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A STUDY OF BARRIERS HINDERING CONTRACTOR'S COMPLIANCE WITH H&S STANDARDS IN GHANA

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ABSTRACT

In general, the construction industry is one of the world's occupational settings that has high incidents of fatalities and injury rates. Developing countries, Ghana inclusive are faced with much more challenges to effective management of occupational health and safety due to the increasing rate of industrialization and weak occupational health and safety framework. The study aims to examine barriers faced by construction companies while implementing health and safety standards. The study adopted a quantitative approach. Two hundred and one (201) members of construction companies and One hundred and forty-three (143) officers of Regulatory Institutions (RIs) responded to the questionnaires distributed. The findings indicated that construction firms while implementing health and safety standards face barriers including lack of H&S officers on sites, higher cost, lack of contractor's safety awards scheme, lack of clarity of instructions, lack of motivational package, lack of suitable health and safety education, and related cost. The study put forward various recommendations to overcome such challenges.

Keywords: Health and Safety, Compliance, Construction, Contractors, Projects, Ghana.

INTRODUCTION

Background to the Study

An accident is usually an unplanned and unexpected event, which results from a mistake somewhere, somehow and by somebody, some of these mistakes result from easily recognisable hazards, which are preventable. The designer, the contractor or even the worker may make the mistake (Ward, 1979 as cited in Aniekwu). Danso (2005), quoted reports that the construction industry recorded 902 accident cases in the year 2000. Comprising 56 fatal accidents and 846 non-fatal accidents. ILO (1996) estimates show that two million women and men worldwide die each year because of occupational accidents and work-related illnesses. Admittedly, Construction is a dangerous industry, Worldwide, the ILO has estimated that it accounts for 100, 00 fatalities annually, some 30 to 40 per cent of fatal occupational injuries overall (ILO, 2005). Therefore, the risk of serious injury or death at work in this sector is considerably greater than in others. Zimolong and Elke (2006) observed that most injuries result from minor hazards at the workplace. Slip, trip and fall incidents are the most common incidents when performing normal activities. Zimolong and Elke (2006) further stated that a smaller proportion of injuries result from hazardous activities. These hazards are generic for the type of work performed; working at height, with electricity, with gases under pressure etc. Aniekwu (2007) buttressed this assertion by identifying some factors that result in an accident. These include the use of faulty tools and equipment; non-compliance to standard safety rules and regulations; poorly maintained and or inadequate scaffolding; lack of experience; and improper handling and storage of flammables such as explosives and combustibles. The rest are improper handings of tools and equipment; worker fatigue and boredom; improper supervision; management attitude and action on safety matters; inadequate management of work environment; faults in design detailing and specification; faulty construction techniques; workers' physical condition; lack of job satisfaction by workers; and monotony (constant exposure to a particular job).

In the construction industry, there are practical recommendations of safety rules, regulations and codes of ethics to practice for the use by those in both public and the private sectors, who have responsibility for safety and health in construction. These safety rules, regulations and codes do not replace national laws or regulations or accepted standards. They are there to guide those who frame these provisions, regulatory policies such as governmental and public authorities, committees, management or employers and workers' organizations in this industrial sector. Local circumstances and technical possibilities will determine how far it is practicable to follow these provisions. All concerned must follow these provisions strictly to avoid accidents on sites. Unfortunately, as Aniekwu (2007) noted, occupational health and safety rules are the most violated safety rules. He identified among others poorly maintained or inadequate scaffolding; lack of qualified first aid attendants on-site; failure to wear personal protective equipment unsafe crane operation; improper and unsecured ladder; and absence or inadequate guard rails on walls. Others are floors and openings; sloped excavation; poor general site condition; ungrounded and unguarded portable electrical tools; failure to backfill trenches promptly; improper handling and storage of flammable explosives and combustibles; and absence or inadequate fencing of site perimeters.

