., & Ellis, N. T. (2016) industries, especially those in developing countries are suffering enormous economic and personnel costs as a result of injuries and diseases related to work. ILO (2015) revealed that the everyday occurrence of 860,000 occupational accidents with either a direct or indirect cost for occupational illnesses and accidents is estimated at \$2.8 trillion worldwide.

However, despite these startling global figures on occupational health and safety, only a small number of empirical research studies on occupational health

and safety have been conducted in sub-Saharan Africa specifically, Ghana, where majority of the citizens are engaged in jobs classified hazardous such as mining, quarrying, lumbering, farming, and fishing (Gyekye, 2007). Arguably, few studies have examined the relationship between occupational health and safety management and employee commitment, particularly in the mining industry.

The subject of occupational health and safety management in the mining sector is on the rise because of the increasing demand for minerals and the high-risk factors associated with it. The case for employees and organizations is that, according to Demba E., Ceesay O. M., & Mendy G. D. (2011) the rates of industrial and occupational injury-related deaths and disabilities are on the rise in developing nations. As a result, the mining sectors of these mineral-endowed developing countries are highly prone to these occupational injury-related deaths and disabilities. This affects employees' attitudes and intentions toward their organization. Occupational health programmes are thus primarily concerned with the prevention of ill health arising from workplace conditions, whereas safety programmes deal with the prevention of accidents and with minimizing the resulting loss and damage to lives and properties (Adeniyi, 2010). Boyle (2017) posits that the process of managing occupational health and safety is the same as other management activities, but the distinction lies in the complex nature of occupational health and safety. However, according to Cooper (2015), the management of OHS is in many respects exactly the same as managing productivity or other functional areas of operations. This shows that the management of safety at the workplace is not just about prevention of repetitions

of accidents that have already occurred but rather must be integrated into the general management system that relates to quality management and protection of the working person and the environment.

Hayes B. E., Perander J., Smecko T., & Trask J. (2014) proposed five constructs of assessing workplace safety. These authors are of the view that management commitment to safety, supervisors' safety practices, co-worker safety practices, job safety, and safety programs are some of the critical issues that could be looked at in terms of safety at the workplace. Steenkamp and Van Schoor (2012) rightfully mentioned that occupational health and safety is a complex international problem for management and society, and that it must always be a top management priority. Management commitment plays an important role in all aspects of safety intervention (Steenkamp R. & Van Schoor A., 2012). Management commitment to safety indicates the extent to which the organization's top management demonstrates positive and supportive safety attitudes toward their employees' safety (Hsu, 2014). Yule S., Flin R., & Murdy A. (2014) noted that employees' perception of dedicated management's action to safety resulted in accident reduction. Ali H., Abdullah N., & Subr C. (2016) also argued that management safety practices as well as commitment to safety play an effective role in reducing workplace injuries. Geldart S., Smith C., Shannon C., & Lohfeld L. (2013), in a study on Canadian manufacturing firms, also found that administrative policies, practices, and attitudes have a direct positive impact on safety in the workplace.

Additionally, supervisors are normally seen as one of the key elements in health and safety management at the workplace in ensuring safety compliance and safety participation (Gyekye 2007). In their study, Yule S., Flin R., & Murdy A. (2014) noted that employees conformed to safety rules and procedures when they perceived that the action of their supervisor is fair and congruent with organization policy on safety. Supervisors' safety practices describe the extent to which a supervisor keeps track of unsafe practices as well as acknowledges the workers who adopt safe work behaviours. Another interesting element in health and safety management that could be used to increase safety performance at the workplace is co-worker safety practices. Co-worker safety concerns the extent to which workers perceive their colleagues as valuing safety. According to Ford and Tetrick (2013), employee behaviours at work and personality variables contribute, directly or indirectly, to accidents. Safety behavior encompasses all activities undertaken by individuals in their workplace to ensure their personal safety, the safety of their coworkers, and the safety of their organization at large. Ford and Tetrick (2013) asserted that workers' safety-oriented behaviour can be scaled up by the extent to which they engage in actions that promote safety and avoid those that decrease safety.

Job safety shows the extent to which job duties do not pose threats or unhealthy consequence(s) on the health and safety of employees. According to the Occupational Safety and Health Administration (2014), job safety analysis is a technique that focuses on job tasks as a way to identify hazards before they occur. It focuses on the relationship between the worker, the task, the tools, and the work

environment. Gyekye (2007) explains job safety as a measure of the degree of safety inherent in a job assignment. Job safety looks at how employees are well informed on hazards and risk associated with job description and measures implemented to curtail or eradicate those hazards and risk. Health and safety programs consist of clearly defined actions to implement the health and safety training and policies. Safety training and safety policies are essential determinants of safety performance. Safety training is defined as the knowledge of safety given to employees in order for them to work safely and with no danger to their well-being (Law, W. K., Chan A. H. S., & Pun K. F. 2011). Likewise, Lin and Mills (2010) found that clear policy statements and safety training played an important role in reducing accident rates. Earlier studies indicated a link between safety training and increased safety performance (Huang, 2011). Consequently, effective training assists workers to have a sense of belonging and thus, be more accountable for safety in their workplace. In addition, Vassie and Lucas (2017) indicated that safety programs are crucial to all workers and an important aspect of effective health and safety management.

Cole (2013) posits that employees who are healthy and feel safe at work are those who can fully invest their capabilities and exploit the best of their potentials to work. Similarly, Sinclair R., Tucker J. S., Wright, C. & Cullen J. C. (2017) are of the view that when organizations fail to address poor working conditions such as health and safety issues, workers are more likely to judge the costs of staying with the firm as exceeding the costs of leaving. Grawitch M. J., Trares S., & Kohler J. M. (2016) explored the relationship between employee

satisfaction with different workplace practices (i.e., employee involvement, growth and development, work-life balance, recognition, health and safety) and employee outcomes (i.e., organizational commitment, emotional exhaustion, mental wellbeing, and turnover intentions). Overall, regression results indicated that satisfaction with healthy workplace practices was predictive of employee outcomes. In China, Siu (2012) found a positive relationship between affective commitment and physical wellbeing of employees. To have committed employees, management must show concern for the health, safety, and welfare of people engaged at work.

Further, the Labour Act of 2003 (Act 651) of the Republic of Ghana apparently directs employers and employees in their roles and responsibilities in managing Occupational Health, Safety and Environment in the nation, however, the Act is not specific about whom to report accidents and occupational illnesses to. It does not specify what to consider as an occupational illness. It does not also specify as to who is responsible for ensuring that industries in Ghana implement corrective actions (Gyekye, 2007).

Accidents that occur in factories are expected to be reported to the Department of Factory Inspectorate (DFI) but companies hardly report such events to the Inspectorate for investigation and correction. In situations where accidents are reported, it takes a long time before corrective or preventive actions are implemented; hence, there is a little or no positive effect of the action of the DFI on the factories (ILO, 2015).

Dorman (2016) reported that every manager and employee wants a healthy and safe work environment. Most organisations fail to protect their workers fully as part of cost-cutting measures, which finally results in numerous accidents at work places, and work-related diseases. In spite of the changes in technology and the creation of awareness, the Ghanaian worker still faces health and safety hazards such as excessive heat, dust, noise, exposure to dangerous equipment, spillage, etc. hence most workers work under fear (Gyekye, 2007). The aforementioned state of events can be attributed to the non-enforcement of existing occupational health and safety laws and government inability to ensure adherence to ILO conventions (Annan, 2010).

It is vital for companies to have efficient health and safety services for their employees to promote and maintain the highest level of physical, mental and social well-being. Apart from a few multi-national companies that provide a whole range of health services to their staff, comprehensive occupational health and safety services are not norms in Ghana as most companies aim at providing care for ill-health but ignore the preventive aspect of this problem (Annan, 2010).

Statement of the Problem

Health hazards posed by gases, dust, chemical, noise, extreme temperatures and other physical conditions have been associated with mining industries for a long time (Annan, 2010).

Most African organisations fail to protect their workers fully as part of cost cutting measures at the mines which result in numerous OHS hazards, accidents and diseases as emphasis is laid on productivity and profitability (ILO, 2014).

A 2012 Fourth Quarter Police Reports indicates that statistics on workplace injuries show that in every two working days throughout Ghana, someone dies or is injured as a result of industrial accidents or poor safety conditions at workplace.

According to the ILO and WHO estimates, every year, more than 12 million people die of workplace related diseases and accidents. More than 160 million workers fall ill every year owing to workplace hazards (ILO, 2014). Figures released in Britain indicated that the estimated prevalence of self-reported work-related illness during the 2012/2013 period was 2.4 million, equating to 4.7 percent of people ever employed. An estimated 29% of this total (0.6 million people ever employed) were accident cases. On the average, each person suffering took an estimated twenty-three days off work in the twelve month period. On average of the working population, this represents an annual loss of 1.2 days per worker (Health and Safety Executive, 2012).

Apparently, less than one percent of organisational and national research focuses on issues concerning occupational health and safety practice (Barling & Zacharatos, 2014). Apart from little research attention on occupational health and safety issues, in general, there is also an acute lack of literature on these matters. Particularly, most African countries are struggling with occupational health and safety practices as few attempts from the industries and the governments are notable (LaDou, 2010).

Accident rates tend to vary with the type of occupation. The mining industry has historically been regarded as a dangerous industry due to the frequent disasters and accidents (with a high disabling injury rate) in its early years. This observation has been attributed to the extremely stressful conditions under which miners work (Gyekye, 2007).

Fatalities, injuries and accidents although less frequent in this modern times due to improved technology, continue to occur in the mining industry. In the years 2012 China recorded 6,027 and 2,103 fatalities respectively in the mining industry (SmallMan, 2014). Also, statistics from the Mine Safety and Health Administration (MSHA) in the United States of America reveals that 69 fatalities and injuries of 11,800 occurred between the years 2010 and 2012 in the mines.

In Ghana, statistics on fatalities in the year 2014 from some mining sectors include: AngloGold-Ashanti, Iduaperiem (16), Goldfields Limited (5) and 18 miners were killed in the collapse of an illegal gold mine at Dompase in the Western region (Minerals Commission, 2015).

Health hazards posed by gases, dust, chemical, noise, extreme temperatures and other physical conditions have been associated with mining and industrial activities for a long time resulting in numerous chronic and sometimes fatal illnesses (ILO, 2010).

Some studies by Yeboah (2008), Ganson (2014) and Amponsah-Tawiah, et al. (2016) have highlighted specific problems on different dimensions of OHS practice by the labour force.

However, very little has been done on OHS practices in the mining sectors, more specifically, in the study area.

It is against this backdrop that this research seeks to find the health and safety knowledge and practices of workers at the AngloGold Ashanti Iduapriem Gold Mine Ghana Limited, Tarkwa.

Objectives of the Study

The main objective is to assess the Occupational Health and Safety practices at AngloGold Ashanti Iduapriem Ghana Limited, Tarkwa.

To achieve this principal objective, the following specific objectives are addressed:

1. To examine health and safety policies at the AngloGold Ashanti Iduapriem Ghana Limited, Tarkwa;
2. To analyse the implication of the health and safety practices of the company;
3. To ascertain the level of knowledge of health and safety policies among workers;
4. To examine workers attitude and behaviour towards OHS policy of the company
5. To identify the frequency of occupational accidents; and
6. To suggest ways of improving occupational safety in the company.

Research Questions

The study provides answers to the following research questions with regards to AngloGold Ashanti Iduapriem Ghana Limited, Tarkwa.

1. What are the health and safety policies at the AngloGold Ashanti Iduapriem Ghana Limited, Tarkwa?
2. What are the implications of the health and safety policies of the company?
3. What is the level of knowledge on health and safety issues among workers?
4. What is the attitudes and behaviour of workers towards OHS policy of the company?
5. What is the frequency of occupational accidents in the company?
6. What are some of the ways to improve occupational safety in the company?

Significance of the Study

The study, all things being equal, will help to identify the strengths and weaknesses in the health and safety policies and practices in organisations. The researcher is of the view that, the results or findings of the study will help curb and reduce the incidence of occupational accidents or work related injuries and diseases in organisations, particularly in the mining industry.

This study will therefore help managers and workers alike to know their responsibilities in relation to the promotion of health and safety practices at the

workplace. Added to this, it will provide a firsthand insight into some of the problems faced by organisations in creating healthy and safe working environment and how best they can be addressed.

Scope of Work

The work examines the health and safety knowledge and practices of workers in the AngloGold Ashanti Iduapriem Gold Mine Ghana Limited, Tarkwa.

Limitations

The present study encountered the issue of time constraints and the difficulty in collecting data from the staff of the AngloGold Ashanti Iduapriem Ghana Limited, Tarkwa. Some of the questionnaires were not returned calling for replacements. Other respondents delayed in making available the filled questionnaires to the researcher. In spite of these, all efforts were done to ensure that adequate data was collected to move the present study forward.

Organisation of the Study

The study has been organised into five chapters. Chapter One covers the background and introduction to the study. Chapter Two deals with the literature review of existing work in the subject area. Chapter Three involves the methodology used in the study. Chapter Four is devoted to the results and discussion of the study. Finally, Chapter Five is about the overview, summary of findings, conclusions and recommendations of the research.

Summary of Chapter One

This chapter presents a background to the study, problems with Occupational Health and Safety at the workplace as well as the objective of the study. It also outlines the research questions, significance of the study, scope of work, limitation to the study

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

This chapter reviews the literature on health and safety practices. It considers health and safety, factors influencing health and safety, health and safety policy, training and prevention and challenges of health and safety. It also explores issues on occupational health and safety practices in Africa as well and on occupational health and safety practices in Ghana. The review of literature, finally builds a conceptual framework that provides a linkage of the main concepts of the study.

Theories underpinning the study

The main theories used to guide this study include risk theory/defence in-depth theory, accident model based on systems theory and the actively caring model. These were selected for the study because of their practicability in the field of occupational health and safety.

Risk Theory/Defence in Depth Theory

According to Reason (2010), risk has a trajectory, which passes through corresponding holes in the layers of defence, barriers and safeguards and if it achieves a 'direct flow through', will result in a failure. Reason indicates that a defence in-depth approach acknowledges that all systems are fallible and that by

lining up layers of defence in depth, organisations are presented with the opportunity of catching, retarding or retiring risk prior to failure.

Human risk factors essentially follow a similar trajectory in that there are both active failures and latent conditions (over a period of time combined with degenerative conditions) that coexist within the workplace and when these factors come together they often lead to poor health and result in poor productivity outcomes. To apply the Defence in Depth theory in an occupational health setting, there is the need to explore four critical health defence layers that can improve the ability to control health risks.

