

ASSESSING THE IMPACT OF OCCUPATIONAL HEALTH AND SAFETY NEEDS
ON THE LIVES OF CONSTRUCTION WORKERS.A CASE STUDY AT ABASA
GENERAL ENTERPRISE LIMITED-KUMASI

By

KNUST

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DECLARATION

I declare that this submission is my own work towards the Master of Business Administration (Human Resource Management Option) and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other kind of degree of the University, except where due acknowledgement has been made in the text.

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ABSTRACT

Occupational health and safety issues are concerned with protecting employees and other people affected by what the company produces and does, against the hazards arising from their employment or their links with the prevention of ill-health arising from working conditions. Construction sites are seen to be accidents prone areas because of the machinery and equipment they use in their daily operation. Contractors most often downplay on the health and safety of workers at the workplace. No Personal Protective Equipment (PPE), Welfare facilities, training and protection are offered workers. The Environmental Protection Agency (EPA) which is the only regulatory body plays an insignificant role when contractors fail to provide a healthy and safe environment for workers. Using simple random sampling technique, 60 questionnaires were distributed to administrators, project Engineers, Project managers, Site Foremen, Drivers, Artisans and Labourers. All questionnaires were retrieved representing a hundred percent response rate. The data was analysed using descriptive statistics and scale ranking. The findings indicate employers of Abasa General Enterprise Limited in the Kumasi Metropolis provide few welfare facilities and safety materials to workers. The findings also indicate that first-aid equipments, safe drinking water, sanitary facilities, provision of personal protection equipment (PPE) and training of workers on safety procedures, were the measures needed for addressing the occupational health and safety issues confronting workers on construction sites. The absence of health and safety gadgets and welfare facilities cause a lot of injuries on site, the end result is lost of job and ultimately, death. It is recommended that Safety Officers from Ghana Labour office should liaise with the Ministry of Water Resources, Works and Housing and in conjunction with the Association of Civil Engineering and Building Contractors, regularly visit construction sites to ensure the enforcement of laws governing the provision of welfare facilities and safety materials, employment, and rights of casual workers. It is also recommended that contractors should be encouraged to set up Human Resource and Safety Departments for the purpose of executing safety education campaigns and training programmes to all workers.

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DEDICATION

This Dissertation is dedicated to Daniella Elaine Adei Neequaye and Gwendoline Amanda Kutorko Neequaye

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CHAPTER ONE

INTRODUCTION

1.0 Background of the study

Construction is widely regarded as an accident prone industry (as explained in a study of 100 individual construction accidents by Haslam et al., 2005 and a textbook on occupational health and safety in construction project management by Lingard and Rowlinson, 2005). The reasons construction is risky and prone to health and safety risks are because of the physical environment of the work, nature of the construction work operations, construction methods, construction materials, heavy equipment used, and physical properties of the construction project itself.

There are statutory instruments and legislative frameworks in many developed countries to govern construction operations on site and help in minimizing health and safety hazards, for example, the Construction (Design and Management) Regulations 2007 (S.I. 2007/No. 320) Regulations on Health and Safety in the UK construction industry. However, the characteristics of construction in developing countries are not the same as characteristics of construction in developed countries (as explained in characteristics of construction projects in developing countries by Jaselskis and Talukhaba, 1998).

Hence, Health and Safety policies and procedures may vary and needs to be contextualized. In 2000, the Labour Department (2000: 22) reported that the construction industry in Ghana accounted for the highest rate of occupational deaths in comparison to other industrial sectors.

The main health and safety site requirements in construction relate to tidy sites and decent welfare, falls from height, manual handling, and transport on site. Site operatives are normally required to plan and organize their operations, ensure that they are trained and competent and know the special risks of their trade and raise problems with their site supervisor or safety representative (HSE, 2009). The main personal protective equipment (PPE) in construction (including clothing affording protection against the weather) which is intended to be worn or held by a person at work and which protects him against one or more risks to his health or safety. PPE should be regarded as a 'last resort' when considering control measures. Other methods should be considered and used that will reduce or eliminate risk to injury. However, where PPE is the only effective means of controlling the risks of injury or ill health, then employers must ensure that PPE is available. PPE should be worn at all construction sites. A typical construction site may require workers to wear a hard hat, coveralls, safety footwear, gloves, eye protection and high visibility vest. These must be provided to all employees.

The latest statistics on work-related health and safety show that 2million people are suffering from an illness they believe was caused or made worse by work, with approximately 30million days (1.3 days per employee) lost per year due to work –related ill health or injury. It is clear from this figure that work –related ill-health, accidents and injury present a significant cost to the Ghanaian economy and employers, as well as to individual employees and their families who experience the personal impact of work related health and safety issues - an impact which may be felt long after the event.

Despite the obvious need to manage health and safety proactively, some organizations do not give it the priority it deserves. This may be due to lack of knowledge, skills and motivation, or to limited staff resources. Cost is also an important issue, with companies feeling that they lack the capital necessary to make proper investment in health and safety and failing to appreciate the importance of this investment. Likewise, few companies measure or understand how investment in health and safety may affect the organization in terms of measurable outcomes is partly due to the challenges inherent in establishing exactly how effective occupational health and safety management is related to organizational performance.

1.1 Statement of the Problem

The state of health and safety needs on construction sites of Abasa General Limited revealed a poor state of health and safety needs on the sites. The working environment was not tidy and safe for movement by both vehicles and workers. The main Personal and Protective Equipment (PPE) in every construction site which is intended to be worn or held by a person at work and which protects him against one or more risks to his health and safety were absent. A typical construction site may require workers to wear a helmet, coveralls, safety footwear, gloves, eye protection and high visibility vest – these, workers seldom wear. Interviews with workers indicated that injuries and accidents were common on sites. However; compensation for injury is often at the discretion of the site Engineer although collective bargaining agreements between Labour Unions and employers prescribe obligations for the contractors in the event of injury to a worker.

Specifically the Labour Act mandates all employers to establish best practice that promotes among others, positive safety health and environmental outcomes.

Safety programmes deal with the prevention of accidents and with minimizing the resulting loss and damage to persons and property. They relate more to systems of work than the working environment, but both health and safety programmes are concerned with protection against hazards and their aims and methods are clearly inter-linked.(Armstrong ,M 2007 p829)Work-related accidents or diseases are very costly and can have many serious direct and indirect effects on the lives of workers and their families. For workers in Abasa, some of the direct costs of an injury or illness are:

- i. the pain and suffering of the injury or illness;
- ii. the loss of income;
- iii. the possible loss of a job;
- iv. health – care costs.

It has been estimated that the indirect costs of an accident or illness can be four to ten times greater than the direct costs, or even more. An occupational illness or accident can have so many indirect costs to workers that it is often difficult to measure them. One of the most obvious indirect costs is the human suffering caused to workers' families, which cannot be compensated with money.

Overall, the costs of most work-related accidents or illnesses to workers and their families and to employers are very high. On a national scale, the estimated costs of occupational accidents and illnesses can be as high as three to four percent of a country's gross national product. In reality, no one really knows the total costs of work-related

accidents or diseases because there are a multitude of indirect costs which are difficult to measure besides the more obvious direct costs. (Neequaye, 2012) Abasa General

1.2 Objectives of the Study

The objectives of this study are to;

- a. ascertain whether workers at Abasa General Enterprise Limited wear or use their health and safety gadgets while at work.
- b. identify some best practices of organizational safety and health issues and how they impact on business performance at AGEL
- c. investigate employees awareness and attitudes to occupational health issues.
- d. analyse the consequences of poor working environment and the impact on workers at AGEL
- e. assess the roles played by Environmental Protection Agency in ensuring health and safety needs at AGEL construction sites.

1.3 Research Questions

- a. How does management of AGEL ensure that workers wear or use health and safety equipments provided them?
- b. What are some best practices of organizational safety and health needs and how do they impact on the lives of workers at AGEL?
- c. How well are employees aware of safety and health issues at Abasa General Limited?
- d. What are some of the possible or likely consequences if workers fail to use health and safety gadgets?

- e. How important are the roles played by Environmental Protection Agency toward AGEL in ensuring that contractors provide safe and healthy environment?

1.4 Significance of the study

This study will help the management and workers of Abasa General Enterprise Limited to have full access to health and safety needs at their workplace.

Workers would be motivated by health and safety gadgets provided, thereby putting in much effort to achieve organisational goals. Again, the fear of getting injured while on duty would be erased because workers would have access to adequate health and safety needs. Other companies would also benefit from the study by providing health and safety needs to their workers due to the fear of losing workers to their competitors.

1.5 Methodology

Three (3) construction sites in Abasa General Enterprise Limited were visited in 2011 and 2012 to help in answering the research questions. At each of the sites, a full inspection of the construction site and workers' activities was carried out. Data was collected with the help of a field note book containing a set of Health and Safety indicators derived from the literature on internationally acceptable health and safety standards and provisions on construction sites. Site personnel were interviewed for explanations on the things observed at the various sites visited. Those interviewed included site engineers, foremen, artisans and workers. The site engineers and operators were interviewed with open ended questions to ascertain the extent of observations and to find out in greater detail the reason(s) underlying the observations. In most cases, the site supervisors were aware of the theoretical requirements for Health and Safety on site.

However, most requirements were not provided for on site as a result of lack of enforcement.

1.6 Scope of the study

Provision of health and safety needs for workers by employers vary and this widely depends on hazards that workers are exposed to. This study is delimited to the assessment of the impact of health and safety needs of workers of a construction company based in Kumasi. An analysis of this study would be made solely on one hundred and twenty -five (125) workers in Kumasi.

1.7 Limitations of the study

The study could have covered the entire company and its branches throughout Ghana because of the benefit it will hold for management and workers. However, owing to time and financial constraints the study was limited to the Kumasi branch.

1.8 Organization of the study

This work has been organized into five chapters. Chapter 1.0 takes care of background of the study, which is directly followed by the problem statement. This is followed by objectives of the study. Chapter 1.3 deals with the research questions and then comes significance of the study. Right after this is chapter 1.5 which deals with methodology. Chapter 1.6 talks about the scope of the study then the limitations of the study and the chapter concludes with organisation of the study.

Chapter 2 of the work deals with the literature review and methodology and organizational profile is catered for in chapter 3. Chapter 4 covers the data presentation

analysis and discussion and finally chapter 5 presents a summary of findings, conclusion and recommendations.

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CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The chapter presents the need for workers in general to work in a safe and healthy environment. This is followed by the general overview of the situation of casual workers in Ghana in relations to their engagement into the construction industry. Occupational health and safety management in Ghana is also discussed. Under this, background to national occupational health and safety, institutional arrangement for the management of health and safety and health and safety regulation relevant to the construction industry are also considered. This is followed by what the Labour Act (651) of 2003 stipulates, workmen's compensation Act of 1987 and the Factories and shop Act say on protection for construction workers. The Agencies and ministry in charge of ensuring health and safety would follow in the discussion. The chapter concludes with the problem of health and safety management in the construction industry and whether developing countries are any better than the nation Ghana. To begin with the chapter first deals with the overview of construction industry in Ghana.

A study by Danso (2005) revealed that poor working conditions of any type have the potential to affect a worker's health and safety. Unhealthy or unsafe working conditions are not limited to factories — they can be found anywhere, whether the workplace is indoors or outdoors. For many workers, such as construction workers or miners, the workplace is “outdoors” and can pose many health and safety hazards.

Anaman and Osei Asamoah (2007) also believe that poor working conditions can affect the environment workers live in, since the working and living environments are the same for many workers. This means that occupational hazards can have harmful effects on workers, their families, and other people in the community, as well as on the physical environment around the workplace. A classic example is the use of heavy machines in construction work. Workers can be exposed to dust and chemicals in a number of ways when spraying clearing and applying bitumen, they can inhale the chemicals during and after spraying, the chemicals can be absorbed through the skin, and the workers can ingest the chemicals if they eat, drink, or smoke without first washing their hands, or if drinking water that has become contaminated with the chemicals. Kheni (2008) also noted that workers' families can also be exposed in a number of ways: they can be exposed to residues which may be on the workers' clothes. Other people in the community can all be exposed in the same ways as well.

Overall, efforts in occupational health and safety must aim to prevent industrial accidents and diseases, and at the same time recognize the connection between worker health and safety, the workplace, and the environment outside the workplace.

Danso (2005) further stated in his work that workers in every occupation can be faced with a multitude of hazards in the workplace. Occupational health and safety addresses the broad range of workplace hazards from accident prevention to the more insidious hazards including toxic fumes, dust, noise, heat, stress, etc. Preventing work-related diseases and accidents must be the goal of occupational health and safety programmes, rather than attempting to solve problems after they have already developed.

2.1 Casual workers and their health and safety needs in the Ghanaian construction industry

The fragmented nature of the construction industry, its transient nature and especially the fluctuating nature of jobs execution makes it unattractive for contractors to keep a lot of permanent workers, making construction firms rely enormously on the use of casual workers (Africa Development Report, 2007). Before proceeding, it would be appropriate to define and to understand who a casual worker is. The Ghana Labour Act 651, 2003, defines a casual worker as a worker who is engaged to work temporarily for a period not exceeding six (6) months, and whose remuneration is calculated on daily basis. It has been observed that this type of employment in the Ghanaian construction industry has increased over the years with its accompanying occupational health and safety issues. Interestingly, very little research on the real occupational health and safety issues confronting casual workers in the Ghanaian construction industry has been done. However, literature available indicates that the presence of casual workers in the construction industry is fraught with many shortcomings. As noted earlier on, within 2.3% of the active workforce in the construction sector are a considerable proportion of workers who cannot read and write and contributing significantly to the country's Gross Domestic Product (GDP). This assertion is buttressed by the fact that Egmond et al (2007) pointed out that the Ghanaian construction industry is dominated with many workers who are not able to read and write, and that within Ghana's population of about 22.2 million is a large pool of cheap unskilled workers with low level of education.

Again, Kheni (2008) noted the negative attitudes and indifference of site workers in general to health and safety and seems that the negative attitudes and indifference of site workers stem from the prevailing socio-economic conditions in Ghana. This was briefly expressed by a site worker.