Problem Statement

Ahadzie (2013) investigated the barriers and pointed out the Labour Act of Ghana. These include lack of health and safety, inadequate health and safety training for workers, poor risk

assessment, worker's attitude toward health and safety, inadequate health and safety professionals, lack of health and safety policies, inadequate data collection systems, lack of health and safety education in various institutions, communication difficulties, cost of providing and maintaining health and safety on sites and accident reporting shortfalls. Again, the results of the study provide enough evidence to show that the level of compliance with the provisions of the Labour Act of Ghana is poor. Hence, the efficiency of occupational H&S administration in Ghanaian construction sites is questionable as the absence of enabling policies partly translates into a lack of compliance. This study sought to contribute to knowledge on compliance with occupational health and safety legislation in construction sites in Ghana.

Aim and Objective of the Study

The aim of the study is Identify barriers to contractors' compliance with health and safety standards in contract conditions and legislation; and

Significance of the Study

Admittedly, one of the basic goals of organizations is to optimize human resources to achieve set targets. Matters relating to health and safety within the organization are critical in achieving set goals. Industrial accidents and illness make up one of the largest parts of loss of production time in the industry and these injuries have posed major challenges to most construction projects. Companies have suffered long spells or production shortfalls, compensation payments, insurance premiums and legal battles due to injury, reduction in the quality of life, family problems and decrease in life span and other effects which qualitatively cost employees, organizations, society and the nation, in general, is impossible to evaluate. This study is therefore significant for the following reason:

- Findings from the study will add up to existing knowledge on the subject under study;
- The outcome would enhance the performance of regulatory institutors in ensuring safety standards;
- Construction industries can utilize the findings to curb the alarming rate of industrial accidents resulting in injuries and deaths;
- Increase the awareness about health and safety in the construction industry and reveal the weaknesses strategies employers adopt to enhance health and safety standards.

Limitations

The major limitations of the study were that some respondents were reluctant to answer the questionnaire and to grant the researcher interviews, which was necessary for the study for fear that providing the right information may affect their institutions directly or indirectly. In addition, the retrieval of the questionnaire distributed to respondents was a big task because most of the respondents could not answer the questionnaire due to their work schedules. Moreover, the scope of the study, which covers the entire country, was too extensive for only two years. It thus poses a big challenge for the researcher to come out with a comprehensive mixed-method design.

LITERATURE REVIEW

Health and Safety Management within the Construction Industry

Effective OHS management means developing, coordinating, and controlling a continuous improvement process by setting and adjusting OHS standards (Zimolong & Elke, 2006). According to ILO (1995), safety management in simple terms means, applying safety measures before accidents happen. Effective safety management has three main objectives: to make the

environment safe, to make the job safe and to make workers safety-conscious. Construction projects, which use subcontractors, should set out the responsibilities, duties and safety measures that they expect of the subcontractor's workforce. These measures may include the provision and use of specific safety equipment, methods of carrying out specific tasks safely, and the inspection appropriate use of tools. According to ILO (2003), safety discourages work habits that place individuals at risk of injury. A safety program should go beyond wearing safety helmets or safety clothing. It philosophies how to identify and eliminate hazards associated with work in corporate organizational structure and culture since these play important roles in forming the attitudes and perceptions of workers. Health and safety management forms part of a safety climate within an organization. In the study of Adjotor (2013), there exists a dynamic reciprocal relationship between psychological, behavioural and situational factors in the organizational culture. Safety management is an external factor that one can observe. Bandura's model of reciprocal determination illustrated how an organizational safety culture looks and shows how safety management is an external observable factor that is situational.

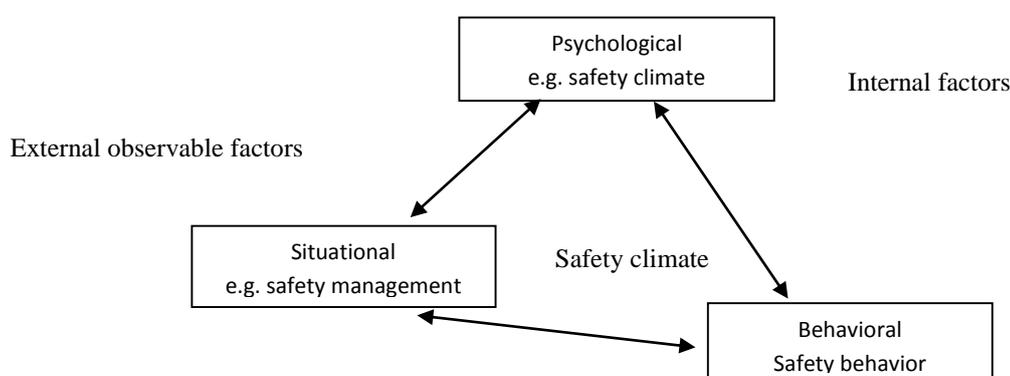


Figure 1: Bandura's Model of Reciprocal Determination

Source: Adjotor (2013)