These are pre-employment health screening; health management (including health surveillance and assessments, wellbeing and absenteeism); injury management/rehabilitation (Workers Compensation); and exit medicals. Each of these four key defence layers has the ability to “catch, retard or retire risk” so that an error trajectory is not achieved and more importantly, the likelihood of a failure is reduced significantly (ILO, 2010). For many organisations the four critical health layers tend to be managed by separate departments and as such the information tends to remain in its “silo” and not used in a holistic view for improving health.

In many industries a number of health defence layers already exist. Examples of these include Pre-Employment Medicals, Periodic Medicals, Health Surveillance Activities, Health Risk Assessments, Wellbeing Programmes, Flu Vaccinations, and Employee Assistance Programmes (EAP) and Exit Medicals.

Whilst they may exist in different combinations, a common challenge is that they tend not to form part of an overall health risk management strategy.

Lining all of the health components up and having a conduit between them becomes the key to releasing valuable, risk-based information that can greatly enhance any organisation's ability to identify health risk trends and then use this information in a positive way to reduce the likelihood of poor health outcomes and deliver measurable business and employee benefits. The Defence in Depth model when used in an occupational health setting allows any organisation to build in layers of defence to safeguard against failure. Failure in this context can mean identifiable injuries, a loss in productivity due to ill-health or post-employment claims.

Accident model based on systems theory

The philosophy underlying the new model, called Systems-Theoretic Accident Model and Processes (STAMP) is that, system theory is a useful way to analyze accidents, particularly system accidents. In this conception of safety, accidents occur when external disturbances, component failures, or dysfunctional interactions among system components are not adequately handled by the control system, that is, they result from inadequate control or enforcement of safety-related constraints on the development, design, and operation of the system. In this context, the organisation under study is referred to as the system.

Safety then can be viewed as a control problem, and safety is managed by a control structure embedded in an adaptive socio-technical system. The goal of

the control structure (management of the mining company) is to enforce constraints on system development (including both the development process itself and the resulting system design) and on system operation that result in safe behaviour. In this framework, understanding why an accident occurred requires determining why the control structure was ineffective. Preventing future accidents requires designing a control structure that will enforce the necessary constraints.

In STAMP, systems are viewed as interrelated components that are kept in a state of dynamic equilibrium by feedback loops of information and control. A system in this conceptualization is not a static design but a dynamic process that is continually adapting to achieve its ends and to react to changes in itself and its environment. The original design must not only enforce appropriate constraints on behaviour to ensure safe operation but the system must continue to operate safely as changes occur. The process leading up to an accident (loss event) can be described in terms of an adaptive feedback function that fails to maintain safety as performance changes over time to meet a complex set of goals and values.

Instead of defining safety management in terms of preventing component failure events, it is seen as a continuous control task to impose the constraints necessary to limit system behaviour to safe changes and adaptations. Accidents can be understood, using this model, in terms of why the controls that were in place did not prevent or detect maladaptive changes, that is, by identifying the safety constraints that were violated and determining why the controls were inadequate in enforcing them. The basic concepts in STAMP are constraints, control loops and process models, and levels of control. This model informs the

study as to how management in an organisation enforces behaviour change to prevent accidents among its workers.

The actively caring model

From a brainstorming session with safety leaders at Exxon Chemical Company, Geller (2010) coined the term "actively caring" to refer to an ultimate goal in occupational safety, namely that employees care enough about the safety of their coworkers to act accordingly. In other words, employees actively caring for safety would continually look for environmental hazards and unsafe work practices and implement appropriate corrective actions when unsafe conditions or behaviours are observed. Geller (2010) hypothesized that three factors increase the propensity for an employee to "actively care" (AC) for the safety or health of a co-worker. Individuals presumed most likely to AC are those high in self-esteem (i.e., feel valuable), optimism (i.e., feel they can make a difference), and group belongingness or cohesiveness (e.g., feel close to members of their work group).

In the relevance of these selected theories it would be said that the risk theory/defence in-depth theory helped the researcher to identify how the company understudy builds its layers of defence to safeguard against identifiable injuries, a loss in productivity due to ill-health or post-employment claims of its workers/staff. With the accident model based on systems theory, the researcher intends to understand how organisational structures in mining companies prevent occurrence of accidents among its staff. The actively caring model helped to establish whether staff of the said mining company care for each other in the field

work. Moreover, it aided the researcher to investigate if staff possesses such personal values as self-esteem, optimism and group belongingness or cohesiveness.

Concepts of occupational health and safety

Occupational Health is that science and art devoted to the anticipation, recognition, evaluation and control of these environmental factors or stresses arising in or from workplace, which may cause sickness, impaired health and wellbeing or significant discomfort among workers or citizens of the community (Ivancevich, 2010). Occupational safety, on the other hand, is the physical investigation and evaluation of the workplace conditions and equipment as well as work procedures to determine the weakness and potential to cause accidents and devising remedial measures to rectify the situation such as training and re-training of employees, re-designing of jobs to diminish hazardous conditions and regular monitoring (Milkovich & Boudreau, 2011). International organisations, such as WHO and ILO and national bodies and authorities, have provided several definitions of occupational health, safety and services. When such definitions are summarized, occupational health is considered to be a multi-disciplinary activity aiming at protection and promotion of other health of workers; preventing and controlling occupational diseases and accidents and eliminating occupational factors and conditions hazardous to health and safety at work; development and promotion of healthy and safe work environment; enhancement of physical, mental and social wellbeing of workers and support for the development and

maintenance of their working capacity, as well as professional and social development during the employees' working life and to contribute to sustainable development at work and affording workers the opportunity to conduct socially and economically productive lives and contribute positively to sustainable development (WHO, 2011).

The basic issues of health and safety are the recognition of hazards, identification of risks and monitoring of accidents to reduce their occurrences. Safety hazards are aspects of the work environment that have the potential of causing immediate and sometimes violent harm or even death to a worker. Health hazards on the other hand, are aspects of the work environment that slowly and cumulatively lead to deterioration of workers' health. The person may develop a chronic or life threatening illness or become permanently disabled.

Pratt and Bennett (2009) consider the issue of health and safety to have become a fact which management cannot overlook but must give more attention. Governments, trade unions, insurance companies and the public increasingly demand that employers provide a safe and healthy working environment; though such a policy will require the participation of all stakeholders to provide a comprehensive measure.

Ivancevich (2015), using the diagnostic approach to health and safety, highlights the nature of the task, employees' attitude towards health and safety, economic conditions, influence of unions, management's goals and the government as crucial environmental factors that influence the success of a healthy and safe working environment for workers.

In the advanced world, they have a better occupational and healthy system and the difference is primarily due to better health and safety programmes, improved first-aid and medical facilities in the industrialised countries and the active participation of workers in the decision-making process on health and safety issues. Some industries with the highest risk of accidents worldwide include the mining industry, agriculture industry, forestry industry and logging construction industry (ILO, 2010).

El-Batawi (2009) quoted in Ivancevich (2015), asserts that majority of workers in the third world receive no healthcare. This is explained by the fact that primary health care is a pioneering effort that remains to be developed. The socio-economic development, pesticide poisonings, organic and mineral dust, heavy physical work, heat stress, occupational injuries, industrial, chemical and physical hazards, and ergonomic problem make up a list of priorities that must be tackled. If activities in an organisation are not well organised, there is that possibility of promoting accidents in the organisation.

Ivancevich (2015), further assert that, the apparent indifference in accident reporting in part reflects the low priority accorded health and safety by most organisations in Africa. This can be attributed to the official willingness to ignore sub-standard health and safety conditions for political or commercial expediency.

Organisational health and safety legislation and policy

The introduction of the International Labour Organisation (ILO) toolkit, with the assistance of the International Occupational Hygiene may be an important step to the implementation of participatory occupational hygiene (ILO, 2009). According to ILO, this approach has been applied within developing countries in Africa and Asia for assessing the needs of small enterprises in agriculture by building on local practices within the limitation of locally available resources. Another experiment to solve the situation in developing countries is the Work Improvement in Small Enterprise (WISE) programme introduced in the Philippines which answers a lot of questions and opens up a number of options in implementing low cost workplace reforms (ILO, 2009).

Moreover, Zalk (2013) states that whatever approach used must aim at reducing work related exposures for employees in large industries, small businesses and agriculture. Utilizing local talents in training, developing and implementing programmes give practical solutions to less developed countries. After almost thirty years of ensuring health and safety at the workplace, report available at the Department of Labour, Kumasi in Ghana reveals the negative attitude of employees as an excuse for frequent accidents in 2011 (Ministry of Health, 2012).

Occupational safety and health practices vary among nations with different approaches to legislation, regulation, enforcement, and incentives for compliance. In the European Union (EU), for example, some member states promote OSH by providing public monies as subsidies, grants or financing, while

others have created tax system incentives for OSH investments. A third group of EU member states have experimented with using workplace accident insurance premium discounts for companies or organisations with strong OSH records.

Member states of the EU have enforcing authorities to ensure that the basic legal requirements relating to occupational health and safety are met. In many EU countries, there is strong cooperation between employer and worker organisations (e.g., unions) to ensure good OSH performance as it is recognized this has benefits for both the worker (through maintenance of health) and the enterprise (through improved productivity and quality). In 2013, the European Agency for Health and Safety at Work was founded. Member states of the European Union have all transposed into their national legislation a series of directives that establish minimum standards on occupational health and safety. These directives (of which there are about twenty on a variety of topics) follow a similar structure requiring the employer to assess the workplace risks and put in place preventive measures based on a hierarchy of control. This hierarchy starts with elimination of the hazard and ends with personal protective equipment.

Factors leading to occupational injuries

There are several factors that lead to occupational accidents. These factors could be administrative, organisational or structural. In the case of the administrative, the provision of mandatory involvement of workers in the decision making process and the implementation of policies that affect safety and health of the worker will facilitate policy making and eliminate conflict. In this case,

employers, according to Pratt and Bennett (2009), have a duty to consult representative of employees for the purpose of making arrangements for promoting healthy and safety measures.

As asserted by Betts (2008), most accidents are caused by various forms of neglect such as careless use of machines or tools, failure to wear protective clothing, taking risks, inconsideration for nearby colleagues, lack of concentration or failure to use safety devices. These faults amount to poor attitudes towards safety.

However, certain EU member states admit lacking quality control in occupational safety services, and experience situations in which risk analysis takes place without any on-site workplace visits and to insufficient implementation of certain EU OSH directives.

Based on this, it is surprising that the total societal costs of work-related health problems and accidents vary from 2.6% to 3.8% of GNP between the EU member states (Harris & Current, 2012).

Promoting Organisational Safety

In Denmark, occupational safety and health is regulated by the Danish Act on Working Environment and Cooperation at the Workplace (Danish government). The Danish Working Environment Authority carries out inspections of companies, draws up more detailed rules on health and safety at work and provides information on health and safety at work. The result of each inspection is placed on the web pages of the Danish Working Environment Authority so that

the general public, current and prospective employees, customers and other stakeholders can inform themselves about whether a given organisation has passed the inspection test.

In Sweden, occupational safety and health is regulated by the Work Environment Act. The Swedish Work Environment Authority is the government agency responsible for issues relating to the working environment. The agency should work to disseminate information and furnish advice on OSH. It is mandated to carry out inspections, and has right to issue stipulations and injunctions to any non-compliant employer (Swedish Work Environment Authority, 2014).

In the UK, health and safety legislation is drawn up and enforced by the Health and Safety Executive and Local Authorities (the local council) under the Health and Safety at Work Act 1974 (HASAWA) (Health and Safety Executive, 2012). HASAWA introduced a section on general duty of an employer to ensure, as far as practicable, the health, safety and welfare at work of all his employees, with the intention of giving a legal framework supporting 'codes of practice' not in themselves having legal force but establishing a strong presumption as to what was reasonably practicable (deviations from them could be justified by appropriate risk assessment). The previous reliance on detailed prescriptive rule-setting was seen as having failed to respond rapidly enough to technological change, leaving new technologies potentially unregulated or inappropriately regulated.

In the UK, the government organisation dealing with occupational health has been the Employment Medical Advisory Service. As from 2014, a new occupational health organisation namely the Health and Work Service has been created to provide advice and assistance to employers in order to get back to work employees on long-term sick-leave. The service, funded by government offers medical assessments and treatment plans, on a voluntary basis, to people on long-term absence from their employment. The government then no longer foots the bill for workers on statutory but these are to be provided by the employers.

On December 29, 1970, President Richard Nixon of the United States of America, signed the Occupational Safety and Health Act into law on. The Act created the three agencies to administer it, namely, the Occupational Safety and Health Administration, National Institute for Occupational Safety and Health and the Occupational Safety and Health Review Commission (Della-Giustina, 2008). The Act authorized the Occupational Safety and Health Administration (OSHA) to regulate private employers in the fifty states, the District of Columbia, and the territories (U. S. Department of Labour, 2014). The Act includes a general duty clause (29 U.S.C. § 654, 5(a) that requires an employer to comply with the Act and regulations derived from it and to provide employees with organisational environment free from hazards that cause or are likely to cause death or serious physical harm to his employees. OSHA was established in 1971 under the Department of Labour. It has its headquarters in Washington, DC and ten regional offices. It is further broken down into districts, each organized into three sections: compliance, training, and assistance. Its stated mission is to assure safe and

healthful working conditions for working men and women by setting and enforcing standards and by providing training, outreach, education and assistance (US Department of Labour, 2014). The original plan was for OSHA to oversee the plans of fifty states with OSHA funding half of the cost of the plans. Unfortunately, it has not worked out that way. There are currently Twenty-Six approved state plans (four cover only public employees) and no other states want to participate. OSHA manages the plan in the states not participating.

OSHA develops safety standards in the Code of Federal Regulation and enforces those safety standards through compliance inspections conducted by Compliance Officers; enforcement resources are focused on high-hazard industries. Worksites may apply to enter OSHA's Voluntary Protection Programme (VPP); a successful application leads to an on-site inspection; if this is passed the site gains VPP status and OSHA no longer inspect it annually. In which case they do not visit it unless there is a fatal accident or an employee complains.

VPP has Seventy-Three specialists in local offices who provide tailored information and training to employers and employees at little or no cost. Similarly, OSHA produces a range of publications, provides advice to employers and funds consultation services available for small businesses. OSHA's Alliance Programme enables groups committed to workers' safety and health to work with it to develop compliance assistance tools and resources, share information with workers and employers, and educate them about their rights and responsibilities.

OSHA also has a Strategic Partnership Programme that zeros in on specific hazards or specific geographic areas.

In Canada, workers are covered by provincial or federal labour codes depending on the sector in which they work. Workers covered by federal legislation (including those in mining, transportation, and federal employment) are covered by the Canada Labour Code; all other workers are covered by the health and safety legislation of the province in which they work. The Canadian Centre for Occupational Health and Safety (CCOHS), an agency of the Government of Canada, was created in 1966 by an Act of Parliament. The Act was based on the belief that all Canadians had a fundamental right to a healthy and safe working environment. CCOHS is mandated to promote safe and healthy workplaces to help prevent work-related injuries and illnesses. The CCOHS maintains a useful (partial) list of OSH regulations for Canada and its provinces.

