

# *Health and safety on construction sites in Ghana*

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# COBRA 2010

## The Construction, Building and Real Estate Research Conference of the Royal Institution of Chartered Surveyors

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- Information technology
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# Health and safety on construction sites in Ghana

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The state of health and safety on construction sites in Ghana was investigated using first hand observation of fourteen (14) construction project sites in 2009 and 2010. At each site, the construction project, workers and the physical environment of the site were inspected and evaluated against health and safety indicators taken from the literature. The results reveal a poor state of health and safety on Ghanaian construction sites. The primary reasons are a lack of strong institutional framework for governing construction activities and poor enforcement of health and safety policies and procedures. Also, Ghanaian society does not place a high premium on health and safety of construction workers on site. Interviews with workers indicated that injuries and accidents are common on sites. However, compensation for injury is often at the discretion of the contractor although collective bargaining agreements between Labour unions and employers prescribe obligations for the contractor in the event of injury to a worker.

Keywords: construction site, contractor, Ghana, health and safety.

## 1. Introduction

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 (see a study on perceptions of 30 Latino American workers on construction risks by Menzel and Gutierrez, 2010). 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.

The aim of this paper is to investigate the state of health and safety on construction sites in Ghana based on a study of specific cases (construction sites). 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. According to the Labour Department (2000) report, 56 out of a total of 902 occupational accidents that occurred in construction in the year 2000 were fatal. This paper aims to ascertain where the construction industry in Ghana is in the context of international Health and Safety (H&S) standards and practices on construction sites and make recommendations for taking H&S forward in the construction industry in Ghana. Fourteen (14) construction sites in Ghana were visited in 2009 and 2010. The reason was to investigate a set of H&S indicators drawn from the literature through visual observation of H&S practices and interviewing site officials and workers for explanations of the things observed. The insight gained helped to make recommendations for improving H&S within the construction sector in Ghana.

## 2. Health and safety in construction

Table 1: Structure of the construction division of the HSE in the UK

| Operational Units  | Construction Sector  |  |  |   |  | Policy unit  |
|--|--|--|--|---|--|--|
| HSE's operational inspectors deal solely with the construction industry and seek improvements in health and safety standards using a range of methods including: Site inspections; Planned interventions; Investigation of accidents and complaints; Providing guidance and support at visits, by phone or at trade events; Educational and promotional activities; and Enforcement where necessary. | The Construction Sector takes an active role in dealing with the industry and key stakeholders. Its role includes: Providing support, advice and guidance at a national level to the HSE operational inspectors; Developing and helping deliver HSE's plan of work for construction; Developing strategies to meet the Governments Revitalising H&S targets for construction; Gathering intelligence about the health and safety performance of the industry; Working with key industry stakeholders to improve health and safety; Working with national and European bodies in the development of standards (CEN, BSI, etc.); and Producing guidance for the industry. The Construction Sector is made up of the following several units: |  |  |   |  | The Policy Unit's role is: developing new construction legislation; dealing with wider policy initiatives; follow up to the Construction Summit; interface with other Government Departments; provision of support to CONIAC (Construction Industry Advisory Committee) and the Chief Inspector of Construction. |
|  | Programme Office, Research, Intelligence, Knowledge and Statistics   | Communications and Strategic Outreach  | Health   | CDM Duty holders and Construction Management  | Safety Unit  |  |
|  | This unit oversees: the Construction Intervention Strategy and Work Programme (which sets out how we will interact with the industry); Evaluation of work programmes; Research coordination; and Intelligence and statistics.  | This unit is responsible for: The Division's Communications Strategy; Stakeholder engagement; Behavioural change/Human Factors; and Worker engagement. | This unit oversees: Occupational Health risk management; and Supply chain initiatives. | This unit's area of responsibility includes: Operational CDM issues; Design and related issues; and Interface with client bodies. | This unit deals with technical and policy issues related to safety; Safety Portfolio Projects - Work at Height, Slips and Trips; Developing standards; and Providing support and training to operational inspectors. |  |

Source: HSE 2006

Table 1 summarizes the structure of the construction division of the HSE in the UK which might provide an example or insights for approaching construction H&S in Ghana. Health and safety is a cross-disciplinary concept that is concerned with protecting the safety, health and welfare of people engaged in work or employment (Lingard and Rowlinson, 2005). Health and safety at construction sites deals with both physical and psychological well being of workers on construction sites and other persons whose health is likely to be adversely affected by construction activities (as explained in a doctoral thesis by Kheni (2008) in which 446 questionnaire responses were analysed to ascertain the influence of the contextual environment on health and safety management within construction SMEs in Ghana. The findings revealed that few SMEs adopted proactive health and safety practices).