“Our workers union sign a collective agreement with the management, and the agreement consists of salaries, working conditions, health and safety, and welfare of workers. However, our major concern is salaries, once the workers agree on the salaries; the other areas are not of much concern to us”. In a preliminary survey conducted by the researcher in Kumasi Metropolis in 13th December 2011 as to who was responsible for medical costs involving work related accidents, one casual worker responded that: “If the contractor is kind, he gives us some money; otherwise in most cases, we have to spend our own money for all treatment fees.” As indicated earlier, currently, there is no documented data on such issues on casual workers in the Ghanaian construction industry. However, given the similarities in the construction industries in some developing countries such as Tanzania, Kenya, South Africa there is little doubt that the trends observed might be different in Ghana since Ghana is also a developing country.(Kheni, 2008)

2.2 Occupational Health and Safety Management in Ghana

2.2.1 Background to National Occupational Health and Safety

Anaman and Osei Asamoah (2007) noted in their study that occupational health and safety legislation is a means by which the work environment can be controlled to ensure the safety, health and welfare of employees and persons likely to be adversely affected by the work environment are protected. In Ghana, occupational health and safety legislation

has been inherited from a British legal and institutional framework at the time when Ghana was a British dependency. The health and safety of workers in the mining and wood processing industries of Ghana prior to independence, was protected by the Factories Ordinance 1952. This remained the main occupational health and safety legislation in force until its repeal by the Factories, Offices, and Shops Act 1970.

Regulations made under the Factories Ordinance 1952 which remained enforce include:

- i. The Factories (Woodworking) Regulations, 1959;
- ii. The Food Factories (Welfare) Regulations, 1959; and
- iii. The Factories (Docks Safety) Regulations, 1960.

Ghana's occupational health and safety legislation is influenced by the International Labour Organisation (ILO). Principal ILO conventions relating to occupational health and safety which have been ratified by Ghana include:

- i. Underground Work (Women) Convention 1935 (No. 45);
- ii. Radiation Protection Convention 1960 (No. 115);
- iii. Guarding of Machinery Convention 1963 (No. 119);
- iv. Hygiene (Commerce and Offices) Convention 1964;
- v. Working Environment (Air Pollution, Noise and Vibration) Convention, 1977;
and,
- vi. Labour Inspection Convention 1947.

Existing occupational health and safety legislation in Ghana is fragmented and limited in coverage. Some key economic sectors are not covered by the country's occupational health and safety laws. A notable example is the agricultural sector, although it employs over 60 per cent of the country's workforce there is no form of occupational health and

safety laws regulating the activities of the sector. This unfortunate situation can be traced back to colonial rule in Gold Coast (Ghana), where the colonial government placed more emphasis on labour relations in sectors of economy where formal employment relations existed. The mining and manufacturing sectors of the economy are examples of such economic sectors. Commenting on the shortcomings of occupational health and safety legislation of Ghana, Tetteh (2003), noted that health and safety statutes evolve without due regard to existing ones, resulting in fragmentation, overlapping areas of jurisdiction and inconsistencies in occupational health and safety laws of the country.

Ghana lacks a policy defining the responsibilities of stakeholders namely; government, employers and employees. Without engaging stakeholders in the management of occupational health and safety, workers' rights to a decent work environment will be denied in the informal sector of the economy which employs temporary labour. Contractors in Ghana rely on a temporary workforce, invariably, such workers are illiterate, do not belong to any form of labour unions and are not covered by insurance schemes.

2.2.2 Institutional Arrangements for the Management of Health and Safety

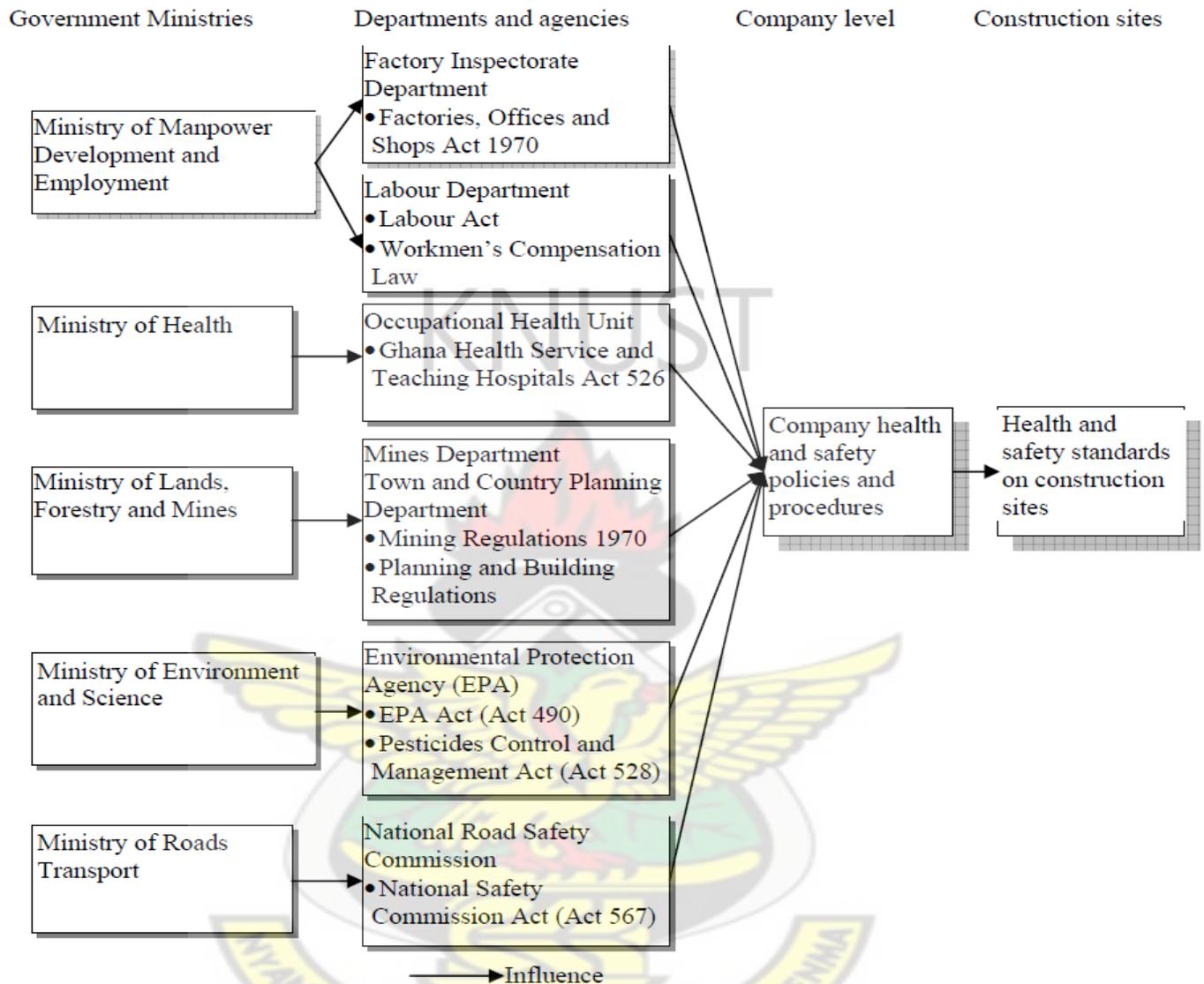
Government institutions responsible for ensuring that occupational health and safety standards are maintained at workplaces fall under five ministries; the Ministry of Manpower

Development and Employment (MMDE), Ministry of Environment and Science (MES), Ministry of Health (MOH), Ministry of Roads Transport (MRT) and Ministry of Lands, Forestry and Mines (MLFM) (refer to Figure 2.1). The ministries are responsible for

policy formulation and, departments under them implement the policies. Other bodies, which actively influence occupational health, safety, and welfare, include employers' associations, trade unions, clients, financiers, and end users.

The Factory Inspectorate Department has sole responsibility for occupational health and safety. Other public departments and agencies with some health and safety responsibilities include the Labour Department, the Environmental Protection Agency, Occupational Health Services Unit, and the Attorney General's Department. Efforts at establishing other institutions, namely the National Commission on Occupational Safety and Health (NACOSH) and the Ghana Society of Occupational Health (GSOH) have not been successful (Haizel 2000). Close collaboration, networking, and coordination in respect of the health and safety functions of these institutions have been poor, resulting in health and safety being accorded a low profile within occupations in the country. There are no consultations with employers' organizations, trade unions, and health and safety stakeholders on policy issues affecting occupational health and safety at national level. This may continue for some time unless the stake these bodies have in health and safety is stimulated. Public institutions responsible for health and safety have failed in their duties as enforcers and promoters of workplace health and safety because of lack of resources and logistical problems (Tetteh 2003).

Figure 2.2 Administration of occupational health and safety in Ghana



Source :(Kheni 2008)

The Occupational Health Service Unit of the Ministry of Health has the responsibility for providing curative care, first aid, worker education on health issues, health surveillance of workplaces and conducting risk assessments. Ghana's health ministry is proactively engaged in ensuring work environments are decent for workers. Unfortunately, the Occupational Health Unit faces constraints similar to the Factory Inspectorate

Department. Clarke (2005) estimates the proportion of Ghanaian workers receiving comprehensive occupational health services to be in the region of 1-2 percent, with the number of staff of the Occupational Health Unit in 2003 comprising four physicians and one qualified occupational health nurse. The Labour Department is responsible for labour administration in Ghana. Accordingly, issues affecting labour, including workers' health and safety, fall within its jurisdiction. The department implements labour standards in conformity with the country's labour laws and

International Labour Conventions ratified by Ghana. Two national labour laws are implemented by the Department; the Workmen's Compensation Law and the Labour Act. Hodges (2006) has noted that forty-six ILO conventions have been ratified by Ghana. Where an employer persistently abuses rights of workers with regards to their health and safety, he or she will be liable on summary conviction to a fine or imprisonment or to both. According to the 2004 Annual Labour Report, the department has 10 regional offices, 36 district labour offices and 62 employment centres countrywide. The environmental protection agency is under the Ministry of Environment, Science and Technology. The agency was established by the Environmental Protection Agency Decree, 1974, charged with the responsibility of implementing the environmental laws of the country. Environmental issues relating to the built environment are handled by a section of the agency.

2.2.3 Health and Safety Legislation Relevant to the Construction Industry

There are no health and safety regulations developed specifically for the construction industry. Considering the high risk nature of the sector, this limitation seriously handicaps the implementation of health and safety standards on construction sites. The Workmen's Compensation Law, the relevant sections of the Labour Act 2003 and Factories, Offices, are discussed in the sections that follow.

The Factories, Offices and Shops Act and Health and Safety for workers

The Factories, Offices, and Shops Act 1970 cater for factories, offices, shops, ports, and construction. The Act provides for the minister for manpower, development and labour to make regulations in respect of construction works to address specific hazards including imposing duties on persons in respect of the hazards. Section 57 of the act relates to building and civil engineering works. Other sections relevant to building and civil engineering works specified in section 57 (1) of the Act include: sections 6 to 8, 10 to 12, 19, 20, 25 to 31, 33 to 40, 43 to 54, and 60 to 87. Under the Act, construction businesses are required to register their sites (sections 6-8) and to report workplace accidents and dangerous occurrences to the Factory Inspectorate Department. It also requires them to provide wholesome drinking water on their sites (20), toilet facilities on the sites (19), and personal protective equipment for their workers (25), and to take preventive measures to control or prevent specific hazards on sites. The hazards named are; noise, vibrations, manual handling (26 and 27), and fire (31).The Act also requires medical supervision of the health of employees where necessary. Businesses are required to take measures at the workplace in respect of access and egress to the factory (site), the

construction and design of structures to ensure the safety of workers, and users of facilities (33-35). Fencing and safeguards are required to be provided or constructed and maintained for the safety of persons at the factory (site) (38-40). Records of lifting machines and appliances are required to be kept and they must be of sound construction, properly maintained and precautionary measures taken during their operation (37 and 43-47). Construction businesses are required to take precautionary measures to prevent injury and explosions because of dust, gas, vapour, present in the work environment (48 and 49). Steam boilers, receivers and containers, and air receivers are required to be of sound construction, properly maintained and precautionary measures taken to ensure their operation (50). The Act provides for training of machine operators and persons employed in processes likely to cause injury (36). The Minister may make regulations to protect the health, safety, and welfare of workers (30 and 51). Other sections of the Act which relate to construction works include:

- a. Sections 52-54 set out the authority of inspectors in ensuring health, safety and welfare of persons at workplaces and the role the courts play in such matters;
- b. Sections 60-73 set out the offences under the Act and legal proceedings;
- c. Sections 74-77 relate to the administration of the Act; and
- d. Sections 78-87 relate to general matters.

There are a number of concerns regarding the implementation of the Act. First, regulations are needed to set standards for specific situations of the act. In the absence of these standards, employers wishing to comply with the requirements of the law will adopt standards which are very subjective. There is no law defining funding mechanisms for implementing occupational health and safety. Lastly, establishing compliance and

enforcement networks is not covered by the Factories, Offices, and Shops Act which is the main occupational health and safety law of the country.

The Labour Act and Health and Safety for workers

Part XV of the Labour Act, 2003 (Act 651) concerns the health and safety and environment of workplaces. Under this Act, it is every employer's duty to ensure employees work under satisfactory, healthy and safe conditions. Other sections of the Labour Act which impact on health and safety include: protection of employment relationship; general conditions of employment; protection of remuneration; unions; employers' organizations and collective bargaining agreements; National Tripartite Committee; and, labour inspection.

The Workmen's Compensation Law and Health and Safety for workers

The Workmen's Compensation Act 1987 imposes employer liability to pay compensation to employees incapacitated by accidents arising out of and in the course of their employment. Compensation payment to accident victims is independent of negligence on the part of employer or fellow-worker. The employer is also required to bear the hospital expenses of the injured worker. In cases where the injured worker only requires treatment, he/she is entitled to his/her earnings while undergoing treatment for injuries he/she sustained through an accident arising out of, and in the course of his/her employment. There are exceptions to employers' liability to pay compensation. These exceptions are: where the injury is due to the workman having been under the influence of intoxicating liquor or drugs at the time of the accident or where the injury was deliberately self-inflicted or where the workman knowingly misrepresented to the

employer that he was not suffering or had not previously suffered from that or similar injury. The law applies to persons employed by both public and private organizations. The Act sets out modalities for calculation of the earnings of workers and payments of compensations to workers who sustain injuries.