In Malaysia, the Department of Occupational Safety and Health (DOSH) under the Ministry of Human Resource is responsible for ensuring that the safety, health and welfare of workers in both the public and private sector are upheld.

In the People's Republic of China (PRC), the Ministry of Health is responsible for occupational disease prevention. On the provincial and municipal level, there are Health Supervisions for occupational health and local bureaus of Work Safety. The "Occupational Disease Control Act of PRC" came into force on May 1, 2002 (Occupational Safety and Health Administration (OSHA), 2014) and Work safety Act of PRC on November 1, 2002 (WHO, 2006).

In South Africa the Department of Labour is responsible for occupational health and safety inspection and enforcement in commerce and industry apart from mining and energy production, where the Department of Mineral Resources is responsible. The main statutory legislation on Health and Safety in the work place is Act No. 85 of 1993: Occupational Health and Safety Act as amended by Occupational Health and Safety Amendment Act, No. 181 of 1993.

Stipulations of the OHS Act include the Certificate of Competency Regulations, 1990, Construction Regulations, 2003, Diving Regulations, 2009, Driven Machinery Regulations, 1988, Environmental Regulations for Workplaces, 1987, General Machinery regulations, 1988, General Safety Regulations, 1986, Noise induced hearing loss regulations, 2003 and Pressure Equipment Regulations, 2004.

In the four states of Australia , the Commonwealth, have enacted and administered harmonised Work Health and Safety Legislation in accordance with the Inter-governmental Agreement for Regulatory and Operational Reform in Occupational Health and Safety. Each jurisdiction is based on the Model of WHS Laws and common Codes of Practice developed by Safe Work Australia (Barling, J. & Loughlin, 2002).

A company's safety policy is a document that normally contains the arrangements, organisations, and procedures that form the safe system of work. The main objectives of health and safety policy are to specify that health and safety are management's responsibilities; to indicate that it is the duty of management to see to it that everything reasonable and practicable is done to

prevent personal injury in the processes of production, designing, construction and operation of all plant, machinery and equipment; to indicate that it is the duty of all employees to act responsibly and to do everything they can to prevent injury to themselves and fellow workers; and to identify the main managing director or directors who have the prime responsibility for health and safety (Health and Safety Executive, 2009).

Employers are under a statutory duty under the health and safety at work Act 1974 to prepare and keep revising health and safety policy. Pratt and Bennett (2009), state that, at the organisation level, all employers are required to formulate and publish written statements of general policy with respect to the health and safety of employees and the arrangement for carrying out the policy. Provisions are also to be made for policies to be regularly revised and communicated to staff. According to Torrington and Hall (2010), a written policy statement should include some particular items such as a written statement of the general policy regarding health and safety of employees.

In particular, the policy statement should refer to the organisation in terms of the systems for implementing the policy. It should name all directors and managers that are statutory duty holders. The general policy statement and any revision of it must be brought to the attention of all employees, for example, by notification, issuance of a document and reinforced by posters throughout the workplace. The policy document should explain the employees' duties and provide for training courses, briefing sessions and in the case of new employees a proper induction procedure.

In the view of Lockyer, et al. (2008), the establishment of positive safety policy objectives within an organisation must be accompanied by the clear allocation of responsibility within the management structure in order to ensure effective health and safety. This affirms the views of Ivancevich (2015), that the success of health and safety programmes rest primarily on how well employees and supervisors adhere to safety rules and regulations. Ivancevich (2015) asserts that essentially a policy should consist of three parts:

These include a general statement of intent; this should outline in broad terms the organisation's overall philosophy in relation to the management of health and safety, organisation (people and their duties). This part should outline the chain of command in terms of health and safety management. Other organisational features should include individual job descriptions having safety content and a management chart clearly showing the lines of responsibility and accountability and arrangement (systems and procedures). This part of the policy deals with the practical arrangement by which the policy will be effectively implemented. These include safety training, safe systems of work, and environmental control.

According to Cole (2014), a suitable policy demonstrates both in written and diagrammatic form (where appropriate) the following features: the unbroken and logical delegation of duties through line management and supervisors who operate where the hazards arise and where the majority of accidents occur; the identification of key personnel (by name and/or job title) who are accountable to top management; the definition of the roles of both line and functional

management; the provision of adequate support for line management via relevant functional management; the nomination of persons with the competence and authority to measure and monitor safety performance; the provision of the means to deal with failures in order to meet job requirements and the organisational structure must unambiguously indicate to the individual exactly what he/she must do to fulfill the role (Cole, 2010).

The Health and Safety Executive (2014), provides that the following aspects should be used as guide when preparing arrangements for health and safety at work; the involvement of the safety adviser, committee and relevant line and functional management at the planning and designing stage; the provision of specific instructions for using machines, for maintaining safety systems, and for the control of hazards; the development of specific health and safety training for all employees; the undertaking of medical examinations and biological monitoring; the provision of suitable protective equipment, the development and utilization of permit-to-work system; the provision of first aid and emergency procedures including aspects of fire safety and prevention; the provision of written procedures in respect of work for use by all levels of management and workforce and ensuring that legal requirements are met (Bell, 2011).

Health and safety prevention and training programmes

As stated by Torrington and Hall (2010), there is no doubt that in any organisation, conflicts occur between the demands of the employer to increase output and efficiency and the need of the employee to be protected from hazards at the workplace; however, managers expect the working environment to be safe and healthy but this comes with some implication for cost.

Milkovich and Boudreau (2011) recognized the use of two common strategies to respond to health and safety. These are reactive and proactive approaches. Reactive Approach is where a victim to a particular job related accident is compensated with workman's compensation. Proactive Approach is where preventive programmes such as re-designing of jobs, conducting safety training programmes, safety audits and offering pay bonuses for good safety records are used to ensure safe work environment.

Training is an important factor in improving safety performance and as such safety training must be systematic, must focus on an objective and must continuously help to meet not only the changing technologies but also changes in the environment in which an organisation operates (Lockyer et al, 2008). However, Ivancevich (2015) states that studies on the effectiveness of such training are mixed. Some studies indicate that some methods, such as job instruction training, and accident simulations, are more effective than others. Others contend that successes are accounted for by the employee's perception that management really believes in safety training.

According to Cole, (2013) studies have found that the training programmes make employees more aware of safety, but not necessarily safer in their behaviours. Nevertheless, effectively developed safety training programmes can help provide a safer work environment for all employees. Pratt and Bennet (2009) also agree that safety training is an essential part of any accident prevention scheme, and should commence immediately a member of staff is employed. Employees should be made aware of their responsibility for health and safety, general and special hazards, and the use of medical services, safety rules and procedures for reporting accidents.

Torrington and Hall (2010) also state that safety training makes employees understand the nature of hazard at the workplace, and awareness of safety rules and procedures to make compliance with safety rules and procedures possible. Betts (2008) acknowledges that lack of experience and poor safety training also cause accidents; therefore, correct methods of performing a task must be an essential part of safety training as well as what to do in times of risk. Safety training should seek to create awareness and a change in the behaviour of employees.

The effectiveness of training programmes depends on the ability to identify health and safety hazards within the mining industry. The Health and Safety Executive (2012) identifies the following risks: machinery system, objects falling from height, slips and trips, hanging, lifting and pulling, fires and explosives, dust, noise and hand-arm vibration syndrome. All businesses are legally required to assess the risks in their workplace so that they can put in place

plans to control the risks. A risk assessment is simply a careful examination of what is in a given work, which could cause harm to people, so that it can be analyzed to find out whether enough precautions have been taken or more should be done to prevent harm. Accidents and ill-health can ruin lives and affect the business as output is lost, machinery is damaged, insurance costs increase and there is the cost of legal action. A risk assessment involves following five steps: there is the need to identify the hazards; decide who might be harmed and how; evaluate the risks and decide on precautions; record findings and implement them and review assessment and update if necessary (Health and Safety Executive, 2012).

Employees can help to carry out the assessment because, they often know what problems there are and how best to solve them though the final responsibility for assessments rests with employers. Employers have duties under the Safety Representatives and Safety Committees Regulations (1977) and the Health and Safety (Consultation with Employees) Regulations (1996) to consult and keep safety representatives and employees up to date. Consultation with them will offer the best solutions as they are best placed to know how the job works and what can be done to improve it (Health and Safety Executive, 2012).

Ivancevich (2015) highlights the preventive measures adopted by organisations in attempt to improve on safety to include: the improvement of safety precautions, protective guards which are designed for machinery and equipment, colour coding warnings of dangerous areas, standard safety colours, which should be taught in safety classes such as the use of colours to mean

several things, such as grey for machinery and red where an area presents danger of fire. Other dangers may be highlighted by a bright orange colour.

Lockyer, et al. (2008) described this approach as the total involvement approach, which stresses on the full co-operation and commitment of all employees and management. In this case, every party accepts its full share of responsibility and participates fully in monitoring of health and safety at workplace. Lockyer, et al. (2008) argue that sufficient authority to take the necessary action to secure implementation of the organisation's health and safety policy, be given to the officer in charge who must communicate the message to his or her colleagues and employers.

The responsibilities of the production and operation managers for training, supervision and motivation in safety consciousness and awareness cannot be abdicated, since the promotion of health and safety at work is first and foremost, a matter for efficient management. In the area of structural or organisational approach, there should be a health and safety committee to help address all health and safety issues. Health and Safety Committees, according to Ivancevich (2015) are responsible for other identification and control of health and safety standards, the establishment and promotion of health and safety education and information processing and taking review action where necessary. The committee is also in charge of the settlement of disputes, such as an employee's refusal to perform a job if it is hazardous.

Ivancevich (2015) considers the role of top management and argues that the success of health and safety programmes requires the support and the

cooperation of all managers. Top management must support health and safety programmes with adequate budget. Managers must also give health and safety issues their personal support and discuss with everyone in the firm. Acting on reports about safety is another way top-management can ensure success.

Relationship between Organisational Culture and Health and Safety

Organisational culture is described by Asare-Bediako (2003) as being made up of the values and means of production in an organisation. Values are the guiding beliefs, which determine the behaviour of people within the enterprise. Norms, on the other hand, are the accepted standards of conduct or attitude in the enterprise. A major factor that plays a role in shaping organisational culture is the action of key personnel in the organisation. In understanding how attitudes are formed and changed, managers can shape employees' attitude. Thus, the right climate for health and safety must be spearheaded by the actions of top management.

Correcting poor safety attitude hinges upon human relations and the supervisor's ability to create a team spirit that encourages employees to work safely. The supervisor must set the tone for safety consciousness by insisting on complete checks and correct methods of working at all times.

Betts (2008) further argues that, where the relatively stable shared values (culture) of the organisation are such that safety procedures, guidelines rules and regulations, and standards are not adhered to, there is the possibilities of such a practice leading to or fuelling accidents in that organisation. This is to say that in

organisations, one of the promoting factors of occupational accidents is the culture of the organisation. To prevent such a situation Cassio, (2013) says the organisation should ensure success or effectiveness through appointment of a high-level safety officer, reward to supervisors on the basis of the safety records of their subordinates, and comparing of safety results against pre-set objectives. Furthermore, top executive should serve as role models to subordinates as disregarding safety rules or treating hazardous situations lightly will send a wrong signal to subordinates.

Global Challenges of Occupational Health and Safety

The prevention of occupational accidents, injuries, and diseases and the protection of workers against physical and psychological overload, minimizing the unnecessary loss of human and material resources must be implemented. It has been estimated that two-thirds of the workers of the world still work in conditions that do not meet the minimum standards set by the ILO (ILO, 2010).

About 100,000 chemicals, some 50 physical factors, 200 biological factors and some 20 adverse ergonomic conditions and an identical number of physical workloads associated with incalculable numbers and types of physiological and social problems have been identified as hazardous factors or conditions of work that usually occur in combinations and have several interactions that have serious negative effects on the health of the individual. These contribute to the risk of occupational injuries, diseases and stress reaction, job dissatisfaction and absence of wellbeing. Most of such problems are in principle preventable and should be

considered in view of the interest in the health and wellbeing (ILO, 2007). Obeng-Fosu (2009) also identified health requirements such as provision of safe drinking water, first aid, and facilities for changing over and washing down.

According to Cole (2013), in matters of health, safety and welfare at work, the majority of the ground-rules are laid down by statutory regulations. However, the legal obligations only provide a minimum standard. Therefore, genuinely concerned organisation should assert the spirit and the letter of the requirement of health and safety. The most important challenges for occupational health by the year Two Thousand and beyond will be health problems linked with new information technology transfer to hazardous technologies, and occurrence of new occupational diseases. Therefore, health at work and healthy work environments are among the most valuable assets of individuals, organisations, communities and countries (ILO, 2009).

Occupational health issues are important in ensuring the health of workers and also contribute positively to productivity, quality of projects, job satisfaction and thereby, to the overall quality of life of individuals and society. Conditions of work and the work environment may have either a positive or hazardous impact on health and wellbeing. Ability to participate in the working life opens the possibility of a person to carry his or her working skills and social contacts (WHO, 2011).

In a nutshell therefore, studies by different people have indicated that occupational accidents have serious effect on the employees since it could lead to death, diseases, poor quality of life, incapacitation or otherwise of the worker. In

the case of the organisation, where accidents are on the high side the image or reputation of the organisation would be affected negatively (Ivancevich, 2015).

Issues on occupational health and safety practices in Africa

Ghana is one of the democratic states in Africa, particularly in West-Africa Sub-Region; and therefore, Ghana's occupational health and safety practices may be inseparable from other countries on the African continent. Africa as a continent was forecasted to fall short of meeting most of the Millennium Development Goals (MDGs), particularly those related to health and safety (WHO, 2013). The reason behind this finding was that, African countries often ignore the importance of occupational health and safety in achieving the MDGs. Thus, addressing these factors and therefore achieving the MDGs and other internationally agreed development goals in Africa holds the promise of saving millions of lives. Improving occupational health and safety services remain one of the key interventions in pursuance of improved health and safety outcomes for the populations in the African Region. It is therefore a major concern to indicate also that, the average life expectancy of someone living in sub-Saharan Africa (SSA) is low (Reason, 2010). Unsurprisingly, the region's life expectancy today is lower than it was three-decades ago.