Occupational health management is a system that tracks each incident that relates to an employee's health and safety. It integrates the entire plan of an organization into a unified whole that assumes complete responsibility for each employee. This means that it is concerned with prevention as it is with health care after an accident. The goal of Occupational Health and Safety is to do everything that one can do to prevent accidents and minimize illness (Cruickshank, 2010).

Challenges Facing Regulatory Institutions in Ghana

Many kinds of OHS issues are affecting Ghana. One most important issue pertains to dealing with OHS challenges facing regulatory institutions. It is obvious that the country has realized the benefits of OHS rather late; hence there are challenges in implementing OHS practices. One major challenge is that Ghana does not have any comprehensive national policy (Annan et al., 2014). This resulted in different Public institutions regulating their activities on behalf of the government differently as financiers, suppliers, regulators, clients, or paymasters (Edmonds & Miles, 1984). Non-government organizations, which significantly influence the activities of the industry, include trade unions, employers' organizations, private clients, donor agencies, professional institutions research institutions, and private educational institutions (Kheni et al, 2008).

A critical link in the health and safety programme is the ability of supervisors to investigate accidents and incidents (with the potential to progress in accidents) occurring in the workplace. The ultimate objective is to review all unsafe conditions to determine whether there are any control measures in place and whether they are performing as they should. Accidents and incidents are documented investigations on forms appropriately designed for that purpose and communicated to staff and management. It is also a statutory obligation that employers report accidents to the appropriate authorities (MOH, 2010). Writing in the same vein, Laryea (2010) stated that employers report all accidents or work-related illnesses to the appropriate authorities within a stipulated time. There are health and safety problems on almost all construction sites that need reporting. However, employers and victims do not report them to the right institutions for action. British Safety Council, (2009) confirmed this. It indicated that the reporting of both work-related accidents and ill-health is poor across the world. Although some regions report accidents better than others, there is a need for much improvement in all countries. The ILO is calling for countries to develop national programmes including targets and indicators of progress. To do this, countries will first have to develop more reliable reporting systems. The researcher's field Note (2015) revealed the following challenges faced by the regulatory institutions in Ghana:

- Some companies do not want to pay compensation to accident victims therefore reporting an accident case is a secondary matter to them;
- Most companies use outmoded methods of documenting accidents, resulting in inaccurate records and difficulty in data retrieval,
- Most regulatory institutions do not have adequate personnel to go around the numerous construction project sites spread all over the country,
- Some construction companies and the so-called 'one-man-contractors' are not willing to register with the regulatory institutions, making it extremely difficult to track their activities.

METHODOLOGY

Research Design

A research design is a blueprint for fulfilling research objectives and answering research questions. It is the master plan specifying the methods and procedures for collecting and analyzing the needed information. It ensures that the information the researcher has collected is appropriate for solving a problem (Adams, Khan, & White, 2007). The researcher adopted a quantitative methodology for this study.

Population

According to Fraenkel and Warren (2002), population refers to the complete set of individuals (subjects or events) having common characteristics which the researcher is interested in studying. Shao (1999) on the other hand defined population as the complete set of subjects that one can study: people, objects, animals, plants, and organizations from which one may obtain a sample. The researcher considered organizations and government departments and agencies with functions relating to health and safety in construction projects across the length and breadth of the country for the population. These include;

Recognized Regulatory Institutions:

- Factories Inspectorate,
- Labour Department,

- Environmental Protection Agency.
- Fire Service

Contractors

- Association of Building and Civil Engineering Contractors of Ghana;
- Association Road Contractor Ghana. (ASROC).