2.3 Health and Safety Management in Construction

The activities of the construction industry have raised serious health and safety concerns amongst governments, health and safety stakeholders, health and safety professional's and researchers over the past few decades (Enshassi and Mayer 2002, Gibb 2005, International Labour Organisation (ILO) 2005, Kaplinski 2002, Leopold and Leonard 1987, Rowlinson2004). In response, health and safety legislation has been developed to ensure management of construction businesses, and recently many other participants in a project, assume responsibility for managing the risks associated with construction projects. Health and safety management in the construction industry has evolved from measures adopted in accident prevention to more systematic and proactive approaches to minimizing the risk of hazards in the industry. Past research has shown certain practices can lead to improved health and safety performance and therefore constitute good health and safety practices. These findings are summarized in Table 2.3

Some health and safety practices are required by health and safety legislation to be implemented on construction sites in some countries. For instance, worker involvement in health and safety, training in health and safety, and health and safety committees, are covered by health and safety regulations in the UK.

Table 2.3

Year and author(s)	Summary of research	Health and safety management practices
Simonds and Shafai-sahrai (1977)	Identified factors that distinguished firms with lower injury frequency rates from those with higher rates	<p>The distinguishing factors include the following:</p> <ul style="list-style-type: none"> • top management involvement; • higher average age of workers; • longer average length of employment; • adequate working space and neat environment; and, • higher percentage of married workers.
Liska et al., (1993)	Identified zero accident techniques	<p>Identified the following to be associated with safety success:</p> <ul style="list-style-type: none"> • safety training and orientations; • provision of safety incentives; • safety pre-task planning included in safety goals; • safety person or personnel; • safety policies and procedures; • fire protection programme; • accountability/responsibility and safety budget; • alcohol- and substance-abuse programme in place; • accident and near-miss investigation; and, • record keeping and follow-ups.
Jaselkis et al., (1996)	Strategies for achieving excellence in construction safety performance	<p>Companies with lower recordable incidence rates were characterized by the following:</p> <ul style="list-style-type: none"> • more detailed safety programmes; • expended large percentage of revenue on safety programmes; • greater safety training time; • more formal safety inspections per month; and, • more safety meetings.

Year and author(s)	Summary of research	Health and safety management practices
Gallagher (1997)	Identified factors associated with improved health and safety performance	<p>The study identified the following factors to be associated with better health and safety performance:</p> <ul style="list-style-type: none"> • high level of top management commitment; • health and safety responsibilities known; • supervisor involvement encouraged; • active involvement of health and safety representatives who have a broad role; • effective health and safety committees; • planned identification of risk and hazard elimination/control emphasis; and, <p>comprehensive approach in inspections and investigations.</p>
Tam and Fung (1998)	Investigated effectiveness of management strategies on safety performance	<p>The study concluded the following management strategies were effective in reducing accidents:</p> <ul style="list-style-type: none"> • post-accident investigation; • safety awards; • safety training; and, • use of more directly employed labour
Wright (1998)	Identified factors motivating proactive health and safety management	<p>Factors that create positive pressure to proactively manage health and safety were identified as follows:</p> <ul style="list-style-type: none"> • fear of prosecution by maintaining image of responsibility thereby avoiding adverse regulatory,

		<p>customer or public reaction;</p> <ul style="list-style-type: none"> • belief that it is necessary and morally right to comply with health and safety regulations; • compliance with customer or regulator certification schemes; • minimization of cost of ill-health and injury; • conformity with principles of total quality management, empowerment etc. ; and, • desire to improve staff morale and productivity. <p>Factors that reduce the motivation resulting from factors that create positive pressure to proactively manage health and safety were identified as follows:</p> <ul style="list-style-type: none"> • cost of health and safety improvements; • ease of implementation; • existence of corporate entity and personal accountability of decision makers; • background of employees and managers; and, • sector specific obstacles eg short term contracting.
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Year and author(s)	Summary of research	Health and safety management practices
Gad (2002)	Literature review of safety culture	<p>The findings of the study demonstrated the following factors influence safety:</p> <ul style="list-style-type: none"> • safety culture affects the attitudes and beliefs of workers in terms of health and safety performance; • management is the key influence of organization's safety culture; and, • financial incentives to improve productivity or to compensate for working in hazardous conditions can lead to safety being compromised.
Hinze (2003)	Identified factors influencing safety performance of specialty contractors	<p>Factors found in the study to positively affect safety performance include the following:</p> <ul style="list-style-type: none"> • minimizing worker turnover; • implementing employee drug testing; • training with assistance of contractor association; and,

		<ul style="list-style-type: none"> • growth in company size. <p>Safety incentives were not necessarily associated with better safety performance.</p>
Baldock et al (2005)	Identified main influences on the adoption of improvement measures by small businesses	<p>Factors identified as being particularly associated with a propensity to make health and safety related improvements were found to be following:</p> <ul style="list-style-type: none"> • regulatory enforcement activity; • use of external assistance with respect to health and safety issues; • management training and experience; and, • membership of trade/business association.
Aksorn and Hadikusumo (2008)	Investigated the effectiveness of safety programmes in the construction industry	<p>Safety performance was found to be influenced by the nature of the Implemented programmes. Particular elements of safety programmes found to be positively associated with safety performance included:</p> <ul style="list-style-type: none"> •accident investigations;

		<ul style="list-style-type: none"> • jobsite inspections; • job hazard analysis; • safety inductions; • safety record keeping; • safety committees; • safety incentives; and, • control of subcontractors.
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2.4.1 Health and Safety Management Systems

A number of construction businesses manage the health and safety function in their businesses by carrying out health and safety activities aimed at minimizing or eliminating the risk of hazards on their sites. A growing number of construction businesses, particularly larger ones, have tended to adopt health and safety management systems which have their origin in Deming's Plan-Do-Check-Act model of continuous quality improvement (Hamid et al. 2004). Essentially, a health and safety management system has four primary elements:

- a. planning;
- b. implementing the plan;
- c. reviewing the plan; and,
- d. evaluating and taking measures to improve strategy.

Despite the popularity of literature on health and safety management systems, a commonly accepted definition is lacking due to the variable nature of the elements often composing them. Robson et al. (2007) found that health and safety management lack a

common definition and reported on health and safety management systems having up to 27 elements. Helledi (1999) reported on the adoption of a simple, non-bureaucratic health and safety management system by SMEs in the Finnish construction industry which proved effective in bringing down the numbers of site accidents experienced by contractors. The elements of the health and safety management system comprised: a planning phase involving the assessment of risk; an implementation phase involving communication of critical tasks to be carried out on site; a control phase involving monitoring the activities; and, a follow up phase which provides feedback and enables corrective measures to be taken.

Approaches to health and safety management reported in construction hardly qualify as health and safety management systems because they lack one or more of the elements of Deming's Plan-Do-Check-Act (PDCA) cycle. For instance, Agrilla's (1999) 3Es suggested for achieving high safety performance comprises; safety engineering, safety education and safety rule enforcement. This health and safety management system involves planning as part of the safety engineering process but lacks clear elements or procedures on how to continuously improve health and safety performance. The effectiveness of health and safety management systems in the construction industry has not been assessed. At best, it is only the individual elements that make up the system which have been shown to be associated with improved health and safety performance. The adoption of comprehensive health and safety management systems has been shown to be a difficult task for SMEs (Dawson et al. 1988, Eakin et al. 2000, Mayhew 2000). Some reasons as to why SMEs might find it difficult adopting such systems include lack of adequate resources, the fact that they operate in a competitive environment and operate

under relatively informal management procedures (Banfield et al. 1996, Mayhew 1997, Vassie et al. 2000). There is, therefore, reason to doubt the applicability of comprehensive health and safety management systems to construction SMEs.

2.4.2 Health and Safety Integrated Management Systems

Research suggests integrating the health and safety management function of a business with other management functions could enhance the overall performance of the business (Kamp and Bansch 1998, Koehn and Datta 2003, Taylor et al. 2004:544). Besides the benefits to be derived from such an integrated management system, Gibb and Ayoade (1996) have pointed out client pressure, cost reduction, legislation and total project management as factors promoting their adoption. Many management systems, especially health and safety, environment and quality have many identical elements. For instance, policy, training of personnel, auditing, responsibility for task and controls are common elements in all three areas of management. This, therefore, makes it possible to integrate them as a single management system. Proponents of integrated systems argue that such an integrated system will lead to management effectiveness, reduced duplication, elimination of conflicting responsibilities and harmony of objectives (Douglas and Glen 2000, Scipioni et al. 2001). Dias (2000) examined the possible integration of the elements of families of standards, ISO9000, ISO 14000 and a similar standard in health and safety in construction. Many elements of the three standards were found to be candidates for possible integration. Hamid et al (2004) investigated the integration of safety, health, environment and quality in the construction industry. Their findings indicate that safety, health, environment and quality have many common grounds which make integration possible. Based on the similarities in many areas of these management functions, the

authors proposed a model of integrated management system for the construction industry. Similarly, Kirbert and Coble (1995) explored the integration of health and safety regulations with environmental regulations in the construction industry. Arguing that environmental issues are safety issues, the authors suggest a single administrative procedure for safety and environment via an environmental safety plan. The benefits of such a procedure include fewer processes involved in regulatory agency reviews and workers benefiting from training in both environmental and safety aspects of their work environment.

2.4.3 Behavioural Approaches to Health and Safety Management

Seventy to ninety per cent of accidents are caused by unsafe behaviour. A number of theories have linked accidents to the failure of persons (by their actions or omissions) in the accident chain to avert accidents (Adams 1976, Bird 1974, Haslam et al. 2003, Suraji et al. 2001). These explanations have therefore formed the basis of psychological approaches to health and safety management which have as their aim, the modification of behaviour so as to break the chain of events leading to most accidents.

Duff et al. (1994) reported on behavioural modification procedures used in improving construction site safety. The authors of the study used a combination of goal-setting and feedback to influence the behaviour of site operatives. The findings of the study suggest goal setting and feedback can greatly enhance health and safety performance. Duff (1998) has pointed out that behavioural methods should not be restricted to site operatives but could be extended to include site management staff and senior corporate management. Lingard and Rowlinson (1994) examined the effectiveness of the goal-

setting and feedback approach in the Honk Kong construction industry. It was found that labour commitments to the group and to the organisation are intervening variables in the application of behavioural techniques. Workers need to behave on site in a manner that will not expose them or their colleagues to hazard, particularly workers need to:

- a. report incidences to their employers;
- b. take care of their own health and safety;
- c. abstain from alcohol and drugs that would otherwise increase their exposure to hazards;
- d. take care to avoid adversely affecting the health and safety of fellow workers and persons likely to be adversely affected by their actions and omissions;
- e. follow health and safety rules on site; and,
- f. use PPE when provided.

2.4.4 Integration of Health and Safety with Project Management

Studies in construction accidents suggest many accidents on construction sites could be prevented by taking appropriate steps in all phases of the project life. Thus, participants in a project have a role to play in improving the health and safety performance of construction sites and completed projects. Current thought on health and safety in construction put emphasis on integrating health and safety management into the entire construction process. This view of health and safety management is, at least to some extent, largely driven by developments in health and safety legislation in Europe and USA. This view of integration of health and safety management into construction processes requires responsibility for health and safety to be equitably shared between the

key participants in a construction project. This view therefore requires project participants to “think health and safety” throughout the phases of a project. As Hinze (1998) has emphasized, addressing the safety of construction workers in the design phase involves recognizing the potential impact designers’ decisions can have on the health and safety of construction site workers. Similarly, owners’ involvement in construction safety could reduce

cost of safety to minimum. In the UK and other countries which are members of the European Union, the European Directive on Temporary and Mobile Construction Sites calls for health and safety to be considered during the early stages of a project. However, maximum benefits can be derived from considering health and safety at the early stages of project if procurement routes are adopted which facilitate coordination and team spirit (Kheni and Gibb 2006). Integration of health and safety into project planning has been promoted by authors such as Kartam (1997), Cameron and Duff (2002), Murray (2002), Saurin et al. (2004), Pavitt et al. (2004), Gibb and Pendlebury (2005) and Hare et al. (2006). The work of these authors have each sought to explore avenues for managing health and safety as integral aspect of project planning during one or more of the phases of project execution. For instance, one the most recent studies, Hare et al. (2006) investigated the integration of health and safety with the pre-construction phase of projects. The authors highlighted the importance of effective teams and effective two-way flow of information for successful integration. In developing countries, this shift in focus of health and safety management from actual site processes to overall management of projects requires, first of all, commitment on the part of governments. This will create

an enabling environment for the participation of clients, designers and health and safety stakeholders in health and safety management (Coble and Haupt 1999).

2.5 The Role of Culture in Health and Safety Management

2.5.1 Role of Culture in the Study of Organizations

Organizations are situated within an ambient society or culture. While individual organizations have their culture, their activities are affected by the broader socio-cultural environment. The works of psychologists have helped to pave the way to understanding national culture, organizational culture and sub cultures of organizations. Schein (1985), and Deal and Kennedy (1982) are among authors that provide insights on the culture of organizations while the outstanding work of Hofstede (1980) focuses on the influence of national culture on organizations. All these authors agree that culture provides a means for gaining insightful knowledge of the activities of organizations. The construction industry differs culturally from one country to another and therefore practices and procedures which are well suited to the culture of one country may not be suitable in other countries. As Ofori (1999) has emphasized, universal solutions are not practical.

