STAKEHOLDERS' ROLES IN IMPROVING CONSTRUCTION HEALTH AND SAFETY THROUGH PUBLIC WORKS PROCUREMENT IN GHANA

Dorothy Donkoh[1] and Emmanuel Aboagye-Nimo [2]

[1] *Department of Building Technology, Kwame Nkrumah University of Science and Technology, Kumasi-Ghana*

[2] *School of Environment and Technology, University of Brighton, Cockcroft Building, Brighton, East Sussex, BN2 4GJ,UK*

STAKEHOLDERS' ROLES IN IMPROVING CONSTRUCTION HEALTH AND SAFETY THROUGH PUBLIC WORKS PROCUREMENT IN GHANA

Health and safety (H&S) management has traditionally been the responsibility of the contractor. Most often, contractors are blamed for the accidents and other ill-health that occur on their construction sites. H&S performance is however enhanced when there is effective collaboration between those involved in the construction process. This paper therefore explores the role of stakeholders in promoting construction H&S in Ghana through public works procurement. The four main stakeholders identified and evaluated in this study are the government, the client (employer), the contractor, and the employee(s). Seven respondents (comprising procurement managers, consultants and quantity surveyors) from public institutions in Ghana, participated in the research. Data was collected using semi-structured interviews and thematically analysed. Results indicate a conflict in the functions and relation of these stakeholders in the construction process. To address the constraint so as to improve upon construction H&S, certain recommendations are offered. This includes the identification of specific individuals responsible for supervision and employee training, and the development of H&S policies by the government and contracts that clearly outline the contractual obligations of all parties involved. Additionally, the specific roles and involvements of other stakeholders in the procurement process in improving construction H&S are also outlined.

Keywords: Government; Health and safety; Procurement

1. Understanding the Ghanaian construction industry

With Ghana as an emerging economy, the Ghanaian construction industry (GCI) is theoretically at the threshold of its peak and if tapped, would help the economic growth of the country. The construction industry contributes 8.6% to the total gross domestic product (GDP) of Ghana and employs over 1.4% of the country's labour force (The African Economic Outlook, 2012). The sector has grown significantly from around 4.5% of GDP in the 1980s to become one of Ghana's most important industries (ibid).

The Ministry of Works, Water and Housing (MOWWH) is the body responsible for the registration and classification of contractors wishing to execute public projects. The ministry works in collaboration with the Registrar General's Department under Act 179 (1963) of the companies' registration code. The MOWWH has two main classifications for contractors: Category 'D' for general building works and category 'K' for civil works. According to MOWWH bulletin, inclusion of contractors' names in the Ministry's classification register is not compulsory, but only parties who are duly registered can tender for government contracts (Amoah *et al.*, 2011). The MOWWH classifies building engineering contractors as financial class D1, D2, D3 or D4 whereas civil engineering contractors are classified as K1, K2, K3 or K4. The Ministry of Roads and Highways classifies contractors into categories A, B, C and S.

Contractors in each category are further grouped into financial classes 1, 2, 3 and 4 based on their technical and managerial expertise, financial standing, previous performance, and equipment and plant holding (ibid). Class D3/D4 and K3/K4 contractors are commonly referred to as the small-scale building contractors (SSBCs) and D1/D2 and K1/K2 are typically referred to as big firms. Contractors with class D3/D4 and K3/K4 currently represent over 95% of contractors operating in the country (Amoah *et al*., 2011).

The government and other clients (including private clients) also engage the services of professional consultants such as architects, quantity surveyors and engineers (structural, electrical and services engineers) who make up the professional body in the construction industry. The architects are regulated by the Ghana Institution of Architects (GIA) whilst the Quantity Surveyors are regulated by the Ghana Institution of Surveyors (Donkoh *et al.*, 2015). The Ghana institution of Engineers regulates the engineers in the construction industry (Gyadu-Asiedu, 2009).