### **3. Site health and safety in construction**

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.

### **4. Construction health and safety responsibilities**

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. The main duties of construction parties is summarized in Table 2 and explained.

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.

**Table 2: Roles of parties in ensuring health and safety in construction**

| Client   | Contractor  | Regulatory agencies         | Employee               |
|--|---|-----------------------------|------------------------|
| Appoint the right people                             | Provide safe access on site                                 | Guidance notes              | Wearing of PPE         |
| Allow adequate time                                  | Provide welfare facilities                                  | Safety alerts               | Take care of equipment |
| Provide information to building team                 | Working at height safety precautions                        | Health and safety education | Report any defects     |
| Ensure that team communicates and co-operates        | Safe scaffolds  | Enforcement                 | -                      |
| Ensure suitable management arrangements are in place | Safe ladders  | Health and safety law       | -                      |
| Ensure adequate welfare facilities are on site       | Roofwork safety precautions                                 | -                           | -                      |
| Ensure workplaces are designed correctly             | Safe excavations  | -                           | -                      |
| Appoint a principal contractor                       | Safe manual handling  | -                           | -                      |
| Ensure a health and safety plan is in place          | Safe loading and unloading of goods                         | -                           | -                      |
| Keep the health and safety file                      | Safe traffic, vehicles and plant                            | -                           | -                      |
| Protecting the public                                | Safe tools and machinery                                    | -                           | -                      |
| -  | Safe hoists and cranes                                      | -                           | -                      |
| -  | Safe emergency procedures                                   | -                           | -                      |
| -  | Fire safety   | -                           | -                      |
| -  | Safe storage, handling and disposal of hazardous substances | -                           | -                      |
| -  | Managing of noise levels                                    | -                           | -                      |
| -  | Hand-arm vibration safety procedures                        | -                           | -                      |
| -  | Safety in use of electricity and other services             | -                           | -                      |
| -  | Protecting the public                                       | -                           | -                      |

Source: HSE (2009); Lingard and Rowlinson (2005); Ringen et al. (1995)

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.

## **5. Causes of accidents in construction**

The Department for Work and Pensions in the UK commissioned a research into construction health and safety practices to ascertain the underlying causes of construction fatal accidents in the UK. The underlying causes of construction accidents identified were categorised under societal and industry-wide influences (macro); project and process factors (mezzo) and worker/supervisor/workplace causes (micro). The causes of construction accidents at the macro level were identified to include immature corporate systems, inappropriate enforcement, lack of proper accident data, lack of leadership from ‘Government’ as a key client and a lack of influence of trades unions in practice on most sites, especially for smaller projects. Mezzo factors were identified as immature project systems and

processes, inappropriate procurement and supply chain arrangements, lack of understanding and engagement by some of the design community, lack of proper accident investigation/data and consequently, a lack of organisational learning. Micro factors included a shortage of competent supervisors; a lack of individual competency and understanding of workers and supervisors; the ineffectiveness or lack of training and certification of competence; a lack of ownership, engagement and empowerment of, communication with and responsibility for workers and supervisors. These factors were also exacerbated by poor behaviour, cost pressures; poor equipment or misuse of equipment, including personal protective equipment; site hazards; poor employment practices; an itinerant workforce and inadequate management of and provision for vulnerable workers such as younger, older or migrant workers. The study was based on an international consultation with 15 overseas construction industry expert stakeholders; phone/email interviews/consultation with 27 UK senior construction industry expert stakeholders; in-depth face to face interviews with 15 practitioners from the UK construction industry; and phone interviews with 15 workers representing the UK's smaller organisations/sole-traders (Brace *et al.*, 2009).

## **6. Health and safety problems on construction sites**

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 timeframe. 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 you have provided everything agreed (e.g. safe scaffolds, the right plant, access to welfare, etc); and check their performance and remedy shortcomings.