2.5.2 Culture and Health and Safety Management

Health and safety management in the construction industry is influenced by cultures including; organizational culture, industry culture, existing legislation and institutions with responsibility for occupational health and safety. Research solely devoted to such influences is scarce. Lingard and Rowlinson (2005:ch3) have shown the significance of

these influences on proactive health and safety management in the construction industry. The political and socio-cultural influences are factors which determine the success or failure of most SMEs. Thus, creating an enabling environment is the key to improving poor health and safety performance in SMEs particularly in developing countries where an enabling infrastructure is nonexistent. The influence of national culture on health and safety management in the construction industry has been emphasised among authors such as Coble and Haupt (1999), Peckitt et al. (2002) and Smallwood (2002). Peckitt et al. (2002, 2004) studied the construction industries of Britain and the Caribbean Construction workers of the latter country, which has a culture similar to and originating from West Africa, were found to view values of freedom, love and social interactions as having impact on site safety, whereas British workers rated these values as having a lower impact. Other religions have been similarly linked to health and safety. The study therefore highlights the importance of national culture in the management of health and safety. Smallwood's (2002) study of the link between religion and health and safety in South African construction firms show that religion puts emphasis on the need for conservation of life and the environment. Religion is a fact that characterises the national culture of countries, with Christianity, Islam and Buddhism being the dominant religions in most countries. Native religious practices are also to be found in most countries which have been influenced by foreign religions. Coble and Haupt (1999) have emphasized that cultural influences on health and safety management in developing countries are stronger than in developed countries and advocate for integrating cultural aspects that are advantageous, with health and health management in developing countries. The link between culture and health and safety can also be inferred from research on attitudes and

behaviours by social psychologists. For instance, Ajzen and Fishbein's (1980, 2005) in the theory of reasoned action, suggest that behaviours are linked to attitudes which are shaped by one's beliefs. Thus, workers' behaviours on construction sites may, by this argument, be informed by attitudes which are inherently linked to their cultural dispositions.

2.6 The Problem of Health and Safety Management in the Construction Industry

Anecdotal evidence suggests the implementation of health and safety standards in the construction industry is problematic because of their particular characteristics. A survey conducted by Baldock et al., (2005) revealed marked variations in firms' health and safety practices. External factors found in the study which influenced the businesses' decisions to improve health and safety included; regulatory enforcement activity, use of external assistance on health and safety and membership of trade associations. Internally, the size of construction firms (number of employees and turnover), growth performance and management experience were found to correlate with propensity to adopt health and safety improvement measures. A study by Champoux and Brun (2002) also suggests small business characteristics are associated with health and management within SMEs. Areas of operation have also been found to relate to adoption of health and safety management practices; even where businesses operate in the same industry, there can be marked variation in their health and safety practices depending on the nature of their products or services they render. Birchall and Finlayson (1996) found that, in the construction sector, the effectiveness of health and safety management systems varies with organizational size and type of business activity. The huge numbers of construction SMEs in the economy of any country makes it difficult for enforcing agencies to reach

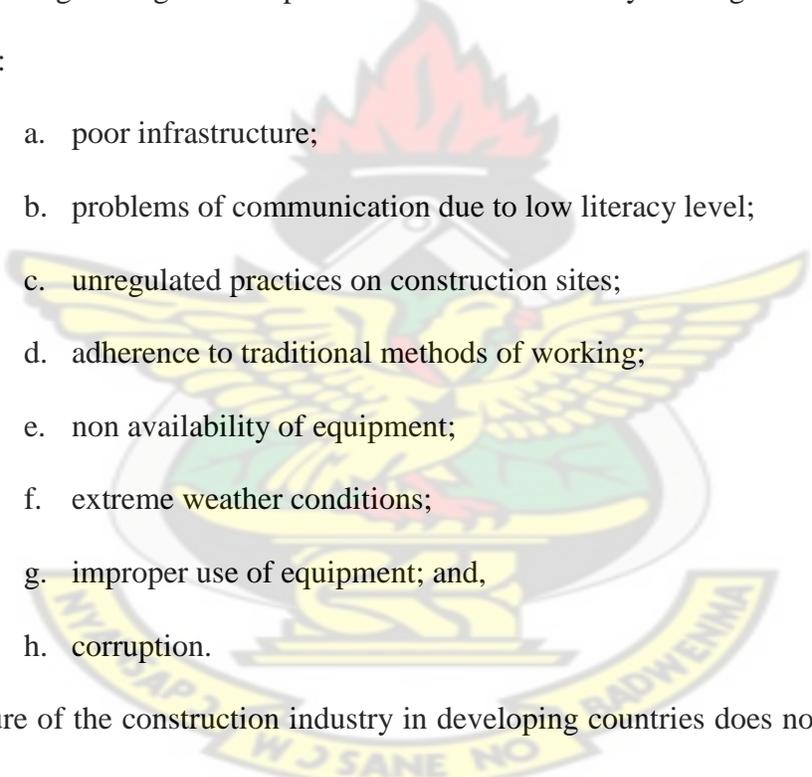
them. Additionally, most SMEs are “invisible”, making it difficult for safety inspectors to locate them. Locating construction SMEs is even the more difficult because of the particular characteristics of the industry. For instance, the need for permanent office accommodation become increasingly apparent as the construction business expands its operations and takes bigger contracts. Some owner/managers of SMEs may therefore choose to operate from their homes. Also, construction sites are dispersed and temporary. Government regulation of the sector can contribute to difficulties in the management of health and safety. Construction SMEs, generally speaking, are saddled with regulatory burden when compared with large businesses because of their size. Evidence exists which indicates the cost of compliance with regulation in SMEs is disproportional and greater in SMEs than in larger businesses (Bannock and Peacock 1989, BRT 2000). Thus, complying with health and safety regulations can be seen as costly and a burden by owner/managers. In developed countries there is ample evidence that health and safety performance of SMEs is poorer than larger businesses (Cully et al. 1999, MORI 1998, Nichols 1997:154, 161-168, Nichols et al. 1995, Stevens 1999, Walters 2001:81-86). In the face of scarce resources, SMEs are unlikely to commit sufficient amounts and the right type of resources in the management of health and safety. This is the more true of construction SMEs in developing countries where access to finance is a major problem. To manage health and safety effectively, it is essential that owner/managers have the right attitude and perceptions about hazards on construction sites. Unfortunately, this is not the case in construction SMEs where health and safety risks are often wrongly perceived to be low (Champoux and Brun 2002). Most owner/managers misconceive the risk levels of their businesses and rarely involve their workers in decision-making

relating to health and safety matters. The Health and Safety Commission in the UK (Department of Environment Transport and the Regions (DETR) 2000) for instance, has identified ignorance amongst other factors preventing construction SMEs from taking the opportunity to improve their competitive position through better health and safety management. SMEs have a preference for informal procedures over formal procedures and may therefore find it difficult adopting formal management procedures developed for large businesses. Health and safety management systems and practices successfully applied in large firms will therefore be unsuitable for SMEs unless they are modified to take into account, the informal culture of SMEs.

2.6.1 Are Developing Countries Any Better In Providing Health And Safety For Workers?

Health and safety management is a challenge to governments as well as owners of businesses. The business environment is one which may be described as harsh and unpredictable such that any attempt at implementing management interventions without taking it into account is bound to fail. Regulatory systems and institutions in many developing countries have been inherited from developed countries. Furthermore, in many of these countries, such regulations have not been updated to reflect their current level of development and cultural milieu. Health and safety regulations are incomprehensive and limited in coverage (Suazo and Jaselskis 1993). LaDou(2003) reports that occupational health and safety laws cover 10% of working population in developing countries, omitting many high risk sectors such as agriculture, fishing, forestry and construction. Koehn et al. (1995) have cited bureaucracy, time pressures, ineffective institutional structures for implementing occupational health and safety laws

and ignorance on the part of workers about their rights to a decent workplace, as factors militating against the implementation of effective health and safety management practices in developing countries. Mwombeki (2005) in a similar study found that majority of Tanzanian contractors, small or large, appear to understand the importance of health and safety programmes but did not implement such programmes to improve the poor health and safety performance of the construction industry. Research carried out by Gibb and Bust (2006) on health and safety in developing countries has identified a number of factors having a negative impact on health and safety management in developing countries:

- 
- a. poor infrastructure;
 - b. problems of communication due to low literacy level;
 - c. unregulated practices on construction sites;
 - d. adherence to traditional methods of working;
 - e. non availability of equipment;
 - f. extreme weather conditions;
 - g. improper use of equipment; and,
 - h. corruption.

The culture of the construction industry in developing countries does not promote health and safety. Certain practices of the industry are a disincentive to the effective management of health and safety. Ngowi and Mselle (1999) observe that contractors in developing countries gain little competitive advantage from good health and safety management. The practices of competitive tendering and award of most public contracts to the lowest bidder in many developing countries compels contractors to drive their

prices low, while cutting costs, which, in turn, affects health and safety. Many workers in developing countries are barely literate. Koehn et al. (2000) have stressed that a key barrier to health and safety management is the difficulty in training illiterate workers. High poverty levels compel workers to accept work in unacceptable high risk situations without complaining or demanding their employers put in place health and safety measures. Mitullah and Wachira (2003) have observed that workers, particularly in the informal construction sector in a developing country such as Kenya, are accorded little health and safety protection. These workers, according to the authors, do not belong to any form of union making it difficult for them to compel their employers to adhere to good labour standards. The abundance of cheap labour in developing countries means employers can dismiss site workers who perform unsatisfactorily and also replace them with new workers easily. This has been argued by Koehn and Reddy (1999) to cause site workers to often take risks on the job, leading to serious accidents on site. The production process in developing countries is labour intensive, a characteristic which favours the establishment and growth of SMEs in many sectors in developing countries. It is arguable whether owner/managers have the experience and skill in labour intensive technologies. Most owner/managers start businesses in pursuit of autonomy and as a secondary reason, to provide income for their families. Very few of owner/managers are well versed in the management of business operations. This, therefore, brings into doubt their ability to manage the risks of hazards associated with labour intensive methods.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter describes how the study was conducted. It defines the choice of study approach and design that was used in undertaking the study. The chapter also defines the population and sample size of the study, including the statistical techniques used to analyse the data.

3.1 Research Design

This research design is one of several designs for conducting a social science research. In as much as designs of a research might take the form of a case study, surveys, experiments, histories and archival analysis. This study employed case study as its research design. The case study research design was adopted to emphasize the intensive examination of the setting. In addition, having chosen the quantitative approach as my research strategy, the researcher found it viable to combine it with the case study design.

3.2 Population

Population refers to the whole group that the study focuses on. The study's population comprised all permanent staff and site workers of Abasa General Limited totaling up to one hundred and twenty-five (125) workers. This is made up of Administrators, Site Engineers, Operators, Drivers and Artisans.

3.3 Sampling Procedure

Selection of sample was done by simple random sampling technique. Hence, efforts were made to obtain a representation of staff across the various job specifications (drivers, operators, site engineers, foremen and artisans). The simple random sampling technique was used in the selection of the participants so as to ensure that each case in the population has an equal chance of being included in the sample. To clear any doubts in the minds of respondents, the purpose of the study was made known to the workers. The questionnaire was thoroughly explained to all respondents.

3.3.1 Sampling size

The sample size is an important feature of any empirical study in which the goal is to make inferences about a population from a sample. Sample size determination is the act of choosing the number of observations to include in a statistical sample. A sample of sixty (60) was considered for this research consisting of four administrative staff, three site engineers, eleven operators and three drivers. Others included four carpenters, four welders, five steel benders, five masons and twenty casual workers. This will ensure an adequate representation of the population.

3.4 Sources of Data

The study used both primary and secondary sources of data which are expected to enhance the quality of the study. The essence of this is to have a wide range of information in terms of what has been collected for some purpose other than solving the present problem and other which is collected especially to address as specific the research objectives.

3.4.1 Primary Data

Primary data is original data collected directly by the researcher for the research problem at hand (Yin 2003). This study collected primary data through administration of questionnaires to the selected samples. The researcher settled on questionnaires, and unstructured interviews with administrators, Operators, truck drivers and casual workers of Abasa General Limited. The selection criterions of the interviewees were based on their knowledge, involvement in the construction business as well as their position in the company. It was conducted in correlation with the theoretical framework which helped the researcher to ask questions that addressed the research problem.

3.4.2 Secondary Data

Secondary data is information gathered for purposes other than the completion of a research project. A variety of secondary information sources was available to the researcher while gathering data on the case under study. Secondary data was also used to gain initial insight into the research problem. Secondary data is classified in terms of its source – either internal or external. Internal, or in-house data, is secondary information acquired within the organization where research is being carried out. External secondary data is obtained from outside sources. Both external and internal sources were used.

The two major advantages of using secondary data in a construction firm research are time and cost savings. The use of the secondary data was to raise the validity and reliability of the study. The secondary sources used in this research included published journal articles, published books, company website among other secondary data sources.

The use of secondary data saved the researcher time and money because the researcher needed only to go to the library and locate and utilize the sources.

3.5 Data Collection Instruments

Data collection instruments to be used for the study are the questionnaires and the interviews, official records, direct observation, and quantitative techniques. A mixed method-research approach was used for this project. A face-to-face conversation (unstructured interview) was also used to access the necessary information for this study. The essence of this is to enable the researcher to assess how health and safety needs have impacted on workers and people in the communities in which the company operates.

3.5.1 Questionnaire

The questions were made up of open-ended and close-ended questions. Closed-ended questions used the Likert scale type and the open-ended type questions allowed for free expression of employees' views and comments. The questionnaires were distributed to the sampled staff and given to some to fill at their convenience. The questionnaires were administered to all categories of staff.

3.5.2 The Interview Method

As a supplement to the questionnaire, the interview method was adopted to ascertain some of the information that could not be accessed using the questionnaire. The researcher personally conducted all interviews which were at the convenience of the respondents.

3.6 Data Presentation and Analysis Procedure

3.6.1 Analysis Structure

The study analyzed data with Statistical Package for the Social Sciences (SPSS). In Saunders et al. (2007), analysis is the ability to break down data and to clarify the nature of the component parts and the relationship between them. Interview responses were analyzed through data reduction, display, conclusion creation, and to identify trends.

3.6.2 Presentation Devices

Analysis aimed to obtain frequencies and percentages of closed-ended responses to assist in identifying trends that appeared from responses. This was used to generate tables, pie charts and other relevant graphs.

3.7 Validity and Reliability

Validity and reliability describes how collection of the data or how the conduct of the analysis brings reliable findings. The study ensured validity by reducing subject or participant error, subject or participant bias, observer error and observer bias.