Substantial evidence indicate that, Ghana has no comprehensive H&S policy solely for the construction industry (see Donkoh *et al.*, 2015; Bruce, 2009). However, there exist fragmented H&S laws used by various ministries, departments and agencies for enforcement and complementary roles. The Department of Factories Inspectorate (DoFI) under the Ministry of Employment and Labour Relations (formerly Ministry of Employment and Social Welfare, MoESW) promotes H&S of persons through the Factories, Offices and Shops Act, 1970 (Act 328) (MoESW, 2011).The Inspectorate is responsible for the promotion and enforcement of regulatory measures to give effect to the provisions of the Factories, Offices and Shops Act (FOSA) 1970, Act 328. Other agencies such as the Ministry of Health, the Minerals commission (which contains some guidelines in occupational H&S but restricted to the mining industry alone) play a complementary role in the promotion of H&S at work but not the enforcement of the measures. There is also the Workmen's Compensation Act 1987 (PNDCL 187) which was enacted to provide compensation for employees who get injured in the course of their employment. This law applies to both public and private employees except persons in the Armed forces. All the above further confirm the lack of a comprehensive H&S policy in Ghana's construction industry. For this reason, this research aims to explore the stakeholders involved in construction procurement and their roles in promoting construction H&S in Ghana through public works procurement.

2. Stakeholders in the construction industry

A stakeholder, as defined by the Project Management Institute (2001), is any person, group or organisation who can be positively or negatively impacted by, or cause an impact on, the actions or activities propose.

In the construction industry, the checklist for stakeholders is often huge. Each of them however can influence in the course of the project at some time. The UK has Construction Design Management (CDM) Regulations 2015 which provides guidance on the legal requirements of all stakeholders in the construction process with regard to safety. Unfortunately, Ghana's construction industry does not have such explicit rules and regulations in terms of safety.

Charles *et al*. (2007) suggest that, to enhance construction H&S performance, collaboration between those involved in concept, design, construction planning, construction work, maintenance and demolition are essential. The contractor, who executes the work at the construction stage of procurement is, most of the time, blamed for accidents that occur on the site. Hislop (1999) opined that construction H&S is not the responsibility of the contractor alone. This means that all parties involved in a construction project should be accountable for

its H&S.
This paper focuses on four main stakeholders in the construction industry of Ghana whose specific names and roles in promoting H&S public works procurement are discussed next.

2.1 The Government

Governments are major employers, policy makers, and regulators and have a leadership role in preventing work-related death, injury and disease through promoting, legislating and enforcing H&S requirements (The Government of Australia, 2006). The starting points for government's activities are policy outcomes. Procurement is often only one of a number of mechanisms which could be used to deliver government policy (Office of Government Commerce, 2008.).The Government of Australia (2006) advised that governments can help promote better H&S by requiring projects to include a range of safety measures, such as specifying the safety budget, building layout or the use of certain construction materials.
Government of Ghana agencies and ministries may be seen as public sector clients and in Ghana, the government is the major construction client (Laryea, 2010).

2.2 The client

Masterman (2002) defines the client as "the organisation, or individual, who commissions the activities necessary to implement and complete a project in order to satisfy its or his needs and then enters into a contract with the commissioned parties." The client is referred to as the head of the procurement chain and has the most influence in establishing and monitoring H&S. This influence can be exercised through the setting of criteria to promote a positive H&S culture throughout the life of a project. Clients should focus on the end result of the project and bear in mind that a project that is difficult to build and difficult to maintain is not a good design (CCG Health and Safety Working Group, 2007). Haywood (2004) in agreement also believes that, the decisions made by the client who procures the work helps in ensuring good standards of safety and health on a construction project.

2.3 The contractor

A contractor may be a person or group of persons or company with a formal contract to undertake the construction. The contractor may be responsible for supplying labour and material and providing and overseeing staff if needed (Sengupta & Guha, 2002; Ashiboe-Mensah, 2012). Contractors have the duty to provide a work environment which is free from recognized hazards that are causing or are likely to cause death or serious physical harm to their employees. The contractor is to ensure that employees comply with the H&S regulations on the site.