The study by Kheni (2008) on health and safety practices among construction SMEs in Ghana revealed serious problems. The main problems identified by Kheni included lack of skilled human resources, inadequate government support for regulatory institutions and inefficiency in institutional frameworks responsible for health and safety standards. Another problem highlighted was the significance of the Ghanaian socio-cultural value systems particularly, the extended family system and traditional religious value systems in health and safety management within Ghanaian construction SMEs. The research also provided insights into difficulties posed by the internal environment of SMEs

to the effective management of health and safety. Kheni (2008) provides a broad understanding of health and safety in the construction sector in Ghana. However, the following questions relating to the actual health and safety conditions on construction sites in Ghana should be addressed:

1. Is work on construction sites in Ghana carried out by skilled trained personnel?
2. Do construction workers in Ghana wear Personal Protective Equipment (PPE) on site?
3. Is there adequate first aid and first aider(s) on construction sites in Ghana?
4. Do construction sites in Ghana have a Safety Officer?
5. Do construction workers in Ghana get a H&S induction on site hazards and rules?
6. Are standard site rules and hazard signs displayed on construction sites in Ghana?
7. Are holes and other dangerous areas on construction site in Ghana protected?
8. Is basic health and safety equipment (fire) available on construction sites in Ghana?
9. Do regulatory bodies in Ghana go round to ensure compliance with health and safety rules?
10. Are there clear directions to contractors in Ghana on environment and waste disposal?
11. Are there mechanisms for ensuring basic hygiene on site?
12. Do contractors in Ghana ensure site tidiness?
13. Are construction workers in Ghana examined for drugs and alcohol?
14. Are formal site risk assessments conducted on construction sites in Ghana?
15. Are clear working-at-height precautions provided to construction workers in Ghana?
16. Are construction workers in Ghana provided with clear directions on manual handling?

## **7. Research method**

Fourteen (14) construction sites in Ghana were visited in 2009 and 2010 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 operatives were interrogated 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.

## **8. Data presentation, analysis and results**

Table 3 presents the analysis and results in relation to the field work designed to help ascertain the current state of health and safety on construction sites in Ghana.

Table 3: Health and safety on construction sites in Ghana

| Health and safety indicators                       | Construction sites investigated |    |    |    |    |    |    |    |    |    |    |    |    |    | Data analysis |     |     |    |
|--|---------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------|-----|-----|----|
|  | 1                               | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | (√)           | (-) | (x) |    |
| Carrying out of works by skilled trained personnel | √                               | √  | √  | √  | √  | √  | √  | √  | √  | √  | √  | √  | √  | -  | 13            | 1   | 0   |    |
| Personal Protective Equipment (PPE)                |                                 |    |    |    |    |    |    |    |    |    |    |    |    |    |               |     |     |    |
| Hard hats / helmets                                | √                               | x  | √  | -  | √  | -  | x  | x  | √  | -  | √  | -  | √  | x  | 6             | 4   | 4   |    |
| Safety boots/ footwear                             | x                               | x  | √  | √  | √  | -  | -  | -  | √  | √  | √  | √  | √  | -  | 8             | 4   | 2   |    |
| Protective clothing                                | x                               | x  | -  | -  | √  | -  | x  | x  | √  | √  | √  | x  | √  | x  | 5             | 3   | 6   |    |
| Gloves   | x                               | x  | x  | -  | -  | -  | x  | x  | -  | -  | -  | x  | -  | -  | 0             | 8   | 6   |    |
| Eye protection                                     | x                               | x  | x  | x  | x  | x  | x  | x  | x  | -  | -  | x  | x  | x  | 0             | 2   | 12  |    |
| High Visibility Vest                               | x                               | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | 0             | 0   | 14  |    |
| First aid  | √                               | x  | √  | √  | √  | √  | x  | x  | -  | -  | x  | -  | -  | -  | 5             | 6   | 4   |    |
| First aider(s)                                     | √                               | x  | x  | x  | x  | x  | x  | x  | x  | √  | √  | x  | x  | x  | 3             | 0   | 11  |    |
| Safety officer                                     | x                               | x  | x  | x  | x  | x  | x  | x  | x  | -  | -  | x  | x  | x  | 0             | 2   | 12  |    |
| H&S induction on site hazards and site rules       | x                               | x  | x  | x  | -  | x  | x  | x  | -  | -  | -  | x  | -  | x  | 0             | 5   | 9   |    |
| Display of standard site rules                     | √                               | x  | x  | x  | x  | x  | x  | x  | x  | -  | -  | x  | x  | x  | 1             | 2   | 11  |    |
| Hazard signs                                       | x                               | x  | x  | -  | -  | -  | -  | -  | -  | √  | √  | -  | -  | x  | 2             | 8   | 4   |    |
| Protection of holes                                | √                               | x  | √  | √  | √  | √  | √  | √  | √  | √  | √  | √  | √  | √  | 13            | 0   | 1   |    |
| H&S equipment (fire)                               | √                               | √  | √  | √  | -  | -  | x  | x  | x  | √  | √  | x  | x  | x  | 6             | 2   | 6   |    |
| Do regulatory bodies come round to check?          | x                               | x  | x  | x  | x  | x  | x  | x  | x  | -  | -  | -  | x  | -  | x             | 0   | 4   | 10 |
| Environment and waste disposal                     | √                               | √  | √  | -  | -  | -  | -  | -  | √  | √  | √  | -  | √  | x  | 7             | 6   | 1   |    |
| Basic hygiene on site                              | -                               | -  | -  | -  | -  | -  | -  | -  | -  | √  | -  | -  | -  | x  | 1             | 12  | 1   |    |
| Site tidiness                                      | -                               | -  | -  | -  | -  | √  | √  | √  | -  | √  | -  | -  | -  | -  | 4             | 10  | 0   |    |
| Drugs and alcohol check                            | x                               | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | 0             | 0   | 14  |    |
| Site risk assessments                              | x                               | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | x  | 0             | 0   | 14  |    |
| Working-at-height precautions                      | -                               | -  | -  | -  | x  | x  | x  | x  | -  | x  | x  | -  | -  | -  | 0             | 8   | 6   |    |
| Manual handling                                    | -                               | -  | -  | -  | -  | -  | x  | x  | -  | -  | -  | -  | -  | -  | 0             | 12  | 2   |    |
| Data analysis (√)                                  | 8                               | 3  | 7  | 5  | 6  | 4  | 3  | 3  | 6  | 10 | 9  | 3  | 6  | 1  |               |     |     |    |
| (-)  | 4                               | 4  | 5  | 9  | 8  | 9  | 4  | 4  | 9  | 9  | 5  | 8  | 9  | 7  |               |     |     |    |
| (x)  | 11                              | 16 | 11 | 9  | 9  | 10 | 16 | 16 | 8  | 4  | 9  | 12 | 8  | 15 |               |     |     |    |
| TOTAL/AVG  | 23                              | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 23 | 3             | 4   | 7   |    |