The study's focus was on how to examine compliance with occupational health and safety legislation by preventing accidents, (if not eliminating them) in construction sites in Ghana. Currently, Ghana's ten administrative regions are subdivided into 216 distinctive metropolitans, and municipal and district assemblies. The main purpose of these assemblies is to bring local governance to the doorsteps of the people and enhance the decentralization process in Ghana. These assemblies form part of the regulatory institutions responsible for ensuring health and safety standards at construction project sites in the ten regions.

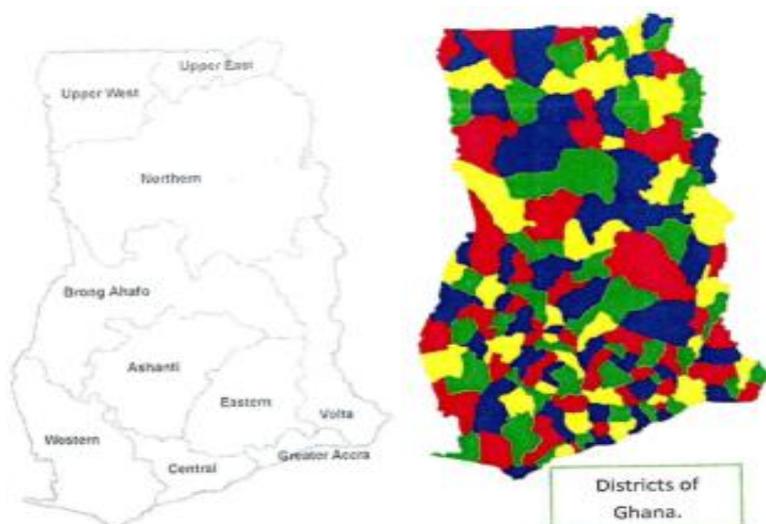


Figure 2: Administrative Map of Ghana
Source: www.maps.google.com.gh.

Sampling Technique and Sample Size

Kumar (1999) explains that a sample is a sub-group of the population which is an ideal representative of the entire population. The sampling approach adopted for the study followed a sequential process (Teddlie & Yu, 2007), sampling involving a systematic sampling with a random start for the selection of respondents from contractors for participating in questionnaires, and a census was conducted to select officers of regulator institutions. Systematic random sampling is by first selecting the sample element in a finite sequence at equal spacing (sample interval) from each sample. The population is then divided into subgroups, each having a total number of elements equal to the sample interval. The first member for the sample is then selected randomly from the first interval. Starting from the first member thus selected, every *n*th element from it is selected. The sample interval is calculated as;

$$\text{Sample Interval} = \frac{\text{population size}}{\text{sample size}}$$

Also, Baffour, King and Valente (2013) indicated that the census is considered the best when conducting research on small population groups in terms of area or membership. Furthermore, the census is a pivotal part of the official statistics produced by a country because it, typically,

provides the benchmark for the population count at national and local levels. The quantitative sample size for the study was 632 being the summation of both the sample sizes drawn from Project Managers, Architects, Structural Engineers, Quantity Surveyors, Managing Directors, Site Managers Civil Engineers, and regulatory institutions. In addition, the qualitative sample size for the study was 9, also comprised of Project Managers, Civil Engineers and Architect, as well as Labour Officers, Factories inspectors and EPA Safety Officers. Krejcie and Morgan's (1970)'s formula which gives a procedure for determining sample size has been adopted for the quantitative strand of this study.

Data Collection

The second phase of the study included the conduct of a survey. The survey was administered closed

Ended questionnaires to contractors and professional institutions selected with systematic random sampling, and census. The piloting of the questionnaires used a sample size of N=25. The main survey followed the piloting, involving a total sample size of N=632. Out of this, 344 responses went into the analysis. Data compilation used SPSS, which uses descriptive statistics and Factor analysis to analyse the data.