3.8 Profile of the Company

Abasa General Enterprise Limited was incorporated under the companies code, 1963(Act 179) as a limited liability company on the 21st day of September, 1987 and was issued with a certificate to commence business on the 25th November, 1987. The company has six (6) Directors and a permanent staff strength of fifty (50) made up of engineers, technicians, administrators, drivers and operators. Casual workers, especially labourers are locally engaged when need be. The nature of businesses which the company is authorized to carry on includes;

- a. General Merchant
- b. Import and export of general goods
- c. Haulage services
- d. Roads and building construction and maintenance
- e. Timber merchant

Mission Statement

Abasa Enterprise Company Limited is committed to building long term relationships based on integrity, performance, and value and client satisfaction. We will continue to meet the changing needs of our clients with our quality services delivered by the most qualified people.

The Company's vision

Abasa Enterprise Company is not just a construction company. We are dedicated team striving to bring growth to our community, helping to maintain existing companies and assist our clients in making their dreams become a reality. Although the company is authorized to execute any of the above listed businesses, its main area of concentration is roads and building construction, and maintenance. This aspect is managed by the Project Manager and Project Engineer who ultimately report to the Chief Executive Director.

The under listed departments are responsible for the successful operations of the company;

- a. **Projects;** responsible for the field operations of the company.
- b. **Personnel:** responsible for staff employment and records.
- c. **Internal Audit:** conducts pre-audits of purchases and payments.

- d. **Accounts:** handles company's account, payments and receiving payments.
- e. **Mechanical:** carries out routine maintenance, repairs of plants and equipment

The companies in some modest ways has succeeded in improving the lives of Ghanaians by constructing roads and bridges in various part of the country and have succeeded in making certain communities which were hitherto inaccessible by vehicles. Some include; few trunk roads in Ashanti region, surfacing of Wasa Akropong town roads, and some town roads in Kade, in the Eastern region. The company has also executed jobs on some steel bridges over some rivers in some part of the Central region. Among these are bridges over Aduresu on Tumfukor. Seven warehouses have also been constructed in parts of Takoradi to help smaller cocoa purchasing companies store their proceeds.

There is no doubt at all that the company is also faced with some challenges;

- a. There is often delay in payment on contracts undertaken for the nation
- b. High interest rates quoted by the Bank of Ghana.
- c. Rampant increases in material prices due to high exchange rates.

Other challenges come from competitive bidding by other construction firms.

This chapter has described how the study was conducted. It has also shown the choice of study approach and design that were used in undertaking the study. The chapter has defined the participants that were used, including the statistical techniques used to analyze the data.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.0 Introduction

This chapter deals with analysis, discussion and presentation of results of collected data. Statistical Package for Social Sciences (SPSS) was employed to derive descriptive statistical tools in the form of tables and charts. The one sample statistics means of importance helped in establishing the significant importance of the welfare and safety issues.

4.1 Response Rate

Out of sixty (60) questionnaires administered the researcher could retrieve all representing a response rate of 100%. This was due to self-administration of the questionnaires and face to face interview of the respondents employed by the researcher at the work site of Abasa General Enterprise.

4.1.1 Demographic Data of the Respondents

This section presents the educational background, categories of respondents and the number of years they have spent in the construction industry.

4.1.2 Categories of the Respondents

The table 4.1.1 below indicates the various categories of the respondents in the Abasa General Enterprise Ltd. From the table 18.3% of the respondents were operators, 3.3% were site engineers, 1.7% each represented both project manager and site foreman and

75% were others (welders, masons, carpenters, auditor, accountant, drivers and steel benders).

Table 4.1: Please indicate your position in the company

Respondents	Frequency	Percent
Operator	11	18.3
Project Manager	1	1.7
Site Engineer	2	3.3
Site Foreman	1	1.7
Other	45	75.0
Total	60	100.0

Source: Researcher's Field work, June 2012

4.1.3 Educational Background of the Respondents

The table below presents the educational background of the respondents of Abasa General Enterprise. Table 4.1 Shows that 23.3% of the respondents held MSLC, 5.0% were HND holders, 13.3% were Technicians and 58.3% were others who held degree and postgraduate certificates.

Table 4.2: Educational levels of the Respondents

Respondents	Frequency	Percent
Tertiary & Higher	3	5.0
HND	8	13.3
Technician/Secondary	14	23.3
MSLC/BECE	15	25.0
No Formal Education	20	33.3
Total	60	100.0

Source: Researcher's Field work, June 2012

From table 4.2, about 5% of these workers have had tertiary education or higher, while 13.3% of them are HND (Higher National Diploma) graduates. About 23.3% of the workers are Technical and Vocational Certificate holders. 25% of the respondents have MSLC (Middle School Living Certificate) and BECE (Basic Education Certificate Examination) certificates. The remaining 33.3% have no formal education. The results from Table 4.1.2 paints a picture that most workers on sites are academically matured enough to address their health and safety issues. Thus, in terms of safety materials, they may be able to demand the kind of safety materials they require for their work if the employer refuses to provide.

Table 4.3: Years in Building Construction Industry

Years	Frequency	Percent
Over 20 years	5	8.3
11-15 years	5	8.3
6-10 years	25	41.7
Up to 5 years	25	41.7
Total	60	100.0

Source: Researcher's Field work, June 2012

Table 4.3 shows the working experience of the personnel and the indications are that, about 8.3% of these personnel have worked 20 years in the construction industry, 8.3% of the workers have spent between 11 and 15 years, 41.7% of them have between 6 to 10 years experience and another 41.7% with up to 5 years experience. This background information gathered on these personnel suggests that they are competent, experienced

and capable of exercising good judgment and as such the responses provided by them could be relied upon for study with regards to participation of construction firms.

4.2 Provision of Safety Equipment

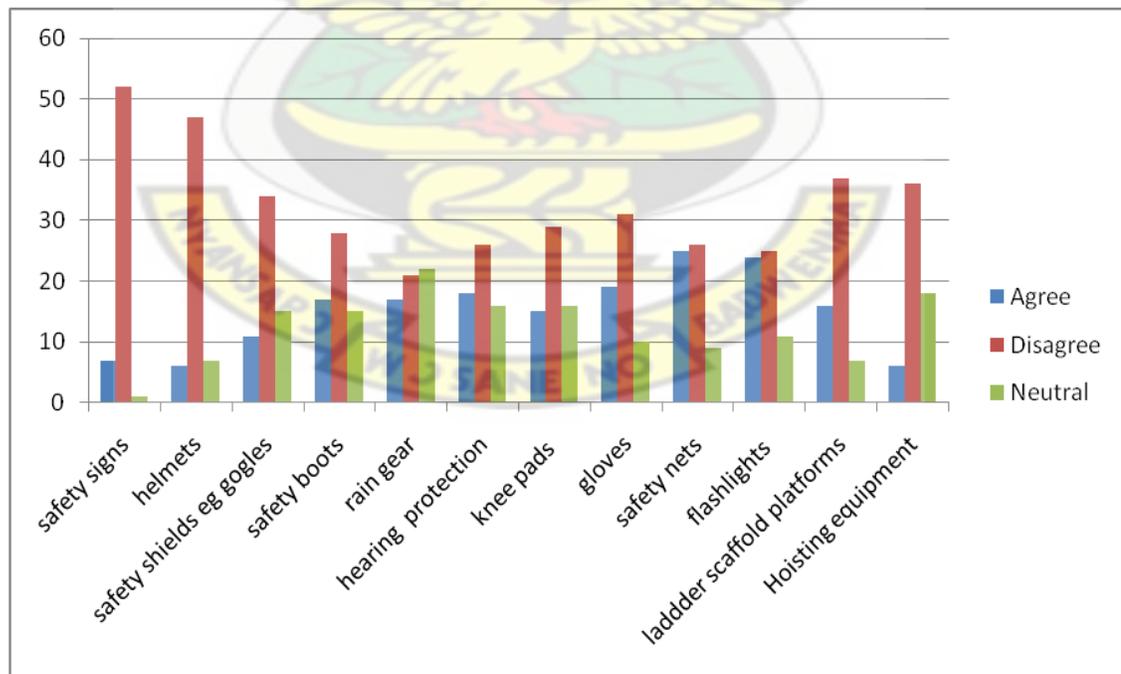
Employers are required by law to provide all categories of workers with the following personal protective equipment and protective clothing on site.

- i. Safety helmets or hard hats to protect the head from injury due to falling or flying objects, or due to striking against objects or structures;
- ii. Clear or coloured goggles, a screen, a face shield or other suitable device where workers are likely to be exposed to eye or face injury from airborne dust or flying particles, dangerous substances, harmful heat, light or other radiation, and in particular during welding, frame cutting, rock drilling, concrete mixing or other hazardous work;
- iii. Protective gloves or gauntlets, appropriate barrier creams and suitable protective clothing to protect hands or the whole body as required, against heat radiation or while handling hot, hazardous or other substances which might cause injury to the skin;
- iv. Footwear of an appropriate type when employed at places where there is the likelihood of exposure to adverse weather conditions, or of injury from falling or crushing objects, hot or hazardous substances, sharp-edged tools or nails and slippery or ice- covered surfaces;
- v. Respiratory protective equipment, suitable for a particular environment, where workers can be protected against airborne dust, fumes, vapours or gases by ventilation or other means;

- vi. a suitable airline or self-contained breathing apparatus when employed in places likely to have an oxygen deficiency;
- vii. Respirators, overalls, head coverings, gloves, tight-fitting boiler suits, impermeable footwear and aprons appropriate to the risks of radioactive contamination in areas where unsealed radioactive sources are prepared or used; and
- viii. Waterproof clothing and head coverings when working in adverse weather conditions.

From the above section, it can be concluded that the legal framework (i.e. the ILO’s Code of Practice on Health and Safety on Construction site) for construction workers in general is adequate to protect them. This legal framework covers both permanent and casual workers.

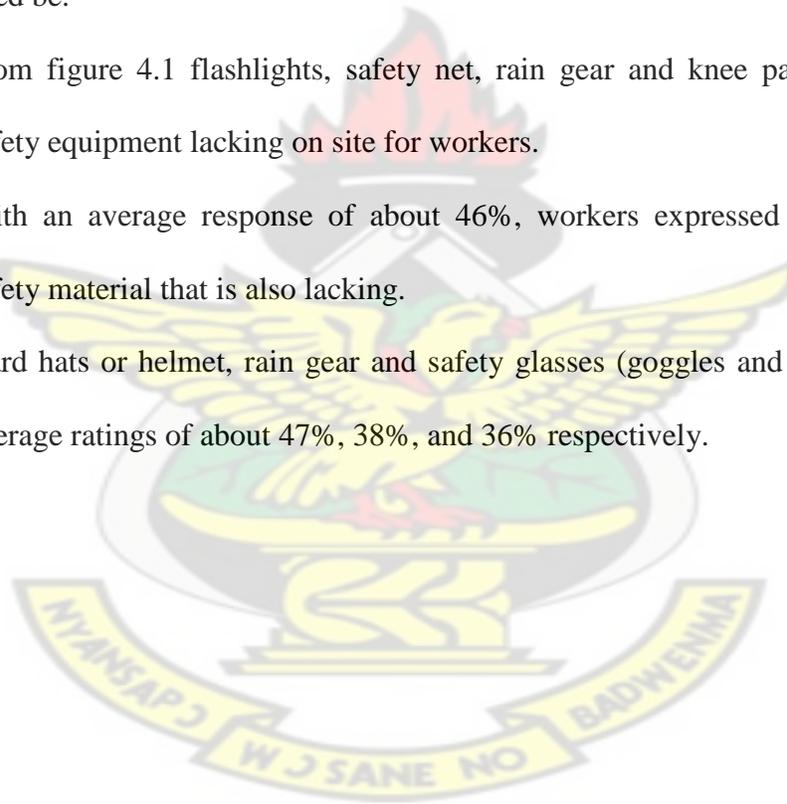
Figure 4.1: Provision of safety and equipment



Source: Researcher’s Field work, June 2012

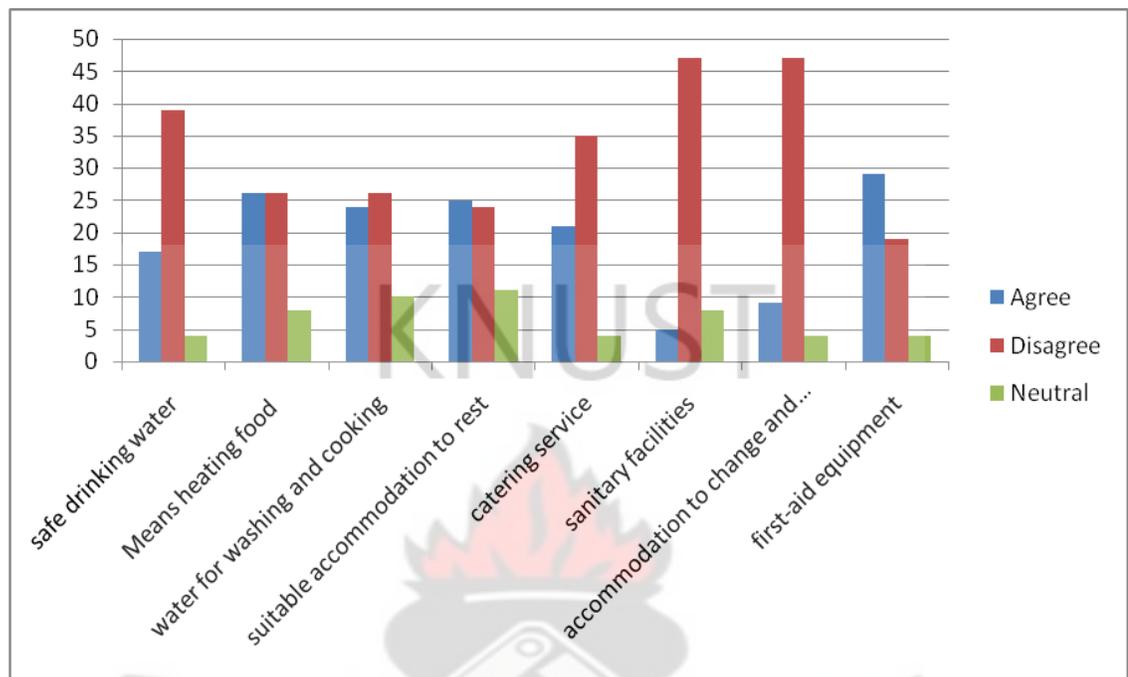
Following the results in Figure 4.1 the following issues appear to emerge:

- i. From figure 4.1, a total of about 60% of respondents agreed to the statement that they are not provided safety materials on construction site while an average of about 18% of the respondents disagreed to the assertion.
- ii. Among other factors, indications from figure 4.1 suggests that safety signs, hard hats or helmet, rain gear and safety glasses (goggles and face shields) were the four main safety materials provided on sites to all categories of workers when need be.
- iii. From figure 4.1 flashlights, safety net, rain gear and knee pad were the main safety equipment lacking on site for workers.
- iv. With an average response of about 46%, workers expressed that flashlight is safety material that is also lacking.
- v. Hard hats or helmet, rain gear and safety glasses (goggles and face shields) had average ratings of about 47%, 38%, and 36% respectively.