Notes: (√) = Yes (-) = Sometimes; (x) = No

The data was collected on building and civil engineering construction sites in three out of ten regions of Ghana

## 9. Discussion of results

Table 3 examines and analyzes the data relating to the research questions. The analysis shows significant shortcomings in relation to international agreed conventions on health and safety on construction sites. Generally, the analysis shows that out of fourteen construction sites investigated, there is only an average of three (3) where standard health and safety policies and practices are in place. An average number of four (4) sites ‘sometimes’ have standard health and safety practices in place. And an average of seven (7) sites out of fourteen (14) i.e. 50% of sites provided no evidence of standard health and safety practices (see Table 3).

Areas where the construction sites investigated recorded more than 50% in relation to standard health and safety procedures are ‘carrying out of works by skilled trained personnel’, wearing of ‘safety boots and footwear’ and ‘protection of holes’. Just in three (3) areas out of twenty-three (23) areas



measured. Areas where the construction sites investigated ‘sometimes’ have standard health and safety procedures in place more than 50% of the time are ‘gloves’, ‘hazard signs’, ‘basic hygiene on site’, ‘site tidiness’, ‘working-at-height precautions’ and ‘manual handling’. Areas where standard health and safety procedures are not observed more than 50% of the time centre on 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’, ‘display of standard site rules’, ‘regulatory bodies going round to ensure compliance with health and safety rules’, ‘drug and alcohol check’ and ‘site risk assessments’. Only one construction site out of fourteen had more than 50% of the standard health and safety indicators investigated. Six out of fourteen construction sites did not have standard health and safety equipment more than 50% of the time. 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 the use of skill trained personnel for carrying out construction works, the Site Engineer on one of the sites said that masons and carpenters undergo a trade test at Labour Department. The National Vocational Training Institute (NVTI) also trains artisans and they get a trade certificate from the NVTI on completion of their training. The Labour Department registers and categorises tradesmen as Grade 1, Grade 2, etc according to their level of skill. There are also some workers who train as apprentices on-the-job, on site, and after acquiring sufficient skill, they go to the Labour for a certificate of competence. On how they ensure recruitment of skilled trained tradesmen, the Site engineer said that “When an artisan comes to seek employment on site, we ensure that they have the requisite skill and competence. Mainly, we inspect the tools (inspection of tools) they bring to the site (for carpenters and masons). If the person is a mason (you interview him and ask them about the areas where they have worked before; then you ask them how many blocks they can lay per day (labour output and quality of the work – mortar joints). So we test them; and then we make them do some work as a test of their competence.