PRESENTATION AND ANALYSIS OF RESULTS

Type of Work that Respondents' Companies Undertake

Construction firms undertake varied works depending on the objective and logistics of the firm. Table 1 illustrated the types of construction work undertaken by respondents who contributed to the study. A majority, i.e. 123 out of 201, representing a valid percentage of 61.2% of respondents' companies are into Building Construction. The rest of the respondents belong to Civil Engineering Construction, representing 38.8% (refer to Table 1).

Table 1

Type of Construction Works Undertaken

Construction Works	Frequency	Valid Percent (%)
Civil Engineering Construction	78	38.8
Building Construction	123	61.2
Total	201	100.0

Source: (Researcher's field Note 2015)

Association that Respondents' Company Belong

More than half of the respondents (132 contractors representing 65.7%) registered with the Association of Building and Civil Engineering Contractors of Ghana (ABCECG); while about a third (69 contractors representing 34.3%) registered with the Association of Road Contractors (ASROC – Ghana), (refer to Table 2). This indicated that all the contractors who responded to the questionnaires work in companies belonging to associations that are aware of health and safety issues in their various construction firms. Therefore, they were in a better position to give an accurate account of the implementation of health and safety standards in their company.

Table 2

Affiliated Association of Companies

	Frequency	Valid Percent (%)
Association of Building and Civil Engineering Contractors of Ghana	132	65.7
Association of Road Contractors of Ghana	69	34.3
Total	201	100.0

Source: (Researcher's field Note 2015)

Barriers to Contractors' Compliance with Health and Safety Standards in Contract Conditions and Legislation

This section of the study identifies the main barriers to compliance with health and safety standards in contract conditions and legislation on construction project sites. The researcher has used Factor analysis to identify the major barriers to construction companies' compliance with health and safety standards. Table 3 shows Bartlett's Test of Sphericity which tests the null hypothesis that the variables explaining the various barriers are not related. Since the P-value of 0.000 indicated that the variables are highly related to each other because the test has rejected the null hypothesis, the study can proceed with factor analysis.

Table 3

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.723
Bartlett's Test of Sphericity	Approx. Chi-Square	1.221E3
	Df	276
	P-value	.000

The communality table in (Table 4) indicated explains the variables accounted for by all the common factors to be extracted and it indicates that most of the variables measuring barriers are well explained by the latent factors.

Table 4

Communalities

Barriers to Health and Safety Standards in Construction Companies	Initial	Extraction
The cost of construction materials is too high compelling contractors to cut corners	1.000	.562
Lack of effective communication between operatives	1.000	.535
Employee's refusal to follow simple instructions.	1.000	.534
Instructions from contractors are not clear to employees.	1.000	.678
Purchasing of sub-standard construction materials.	1.000	.798
Reduction of the number of materials required for a project.	1.000	.610
Mishandling of construction materials.	1.000	.669
Lack of care and maintenance of tools and machinery.	1.000	.513
Lack of health and safety education on construction project sites.	1.000	.475
Lack of health and safety education on construction project sites.	1.000	.650
Inadequate health and safety policies in construction projects.	1.000	.653
Lack of effective training on health and safety standards.	1.000	.637
Bad attitude towards work.	1.000	.530
Lack of health and safety officers to enforce health and safety standards.	1.000	.697
Lack of motivative packages for health and safety officers on-site (if there are)	1.000	.729
Lack of investigative mechanism on previous accident cases.	1.000	.597
Unsafe working environment.	1.000	.552
Lack of health and safety warning signs and posters on construction sites.	1.000	.545
The inability of parties to identify design errors.	1.000	.630
Lack of external inspection to check unsafe work habits.	1.000	.703
Delays in reporting accident cases to the appropriate institutions.	1.000	.532
Unsafe site locations	1.000	.624
Lack of Contractual Safety Awards Scheme.	1.000	.769
Lack of medical staff being part of the health and safety team in educating construction companies.	1.000	.439
Extraction Method: Principal Component Analysis.		

Source: (Author's field Note, 2015)

Table 5 shows the extraction of eight variables to explain all 24 variables, which are barriers to construction companies' compliance with safety and health issues. The table retained variables

with eigenvalues 1 and above as extracted factors. This calls for an eight-factor model to explain all 24 variables.