The prevalence of occupational health and safety issues in most of the African countries is due to inadequate attention given to OHS by the industries and governments. Many international and non-governmental organisations often ask why majority of the African countries are struggling to foster an effective occupational health and safety workplace. One perspective to the above concern is

that majority of African countries have poor health and safety culture (Moses, 2011). Additionally, the reason might be that, greater emphasis is laid on increasing productivity and profitability whiles compromising health and safety standards, procedures and policies. Another OHS perspective for Africa is that, Africa's slowness in promoting occupational health and safety is due to colonialism and its effects on socio-economic development (Meredith, 2013). The colonial administration situated occupational health and safety in certain viable and relevant sectors in pursuit of their colonial ambitions. It is also suggestive that many African countries have weak procedural and administrative justice systems to handle occupational health and safety issues, a perspective that is often neglected. It is believed that, these have retarded the development and promotion of occupational health and safety in African countries. Despite the mentioned historical limitations, setbacks and struggling to improve, African countries are presently trying to invest in occupational health and safety.

Currently, the African continent is experiencing a sharp turn from agriculture to industrialization with colossal participation and contribution from the private sector. African countries are increasing their gross domestic product through the help of the manufacturing sectors with huge number of factories, machines and industrial workers.

Like the era of industrial revolution, industrialization comes with its own challenges. Considering recent industrial developments, there is the need for African countries to invest heavily in occupational health and safety practices. Although many African countries are financially challenged, building a

competitive continent requires competitive investment in the area of creating safe continent for foreign direct investments (FDIs). Certainly, the most competitive countries or continents are also the safest (ILO, 2009). Probably, opting for a low-safety, low-health and low-income survival strategy is not likely to lead to high competitiveness or sustainability for African countries (ILO, 2010).

Several occupational health and safety risks, accidents, and hazards proliferate in most African countries. Amweelo (2011) investigating industrial accidents in Namibia reported some occupational health and safety issues such as careless attitudes toward work which leads to risk and hazards of work, and therefore revealed common industrial incidents at the workplace. In South Africa, more than 300,000 incidents are said to take place every year indicating the proliferation of occupational health and safety risk, hazards and diseases (Bell, 2011).

However, given the inadequate occupational health and safety infrastructure, the above figure could be much higher than reported. It was revealed that, South African mining companies are leading in occupational health and safety incidents and many other African countries are no exception (Annan, 2010).

Occupational health and safety remains neglected in developing countries including Africa because of competing national and sectoral issues and challenges (Nuwayhid, 2014). For instance, the Regional Committee for Africa Report (2004) stipulated that due to endemic poverty and poor performance of African economies, the African region is faced with a number of OHS challenges.

According to this report, Africa's challenge is how to ensure that workers in both the informal sector and formal sector have adequate health and safety education and are able to actively use this information to better their health and safety practices. Probably, ignorance might be the reason for the neglect of occupational health and safety practices and investment in African countries. ILO (2015) indicated that, there are some African countries that are refusing to provide OHS services for its public sector workers. These shows that governments in African countries must help provide a policy framework for promoting OHS.

In 2009, a global meeting was also held in Benin to review the state of occupational health and safety practices in Africa. Several observations were found and reported. First, it was revealed that most African countries have poor OHS review mechanisms, second, majority have inadequate OHS policy especially Ghana, third, some have OHS infrastructures. Against this background, there is the need for OHS investments in the areas of OHS research, OHS education, OHS policy formulation and implementation, OHS training and OHS promotion in African countries.

Despite the above challenges to effective OHS investment in some African countries, a number of OHS initiatives merit consideration. Nigeria despite their occupational health and safety challenges was the first country in Africa to host the first seminar on Occupational Health for Developing Countries in Africa which was held in Lagos in 1968 (Omokhodion, 2009). Some developing countries in Africa are considering occupational health and safety infrastructure; OHS education and training; collaborations in OHS researches; OHS clinical and

laboratory services; and OHS legal and policy instruments as some of the ways of improving OHS practices (Rantanen, 2009). Also, Amedofu (2012) revealed that industries in Nigeria are recently pursuing some OHS initiatives such as OHS training, OHS awareness, OHS incentives, OHS accidents investigation and the provision of personal protective equipment (PPE). They proposed that academics, industry and health and safety practitioners should help set attainable and sustainable health and safety objectives to help manage health and safety hazards in African countries.

The application of information and communication technologies to OHS practices was observed to be increasing in some African countries (Sass, 2010). In the year two thousand,, there was a WHO/ILO joint effort on occupational health and safety in Africa with many collaborators such as USA, EU, WHO and ICOH for the purpose of sharing information on occupational health and safety; building capacity for occupational health and safety; and formulating polices and legislations for employee health and safety in Africa. In recent time, fairly significant institutional and legal developments according to Ladou (2010) have been identified in few African countries. The above demonstrates the state of OHS in African countries which may be typical in Ghana.

Issues on Occupational Health and Safety Practices in Ghana

Many OHS issues abound in the Ghanaian organisations. Main OHS issue pertains to dealing with OHS challenges. Obviously, the country has come to OHS late with difficult challenges for OHS practices. One of the major challenges of occupational health and safety practice is that, like many African countries, Ghana cannot boast of any comprehensive national OHS policy. This challenge was observed by the Ghana Health Service (2007) which reported that, Ghana's challenge of mainstreaming OHS practices in its national developmental agenda is certainly mitigated by lack of national OHS policy.

The issue of policy framework is commonly regarded as African countries most difficult challenge in the sense that policies do not work. For example, Clark (2010) indicated that, majority of Ghana's legal provisions on OHS is limited in scope as vast majority of industries, including agriculture and most of the informal sectors are not specifically covered.

Statutes on the implementation of occupational health and safety include the Factories, Offices and Shops Act 1970, Act 328 and the Mining Regulations 1970 LI 665 which have driven OHS implementation in the manufacturing, shipping and mining sectors. Other statutes that have bearing on OHS are the Workmen's Compensation Law 1987, Environmental Protection Agency Act 490, 1994, and the Ghana Health Service and Teaching Hospitals Act 526, 1999. However, these few legal provisions require huge modification to meet international requirements and standards.

Furthermore, the Ministry of Health Report of 2012 identified some OHS challenges in Ghana. These include weak OHS infrastructures, untrained and inadequate OHS professionals, and lack of proper monitoring and surveillances for occupational health and safety diseases and injuries. In support, Muchiri (2013) buttressed these problem scenarios by indicating that, poor OHS infrastructure and funding, insufficient number of qualified occupational health and safety practitioners and the general lack of adequate information are among the main drawbacks to an effective OHS practices. Kheni (2014) conducted a survey on health and safety practices among construction Small Medium Enterprises and revealed serious OHS problems.

The main problems identified by Kheni included lack of skilled human resources, inadequate government support for regulatory institutions and inefficient institutional frameworks as responsible for health and safety standards. Additionally, insufficient OHS education has been one of the challenges to occupational health and safety practices (Ministry of Health Report, 2012).

Another key OHS issue is the employees' incessant exposure to occupational health and safety hazards, risks and diseases. Researchers have reported some OHS risks, hazards and diseases in Ghana. Fire outbreaks in both private and public institutions have dramatically increased without major interventions. For example, Ghana's biggest market (Kumasi Central Market) was gutted by fire which was estimated to have destroyed over 400 market stalls, as well as a significant amount of goods and cash (Ghana News Agency, 2009) and not mentioning the state agencies such as the Ministry of Foreign Affairs and

Land Commission which were burnt into ashes with devastating effects. The Factories, Offices, and Shop Act 1970 (Act 328), establishes that there shall be an appropriate means of fighting fire in every factory, office and shop in Ghana (Alfers, 2012).

A study by Avotri and Walters (2009) showed that sanitation problems that are aggravated by the lack of accessible running water, as well as inadequate toilet facilities have the highest tendency of causing malaria and diarrhoea, musculo-skeletal pain, dehydration, and headaches. As a commercial and rapidly growing economy, noise-induced hearing loss is identified as one of the most prevalent occupational health and safety risk and hazards in the construction industries with damaging effects on construction workers health (Amedofu, 2012).

These above findings revealed that the construction industry recorded 902 accident cases comprising 56 fatal accidents and 846 non-fatal accidents in 2014 (Danso, 2015). Moreover, a study by Agbenorku et al. (2010) found that workers are exposed to high levels of injuries, diseases and risk, especially, in the mining and printing industries. Danso (2015) indicated that OHS risk, hazards and accidents in the construction and mining sites are very fatal and worrying.

In the same light, Ackerson and Awuah (2010) reported that, farmers are also exposed to occupational and water-related health risks, hazards and diseases including schistosomiasis, cholera, nematode infections, malaria, headaches, dermatological, visual, cardiac, and other respiratory problems. These however, require both governmental and industrial attention.

Conceptual Framework

As a conceptual framework the researcher adopts the idea from Geller, (2010) that health and safety in an enterprise stands on three pillars, namely health and safety equipment and tools, health and safety practices, and training and re-training on health and safety (Figure 1).

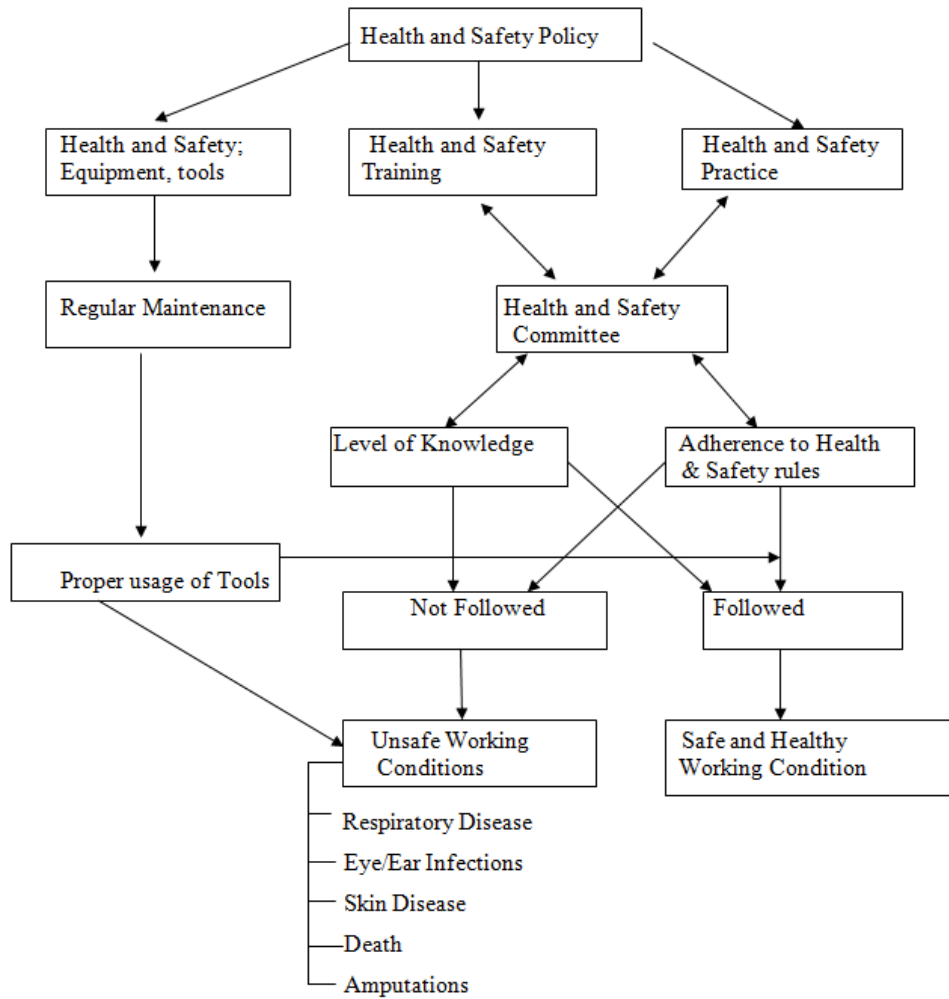


Figure 1: Conceptual framework on health and safety practices.

Source: Geller, T. (2010)

To ensure the effectiveness of the health and safety tools there must be regular maintenance of these gadgets. Health and safety practices are formed by

facilitating and ensuring that the policy is well communicated to the employees in order to solicit their participation in the implementation of the policy. It also undertakes hazards audit to identify hazards to the use of health and safety committee. These hazards determine the type of training needed.

Training and re-training is the medium of creating awareness and improving health and safety consciousness in employees. Adherence to safety rules, knowledge of health and safety, as well as an effective health and safety committee are inter-related to the extent that each impacts directly on the other. These components must be effective in order to have a good safety culture in the establishment.

The absence of these would lead to respiratory infections, accident resulting in death, fracture, amputation and other forms of occupational diseases. Whiles the observance of these would lead to a healthy and safe work environment.

Summary of the Literature Review

From the above discussion it is seen that Organisational Health and Safety measures are implemented to ensure that workers and management are able to work in an official environment free from identifiable and not so much conspicuous hazards. There are laws which have been enacted to promote safety at the organisational environment. Theories such as risk theory/defence indepth theory, accident model based on systems theory and the actively caring model

have explored for the present study in a bid to see how best organisation can be improved.

CHAPTER THREE

METHODOLOGY

Introduction

Research methodology refers to the method adopted in carrying out a research. According to Kheni et al. (2008), it is a systematic way applied to solve a research problem. The methodology for this study is treated under the following sub-headings: research design; population; sample size; sampling technique; instrumentation; mode of data collection; and method of data analysis.

Study Area

The study area is Tarkwa and its environs in the Wassa Amenfi West District of the Western Region of Ghana. Tarkwa is the administrative capital of the Wassa West District. Tarkwa has over a century of gold mining history and has the largest concentration of mines in a single district on the continent of Africa, with virtually all the six new gold mines operating surface mining. Many of the multinational mining companies in the area have gold mining concessions in other West African countries with similar rock units (AngloGold Ashanti Financial Statement, 2009).

The area contains a significant proportion of the last vestiges of the country's tropical rain forest, which declined from 8.2 million hectares in 1992 to 750,000 hectares by 1997. It is characterised by an undulating terrain with a magnificent drainage system. It experiences the heaviest and most frequent rains in the country (Asklund & Eldvall, 2005).

It is bordered to the North by the Wassa Amenfi District, to the South by the Mpohor-Wassa East and Ahanta West, to the east by the Mpohor-Wassa, East and to the West by the Nzema East District. The Wassa West district occupies the mid-southern part of the Western region of Ghana with Tarkwa as its administrative capital. The total population of the Wassa West and Wassa East districts is approximately 245,000 and is mainly composed of the indigenous Wassa tribe but all tribal entities in Ghana are well represented. Subsistence farming is the main occupation of the people although rubber, oil palm and cocoa are also produced. Mining is the main industrial activity in the area (Avotri et al., 2009). The area lies within the main gold belt of Ghana that stretches from Axim in the South-West, to Konongo in the North-East (Katsoulakos et al., 2007).