4.2 Health and Safety Issues

Figure 4.2: Health and safety issues



Source: Researcher's Field work, June 2012

From analysis of the results shown in figure 4.2 the following picture emerged:

- i. An average of 30% of the respondent agreed to the assertion that contractors do not provide at least four of the welfare facilities listed in figure 4.3 above and disagreed that the remaining four facilities were provided them.
- ii. Going back to figure 4.2, among other issues, respondents admitted four welfare facilities were lacking on site for workers. This includes first-aid equipment, means of heating food, catering service and accommodation to change and store clothing. Workers demonstrated that first-aid items as the most important welfare item was lacking on construction site for use in times of injuries and that workers sometimes had to use their own funds to receive medical attention in nearby health centers.

The same question was posed to some office staff on the Likert scale of 1-5 points which ranges from strongly agree to strongly disagree which also revealed a similar result. Welfare facilities identified by workers to be lacking on site for them included suitable accommodation to rest, catering service, first-aid equipment and means of heating food. Again, an average of 66.4% of the respondents disagreed to the assertion that contractors provide these welfare facilities such as; accommodation to rest, sanitary facilities, water for washing and cooking and means of heating food. This seems to suggest that the provisions of welfare facilities on construction site in Kumasi Metropolis have been compromised by employers. An insignificant average percent of 3.6 of the total respondents remained neutral on these issues.

Welfare Facilities:

Under the general provisions of welfare facilities, it writes “at or within reasonable access of every construction site, the following facilities should, depending on the number of workers and the duration of the work, be provided, kept clean and maintained:

- a. Sanitary and washing facilities or showers;
- b. Facilities for changing and for the storage and drying of clothing;
- c. Accommodation for taking meals and for taking shelter during interruption of work due to adverse weather conditions”.

Sanitary Facilities

The Sanitary facilities are defined to include toilet, privies, chemical closet. The understanding from the document is that, the provision, the construction and the installation of these facilities should comply with the requirements of the authorities

(laws of the land). Further, no toilet other than a water flush toilet should be installed in any building containing sleeping, eating or other living accommodation, and should be adequately ventilated and not open directly into occupied rooms. Adequate washing facilities should be provided as near as practicable to toilet facilities.

Washing facilities

The rules governing washing facilities (e.g. shower-bath) are that, the number and the standard of construction and maintenance of washing facilities should comply with the requirements of the authorities. Washing facilities should not be used for any other purpose and where workers are likely to be exposed to skin contamination by poisonous, infectious or irritating substances, or oil, grease or dust, there should be a sufficient number of appropriate washing facilities or shower-baths supplied with hot and cold water.

Cloakrooms

A cloakroom, or sometimes referred to as coatroom, is by definition a room where coats and other articles may be left temporarily (Harris, 2005). On construction site, the cloakroom is normally part of the site accommodation provided by the main contractor and it should be provided for all workers at easily accessible places and not be used for any other purpose. Cloakrooms should be provided with suitable facilities for drying wet clothes and for hanging clothing. Where necessary the contamination of the room should be avoided. Suitable lockers separating working from street clothes must be provided. Suitable arrangements should also be made for disinfecting cloakrooms and lockers in conformity with the requirements of the authorities.

Drinking Water

The code requires that, contractors must provide enough water for all workers and the treatment of the drinking water will be as follows. All drinking water should be from a source approved by the authorities. Where such water is not available, the authorities should ensure that the necessary steps are taken to make any water to be used for drinking fit for human consumption. Drinking water should be stored in closed containers only, from which the water should be dispensed through taps or cocks. If drinking water has to be transported to the worksite, the transport arrangements should be approved by the authorities. The transport tanks, storage tanks and dispensing container should be designed, used, cleaned and disinfected at suitable intervals in a manner approved by the authorities. Water that is unfit to drink should be conspicuously indicated by notices prohibiting workers from drinking it. A supply of drinking water should never be connected to a supply of water that is unfit to drink.

Facilities for Food and Drink

Contractors are required in appropriate cases, depending on the number of workers, the duration of the work and its location, adequate facilities for obtaining or preparing food and drink at or near a construction site should be provided, if not otherwise available. The facilities should be hygienic and located in hygienic environment.

Living Accommodation

The code of practice requires that suitable living accommodation should be made available for all the workers at construction sites which are remote from their homes. Adequate transportation between the site and their homes should be provided, and where

this is not possible other suitable living accommodation should be provided. Men and women workers should be provided with separate sanitary, washing and sleeping facilities.

Personal Protective Equipment and Protective Clothing

Under this provision, employers were to note that suitable personal protective equipment and protective clothing, having regard to the type of work and risks, should be provided and maintained by them without cost to the workers. Also under this provision, personal protective equipment and protective clothing should comply with standards set by the authorities, taking into account as far as possible the ergonomic principles. Further, employers should provide the workers with the appropriate training to enable them to use the individual protective equipment, and should require and ensure its proper use.

4.3 Awareness of Occupational Health and Safety Issues

There is the assertion that the following statements influence health and safety issues on construction site;

4.3.1 Employees' health and safety rights and responsibilities:

As a worker if you have reasonable concerns about your safety, to stop work and leave your works, Employers have legal obligations to ensure a safe and healthy workplace. As an employee, you have rights, and you have responsibilities for your own well-being and that of your colleagues.

Your rights as an employee to work in a safe and healthy environment are given to you by law, and generally cannot be changed or removed by your employer. The most

important rights are, as far as possible, to have any risks to your health and safety properly controlled;

To be provided, free of charge, with any personal protective and safety equipment.

- a. area, without being disciplined.
- b. to tell your employer about any health and safety concerns you have.
- c. to get in touch with the Health and Safety Executive (HSE) or your local authority if your employer would not listen to your concerns, without being disciplined.
- d. to have rest breaks during the working day, to have time off from work during the working week, and to have annual paid holiday.
- e. Employers have some flexibility to manage their financial exposure arising from the potential liabilities under the Act. It is not mandatory for employers to buy insurance for employees who are newly covered under the Act Nonetheless, employers will be
- f. required to pay compensation in the event of a valid claim, even if they do not buy insurance.
- g. There is no change to the compulsory insurance requirement for
- h. employees who are already covered by the Act
- i. Employers are required by law to buy insurance for these employees, unless exempted.

Despite this variety of concerns and interests, certain basic principles can be identified, including the following:

All workers have rights. Workers, as well as employers and governments, must ensure that these rights are protected and foster decent conditions of labour. As the International

Labour Conference stated in 1984:

- a. work should take place in a safe and healthy working environment;
- b. conditions of work should be consistent with workers' well-being and human dignity;
- c. work should offer real possibilities for personal achievement, self-fulfillment and service to society.

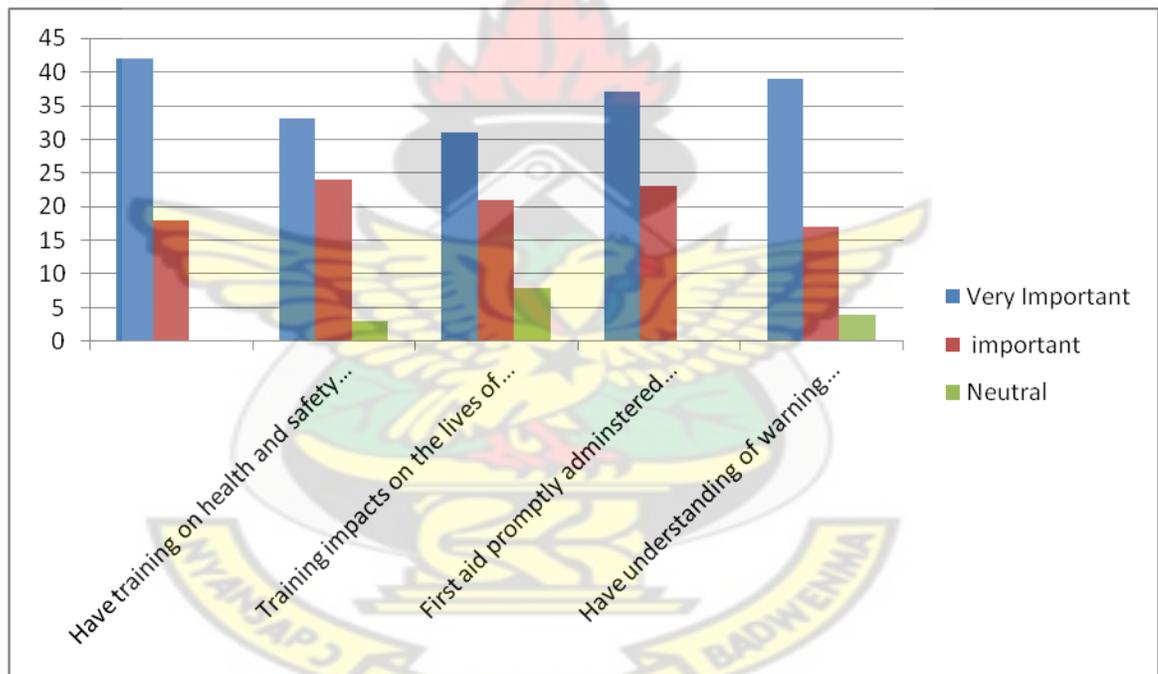
4.3.2 Training

One of the ways in which employers meet legal obligations to impart health and safety information to protect workers is through training. A recent systematic review by the Institute for Work & Health (IWH) concluded workplace training and education have a positive impact on the health and safety practices of workers (Robson et al, IWH, 2010). There was, however, insufficient evidence that training on its own reduced injury rates. These findings support the multi-faceted approach set out in the recommendations of the Panel: filling gaps in training requirements, promoting key elements of OHS performance such as management commitment, encouraging worker participation, influencing societal norms, and creating processes to identify and remove hazards. To make significant improvements to workplace health and safety, all of these elements are necessary. The public consultations revealed that there is a lack of foundational, basic information among workers about the existence of “the green book” that Ontario has an Occupational Health and Safety Act; and that owners, employers, supervisors and workers all have rights and responsibilities. In the view of the Panel, everyone needs to be aware of these rights and responsibilities, regardless of their role within the workplace.

4.3.3 Provision of First-Aid

The rule is that employers are to provide first-aid facility for every employee on a work site. It is required by law that employers are to provide first-aid room properly constructed and accessible for purpose of rest and treatment, and it should be operational during working hours. This is applicable to contractors who employ 250 and more employees. There is also a legal requirement that obliges employers to draw Compulsory Insurance against injuries and fatal accidents that may occur at workplaces.

Figure 4.3: Awareness of occupational health and safety issues



Source: Researcher's Field work, June 2012

From figure 4.3 above, an average of 70.4% admitted that occupational health and safety issues were of much concern to them. These respondents claimed that it was very important for them to be aware of their rights on health and safety issues as workers, have training on health issues that would promote good health and ensure safety at the work place. The respondents also affirmed that if first aid is readily available at the work place

and promptly administered when accidents occur it would boost the morale of workers for them to give out their best. Finally, these same respondents confirmed that a good understanding of warning signs displayed at the construction site would help reduce injuries and accidents to both workers and people in the community. An average of 27.3% of the respondents asserted that these health and safety issues were equally important while an average of 2.3% remained neutral.

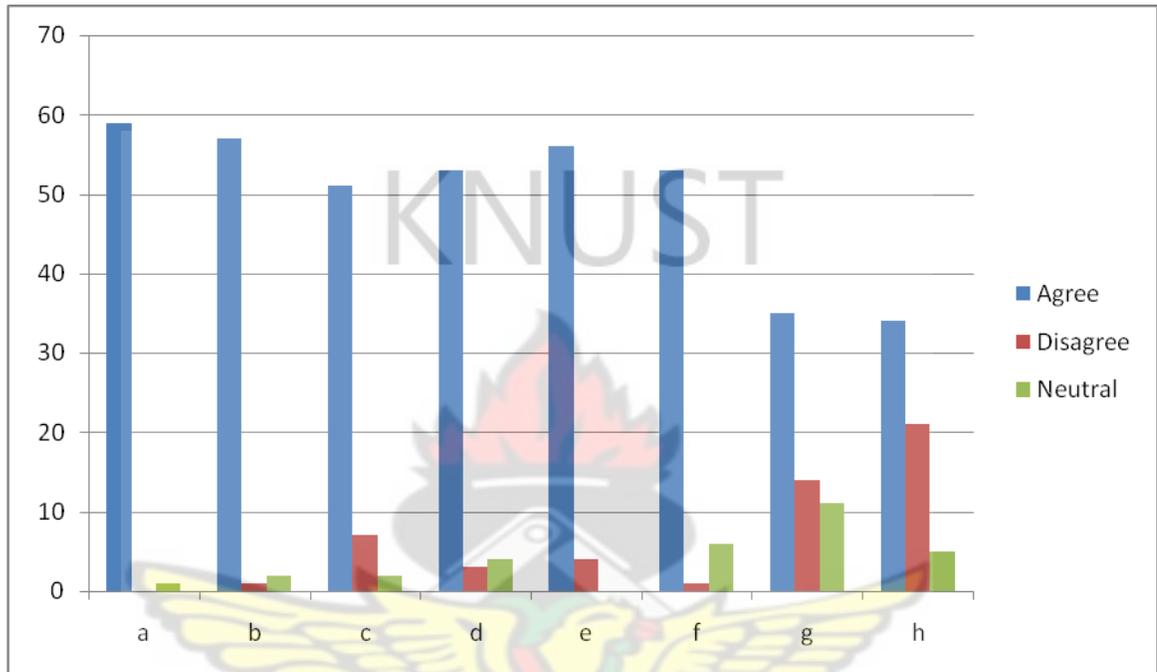
4.4 Consequence of Poor Working Environment

Unhealthy or unsafe working conditions are not limited to factories — they can be found anywhere, whether the workplace is indoors or outdoors. For many workers, such as construction workers or miners, the workplace is “outdoors” and can pose many health and safety hazards.