Table 5
Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loading			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.349	22.286	22.286	5.349	22.286	22.286	2.821	11.752	11.752
2	1.661	6.920	29.206	1.661	6.920	29.206	2.187	9.111	20.863
3	1.490	6.208	35.414	1.490	6.208	35.414	2.100	8.751	29.614
4	1.413	5.885	41.300	1.413	5.885	41.300	1.865	7.773	37.386
5	1.308	5.451	46.750	1.308	5.451	46.750	1.574	6.558	43.944
6	1.185	4.937	51.687	1.185	4.937	51.687	1.454	6.059	50.004
7	1.179	4.914	56.600	1.175	4.914	56.600	1.350	5.624	55.627
8	1.075	4.478	61.079	1.075	4.478	61.079	1.308	5.451	61.07977
9	.972	4.049	65.127						
10	.965	4.021	69.148						
11	.836	3.484	72.632						
12	.822	3.425	76.057						
13	.770	3.210	79.267						
14	.661	2.756	82.023						
15	.625	2.605	84.627						
16	.582	2.423	87.051						
17	.549	2.287	89.337						
18	.511	2.129	91.467						
19	.446	1.858	93.325						
20	.400	1.666	94.991						
21	.369	1.538	96.529						
22	.306	1.274	97.803						
23	.302	1.260	99.063						
24	.225	.937	100.000						

Extraction Method: Principal Component Analysis.

Source: (Author's field Note 2015)

To present any possible loadings or reduce the number of cross-loaded variables, the eight factors were subjected to the *Varimax* rotation method to maximize the correlation between a factor and a variable. The results of the rotation method are presented in Table 6. From the table, the number of cross-loaded variables was nine (9). Deletion of the nine made the table easier to interpret

Table 6. shows the reduced variables explained by the eight factors on barriers to construction companies' compliance with health and safety standards in contract conditions and legislation. From the table, one of the barriers "Lack of Contractor Safety Awards Scheme" was highly loaded with factor 7. This means that factor 7 explains the variable "Lack of Contractor Safety Awards Scheme" better than any other factor in the model. Factors 1 explains variables 1, 6, 7, 17 and 22 and hence are grouped as "Cost of construction materials, Reduction of the number of materials, Mishandling of construction materials, Unsafe working environment and Unsafe Site Locations". Factor 2 explains variables 11 and 12, grouped as "Lack of warning signs/posters, and Inability of parties to identify design errors"; factor 3 explains variable 7 which indicates "Lack of health and safety education". Factor 4 explains variables 9 and 15 "Lack of motivative packages for HS officers, Lack of medical staff to educate construction

companies' and factor 5 explains variables 2 and 8 "refusal to follow instructions, "Lack of effective training".

Table 6
Rotated Component Matrix

V Barriers to Health and Safety Standards in N Construction Companies	Component							
	1	2	3	4	5	6	7	8
1 The cost of construction materials is too high compelling contractors to cut corners	.521							
2 Lack of effective communication between 3 operatives		.545				.662	.334	
4 Employee's refusal to follow simple instructions.							.792	
5 Instructions from contractors are not clear to 6 employees.	.600							.819
7 Purchasing of sub-standard construction materials.	.617							
8 Reduction of the number of materials required for a 9 project.	.492			.344				
Mishandling of construction materials.	.344	.402						
10 Lack of care and maintenance of tools and machinery.			.677					
11 Lack of health and safety education on construction project sites.			.643			.438		
12 Lack of health and safety education on construction 13 project sites.						.577		
14 Inadequate health and safety policies in construction projects.	.395		.628					
15 Lack of effective training on health and safety standards.			.346		.819		.339	
16 Bad attitude towards work.	.380							
Lack of health and safety officers to enforce health 17 and safety standards.	.608							
18 Lack of motivative packages for health and safety officers on-site (if there are)		.614						
19 Lack of investigative mechanism on previous 20 accident cases.	.338	.517						.46
21 Unsafe working environment.	.689		.451	.418				
Lack of health and safety warning signs and posters 22 on construction sites.								.398
23 The inability of parties to identify design errors.							.85	
24 Lack of external inspection to check unsafe work habits.				.581				
Delays in reporting accident cases to the appropriate institutions.								
Unsafe site locations								
Lack of Contractual Safety Awards Scheme.								
Lack of medical staff being part of the health and safety team in educating construction companies.								