The Wassa Amenfi West District covers a total land area of 1,448.56 square kilometers (Ghana Statistical Service, GSS, 2013). The 2010 Population and Housing Census recorded a total population of 92,152 for the district. This represents 3.9 percent of the regional population (2,376,021). The district has a male population of 51.4 percent and 48.6 percent representing females (GSS, 2010a). The district has a sex ratio of 105.7 males per 100 females. The district has 58.6 percent of the population living in rural areas and 41.4 percent in urban areas (GSS, 2010b).

The age distribution in the district depicts a youthful population consisting of large numbers of children and a small proportion of older people. The proportion of the population by age reduces with older age except for the age

group 70-74 where the proportion is higher than that of the preceding age group 65-69 (GSS, 2010c).

Further, 41.4 percent of the total population of the district is aged 0-14 years, while the proportion of those aged 60 years and above is 3.1 percent. The district has an age dependency ratio of 80.

The total fertility rate for Wassa Amenfi West District is 3.7, which is slightly higher than the regional average of 3.6. The general fertility rate in the district is 107.9 births per 1000 women, which is slightly higher than the regional GFR (105.8 per 1000 women). The crude birth rate in the district (25.9 per 1000) is, however, lower than the regional rate of 26.8 births per 1000 (GSS, 2010a).

The crude death rate, which measures the number of deaths per 1,000 populations, is 5.8. The rate is slightly lower than the regional death rate of 6.2 per 1,000 persons. Five hundred and thirty (530) deaths were also recorded from all the households enumerated in the district.

Central Region contributes the highest number of migrants in the district with 5,093 migrants, followed by Brong-Ahafo Region (4,368) and Ashanti Region (4,083).

The Wassa West District is said to contain 44% of Ghana's closed forest, accounts for 30% of the country's gold production, about 39% of cocoa, 50% of the country's standing commercial timber and 100% of manganese and bauxite production. This natural resource potential provides the basis for varied economic activities in the area. Outside the Tarkwa Township and in the rural settlements,

subsistence and commercial farming have been the main economic activity among the people. Currently, however, mining has overtaken farming as the single largest economic activity in the area (AngloGold Ashanti Annual Financial Statement, 2009).

Tarkwa has the highest concentration of mining companies in the country and the West African sub-region and possibly in the whole of Africa. Out of the sixteen large-scale mines in Ghana eight of them are located in the Tarkwa area, producing a significant proportion of the country's gold output. In addition, there are over one hundred registered small-scale gold and diamond mining companies in the area, together with more than six hundred unregistered miners herein referred to as 'galamsey' operators.

Justification for the Selection of AngloGold

The need for this study can be justified on theoretical and practical grounds. Theoretically, accident rates tend to vary with the type of occupation. However, the mining industry has historically been regarded as a dangerous industry due to the frequent disasters and accidents with a high disabling injury rate in its early years. These observations have been attributed to the extremely stressful conditions under which miners work (Annan, 2010). Iduapriem Mine has over two thousand workforce and through risk assessment has identified high risks within its operations, these risks include but are not limited to; geotechnical issues, heavy mining equipment operations, hazardous materials handling, drilling and blasting activities as well as the operation of processing equipment and

operation of tailings storage facilities. Also, a Ghana News Agency Report (2009) indicates that statistics on workplace injuries show that in every two working days throughout Ghana, someone dies or is injured in the mining sectors as a result of industrial accidents or poor safety conditions at workplace especially those mining companies with large labour force like AngloGold Ashanti.

Practically, some studies by Yeboah (2008), Ganson (2014) and Amponsah-Tawiah, et al. (2016) have highlighted specific problems on different dimensions of OHS practice by labour force. However, very little has been done on OHS practices in the mining sectors, more specifically, in the study area. It is against this backdrop that this research seeks to find the health and safety knowledge and practices of worker at the AngloGold Ashanti Iduapriem Gold Mine Ghana Limited, Tarkwa. The outcome of this study will provide a firsthand insight to managers and workers alike to know their responsibilities in relation to the promotion of health and safety practices at the workplace and this will enable Iduapriem Mine to achieve a world class standard of occupational health and safety management through the establishment, implementation, maintenance and continual improvement to drive a strong occupational health and safety culture and performance in accordance with the company's mission, vision, values and code of business practice.

Research Design

A research design is the overall plan for collecting data in order to answer research questions. It involves the specific data analysing techniques or methods the researcher intends to use. Several research strategies can be adopted in a social science research. The choice of strategy according to Leedy et al. (2010) is guided by four questions that dwell on the data needed, location of data, how data will be collected and finally, how data will be interpreted.

The study adopted the case study design of a mining concern. It was non-interventional in nature as the researcher did not participate in the activities of the company. As a result of the many different sections of the Company, the researcher used a cross-sectional approach to capture the practice and views in all sections at a given time.

The research was conducted in a five-stage approach. The first stage reviewed literature of related papers, articles and books on health and safety practices at the mining industries. The second stage focused on research instrument selection and questionnaire for the study. The third stage involved pre-testing and modification of questionnaires using reactions of respondents, discovering of errors in the instrument and sampling procedures of the pilot test. The main questionnaire was administered to the respondents randomly. The fourth stage involved the coding of data in SPSS software for the analysis. The fifth stage comprised the generation of the results from the data analysis and interpretation. Finally, a report was written and presented in a form of academic thesis.

The survey method as a type of research design was adopted as it did not require much financial outlay and it allows collection of data within a short period of time. This facilitates the generalization from a sample to a population. Leedy et al. (2010) maintains that the survey has the advantage of wider application as it allows data to be collected on a large population within a short space of time. He uses the imagery of a camera to explain what a survey research is by stating that, a survey research captures a fleeting moment in time, much as a camera takes a single frame photograph of an ongoing activity. By drawing conclusions from one transitory collection of data, we may extrapolate the state of affairs over a longer period. Also, survey research allows for comparison of responses on which conclusions can be based (Creswell, 2005). For the purposes of this study, a cross-sectional descriptive survey was also adopted. This is the method through which information is collected at one point in time.

Table 1: Mining Companies Operating in Wassa West District

Company	Location	Start	Processing Method
GFL	Tarkwa	1993	Underground/open cast/heap leach
TGL	Teberebie (Tarkwa)	1990	Open cast/heap leach
BGL	Tarkwa	1990	Open cast/CIL
GAG	Iduapriem, (Tarkwa)	1992	Open cast CIL/heap leach
Barnex (Prestea)Ltd	Prestea	1997	Underground Open-pit/CIL
Sankofa Gold	Prestea	1995	Tailings Treatment/CIL
Abosso Goldfields	Abosso	1997	Open-pit/CIL
SGL	Tarkwa	1999	Open-pit/CIL

Source: Saas R. (2010)

All eight companies employ the open-pit method of mining. Also, all the companies use cyanide heap leach operations as shown by Table 1. These methods have far-reaching consequences for human health and environmental safety.

Study Population

A population can be defined as all the units for which information is required (Leedy, 2010). The population for the study was made up of two thousand and forty (2,040) staff at AngloGold Ashanti Iduapriem Ghana Limited working in different sections of the company.

Sampling Procedure

Sampling entails selecting elements of the study population as a complete coverage of the study is not usually possible. LaDou (2010) states that sampling is the process of selecting a few (a sample) from a bigger group (the sampling population) to become the basis for estimating or predicting the prevalence of unknown piece of information, situation or outcome regarding the bigger group. According to Aina (2009), it involves selecting an unbiased and representative unit from a population. LaDou (2010) further states that four factors usually affect the sample size of a population. These are the size of the population, the variation in the characteristics being measured, the number of ways in which data are stratified and the parameters required of the data.

For the purpose of this research, simple random and stratified sampling techniques were utilized. The stratified sampling technique was employed to reduce the level of heterogeneity of the study population as well as to achieve greater accuracy in estimating the sample size (LaDou, 2010).

The maximum practical size for a sample according to Alreck and Settle (2001) is 10% under ordinary conditions. Contrary to the popular belief, the maximum practical size of a sample has nothing to do with the size of the population, provided that it is many times greater than the sample.

Alreck and Settle (2011) further cite the following simple analogy to make this fact understandable. Suppose one is warming a bowl of soup and wants to know if it is hot enough, the person would probably sample it by stirring the soup, then trying a spoonful. The sample size would be one spoonful. Assuming

that one is to warm hundred gallons of soup for a large crowd and wants to test it to see if it is hot enough to serve, she would probably stir it and take a sample of one spoonful, even though the “population” of soup was hundred times larger than in the first analogy.

This is to say that the size of the population does not determine the size of the sample that is required. The decision to take a sample for the study instead of surveying the total population was informed by the fact that, a saturation survey would have been difficult considering the size of the company, limited time as well as other limited resources.

Sampling has the advantage of saving time, financial and human resources. Also, the findings would be reasonably accurate. According to Alreck and Settle (2011), only a small fraction of the entire population ordinarily provides sufficient representation of the group as a whole and enough accuracy to base decisions on the results with confidence.

Sample Size

While sampling is extremely practical and economical, it must be done correctly else it would introduce bias or errors in the results. The sample must be selected properly else it will not represent the whole (Alreck & Settle, 2011). There are different sampling techniques that can be used in selecting a sample from a population. These include simple random sampling, stratified sampling, accidental sampling, quota sampling, cluster sampling and purposive sampling.

The random sampling technique was adopted for the study to select two hundred (200) persons selected across all sections of the company. It was made up of 40 senior staff and 160 junior staff of staff selected randomly. The size of 200 was to make the research work relatively easy, since involving all employees was impossible due to the size of the population. The 200 persons selected randomly represented about 10% of the whole population. This helped to reduce the level of error and increase the level of precision. It was assumed that responses might not vary much from respondents from the same section therefore increasing the sample size from one category was not likely to make any meaningful difference.

Data Collection Method

The main type of data was primary data collected from respondents. By this the researcher administered the questionnaire (See Appendix A) to staff of AngloGold Ashanti Iduapriem Ghana Limited.

Instruments Used in Collecting Data

The instrument used in this study was questionnaire. A questionnaire according to LaDou (2010) is a written list of questions, and to be responded by respondents. He further states that it is important that the items are clear and easy to understand. Kheni (2014) states that the use of questionnaire as a choice of research instrument for data collection has a special advantage over other methods of data collection especially in quantitative studies.

Questionnaire was used in this study because it is appropriate for literate respondents and facilitates the collection of large amounts of data in a relatively short period. It is also easier to quantify and treat statistically. Questionnaire however has the disadvantage of precluding personal contact with respondents and most often, there is difficulty of verification of the accuracy of responses.

For the purposes of this study, a combination of open and closed ended questions designed by the researcher were used.

Pre-testing

Once the research strategy was finalized, it was wise to try out the technique chosen as the main data collection device (LaDou, 2010). Pre-testing fulfills the role of a dress rehearsal and is useful for the following reasons that include providing an estimate of the time required to administer each individual instrument to complete a questionnaire. It also brings up the main flaws in the questionnaire bringing its main weaknesses, ambiguities, etc., of individual questions if pre-formulated questions and /or response categories are to be used and finally it illustrates the kind of data which will result from the main study.

According to Creswell (2005), testing is important to establish the face validity of an instrument and to improve items, format and the scale. On the basis of pre-testing, the questionnaire was further improved and standardized.

To ascertain the reliability and validity of the instrument, a pilot test was conducted using the instrument at Goldfields Ghana Limited, at Tarkwa.

Problems such as the inability of some junior staff members to read and respond to the items properly, some items not clear to respondents, etc. were detected and corrected by re-framing them to ensure that items were responded to making the instrument more reliable.

Questionnaire Administration and Collection

Survey questionnaire was used in the study and was administered in two ways. These are self-administered questionnaire survey and mail surveys. Concerning the self-administered questionnaire, questionnaires were given out to the respondents to complete. Some of the completed questionnaires were collected right after on the spot whilst others were retrieved at a later date. With the mail survey method the researcher mailed some of the questionnaires directly to the respondents for them to complete and return. At the end of the instrument administration 200 questionnaires duly completed were retrieved.

Data Analysis

The data collected were analysed using Statistical Product and Service Solutions (SPSS) Version 21 software. The SPSS was used in finding the central tendencies and standard deviations of the various variables. Graphs such as pie charts and bar charts were used in presenting the findings and discussions. The results were presented in the form of frequency distribution, tables, pie and bar charts.

Summary of Methodology

This chapter presents the methodology used in carrying out the research, it provides information about the study area, list of mining companies operation in Wassa District, study population, the sampling procedures utilized in carrying out the research, sample size, the instrument used collecting data, pre-testing, questionnaire administration and finally, gives information on how the data collected were analysed using SPSS Version 21

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter discusses the results of the study in line with the specific objectives. Issues discussed include the background characteristics of respondents, health and safety policies of the company, knowledge of the health and safety issues among workers, workers attitude and behaviour towards OHS policy of the company, frequency of occupational accidents over the past three years and implication of the health and safety policy are also discussed.

Background Characteristics of Respondents

This section presents the background characteristics of respondents which include sex, age, department, rank/position and years in service. The results in Table 2 gives the impression that there are more males than females at the AngloGold Ashanti Iduapriem Ghana Limited at Tarkwa as 91% of the respondents were males while 9% were females.

Sex of Respondents

Out of the 200 respondents randomly selected 182 were males representing 91.0% whereas 18 were females representing 9.0%.

The dominance of males could be explained by the socio-cultural perception that the mining industry is a male vocation.

A possible explanation by Zalk (2013) which happens to be consistent with the results for the predominance of males in the mining industry is that, it

required long hours which the female respondents could not offer since they had to rise up to the call of certain social duties such as child bearing and nurturing.

Table 2: Age of Respondents

Age	Frequency	Percent
20-29	61	30.5
30-39	54	27
40-49	75	37.5
50-59	8	4
Non-Reponses	2	1
Total	200	100.0

Source: Fieldwork, 2013

About 40% of the respondents were in the range of 40-49 years with 4% between 50-59 years. In addition, 30.5% are between the ages 20-29 years while 27% are within 30-39 years. This means that more than one-third of the number of workers/staff at the AngloGold Ashanti Iduapriem Ghana Limited were below 50 years, as seen in Table 2.

These results contradict Danso's (2015) assertion that the average age of mining employees in Ghanaian industries lies between the ages 20 and 30.

Table 3: Respondents' Department

Department	Frequency	Percent
Drill and Blast	8	4
Emergency	7	3.5
Engineering	66	33
Health Safety and Environment	10	5
Mining	45	22.5
Processing	63	31.7
Non-Reponses	1	0.5
Total	200	100.0

Source: Fieldwork, 2013

One-third of the respondents (33%) were in the engineering department while about one-third (31.5%) came from the processing department. Table 1 again indicates that 22.5% are in the mining department with 5% in the health safety and environment department. The rest forming 3.5% of the respondents were in the emergency and 4% were in the Drill and Blast as seen in Table 3.