Poor working conditions of any type have the potential to affect a worker's health and safety. Poor working conditions can affect the environment workers live in, since the working and living environments are the same for many workers. This means that occupational hazards can have harmful effects on workers, their families, and other people in the community, as well as on the physical environment around the workplace. A classic example is the use of heavy machines in construction work. Workers can be exposed to dust and chemicals in a number of ways when spraying clearing and applying bitumen, they can inhale the chemicals during and after spraying, the chemicals can be absorbed through the skin, and the workers can ingest the chemicals if they eat, drink, or smoke without first washing their hands, or if drinking water that has become contaminated with the chemicals. The workers' families can also be exposed in a number

of ways: they can be exposed to residues which may be on the worker's clothes. Other people in the community can all be exposed in the same ways as well.

Figure 4.4: Consequence of poor working environment



Source: Researcher's Field work, June 2012

The statements below reflect questions respondents reacted to in section D of the questionnaire administered.

- a) Workers in every occupation can be faced with a multitude of hazard in a work a work place
- b) Unhealthy working conditions are not limited to construction workers
- c) Construction workers' work place is mostly outdoors
- d) Working outdoors can pose many health and safety hazards
- e) Poor working conditions can affect the environment workers live in.
- f) Harmful effects on workers can affect their families and other people around them.

- g) First –aid equipment are readily available on sites
- h) Injured workers are promptly compensated.

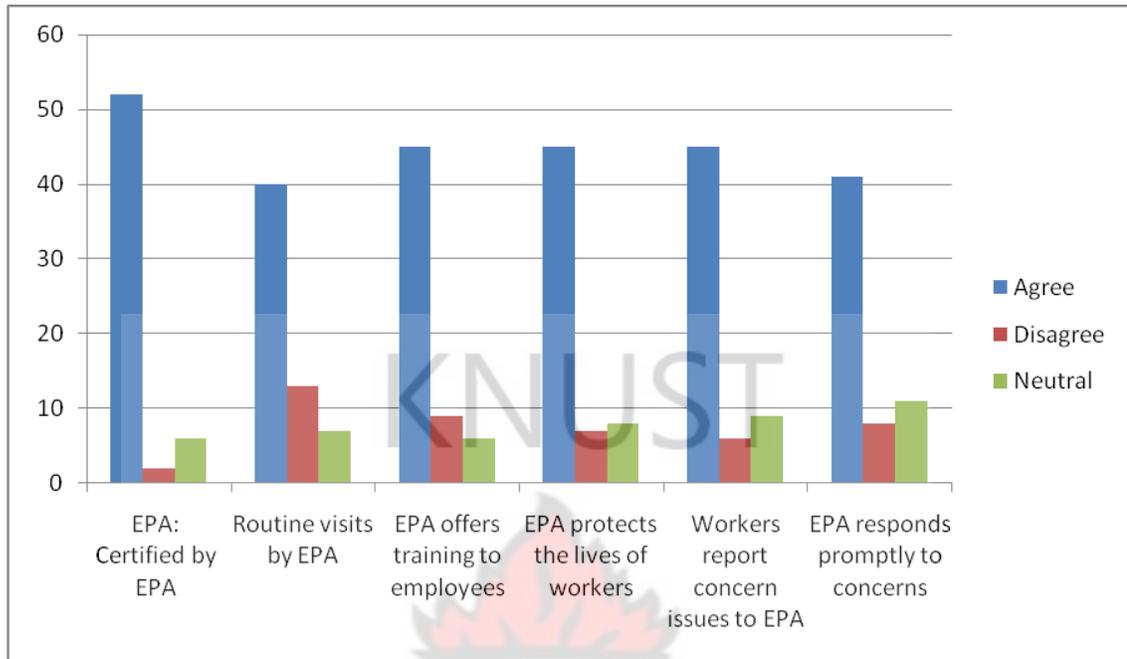
From figure 4.4 it clearly depicts that an average of 90.3% of the respondents agree with the fact that human lives are important and must not be undermined and that poor working environment poses great danger and risk to the lives of workers, their families, and people in the community. An average of 4.2% of the respondents disagreed to this assertion that poor working environment can have impact on their lives, families, and people in the community. Only an average of 5.5% of the respondents remained neutral.

4.5 Role of Environmental Protection Agency

Environmental Protection Agency is often the main regulatory body that works to ensure that major mining, oil and construction companies in Ghana comply with environmental standards. Environmental Protection and health and safety are connected. However, environmental standards are fundamentally different from health and safety issues that have to do with particularly the welfare and safety of construction workers in Ghana.

The mission of the Environmental Protection Agency (EPA) of Ghana is to co-manage, protect and enhance the country's environment, as well as seek common solutions to global environmental problems. The accomplishment of the mission is to be achieved inter alia through: an integrated environmental planning and management system established on a broad base of public participation, efficient implementation of appropriate programmes and technical services, giving good counsel on environmental management as well as effective and consistent enforcement of environmental laws and regulations.

Figure 4.5: Role of environmental protection agency



Source: Researcher's Field work, June 2012

As can be seen from figure 4.5 above a whopping 80% of the respondents agreed strongly that it is important Environmental Protection Agency issue certificate to construction companies in Ghana with healthy and safe working environment. These same respondents agreed that regular training be given workers on health and safety issues and that EPA (Environment Protection Agency) protects the lives of workers receives concerns from workers and respond to their concerns promptly and accordingly. An average of 8.3 % of the respondents disagreed to these assertions while 11.7% of the respondents remained neutral. It was revealed that few of the workers who handle health-risk equipment are provided Personal Protective Equipment (PPE) for use.

Analysis of Interview

The following questions relating to the impact of health and safety needs on construction sites of Abasa General Enterprise were posed to some workers.

1. Do construction workers wear Personal Protective Equipment (PPE) on site?
2. Is there adequate first aid and first aider(s) on your construction sites?
3. Are safety and warning signs displayed on sites?
4. Does the company have a Safety Officer?
5. Does the company train workers on hazards and safety rules?
6. Do regulatory bodies in Ghana go round to ensure compliance with health and safety rules?
7. Are workers in Abasa provided with clear directions on manual handling?

Three (3) construction sites of Abasa General Enterprise Limited were visited to help in answering the research questions. At each of the sites, a full inspection of the construction site and workers' activities was carried out. Data was collected with the help of a field note book containing a set of Health and Safety indicators derived from the literature on internationally acceptable health and safety standards and provisions on construction sites. Site personnel were interviewed for explanations on the things observed at the various sites visited. Those interviewed included site engineers, foremen, artisans and casual workers. The site engineers and a foreman were interrogated with open ended questions to obtain answers to the interview questions.

In most cases, the site supervisors were aware of the theoretical requirements for Health and Safety on site. However, most requirements were not provided for on site as a result of lack of enforcement.

Safety procedures were not observed, wearing of 'eye protection', wearing of 'high visibility vest', availability of 'first aiders' on site, presence of 'Safety officer' on site, conducting 'health and safety induction on site hazards and rules were all absent.

Site rules', 'regulatory bodies going round to ensure compliance with health and safety rules was also absent, sites did not have standard health and safety equipment. On the use of skill trained first aider for dressing minor injuries, the Site Engineer on one of the sites said that the time keeper usually assumes that role. In ensuring that workers wear their PPE, another site engineer said that "We normally provide them with these – we give the masons helmet and safety boots – however we have to force them to wear them". On the display of site rules, he said that "In the past we used to do this but not nowadays". There was no Safety officer per se on site. However, the site engineer said that the foreman acts as a Safety Officer. On the absence of health and safety training, the site engineer said that "There is no health and safety training for our workers because that is the work of the Environmental Protection Agency. He provided the following quote in relation to this point: "Well- organized companies recognize safety and they do it.

Ordinary contractors don't. Clearly these results indicate that serious steps are needed to address problems related to poor health and safety policies and procedures on construction sites in Ghana. On one site, it was found that Site engineers double as site safety officers and sometimes refuse to provide PPE for workers even when they are

specific contractual requirements. At other times, workers refuse to use PPE provided due to inadequate training on their use. Some of the workers said that there is little or no enforcement of adherence to health and safety requirements on site.

Most employees indicated that in the construction sector, health and safety is a high priority just like in the oil and gas sectors. The workers also affirmed that they knew the parties responsible for ensuring acceptable standards of health and safety on construction sites in Ghana to be the Government, clients, consultants, contractors and civil society, but these parties fail to do their jobs. Government should take the lead in enacting appropriate legislation and enforcing this by resourcing the appropriate Ministries, Agencies and Departments of Government to do their jobs well. Clients, contractors and consultants of the construction sector in Ghana should ensure that every construction contract takes comprehensive account of health and safety requirements for the project, environment and the workers. Workers and civil society should ensure and demand the provision of adequate health and safety policies, procedures and provisions to govern construction work.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter is the concluding part of the case under study. It looks into the summary of the entire work done, the conclusion and recommendations given.

5.2 Summary and Findings:

Construction is widely regarded as an accident prone industry (as explained in a study of 100 individual construction accidents by Haslam et al., 2005 and a textbook on occupational health and safety in construction project management by Lingard and Rowlinson, 2005). The reasons construction is risky and prone to health and safety risks are because of the physical environment of the work, nature of the construction work operations, construction methods, construction materials, heavy equipment used, and physical properties of the construction project itself.

There are statutory instruments and legislative frameworks in many developed countries to govern construction operations on site and help in minimizing health and safety hazards for example, The Construction (Design and Management) Regulations 2007 (S.I. 2007/No. 320) Regulations on Health and Safety in the UK construction industry. However, the characteristics of construction in developing countries are not the same as characteristics of construction industries in developed countries.

The main health and safety site requirements in construction relate to tidy sites and decent welfare, falls from height, manual handling, and transport on site. Site operatives are normally required to plan and organise their operations, ensure that they are trained

and competent and know the special risks of their trade and raise problems with their site supervisor or safety representative (HSE, 2009). The main personal protective equipment (PPE) in construction (including clothing affording protection against the weather) which is intended to be worn or held by a person at work and which protects him against one or more risks to his health or safety. PPE should be regarded as a 'last resort' when considering control measures. Other methods should be considered and used that will reduce or eliminate risk to injury. However, where PPE is the only effective means of controlling the risks of injury or ill health, then employers must ensure that PPE is available. PPE should be worn at all construction sites. A typical construction site may require workers to wear a hard hat, coveralls, safety footwear, gloves, eye protection and high visibility vest. These must be provided to all employees.

Construction health and safety should be of primary concern to employers, employees, governments and project participants (Kheni, 2008). Thus the main parties responsible for construction health and safety are the client, main contractor, regulatory agencies and employees. Health and safety duties of state and regulatory agencies: Government regulatory agencies often enact regulations to help ensure that a construction project is safe to build, safe to use, and safe to maintain and delivers you good value. Good health and safety planning also helps to ensure that a project is well managed and that unexpected costs and problems are minimised. Health and safety duties of employer: Clients have a big influence over how work is done. Where potential health and safety risks are low, clients are required to do little. Where they are higher, clients need to do more. Employers must assess the work being undertaken and the environment his employees will operate in when determining the appropriate PPE to be worn.

Health and safety duties of main contractor: Main Contractors must check that all subcontractors are conforming by providing PPE for all their employees (those who are self-employed for tax reasons, but who otherwise work in an employee – employer relationship are also entitled to receive PPE) free of charge.

Health and safety duties of employees:

Employees should be made aware of their responsibility to wear the PPE appropriately, take care of equipment and report any defects. They should also be informed that if they do not wear or misuse any PPE that has been appropriately issued that this could lead to disciplinary action. This equipment is provided for their protection. There are health and safety problems on almost all construction sites which relate to reporting accidents, employing and subcontracting.

Employing:

All personnel who are employed to carry out construction work on site must be trained, competent and fit to do the job safely and without putting their own or others' health and safety at risk; properly supervised and given clear instructions; have access to washing and toilet facilities; have the right tools, equipment, plant and protective clothing; educated about health and safety issues with them (or their representatives); have arrangements for employees' health surveillance where required.

Accidents:

All accidents or work-related illness should be reported to the appropriate authorities within a reasonable or stipulated time frame.

Subcontracting:

Main contractors should ensure that they check the health and safety performance of the subcontractors they plan to use; give subcontractors the health and safety information they need for the work; talk about the work with them before they start; make sure that they have provided everything agreed (e.g. safe scaffolds, the right plant, access to welfare, etc); and check their performance and remedy shortcomings. All these remedial actions must target at reducing injuries and accidents at the workplace.

Clearly, there are no construction health and safety standards or legislation in Ghana that these major oil and mining companies are obliged to comply with. With expected economic growth and growing level of construction activities, Ghana needs to enact and enforce strict health and safety policies and procedures to protect workers and minimize accidents on construction sites across the country. The Environmental Protection Agency (EPA) is often the main regulatory body that works to ensure that major mining, oil and construction companies in Ghana comply with environmental standards. Environmental protection and health and safety are connected. However, environmental standards are fundamentally different from health and safety issues that have to do with particularly the welfare and safety of construction workers in Ghana. Therefore, urgent measures are needed to help in addressing the findings in this study in order to build a more sustainable construction industry in Ghana. This should be championed by the government ministries, agencies and departments (MDAs) with responsibilities connected to this for example, Ministry of Works and Housing and the Ministry of Road and Highways.

Conclusion and Recommendations

The research work is on assessing the impact of health and safety needs on the lives of construction workers at Abasa General Enterprise Limited in Kumasi. The study revealed a serious lack of structures, facilities and gadgets on health and safety on their construction sites in both Kumasi and Tema.