On PPE, another site supervisor said that “We normally provide them with this – we give the masons helmet and safety boots – however we have to force them to wear the PPE. On displaying site rules, he said that “In the past we used to do this but not nowadays”. There was no Safety officer per se on this site. However, the site supervisor said that the foreman acts as a Safety Officer. On the absence of health and safety induction, the site supervisor said that “There is no health and safety induction for our workers because that is the work of the H&S officer who is not employed here”. He provided the following quote in relation to this point: “Well organised companies recognise safety and they do it; ordinary contractors don’t do it. Clients give work to just anyone; cheap price”. On First aiders, he said that “Time keepers and store keepers act as our first aiders”. On drugs and alcohol, he said that “In theory, it is not allowed. Drugs and alcohol is not allowed but you cannot stop them completely.

You cannot stop workers from taking a 'small' amount of alcohol. So if it is just for 'appetite', then it is ok. No drugs or alcohol tests are carried out on the site. However, we sack anyone who comes to work drunk, until he changes". The Clerk of Works on the site interrupted at this point and said that "It is me who should check but I have closed my eyes because I am fine with the Managing Director of the construction firm". He also said that "...there are a lot of other things". For example, "You can count one million nails from the site office to the gate".

On other sites, 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 induction. Some of the contractors said that there is little or no enforcement of adherence to health and safety requirements on site. Contractors as well as consultants do not conduct H & S induction on hazard and hygiene rules on site extensively. On construction sites in smaller towns, less skilled trained personnel carry out most of the works and many of them have little knowledge about health and safety and tend to place very little priority on health and safety. Most contractors indicated that in the mines construction sector, health and safety is a high priority. In the oil and gas construction sector, health and safety is also a high priority.

The literature review did not provide much information in direct relation to health and safety in connection with construction activities in Ghana. An examination of the Health and Safety policy of one international oil company operating in Ghana revealed evidence of some kind of framework for ensuring health and safety on site. However, the data here reveals a big gap between statements in the policy and what actually happens in practice. Most of the things stated in the policy are not implemented on site by contractors. One of the main reasons is to maximise their profit. And this is made possible by weak health and safety legislation in Ghana and lack of serious consequences for health and safety accidents and violations in Ghana. The policy outlines relating to health and safety accountability and responsibility, maintenance, storage, information and training and instruction, personal protective equipment, issue and loss and reporting of defects and site risk assessment are signposted against overseas documents such as Management of Health and Safety at Work Regulations (MHSAR) 1992 and British Standards Institute (BSI) documents. 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.

The findings and recommendations in a doctoral thesis on the “Impact of health and safety management on safety performance of small and medium-sized construction businesses in Ghana” by Kheni (2008) can inform the formation of construction health and safety policy in this regard. The research was aimed at examining the health and safety practices of Ghanaian SME building contractors. The aim was to investigate factors that might contribute to accidents within the firms and to identify possible policy measures that could mitigate the prevalence of accidents within the sector (Kheni et al. 2008). Kheni (2008) found that few of the SMEs adopted proactive health and safety practices the majority of the businesses were found to rely solely on health and safety procedures in contracts. Therefore, one mechanism could be to tighten health and safety requirements using contractual frameworks. Health and safety policies and procedures in the Labour Act, 2003 (Act 651) and the Factories, Offices and Shops Act, 1970 should also be clearly articulated to the parties to all construction contracts in Ghana. The study by Kheni (2008) revealed that owner/managers of construction SMEs in Ghana had little knowledge of the legal framework governing health and safety in the construction industry of Ghana. Government institutions should be strengthened. For example, the Factory Inspectorate Department, which is mandated to ensure a safe and healthy environment for working and to promote measures that will safeguard the health and welfare of employees, should be enabled and empowered. Studies by Kheni (2008), Cotton et al. (2005), LaDou (2003) and Clark (2003) indicate that institutional and legal frameworks governing occupational health and safety in developing countries tend to be weak and have little impact in practice. Government institutions responsible for enforcing health and safety regulations are often unable to do so because of inadequate resources.

## **10. Conclusion and recommendations**

The research work reported on the current state of health and safety on construction sites in Ghana reveals a serious lack of structures and procedures at all levels of the construction chain. 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. Hence there is a big problem with construction health and safety in Ghana. Most workers interviewed in the course of the study indicated that injuries and accidents are common on sites and often they have to go through a long period of frustration and pleading with employers before they are provided with some form of compensation for injuries and accidents. The parties responsible for ensuring internationally acceptable standards of health and safety on construction sites in Ghana are Government, clients, consultants, contractors, workers and civil society. 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.

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