Table 4: Rank/Position of Respondents

Rank/Position	Frequency	Percent
Assistant Site Manager	5	2.5
Dam Operator	10	5
Drill Assistant	8	4
Engineer	3	1.5
Foreman	28	14
General Hands	21	10.5
Offside	7	3.5
Operator	17	8.5
Plant Operator	27	13.5
Safety Officer	27	13.5
Senior Met Engineer	17	8.5
Technician	12	6.
Truck Operator/Driver	13	6.5
Non-Reponses	5	6.5
Total	200	100.0

Source: Fieldwork, 2013

On the issue of rank/position at the AngloGold Ashanti Iduapriem Ghana Limited, Table 4 shows that 14 percent were found to be foreman and plant operators and safety officers respectively, 9 percent were Senior Met Engineer and Operators, 7 percent in Truck Operator/Driver; 6% were Junior Staff and Technician while 2% were engineers. Results in Table 5 show that there are

more staff in the rank/position of foreman, plant operator and safety officer than any other position or rank at the Company.

Table 5: Years Spent in Service

Years In Service	Frequency	Percent
<1	21	10.5
1-5	27	13.5
6-10	78	39
11-15	51	25.5
16-20	19	9.5
Non-Reponses	4	2
Total	200	100

Source: Fieldwork, 2013

Table 5 shows that approximately 40% of the staff at the AngloGold Ashanti Iduapriem Ghana Limited had spent 5-10 years in service while 26% had served between 10-15 years. 14% of the selected staff have been in service for 1-5 years with one-tenth (10%) serving between 15-20 years. 11% have been in service for less than a year at the Company.

Health and Safety Policies of the Company

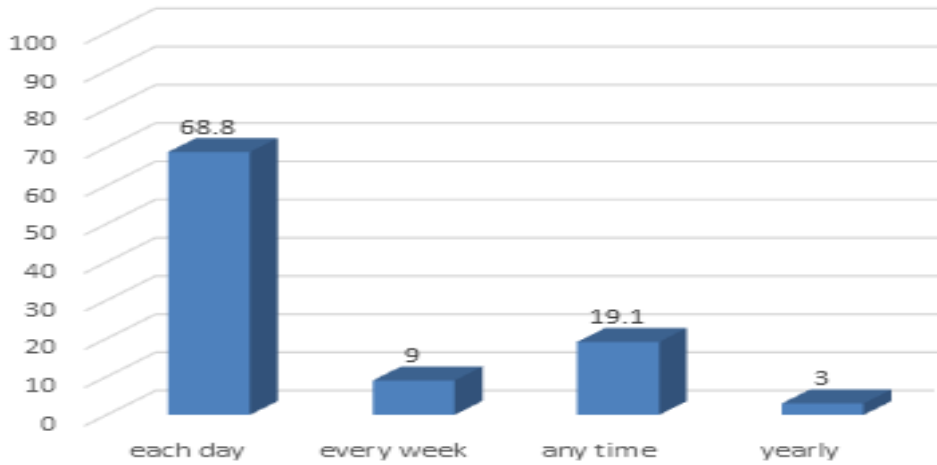


Figure 1: Periodical machines and guards inspection at workplace.

Source: Fieldwork, 2013

Workers were asked on the frequency of the use of periodical machines and guards inspection at workplace in order to ascertain the health and safety policies of the company.

Results in Figure 2 show that more than 69% indicated that periodical machines and guards' inspection at workplace were done each day; 19% reported that they are done at any time; 9% said it is done weekly while 3% indicated that periodical machines and guards' inspection at workplace were done yearly.

Based on the results, it is obvious that periodical machines and guards' inspection at workplace were done on daily bases at the AngloGold Ashanti Iduapriem Ghana Limited.

This affirms the views of Ivancevich (2015), that the success of health and safety programmes rests primary on how well employees and supervisors co-operate with safety rules. This implies that awareness of the frequency of periodical machines and guards' inspection at workplace in order to ascertain the health and safety policies of the company is in good taste.

Table 6: Regular Report of Defects/Hazards/Risks

Responses	Frequency	Percent
Manager	27	13.2
Safety officer	96	48.8
Supervisor	23	11.5
Supervisor/superintendent/manager/safety officer	52	26
Non-Reponses	2	1
Total	200	100

Source: Fieldwork, 2013

Still on the health and safety policies of the company, about 50% of the respondents stated that regular reports of defects/hazards/risks were made to the safety officer.

Twenty-six (26) percent reported that they made reports to supervisor, superintendent, manager and/or safety officer; 14% recounted that reports were made to the manager while 12% stated that regular reports of defects such as hazards and risks were made to supervisors. This implies that regular reports of

defects/hazards/risks are usually made to the safety officer in the company as seen in Table 6.

This affirms the views of Ivancevich (2015), that the success of health and safety programmes rests primary on how well employees and supervisors cooperate with safety rules.

It is also consistent with Amweelo's (2011) claim that, accidents at the workplace can cause a lot of stress and anxiety. The first thing to do is to notify your employer of the accident through the Safety Officer. It further states that, employers are responsible for employees' safety and legally bound to be so. Immediately reporting the accident to your employer will also help them curtail such accidents in future by adopting proper safety precautions.

Safety Device Enforcement

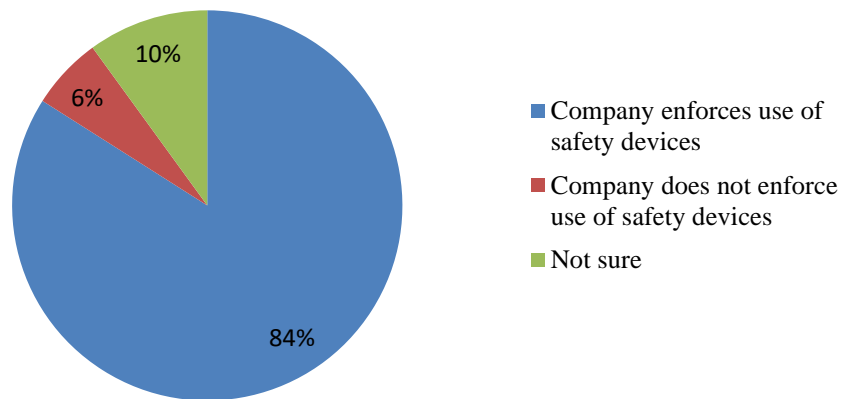


Figure 2: Enforcing the use of safety devices.

Source: Fieldwork, 2013

Regarding enforcement of the use of safety devices, results in Figure 3 reveal that majority of the respondents (84%) indicated that the company enforces the use of safety devices while 6% said the company did not enforce the use of safety devices. Approximately 11% of the number of staff said they were not sure as to whether the company enforced the use of safety devices or not. Here again, it can be observed that AngloGold Ashanti Iduapriem Ghana Limited enforces the use of safety devices among the workers.

These results affirm the views of Asare-Bediako's (2003) claim that, the right climate for health and safety must be spearheaded by the actions of top management by enforcing the use of safety devices and thereby creating a team spirit that encourages employees to work safely. The supervisor must set the tone for safety consciousness by insisting on complete checks and correct methods of working at all times.

Knowledge of Health and Safety Policy

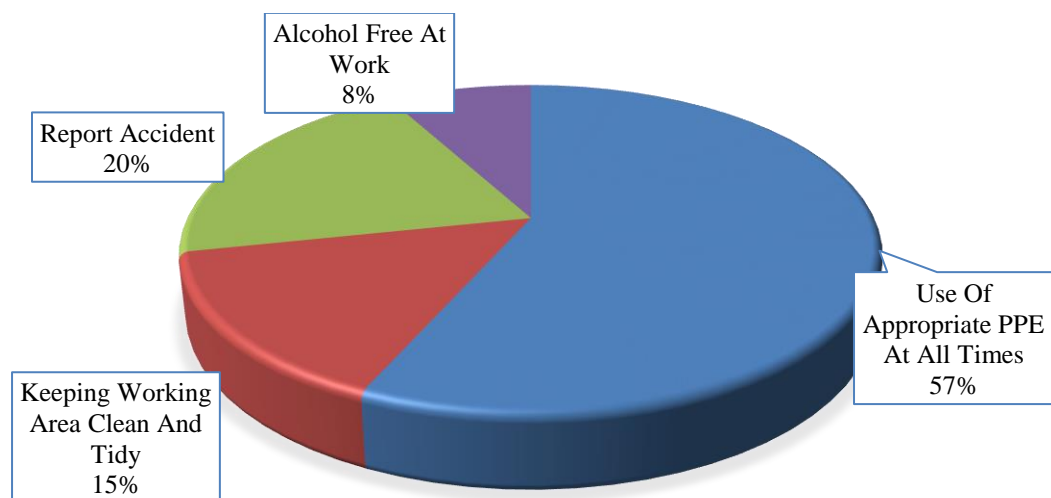


Figure 4: Knowledge of health and safety policy.

Source: Fieldwork, 2013

Regarding knowledge of health and safety policies among workers of AngloGold Ashanti Iduapriem Ghana Limited, respondents were asked to indicate the policies they knew of the company. The results in Figure 4 show that more than half the number of respondents (57%) indicated the use of appropriate personal protective equipment (PPE) at all times; one-fifth (20%) indicated reporting of accidents as one of the policies of the company; 15% of the selected staff mentioned keeping working place clean and tidy while less than one-tenth (8%) stated alcohol free at work as a policy of the company. More importantly, it can be mentioned here that one of the occupational health and safety policies that the AngloGold Ashanti Iduapriem Ghana Limited at Tarkwa, uphold to, is the use of appropriate personal protective equipment (PPE) at all times.

This also affirms the views of Ivancevich (2015) which says that the success of health and safety programmes rests primarily on well employees and supervisors co-operate with safety rules.

Opinion on Health and Safety Policy

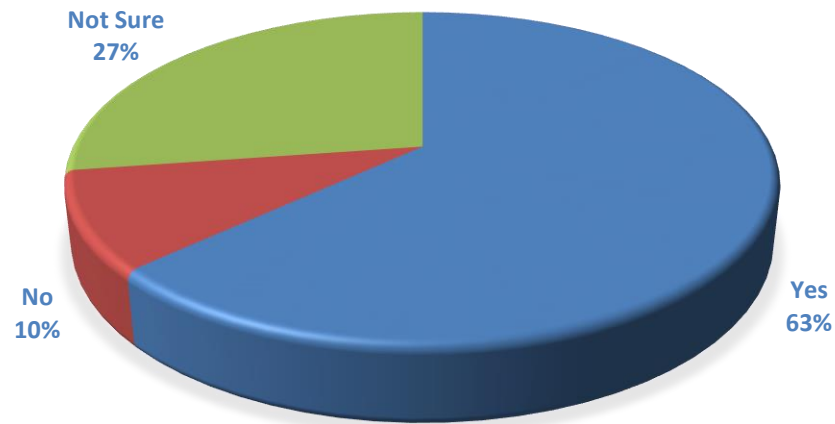


Figure 5: Opinion on health and safety policy.

Source: Fieldwork, 2013

In addition, respondents were asked whether the policy/policies is/are adequate. The results can be found in Figure 5. About two-thirds (63%) of the respondents responded “Yes” while one-tenth (10%) indicated “No”. Almost 30% among the respondents said they were not sure whether the policy/policies is/are adequate or not. This implies to a large extent that management of various organisations are mindful of the need to put in place mechanisms to promote and protect the safety and health of their workers and the two-thirds response rate attesting to this goes a long way to indicate that workers and employees are appreciating the effort of management in this regard. The Labour Act 2003, Act 651 of the Republic of Ghana, section 118(I) states that “it is the duty of an employer to ensure that every worker employed by him/her works under

satisfactory, safe and healthy conditions. This view of the respondents to a great deal indicates that the Ashanti Iduapriem Gold Mine Ghana Limited is meeting this statutory requirement under the Labour Act.

This result contradicts the view of Barling, Loughlin and Kelloway (2002), that occupational health and safety practices have generally been given little attention and flowing from this occupational health and safety practice has continued to remain outside the focus of organisational and management effort.

These give an indication of ignorance among workers of the health and safety policy of the company. This means that no training had been conducted in this respect the policy was not communicated to all employees.

According to Torrington and Hall (2010) every employer must prepare a written statement of policy regarding the health and safety of employees. The general statement and revision must be brought to the attention of all employees through for example, notification, issue of a document and reinforcement by posters. This practice suggested by Torrington and Hall seems to be lacking, therefore, employees were generally unaware of the health and safety policy of the company. The researcher was able to obtain a copy of the company's health and safety policy. It highlights the vision and set goals of the company as follows:

Iduapriem Mine a subsidiary of AngloGold Ashanti Limited, an international gold mining company Iduapriem Mine operates an open pit gold mine in the South-West of Ghana in West Africa, using conventional surface mining techniques and a Carbon-in-Pulp gold recovery process. Iduapriem Mine recognizes and accepts the responsibility as an employer that an occupational

healthy and safe working environment is paramount for its employees and others (contractors, visitors, students and local communities).

Through a process of risk assessment, Iduapriem Mine has identified the high risks within its operations. These risks include but are not limited to: geotechnical issues, heavy mining equipment operations, hazardous materials handling, drilling and blasting activities as well as the operation of processing equipment and operation of tailings storage facilities.

Iduapriem Mine is committed to achieving a world class standard of occupational health and safety management through the establishment, implementation, maintenance and continual improvement to drive a strong occupational health and safety culture and performance in accordance with the company's mission, vision, values and code of business practice.

A study of the document in the light of the assertions of Cole (2005) suggests that suitable policies were demonstrated both diagrammatical by through the unbroken and logical delegation of duties, definition of roles and the provision of adequate support. This revealed that the policy was adequate but might be difficult to be understood by the floor worker, hence, their ignorance of such a document. This contradicts the view of Pratt and Bennet (2009) that at the organisation level, policies need to be stated that all employers are required to formulate and publish written statement of a general policy with respect to the health and safety of all employees, the organisation and arrangement for carrying out the policy.

Further, the respondents were asked to ascertain if there were health and safety committee in the company. A significant number of the selected staff making 84% said “Yes” while just 2% indicated “No”. Respondents who were not certain constituted 14%. The results give evidence of the existence of health and safety committee at the AngloGold Ashanti Induapriem Ghana Limited at Tarkwa Metropolis as indicated in Figure 6.