First, there is lack of strong and appropriate health and safety legislation for governing construction work and site operations in construction. There are two Acts in Ghana (the Labour Act, 2003 and the Factories, Offices and Shops Act, 1970) that provide some form of regulatory instruments for ensuring health and safety on construction sites. However, these are not strongly enforced and many contractors are not even aware of their Health and Safety obligations under these Acts. Regulatory bodies responsible for ensuring compliance are not properly resourced to carry out their statutory responsibilities under the two legislations. Most workers interviewed in the course of the study indicated they have access to few health and safety gadgets and that injuries and accidents are common on sites and often they have to go through a long period of frustration, pleading with employers before they are provided with some form of compensation for injuries and accidents. Employers give them no training on health and safety needs even though they are very much aware of their rights and responsibilities as workers.

The impact of these health and safety needs include injuries making them lose their jobs without any compensation or insurance. Some workers suffer fatalities as a result of accidents and their families bear the consequences alone.

It is recommended that Safety Officers from Ghana Labour office should liaise with the Ministry of Water Resources, Works and Housing and in conjunction with the Association of Civil Engineering and Building Contractors, regularly visit construction sites to ensure the enforcement of laws governing the provision of welfare facilities and safety materials, employment, and rights of workers. It is also recommended that contractors should be encouraged to set up Human Resource and Safety Departments for the purpose of executing safety education campaigns and training programmes to all categories of workers.

Contractors of the various construction firms should be encouraged to provide PPE to workers and set up Human Resource and Safety Departments for the purpose of executing safety education campaigns and training programmes for all levels of management and workers. The training can be film shows on slides to deliver the content of how important these welfare facilities and safety materials are to the firms and the health of the workers including those living in the community.

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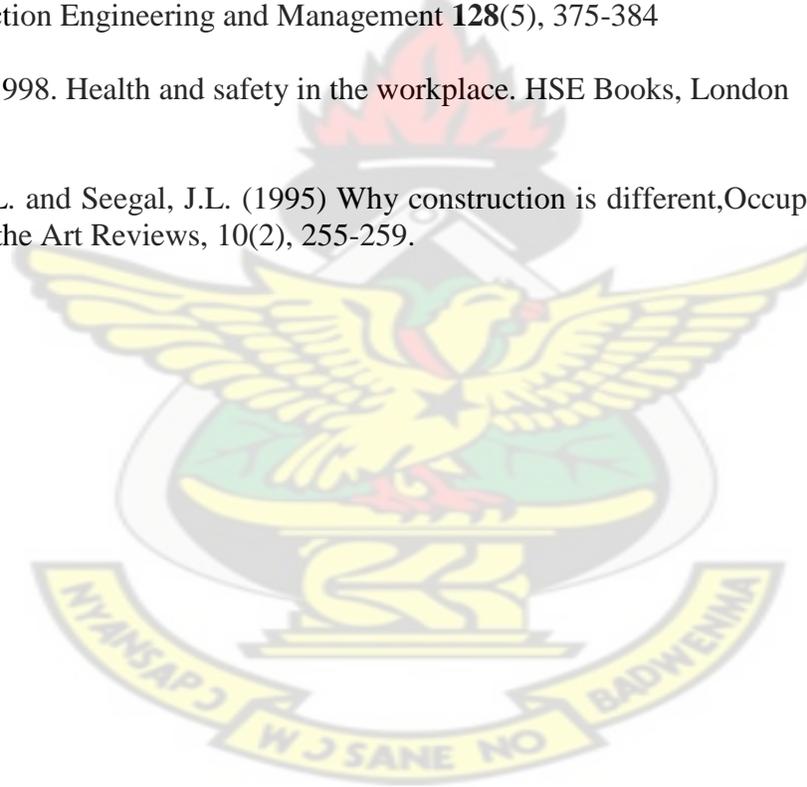
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APPENDICES

Appendix 1: Assessment on Health and Safety Issues of Workers

SURVEY QUESTIONNAIRE

ASSESSING THE IMPACT OF OCCUPATIONAL HEALTH AND SAFETY NEEDS
ON THE LIVES OF CONSTRUCTION WORKERS AT ABASA-GENERAL
ENTERPRISE LIMITED, KUMASI.

Dear Sir/Madam,

This questionnaire forms part of an MBA research project which aims to assess the impact of occupational health and safety needs on the lives of construction workers at Abasa-General Enterprise Limited, Kumasi, for the purpose of highlighting the critical issues affecting the overall welfare and safety of casual workers on building construction sites. It is expected that this research will help to improve the conditions of these casual workers on sites and protect the rights. I would like to invite you to participate in the above project. Completion of the questionnaire is completely voluntary and returning the completed questionnaire will be considered as your consent to participate in the survey. The questionnaire will take you about 5 minutes to complete. I appreciate that you are already busy and that participating in this survey will be another task to add to a busy schedule, but by contributing you will be providing important information. **All data held are purely for research purposes and will be treated as strictly confidential.** If you wish to receive feedback on the research findings, please complete the slip below and return it together with your questionnaire. In the event of questions or queries, please do not hesitate to contact us. Thank you for your time and valid contribution in advance.

A. PERSONAL / COMPANY'S DETAILS

1. Please Tick [√] to indicate your position in the company.

- a. Operator []
- b. Project Manager []
- b. Site Engineer []
- d. Site Foreman []

Others please specify_____

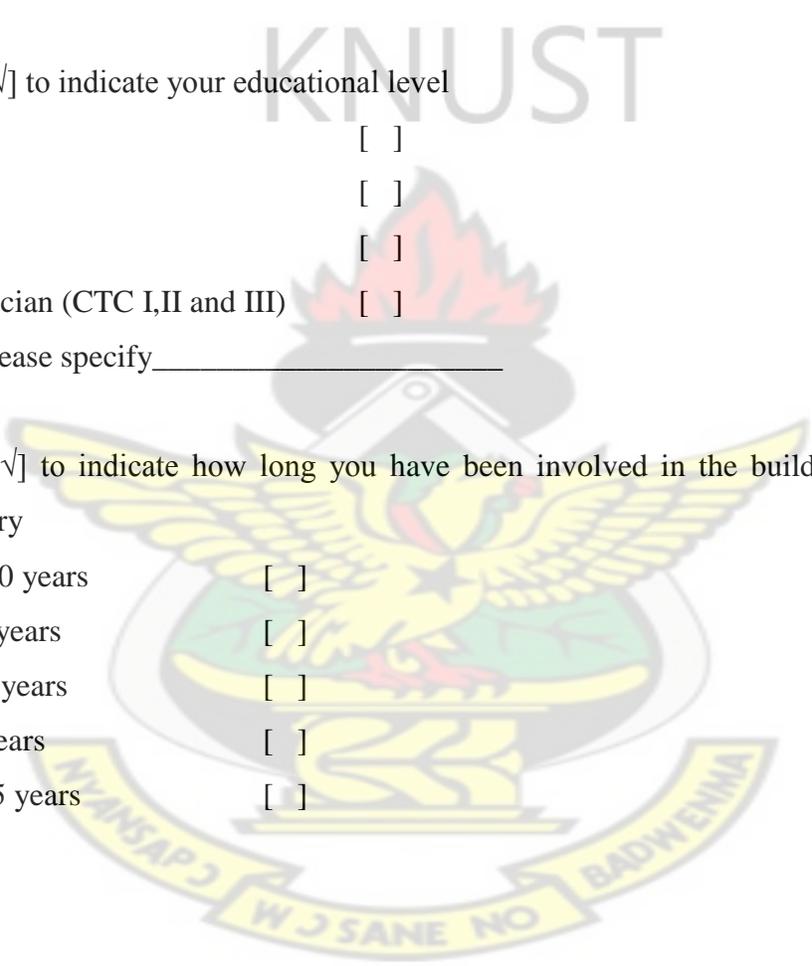
2. Tick [√] to indicate your educational level

- a. MSLC []
- b. BSc []
- c. HND []
- d. Technician (CTC I,II and III) []

Others please specify_____

3. Tick [√] to indicate how long you have been involved in the building construction industry

- a. Over 20 years []
- b. 16-20 years []
- c. 11- 15 years []
- d. 6-10 years []
- e. Up to 5 years []



A. SAFETY ITEMS OR EQUIPMENT

4. There is general assertion that contractors do not provide the following safety related items or equipment on construction site for workers. Please indicate your reaction to each statement by ticking the appropriate cell

Provision of safety equipment	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Safety signs	[]	[]	[]	[]	[]
Hard hats or helmet	[]	[]	[]	[]	[]
Safety glasses, goggles, and face shields	[]	[]	[]	[]	[]
Safety boots	[]	[]	[]	[]	[]
Rain gear	[]	[]	[]	[]	[]
Hearing protection	[]	[]	[]	[]	[]
Knee pads	[]	[]	[]	[]	[]
Gloves	[]	[]	[]	[]	[]
Safety nets	[]	[]	[]	[]	[]
Flashlights	[]	[]	[]	[]	[]
Ladder Scaffold platforms	[]	[]	[]	[]	[]
Hoisting equipment	[]	[]	[]	[]	[]

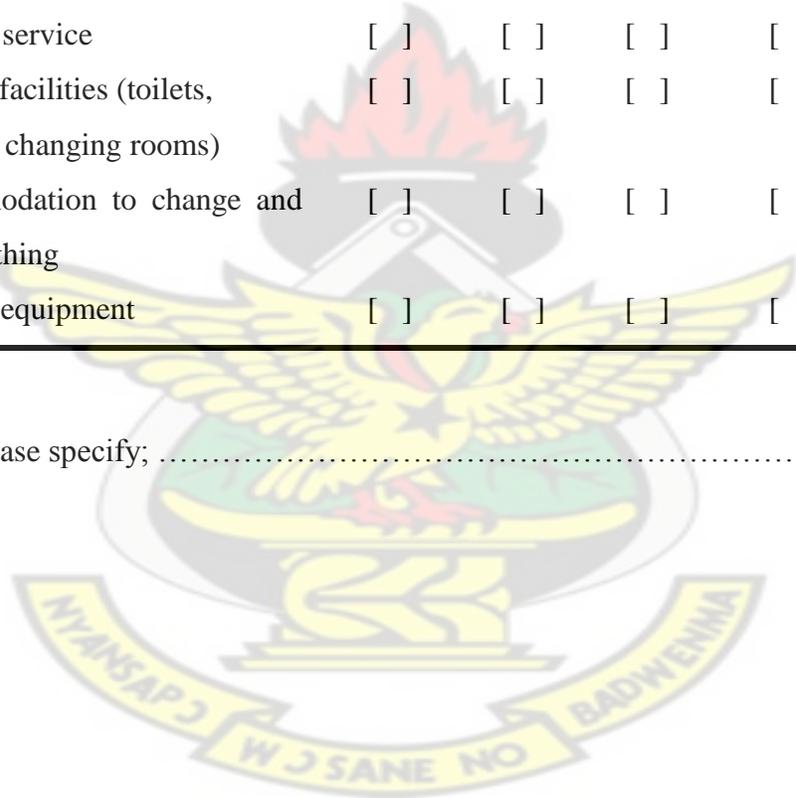
Others please specify;

B. HEALTH AND SAFETY ISSUES

5. There is general assertion that contractors do not provide the following health related facilities on construction site for workers. Please indicate your reaction to each statement by ticking the appropriate cell

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Provision of health equipment	[]	[]	[]	[]	[]
Safe drinking water	[]	[]	[]	[]	[]
Means of heating food	[]	[]	[]	[]	[]
Water for washing and cooking	[]	[]	[]	[]	[]
Suitable accommodation to rest	[]	[]	[]	[]	[]
Catering service	[]	[]	[]	[]	[]
Sanitary facilities (toilets, showers, changing rooms)	[]	[]	[]	[]	[]
Accommodation to change and store clothing	[]	[]	[]	[]	[]
First-aid equipment	[]	[]	[]	[]	[]

Others please specify;



C. AWARENESS OF OCCUPATIONAL HEALTH AND SAFETY ISSUES

6. Please in a scale of Very important to Not very important, indicate the extent to which the following statements influence your health and safety issues on construction site. Please Tick [] the appropriate cell

Health and safety issues	Very Important	Important	Neutral	Not Important	Not Very Important
Have knowledge of your right on health issues as a worker.	[<input type="checkbox"/>]				
Request for safety gadgets before work starts.	[<input type="checkbox"/>]				
Workers use safety equipment issued them.	[<input type="checkbox"/>]				
Safety personnel on site to check the usage of safety equipments.	[<input type="checkbox"/>]				
Have training on health and safety issues.	[<input type="checkbox"/>]				
Training impacts on the lives of workers.	[<input type="checkbox"/>]				
First aid promptly administered when accident occurs.	[<input type="checkbox"/>]				
Have no understanding of warning signs at the workplace.	[<input type="checkbox"/>]				

D. CONSEQUENCE OF POOR WORKING ENVIRONMEENT

7. There is an assertion that most contractors work in a poor environment. Please indicate your reaction to each statement by ticking the appropriate cell

Workers environment	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Workers in every occupation can be faced with a multitude of hazards in a work place	[]	[]	[]	[]	[]
Healthy working conditions are not limited to construction workers	[]	[]	[]	[]	[]
Construction workers' work place is mostly outdoors	[]	[]	[]	[]	[]
Working outdoors can pose many health and safety hazards	[]	[]	[]	[]	[]
Poor working conditions can affect the environment workers live in	[]	[]	[]	[]	[]
Harmful effects on workers can affect their families and other people around them	[]	[]	[]	[]	[]
First – aid equipment are readily available on sites	[]	[]	[]	[]	[]
Injured workers are promptly compensated	[]	[]	[]	[]	[]

E. ROLE OF ENVIRONMENTAL PROTECTION AGENCY

8. There is a law in Ghana that mandates the Environmental Protection Agency to ensure that construction workers work in a safe and healthy environment. Please indicate your reaction to each statement by ticking the appropriate cell.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Company has been certified by EPA	[]	[]	[]	[]	[]
EPA pays routine visits to the company's workplace.	[]	[]	[]	[]	[]
EPA offers training to employees on health safety issues.	[]	[]	[]	[]	[]
EPA protects the lives of workers.	[]	[]	[]	[]	[]
Workers report concern issues to EPA.	[]	[]	[]	[]	[]
EPA responds promptly to concerns.	[]	[]	[]	[]	[]