2.4 The employee(s)

Employees are to ensure that they put on the appropriate Personal Protective Equipment (PPE) for every work. They are also to adhere to the H&S rules on the site and not do things which can put themselves and others in danger. They should also know emergency procedures, the location of the first aid kit and report any workplace hazards to employers (OHS Act, 2000).

3. Research method

Semi-structured interviews were conducted with seven respondents who are involved in construction procurement from the following public institutions: the Kumasi Metropolitan Assembly (KMA), Public Procurement Authority (PPA), Urban Roads Department (URD), KNUST, Architectural and Engineering Service Limited (AESL) and Building, Roads and Research Institute (BRRI). The interviews were conducted to help in the identification of roles and responsibilities of stakeholders and also identify challenges encountered by these stakeholders in their quest to improve H&S. Participants were chosen based on their experience and expert knowledge in the field of study. The study adopted a non-probabilistic purposive sampling in selecting the respondents for the interview. The reason for using purposive sampling lies in the selection of information-rich cases, with the objective of yielding insight and understanding of the phenomenon under investigation. The average tenure of the respondents in the industry is 9 years and all of them have a Bachelor's degree or higher. The interviews took place face-to-face between the researcher and the respondents. The interviews were audio taped (with the consent of participants) and on the average took between 30 to 45 minutes.

To help in the easy identification of the respondents and systematic representation of data, a coded key to each of the respondents is represented in Table 1. Each respondent is labelled with an alphanumeric code that is cross referenced to the report text. For example Building, Roads and Research Institute respondent one (1) is labelled BRRI 1. Building, Roads and Research Institute respondent two (2) is labelled BRRI 2. The respondent from the Urban Roads Department is labelled URD. Table 1 captures the profession and the working experience of the respondents in the construction industry.

Table 1: Coding of Respondents

RESPONDENTS	***CODE***	***PROFESSION***	***YEARS OF EXPERIENCE***
Building, Roads and Research Institute respondent one (1)	*BRRI 1*	Quantity Surveyor Lecturer Procurement Specialist	*24 years*
Building, Roads and Research Institute respondent two (2)	*BRRI 2*	Quantity Surveyor Research Officer	*13 years*
Urban Roads Department	*URD*	Quantity Surveyor	*14 years*
Kumasi Metropolitan Assembly	*KMA*	Quantity Surveyor	*20 years*
Public Procurement Authority	*PPA*	Procurement Specialist	*12 years*
Kwame Nkrumah University of Science and Technology	*KNUST*	Quantity Surveyor	*8 years*
Architectural and Engineering Service Limited	*AESL*	Quantity Surveyor	*8 years*

Formatted: French (France)

Following the interviews, a verbatim transcription of the recorded audio files was undertaken to allow for the intricate details of the data to be captured and analysed. This also ensured that the rich data being sought after was acquired.

4. Results and discussions: Role of stakeholders in promoting construction H&S

The findings from the semi-structured interviews are presented here. The opinions of the purposely selected experts are presented with regard to the themes identified through the thematic data analysis. Furthermore, a discussion of the research findings is carried out using the relevant literature presented in section 2.