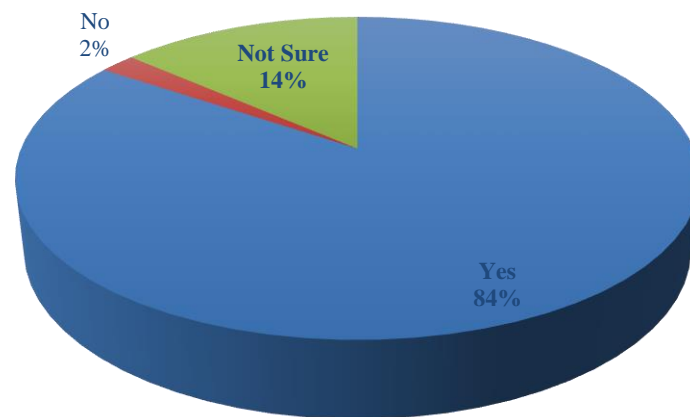


Figure 6: Establishment of health and safety committee.

Source: Fieldwork, 2013

Functionality of a health and safety committee is very important in every institution as it may serve as a determinant of an institution or a company’s goal attainment. It is also the umbrella unit which enables both management and employees to identify hazards, design procedures and structures in place to meet each other’s aspiration. As expressed by Ivancevich (2010), the committee is responsible for the identification and control of health and safety standards, the

establishment and promotion of health and safety education and information programmes.

The researcher therefore sought to find out whether the health and safety committee in the establishment was functional. The results in Figure 7 reveal that a large number of the respondents representing 84 percent said the health and safety committee at the AngloGold Ashanti Induapriem Ghana Limited was functional while only 5% reported that they were not. A little more than one-tenth (11%) stated they were not sure whether the committee was functional or not. From the results, it is obvious that the health and safety committee at the AngloGold Ashanti Induapriem Ghana Limited is functional. The functions performed by the committee was found out to include preparing safety and health rules and regulations in line with modern trends and putting in place strict enforceable mechanisms. In addition to this, the Safety Committee ensures that workers are supervised according to the prescribed safety standards and Figure 4 also attests to the fact that two-thirds of the number of employees are aware of the safety and health policies of the organisation.

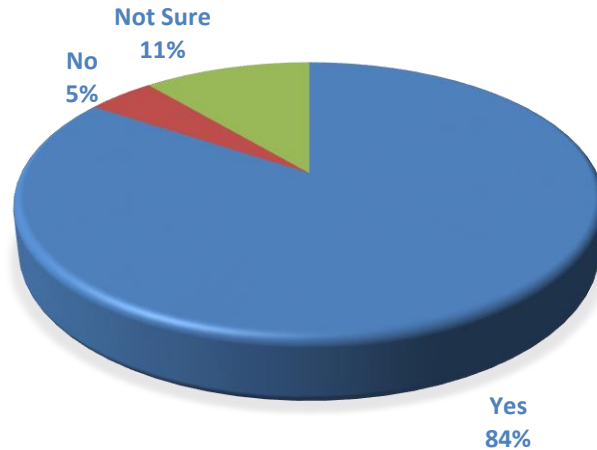


Figure 7: Functions of health and safety committee.

Source: Fieldwork, 2013

Workers Attitude and Behaviour towards OHS Policies of the Company

Figure 8 shows the means by which workers report incident of accidents. About 60 percent of the respondents indicated that they reported incidence of accidents to safety officer; one-third among them (30%) said they filed report for remedial action to be taken; 10% stated that they did investigation; 5% mentioned reporting to SHE representative/supervisor/safety officer while 2% among the respondents stated making recommendations as the means of reporting accidents at the mines. This implies that incidence of accidents at the AngloGold Ashanti Induapriem Ghana Limited are mostly reported to the safety officer.

The Labour Act of 2003 (Act 651) apparently directs employers and employees in their roles and responsibilities in managing Occupational Health, Safety and Environment in the nation, however, the ACT is not specific about whom to report accidents and occupational illnesses to. It does not specify what to

consider as occupational illness. It does not specify as to who is responsible for ensuring that industries in Ghana implement corrective actions (Gyekye, 2007).

As a result of the above, responsibility for health and safety was not clearly defined in the company; hence employees shifted responsibility to others instead of assuming responsibility. Most workers listed either the supervisor or the management without assuming responsibility for safety themselves. Supervisors did not have a laid down procedure or guidelines for reporting incidents of accidents.

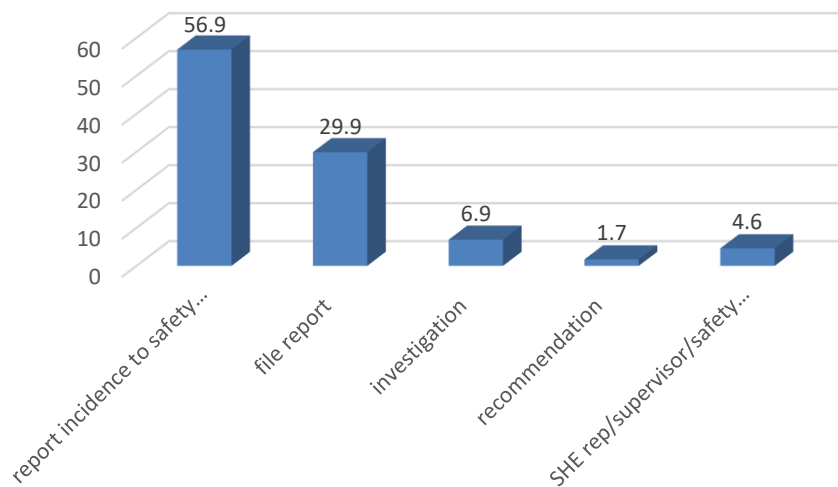


Figure 8: Means of reporting accidents.

Source: Fieldwork, 2013

Regarding causes of accidents at the workplace, the results in Table 8 indicate that one-third of the number of respondents (36.5%) stated that fatigue is the main cause of accidents; 24% indicated incompetence and faulty machines as the cause; 16% recounted, fatigue mistakes, laziness, incompetence, faulty

machine, supervision, fatigue, poor facilities, job satisfaction, stress and personal problems as the causes of accidents; 12.5% said faulty machine and lack of supervision while 9.5% mentioned negligence as the main cause of accidents in the company.

Results from Table 7 show that majority of the respondents think negligence and incompetence are the causes of accidents at the workplace. The company needs to pay particular attention to this since many accidents due to negligence and incompetence can cause the company dearly with respect to its human resources. According to the Health and Safety Executive (2012), long hours or many consecutive days of work can fatigue workers and make them feel tired, sleepy, irritable or giddy. They may lose their appetite, have digestive problems and are more likely to catch a cold or flu. Fatigued workers tend to react more slowly than usual and they may fail to respond to things going on around them correctly. They show poor logic and judgment and are unable to concentrate. This is also consistent with Human Factor Theory of Accident Causation which attributes accidents to a chain of events such as overload (fatigue) inappropriate response and inappropriate activities which causes accident.

Table 7: Causes of Accidents at Workplace

Responses	Frequency	Percent
Fatigue	73	36.5
Fatigue/stress/mistakes	32	16
Faulty machines/lack of supervision	25	12.5
Incompetence/faulty machines	48	24
Negligence	19	9.5
Non-Response	3	1.5
Total	200	100.0

Source: Fieldwork, 2013

The study considered respondents exposure to hazards at workplace as an aspect worth investigating. Approximately 39% of the staff mentioned exposure to mine dust, falling objects, fire and explosions; 23.5% indicated, heat, chemicals, noise and vibration; 21.5% among them reported injuries by machine, prolonged standing; 7.5% said they were exposed to heat on the field; 3.5% stated chemicals while 3% indicated vibration and mine dust; less than 1% of the number of respondents mentioned falling objects and injuries by machines as some of the hazards they were exposed to at the organisations. This could mean that staff at the mine were often exposed to mine dust, falling objects, fire and explosions when they were on the field. They were exposed to these mentioned hazards than any other hazards. (See Table 8).

The above results are also consistent with Human Factor Theory of Accident Causation which attributes accidents to a chain of events such as

overload (fatigue) inappropriate response and inappropriate activities which causes accident at the workplace.

Table 8: Exposure of Hazards at Field of Work

Responses	Frequency	Percent
Chemicals	7	3.5
Falling objects/injuries by machines	1	.5
Heat	15	7.5
Heat/chemical/noise/vibration	47	23.5
Injuries by machine/prolonged standing	43	21.5
Mine dust/falling objects/fire/explosions	77	38.5
Vibration/mine dust	3	1.5
Non-Reponses	7	3.5
Total	200	100.0

Source: Fieldwork, 2013

Regarding work associated ailments, results in Table 10 reveal that 30% of the respondents reported suffering chest infection; 24% stated malaria; 18% indicated hearing impairment; 10 percent said waist pain; 8 percent indicated chest infection and eye infection; 5% mentioned eye infection while 2% said malaria and waste pains as the main work associated ailment. In effect, it can be said that chest infection appears to be the common work associated ailment among staff of the company.

This result is consistent with Betts (2008), assertion that, most exposure to hazards are caused by various forms of neglect such as careless use of machines or tools, failure to wear protective clothing, taking risks, in consideration for nearby colleagues, lack of concentration or failure to use safety devices. These faults amount to poor attitudes towards safety. This assertion happens to be consistent with the above results.

Table 9: Work Associated Ailment

Responses	Frequency	Percent
Chest infection	59	29.5
Chest infection/eye infection	16	8
Eye infection	10	5
Hearing impairment	36	18
Malaria	48	24
Malaria/waist pain	4	2
Waist pain	20	10
Non-Reponses	7	3.5
Total	200	100.0

Source: Fieldwork, 2013

Table 10: Protective Clothing Used

Responses	Frequency	Percent
Boots/hand gloves/ear plugs	5	2.5
Ear plug/overall coat/hand gloves	29	14.5
Ear plug/overall coat/hand gloves/noise mask/goggles/helmet/boots	21	10.5
Goggles/boots/ear plugs/overall coat	12	6
Hand gloves/noise mask/ear plugs	9	4.5
Helmet/hand gloves/noise mask	10	5
Noise mask/goggles/helmet	43	21.5
Overall coat/goggles/noise mask	64	32
Non-Responses	7	3.5
Total	200	100.0

Source: Fieldwork, 2013

On the issue of protective measures, one-third (32%) of the number of respondents said they always used overall coats, goggles and noise masks, 22% indicated noise mask, goggles and helmet; 15% stated ear plugs, overall coats and hand gloves; 10.5% listed ear plugs, overall coat, hand gloves, noise mask, goggles, helmet and boots; 6% reported goggles, boots, ear plugs and overall coats, 5% recounted helmet, hand gloves, noise masks and hand gloves, noise masks and ear plugs while 2% mentioned boots, hand gloves and ear plugs as the main protective wears used in the company. This implies that in most cases, staff use overall coats, goggles and noise masks as protective clothing (See Table 10).

Respondents were asked whether the use of protective clothing at work was important or not. Eighty-nine percent of the number of respondents said the use of protective clothing at work is very important while 11% recounted that it is important. From the results, (Figure 8) it can be said that majority of the workers consider the use of protective clothing at work to be very important.

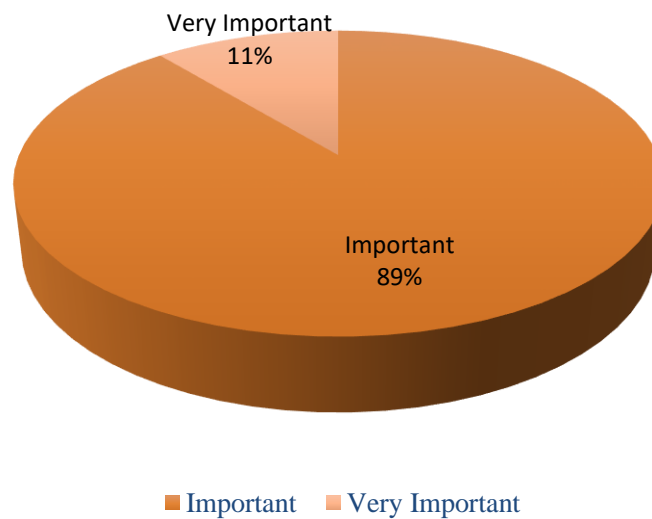


Figure 9: Importance of protective clothing at work

Source: Fieldwork, 2013

Frequency of Occupational Accidents over the Past Three Years

On the frequency of occupational accidents over the past three years, the results in Figure 10 show that 76% of the respondents reported that they have not had any accidents over the period while 24% stated had have been some

occupational accidents. This indicates that policies and measures put in place to check occupational accidents at the mines were properly monitored.

This result is consistent with Reason (2010) Risk Theory/Defiance in Depth Theory which says that accident has a trajectory, which passes through corresponding holes in the layers of defence, barriers and safeguards and if it achieves a 'direct flow through', will result in a failure. Reason indicates that a defence in-depth approach acknowledges that all systems are fallible and that by lining up layers of defence in depth, organisations are presented with the opportunity of catching, retarding or retiring risk prior to failure.

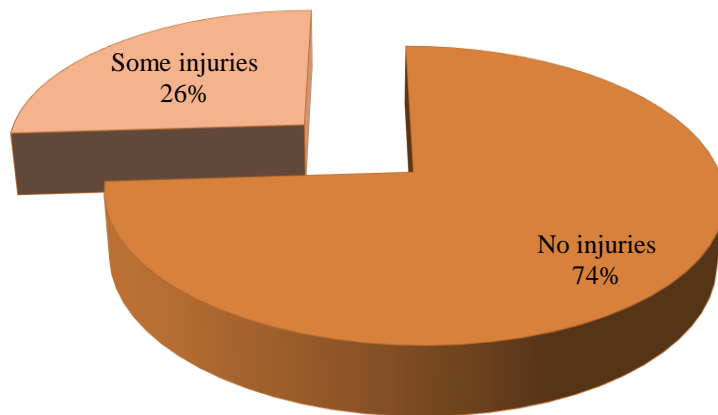


Figure 10: Involvement in accident at workplace.

Source: Fieldwork, 2013

Among respondents who reported that they have been involved in accidents before, 74% said their fingers were affected in the accidents while 26% reported involvement of their whole hands in accidents. This shows that in

occurrences of any accidents, respondents are more likely to suffer effects on their fingers than their whole hands.

As asserted by Betts (2008), most accidents are caused by various forms of neglect as careless use of machines or tools, failure to wear protective clothing, lack of concentration or failure to use safety devices. These faults amount to poor attitudes towards safety. Improving poor safety attitudes hinges upon human relations and the supervisors' ability to create a team. Therefore, could it be the inability of supervisors or the poor attitude of employees towards health and safety? But considering that respondents mentioned earlier that lack of supervision as the key factor for non-adherence to safety rules, the lack of supervision can be stated as a factor influencing health and safety.

It was also noted that persons who had worked long had no accidents, while most of the recently recruited, especially 3 to 6 years and below, had been involved in various forms of accidents.