Charles *et al*. (2007) suggest that, to enhance construction H&S performance, collaboration between those involved in concept, design, construction planning, construction work, maintenance and demolition are essential. This idea is adopted in the UK's CDM regulations 2015. Hislop (1999) opined that construction H&S is not the responsibility of the contractor alone. This means that all parties involved in a construction project should be accountable for its H&S. Some of the obligations of the stakeholders given by respondents are as follows:

4.1 Government's obligation

Some respondents mentioned that the government of Ghana has a crucial role in maintaining H&S in the construction industry. They suggested that the government should enact laws to make H&S mandatory in the procurement process and also on construction sites. Not only should the government enact laws or make policies, but also make sure these laws and policies are adhered to through effective monitoring and enforcement. The respondents gave the following as the role of the government:

> *"The Government's obligation is to pass the law in construction H&S. And once the government passes the law, it is incumbent on everybody to apply."* (KMA)
> *"Government should be responsible in maintaining good construction environment. The government should create a platform such that, this issue is addressed so that everyone knows why H&S is relevant. Government position should be by law."*- (BRRI 1)

> *"Government is a policy maker. Government should possibly strengthen the existing provisions for H&S. If some provisions are not applicable now, then new ones should be introduced, that is amended. The government as a policy maker must also be the enforcer and so must have a unit to ensure monitoring and enforcement."* (KNUST)

The views of the respondents are in line with the research of Wells and Hawkins (2011) who asserts that, since the government is the major employer, policy maker, regulator and procurer of construction works, it can play a crucial role in preventing accidents and other work related illnesses by promoting, legislating and enforcing H&S requirements through a wide range of mechanisms.

Government's involvement in promoting construction H&S is not only to make policies, but also to finance the project as pointed out by URD. He explained that, the government who is also the client for most of the public works undertaken in Ghana, has the role of financing these H&S schemes as illustrated in his comment.

> *"…Mind you, all these H&S measures comes down to money. When these things are done, people have to be paid. The government therefore has the obligation of making funds available and ensuring that the right thing is done by the contractor through the requisite agencies."* (URD)

An argument that comes up from the response is the money/cost involved in including H&S items in the bill of quantities. Wells & Hawkins(2010) pointed out that, the addition of H&S may tend to increase cost of the project since items such as personal protective equipment (PPE), temporary works, site meetings and safety committees are included as a fixed sum in the bill of quantities and paid for in interim valuations when the surveyor or engineer checks that they are provided. Money should not prevent the inclusion of H&S in projects. The pay for safety scheme recognizes that there is a cost associated with improved health and safety, but the cost is estimated to be less than the cost of lost time due to accidents. Research revealed that, the frequency for an accident which involves loss of time is reduced considerably when health and safety costs are included in a tender and accepted by the client (Wells & Hawkins,2010).

4.2 Client involvement

Studies have shown that, where clients are committed to H&S, a high H&S standard is achieved. The extent to which client influence construction H&S varies. The CCG Health and Safety Working Group (2007) explains that, the client has the most influence in establishing and monitoring H&S, and this influence can be exercised through the setting of criteria to promote a positive H&S culture throughout the life of a project. The respondents mentioned that, the client plays a crucial role of monitoring to ensure that H&S measures are adhered to. The respondents also stated that, the client must make provisions for H&S in every stage of the procurement process as indicated in the comment below.

> *"Clients must complement the effort of the government by making sure that the provisions and rules are incorporated in the various stages of procurement. They could also help in the monitoring of contractors adhering to the provisions by incorporating it in the process. So in their documentation, there should be a section that takes care of health and safety."* (KNUST)

In the public sector setting, the government is the client for most public works executed in Ghana. A respondent made a critical point that, because the government serves as a client and also the implementing authority of H&S laws, conflicts tend to arise. The conflict stems from the fact that, the people supposed to monitor H&S are also the same people or institution playing the role of the client at the same time. Certain H&S procedures are therefore overlooked and in some cases, ignored all together most of the times. This is what the respondent had to say:

> *"Most at times, the government is the client for most public projects and also serves as the implementing authority. So you see where the conflict comes from. He is the referee, the goalkeeper and the player. When the government is the client and the site is not safe, sometimes the implementing bodies will go, but because it's government (it's like government on government) so they leave it. As at now, I can tell you that most of the government projects go on without building permits when in actual fact there should be."* (AESL)

In view of this, a respondent proposed that there should be separate bodies responsible for monitoring and enforcement when it comes to public works as indicated by a respondent as illustrated in the comment.

> *"There should be a separate unit coming from the district assembly, municipal assembly or metropolitan assembly that go round sites making sure that people are complying. If that one is in place, when I come to your site and see that your site is not safe, we shut down your site. You make it safe and then come and call us, and we certify that it is now safe."* (AESL)

The above indicates a decentralisation of government offices when it comes to H&S improvement. This will help in ensuring effective enforcement and monitoring in every part of the country.

4.3 Role of the contractor

On the role of the contactor, the respondents gave the following comments.

> "*The contractor must actually see the need for H&S, and the long term benefits it has on the project, and not on the immediate cost*." (PPA)

> *"The contractor must strictly adhere to procurement H&S rules and must employ competent H&S personnel that will educate workers and enforce rules on site. He must provide PPEs for the workers."* (KNUST)

The Act 651 requires the contractor to provide a clean and a safe working environment for his employees. The law also charges the employer, who is in this case the contractor, to provide PPEs to the employees at no cost. The opposite is rather happening in the nation as contractors are not even aware of their contractual obligations under the laws according to the study conducted by Laryea and Mensah in 2010.

4.4 Site operatives (employees) and their responsibilities

Respondents were of the view that, employees' obligation is to know and adhere to H&S rules on site. This is evident in the following quotations:

> *"The employees are also to take instructions and do as have been prescribed, and not as they want*." (URD)

This is an interesting response worth commenting on giving that instructions from above may sometimes lead to more risks being incurred. This is because contractors under the pressures of competition and in their quest to maximise profit may tend to undermine H&S practices on project sites (Kheni *et al.*, 2010). Employees also in their bid to secure their jobs may not complain about poor site conditions or rules which is coming from above so long as they are being paid their wages.

> *"They have personal obligations to themselves first to follow H&S procedures, and then also to 3rd parties as their actions or inactions could result in an accident not to themselves, but to third parties."* (KNUST)

Kheni *et al.* (2010) again argued that workers may be limited in their capacity to resist poor H&S conditions on site due to the existence of cheap labour in addition to low socio-economic status in developing countries. Workers may not have personal autonomy when it comes to H&S issues as H&S rules are from above. They however owe it to themselves and to others not to indulge in behaviours that may pose a threat to they themselves and to others.

> *"As an employee, you should demand your right. That is why the Labour Act is saying that, as an employee, you must know your rights. Should there be any mishaps, you should be able to demand what is due you, that is, your workman's compensation."* (BRRI 2)

It is worth knowing that ignorance of one's identity and rights is normally a recipe for abuse. In view of this, the respondent. BRRI 2 explained that, an employee must be aware of their rights in order to demand it as illustrated in the comment above. However, this is not the case in Ghana as the industry is full of 'not formally', educated people so they may not have a full understanding of the law or their rights. Low illiteracy levels and ignorance may contribute to increased risk to exposure to accidents (Kheni *et al.*, 2010).

4.5 Discussion and Recommendations for H&S improvement in Ghana

In the UK, the CDM regulations 2015 places duties on all those who can contribute to health and safety of a construction project. Duties are placed upon clients, principal designers and other stakeholders with more authority given to the principal designer in what is considered a more authoritative and policing role. The situation in Ghana like many other developing countries is not so.Findings from the study indicate weakness in the monitoring and enforcement of H&S laws, low awareness of laws, and conflicts in roles as to who does what which confirms to the study of Kheni et al (2008) and Akorsu (2013). Whilst the Act 651 emphasizes on H&S at work, the administration and the enforcement of the regulations is very weak. Akorsu (2013) stated that, "*we tend to have fine laws, we tend to ratify labour standards as quickly as they are adopted by the ILO but we hardly enforce these*". Research carried out by Akorsu (2013) show statistics of an inspection carried out by the Labour Department in 2008. It indicates that a total of 106 inspections were conducted nationwide whereas there are about 26,088 firms in Ghana's manufacturing sector alone (of which construction is part). The Ashanti and Greater Accra regions were oddly among the regions with no inspections at all though these regions have the largest cities and largest number of manufacturing activities. Enforcement of H&S regulations remains a problem due to lack of adequate resources available to government institutions responsible for occupational health and safety administration (Kheni *et al.*, 2008).