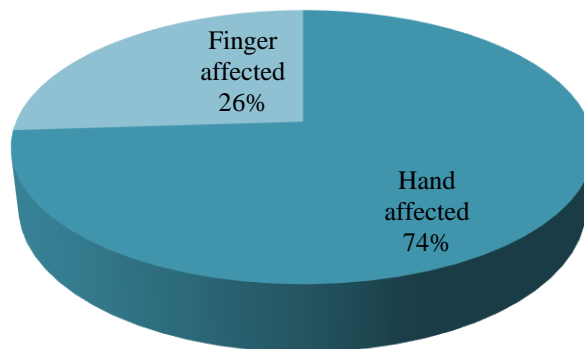


Figure 11: Part of body involved in accident.

Source: Fieldwork, 2013

Implication of the Health and Safety Policy

One of the objectives of the study was to look at the implication of the health and safety policy of the AngloGold Ashanti Iduapriem Ghana Limited, Tarkwa. With respect to this objective, respondents were asked whether they were given training in health and safety issues after they were employed. Out of the 200 respondents, approximately 91% indicated 'Yes' while 9% stated 'No'. Based on this, it can be mentioned that the company ensures the education of its staff on health and safety policy. This is very important since new employees would need training on health and safety policy to prevent avoidable accidents at workplace. (See Table 11).

These responses by staff of the company is contrary to the assertion Torrington and Hall (2010), that, there is no doubt that in any organisation, conflicts occurs between the demands of the employer to increase output and efficiency and the need of the employee to be protected from hazards by means of training at the workplace; however, managers expect the working environment to be safe and healthy but this comes with some implication for cost.

Health and Safety Training at Employment

When respondents were asked whether they were given training when they were initially employed, 181 respondents representing 90.5% said they were given training. On the other hand, 19 respondents representing 9.5% said they were not given training at employment.

The training of new employees on health and safety is as important as the frequency at which the training occurs. For this reason, the researcher intended to find out as to how often respondents are trained on health and safety precautions. A little more than one-third (35%) reported that training on health and safety are given every week; 16.5% indicated quarterly; approximately 11.5% stated monthly and 11.5% indicated once; 10 percent cited yearly and none while 3% pointed out that it depends on the type of training. This implies that in most cases, the company gives staff training on health and safety precautions on weekly basis (See Table 11).

The above results happens to be inconsistent with Barling and Zacharatos (2014) assertion that occupational health and safety practices have continued to remain outside the focus of organisational and management goal, and as a result, overall rate of fatal accidents at work places has more than doubled in the developing countries in Africa and elsewhere.

Table 11: Frequency of Training on Health and Safety Precaution

Responses	Frequency	Percent
It depends on the type of training	7	3.5
Monthly	23	11.5
None	19	9.5
Once	23	11.5
Quarterly	33	16.5
Weekly	70	35
Yearly	19	9.5
Non-Responses	6	3
Total	200	100.0

Source: Fieldwork, 2013

On the issue of the mode of health and safety education in the company, about half (47%) of the number of respondents cited that health and safety education is carried out through meetings; 25% reported that it is carried out through the use of notice boards; 15% said it is done through seminars; approximately 5 percent mentioned toolbox meetings; 3% indicated that it depends on the type of training while 2% reported that it is carried out on one-on-one bases. From the results, it can be mentioned that the mode of health and safety education in the company is mostly done at meetings (See Table 12).

The above is consistent with Torrington and Hall (2010) assertion that safety training at meeting make employees to understand the nature of hazard at the workplace, and awareness of safety rules and procedures to make compliance with safety rules and procedures possible. Betts (2008) acknowledges that lack of experience and poor safety training also cause accidents; therefore, correct methods of performing a task must be an essential part of safety training as well as what to do in times of risk. Safety training should seek to create awareness and a change in behaviour of employees and also, effectiveness of training programmes depends on the ability to identify health and safety hazards within the mining industry.

Table 12: Mode of Health and Safety Education

Responses	Frequency	Percent
It depends on the type of training	7	3.5
Meetings	95	47.5
Notice Board	50	25
One On One	5	2.5
Seminar	30	15
Toolbox Meetings	9	4.5
Non-Responses	4	2
Total	200	100.0

Source: Fieldwork, 2013

Majority of the number of respondents (82%) reported that fire extinguishers are one of the health and safety facilities in the various departments. Approximately 9% cited fire extinguishers, dust extractor, machine guards, fence and first aid boxes as the main health and safety facilities in the various departments with 8 percent indicating only first aid box. 2% of the number of respondents recounted dust extractors as the health and safety facilities in the various departments of the company. This implies that fire extinguishers are the commonest health and safety facilities in the various departments of the AngloGold Ashanti Iduapriem Ghana Limited, Tarkwa (See Table 12).

Table 13: Health and Safety Facilities in the Various Departments

Responses	Frequency	Percent
Dust Extractors	5	2.5
Fire Extinguishers	163	81.5
Fire Extinguishers/Dust Extractor/Machine	17	8.5
Guard/Fence/First Aid Box		
First Aid Boxes	15	7.5
Total	200	100.0

Source: Fieldwork, 2013

Adequacy of Safety Facilities

On adequacy of the safety facilities, 119 of the respondents representing 59.5% reported that there are adequate safety facilities at the AngloGold Ashanti Iduapriem Ghana Limited while 81 respondent representing 40.35% indicated that they are not adequate. Based on the results, it can be said that there are adequate safety facilities at the company.

It was of interest to find out if there are eating and drinking facilities at the workplace. Most of the selected staff (92%) cited that there is a canteen for eating and drinking; 7% mentioned open space while only 1 percent indicated that eating and drinking is done anywhere in the company, as seen from Table 17. This means that the company has a canteen for its workers to eat and drink as and when needed.

Table 14: Eating and Drinking at Workplace

Responses	Frequency	Percent
Any Place	2	1.0
Canteen	184	92.0
Open Space	14	7.0
Total	200	100.0

Source: Fieldwork, 2013

Summary of Results and Discussions

This chapter discusses the result of the study in line with the specific objective and related literature.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Overview

This chapter presents the summary of findings and outlines the main conclusions derived from the findings as well as some recommendations and suggestions for future studies.

Summary

Information retrieved from the respondents indicated that, virtually all of them do understand the concept of Health and Safety practices in AngloGold Ashanti as majority expressed their views that, the practice involves procedures to protect and promote health, safety and well-being of workers and the sustainability of the workplace. Respondents' indication confirms the views expressed by WHO in 2013 where health and safety involves the various measures put in place to ensure the general wellbeing of workers and the sustainability of the workplace.

Primary data were used with a sample size of 200 respondents. Self-administered questionnaires were the main medium of obtaining the data. Data were analysed using the Statistical Product and Service Solutions (SPSS) Version 21 software.

Reflecting on the study objectives and questions raised, the main findings are summarized as follows: it was observed that periodical machines and guards' inspection at workplace were done on daily basis. Moreover, regular reports of

defects/hazards/risks are often times made to the safety officer in the company. In addition, it was found that the company enforces the use of safety devices among its workers.

Workers/respondents of the mining company report incidence of accidents to safety officer. It was found that negligence and incompetence are the main causes of accidents at the workplace. Further findings reveal that staff at the mine are more often exposed to mine dust/falling objects/fire/explosions when they are on the field. The staff were exposed to these than any other hazards. Chest infection appears to be the common work associated ailment among staff of the company even though staff are given overall coats/goggles/noise masks as protective apparel. Majority of the workers were found to consider the use of protective clothing at work as very important.

Additional findings from the study show that policies and measures put in place to check occupational accidents at the mines are not properly monitored. However, in occurrence of any accidents, respondents suffer effects on their fingers than their whole hands.

Most significantly, the study found that new employees would need training on health and safety policy to prevent avoidable accidents at workplace. There are routine checks to ensure health, safety precaution on a weekly basis. Moreover, it was found that the mode of health and safety education in the company is done at meetings. Additional findings show that fire extinguishers are the commonest health and safety facilities in the various departments of the AngloGold Ashanti Iduapriem Ghana Limited, Tarkwa. Even so, there are

adequate safety facilities at the mining company with a canteen for the workers to eat and drink.

Conclusions

After assessing the effectiveness of health and safety practices in AngloGold Ashanti Company Ltd, the researcher found that more than 50 percent of the respondents strongly agreed that lack of management commitment, workers refusal to report minor injuries or near misses and the cost involves in training employees on health and safety in the company are major problems.

Recommendations

This section makes recommendations based on the findings of the study to stakeholders involved in the management of health and safety practices in AngloGold Ashanti. The recommendations hammer on the following area:

1. Regular education and training

Management of AngloGold Ashanti should regularly organise safety education, training, workshops, seminars on health and safety issues, publish materials on health and safety and many others steps to improve safety consciousness in the mind of workers.

2. Making Health and Safety Issues a Collective Responsibility

Management of AngloGold Ashanti should make employees to understand that health and safety practices are the obligation of both management and employees and this will go a long way to make the workplace safer.

3. Regular Display of Warning Notices on Defective/Faulty Equipment

Management of AngloGold Ashanti should constantly and regularly display warning notices on defective/faulty equipment, machines and other potential hazard and dangerous places to make employees aware of any potential danger.

4. Monitoring Health and Safety Compliance

Furthermore, management of AngloGold Ashanti should not only provide adequate protective clothing, they should put in place a monitoring team to periodically check whether staff really wear their protective clothing and other materials.

Finally, the government and other regulatory institutions should also establish monitoring teams that will periodically check whether mining companies are complying with health and safety practices as stipulated in the Labour Act 651.

Suggestions for Future studies

The following issues need to be considered for future studies in the area of occupational hazards.

1. This study covered only one mining company in Ghana. This is a small area since there are others in the country. There is the need for conducting such a study at the regional, national or continental levels.
2. Extensive studies of the implications of occupational health and safety practices would be needed as a basis for measuring appropriate health and safety policies at the mining companies.
3. This study covered only the occupational health and safety practices in the mines. There is the need to conduct studies that would capture the subject at all organisations (Government and Non-Governmental).

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APPENDICES

APPENDIX A

UNIVERSITY OF CAPE COAST
COLLEGE OF HUMANITIES AND LEGAL STUDIES
INSTITUTE FOR DEVELOPMENT STUDIES

QUESTIONNAIRE FOR FIELD STUDY

A research is being conducted by a student from the Institute for Development Studies, University of Cape Coast. The purpose of the study is to assess how health and safety programmes are contributing to make the workplace safer and achieve organisational goals.

Instructions

Please tick where appropriate and fill the spaces provided. You are assured of confidentiality.

Thank you.

DATE:

PERSONAL DATA:

1. SEX: (a) Male (b) Female

2. DEPARTMENT:

4. AGE:

3. RANK/POSITION:

5. YEARS IN SERVICE:

6a. Have you heard of the health and safety policy? a) Yes [] b) No []

6b. Are you aware of the content of the health and safety policy of the company?

a) Yes [] b) No []

7. List any three (3) things you know about the policy of the company.

a) b)
c)

8. Do you think the policy is adequate?

- a) Yes [] b) No [] c) Not Sure []

9. Is there a health and safety committee in the establishment?

- a) Yes [] b) No [] c) Not Sure

10. Is the health and safety Committee functional in the establishment?

- a) Yes [] b) No [] c) Not Sure

11. Were you given training in health and safety when you were employed?

- a) Yes [] b) No []

12a. How often are you trained on health and safety precaution?

- a) Yearly [] b) Quarterly [] c) Monthly [] d) Weekly []
e) Once [] f) None []

12b. How is health and safety education carried in the company? Please tick.

- a) Seminar [] b) Notice Board [] c) One on One [] d) Unions []
e) Meeting [] f) Others []

13. Tick the health and safety facilities you have in your department.

- a) Fire extinguishers [] b) dust extractors [] c) machine guards []
d) Fence [] e) First Aid Box f) please specify

others.....
.....
.....

13ba. Are these safety facilities adequate? a) Yes [] b) No [] c) Not Sure

14. Where is eating and drinking permitted in the workplace?

- a) Canteen b) Open space c) Any place d) None

20. What are some of the work associated ailment in your job? Tick where applicable.

- a) Chest infection [] b) Malaria [] c) Hearing Impairment []
e) Eye infection [] f) Waist Pain [] g) None []
h) Others.....

21. Do you use protective clothing? a) Yes [] b) No []

22. What protective clothing have you been using? Tick where applicable.

- a) Ear plug [] b) Overall coat [] c) Hand gloves [] d) Nose mask []
e) Goggles [] f) Helmet [] g) Boots [] h) Others Specify.....

23. How do you see the importance of protective clothing to your safety at work?

- a) Very important [] b) Important [] c) Less important []
d) Not important []

24. How often is periodical inspection of machines and guards carried out at your workplace?

- a) Each day b) Every week c) Any time d) Specify if not listed.....

25. Do workers report defects or hazards or risks regularly?

- a) Yes [] b) No [] c) Not Sure []

26. Who acts on the reports on health and safety?

- a) b) c) d)

27. Would you challenge an experienced worker for not using safety devices?

- a) Yes [] b) No [] c) Not Sure []

28. What role do you play to ensure that health and safety policy is maintained?

.....

29. Whose primary responsibility is it to ensure that?

(Please tick where appropriate as answers :)

	Operator	Supervisor	Manager
People are properly supervised for safety at all times.			
People work and behave safely at all times.			
People are properly trained.			
People are obeying company health and safety rules and regulations			
Everyone is aware of the hazards in the workplace.			
Machinery is properly guarded when used.			
Machinery and equipments are inspected to ensure that they are safe to use.			
People are using the correct safety appliances properly.			
People are not unnecessarily exposed to hazardous substances.			
People are using the correct personal protective equipments.			
The working area is kept clean, clear and tidy.			
Everyone knows what to do in an emergency.			
Action is taken following accidents and near misses.			

APPENDIX B

OBSERVATION CHECKLIST

DEPT:

DATE:

AREAS:

REMARKS:

1. HEALTH:

	Acceptable	Not Acceptable
Sanitation		
Eating and drinking facilities		
First-Aid		
Clinic		
Emergency Response		

2. SAFETY

	Acceptable	Not Acceptable
Safety Device		
Safety Facilities		
Safety Zones		
Safety Precautions		
Safety Standards		
Safety Training		

3. SAFETY PREVENTION AND CONTROL

	Acceptable	Not Acceptable
Heat level		
Noise Level		
Dust level		
Workers attitude		
Fire fighting		

4. IDENTIFICATION OF HAZARDS

	Easy	Not Easy
Machinery safety		
Falling objects		
Fire and explosives		
Vibration		
Chemicals		
Noise		
Dust		
Diseases		

PROTECTIVE CLOTHING

	Adequate	Not Adequate
Head Protection		
Eye: Face Protection		
Hearing Protection		
Respiratory Protection		
Hand Protection		
Body Protection		
Belt and Life Protection		
Storage of gadgets		
Ergonomics		