The study indicates that making rules and regulation relating to health and safety of workers is one step ahead of causing a positive change in the sector but it does not end there. Going further to implement it; that is making sure individual contractors and consultants strictly adhere to these rules and regulations will make much of a difference in ensuring health and safety of workers.

The laws alone cannot deal with the issue of health and safety as the spirit of the law may not always be followed. Findings from the study indicate weakness in the enforcement and monitoring of H&S laws in the country. Effective collaboration between the stakeholders involved and the integration of health and safety procedures at every stage of procurement are likely to reduce construction injuries and ill-health in the country. In the UK, the HSE and local authorities use a wide range of tools ranging from prosecution, to the use of fines in ensuring compliance of H&S laws.

The study provides industry with a simplistic and yet, practical way of improving construction H&S management through procurement by outlining the various stages of procurement and how H&S can be embedded in each stage and the roles of the stakeholders as indicated in Table 2. Recommendations are strictly based on the results obtained from the data analysis.

Table 2: Role of stakeholders in improving H&S in Ghana's Construction Industry

Procurement stage	Roles	Stakeholder Responsible
Planning Stage	The scope of the project and also who to bring on board the project should be determined, and risk assessment also carried out.	Government agencies acting on behalf of the Government of Ghana (GoG).
Design Stage	Bills of quantities must include itemised provision on H&S. Designs should be H&S friendly and requisition of safe method statements.	Design and Cost team (Architects, Quantity Surveyors, Engineers)
Tender Stage	H&S should be included as a requirement for evaluating tenders. Evaluating and awarding tenders should be based on criteria set which includes H&S.	Evaluation Team, Government Agency
Contract Stage	Include H&S clause in the contract. Clearly defined roles and responsibilities of parties involved in the project especially in the area of H&S at the contract stage. H&S training must be carried out.	
Construction Stage	Carrying out regular site visits, effective monitoring and supervision to ensure compliance and requisition of monthly H&S reports should be done at the construction stage.	Engineer-in-charge, DoFI, EPA, Labour Department
Post Evaluation Stage	H&S audits should be carried out in addition to the financial audits after the completion of the project.	Auditors from DoFI, Evaluation team

5. Conclusion

Through a qualitative study, this research has uncovered lapses in the current Ghana law Act 651 with regard to its interpretation and implementations. The current laws alone are not adequately ensuring effective H&S in the construction industry. A collaboration between all the parties involved in the process is therefore essential. Potential contractors must also be encouraged to participate in the design process to bring their expertise to bare on a project. H&S performance targets on all projects irrespective of the scope. The GhIS, GIA, GIE, who form the professional body in construction in Ghana must champion the discipline of construction H&S in Ghana on sustained basis by providing training on H&S and certification of construction professional, and the establishment of codes of practice. Government can set up an office at the various Metropolitan, Municipal and Districts Assemblies for H&S with highly skilled and competent personnel who will engage in training, monitoring and enforcement of provisions for projects.

Lastly, the Government of Ghana should equip the Department of Labour and the Department of Factories Inspectorate with the needed resources to strengthen the monitoring and enforcement of H&S laws.

6. Implications for the industry

The paper has implications in the country industry in an attempt to strategize to improve H&S in the industry. Complete conformance will guarantee effective communication. This is because the hierarchical system will become functional as each party involved in the construction process will know who to report to anytime a situation occurs. There will not be usurping of roles as roles and responsibilities are clearly defined resulting in the reduction of conflicts. Effective systems ensures effective communication and vice versa.
The recommendations given can be benchmarked to improve H&S in not only Ghana, but other developing countries with similar H&S issues.

REFERENCE

Akorsu, A. D., (2013) Labour Standards Application along Value Chains in Ghana: Reality Check and Policy Option Economics and Management of Networks Conference, Robinson Hotel and University Ibn Zohr Agadir, Morocco

Amoah, P., Ahadzie, D. K. & Dansoh, A., (2011). The Factors Affecting Construction Performance In Ghana:The Perspective Of Small-scale Building Contractors. *Surveyor Journal*, 4 No. 1(2), pp. 41-48.

Ashiboe-Mensah, N.A (2012) *Photovoltaic Adoption in the Ghanaian Building Industry: Perceptions and Relational Dynamics of Innovation Adoption Decision Factors.* Ph.D. diss., Kwame Nkrumah University of Science and Technology, Kumasi

Bruce, T.F., (2009). Occupational Safety and Health in Ghana
Available at:
http://www.ghanabusinesscode.com/downloads/presentations/occupational_safety_and_health_inghana%5b1%5d%5b1%5d.ppt (accessed on 20th January 2014)

CCG Health and Safety Working Group, (2007) *Good Practices For Clients To Follow When Procuring Construction Work*. Part of CCG's suite of information sheets for businesses that procure construction work. Available at: http:// www.constructingexcellence.org.uk/sectorforums/constructionclientsgroup

Charles, M., Pillay, J. and Ryan, R., (2007) *Guide to Best Practice for Safer Construction: Literature Review, From Concept to completion.* Icon.Net Pty Ltd

Donkoh, D., Adinyirah, E. and Aboagye-Nimo, E. (2015) An exploratory study into promoting construction health and safety in Ghana through public works procurement. In Behn, M and McAleenan, C (Eds) *Benefitting Workers and Society through Inherently Safe(r) Construction*, Belfast, 289-297.

Formatted: German (Germany)

Government of Australia (2006) Guidance on Occupational H&S in Government Procurement.

Gyadu-Asiedu, W., (2009). *Assessing Construction Project Performance in Ghana: Modelling Practitioners' and Clients' Perspectives.* [Online] Available at: http://alexandria.tue.nl/extra2/200613246.pdf [Accessed 5th January 2014].

Hislop, R. D. (1999) *Construction Site Safety: A guide for managing contractors.* illustrated ed. Taylor & Francis Group.

Laryea, S. & Mensah, S., (2010) *H&S on construction sites in Ghana.* Dauphine Université, Paris, COBRA (The Construction, Building and Real Estate Research Conference of the Royal Institution of Chartered Surveyors).

Kheni, N. A., Dainty, A. R. & Gibb, A. G., (2008) H&S management in developing countries: a study of construction SME's in Ghana, Construction Management and Economics E. pp. 26(11), 1159-1169.

Kheni, N. A., Gibb, A. G. & Dainty, A. R., (2010). Health and Safety Management Within Small- and Medium Sized EnterpriseS (SMEs) in Developing Countries: Study of Contextual Influences. *ASCE Journal of Construction Engineering and management*, 136(10), pp. 1104-1115.

MoESW, Ministry of Employment and Social Welfare (2011). Vision, Mission and Objectives of Department of Factories Inspectorate.
Available at: http://www.lmisghana.org.gh/index.php?option=com_content&view=article&id=106&Itemid=116 (accessed 3rd March 2014)

Public Procurement Act, Act 663, 2003

Sengupta, B. and Guha, H., (2002) *Construction management and planning*, Tata McGraw-Hill Publishing Co.

The Government of Australia, (2010) *H&S in construction procurement. A handbook for the public sector*. Edition 1.

Formatted: Italian (Italy)

Wells, J. D. and Hawkins, J.,(2011) Promoting Construction H&S through procurement: A briefing note for developing countries. *Proceedings of the ICE-Management,Procurement and Law*, 1-12.