Bolded variables are cross-loaded and hence are discarded

Source: (Author's Field Note 2015)

Factor 6 explains variable 3 "Instructions from contractors not clear to employees". Factor 7, explains variable 14 "Lack of Contractor Safety Awards Scheme" and factor 8 explains variable 4 "Purchasing of sub-standard construction materials".

Table 7
Reduced Rotated Factors

	Barriers to Health and Safety Standards in Construction Companies	Component							
		1	2	3	4	5	6	7	8
1	The cost of construction materials is too high compelling contractors to cut corners	.521							
2	Employee's refusal to follow simple instructions.					.662			
3	Instructions from contractors nor clear to employees.						.792		
4	Purchasing of sub-standard construction materials.								.819
5	Reduction of the number of materials required for a project.	.600							
6	Mishandling of construction materials.	.617							
7	Lack of health and safety education on construction project sites.			.67					
8	Lack of effective training on health and safety standards.					.577			
9	Lack of motivational packages for health and safety officers on-site (if there are).				.819				
10	Unsafe working environment.	.608							
11	Lack of health and safety warning signs and posters on construction sites.		.614						
12	The inability of parties to identify design errors.		.722						
13	Unsafe site locations.	.689							
14	Lack of Contractor Safety Awards Scheme.				.581			.851	
15	Lack of medical staff being part of the health and safety team in educating construction companies.	.222							

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization

Source: (Author's field Note 2015)

After the application of the factor analysis, the following emerged as the major barriers to contractor's compliance with health and safety standards in contract conditions and legislation:

- The high cost of construction materials compels contractors to cut corners; thus, reducing the number of materials required for a project. (*Mishandling of construction materials*).
- Unsafe working environment and unsafe site locations (*Cost/Quality of materials*).
- Lack of health and safety warning signs and posters on construction sites and the inability of parties to identify design errors (*Design errors/lack of warning signs*).
- Lack of health and safety education on construction project sites (*Lack of education on OHS*).
- Lack of motivating packages for health and safety officers on site (if there is) and Lack of medical staff as part of the 7 health and safety team in educating construction companies (*Lack of motivation*).
- Lack of effective training on health and safety standards, and Employee's refusal to follow simple instructions (*Lack of training on OHS*).
- Instructions from contractors not clear to employees (*Unclear instructions*),
- Lack of Contractor Safety Awards Scheme (*Lack of H&S Award Scheme*),
- Purchasing of sub-standard construction materials (*Use of sub-standard materials*).

CONCLUSION

The objective of the study identified barriers to contractors' compliance with health and safety standards in contract conditions and legislation. The following were the major barriers:

- The high cost of construction materials compels contractors to cut corners, reduce the number of materials required for a project, and mishandle construction materials;
- Lack of health and safety warning signs and posters on construction sites;
- The inability of parties to identify design errors;
- Lack of health and safety education on construction project sites;
- Lack of motivational packages for health and safety officers on site;
- Non-inclusion of trained medical staff in the team of health and safety educators in construction companies;
- Lack of effective training on health and safety standards;
- Employee's refusal to follow simple instructions;
- Ambiguity in instructions from contractors to employees;
- Lack of Contractor Safety Awards Scheme; and
- Purchasing and use of sub-standard construction materials.

The study contributed to knowledge since the questionnaires developed could be adopted by any researcher all over the world for further studies concerning the subject matter. In addition, the study is an improvement in the literature.

Recommendations

Government

- The government in consultation with various stakeholders in the health, employment and construction industry should revise and enforce health and safety regulations;
- Government must give regulatory institutions much legal backing to ensure companies meet their requirements at construction sites;
- Government should give regulatory institutions the power to sanction obdurate companies;
- Government should adequately resource regulatory institutions to effectively carry out their mandate;
- Government should oversee those regulatory institutions as stipulated by the law;

Regulatory Bodies

- Regulatory bodies must enforce health and safety standard rules and regulations without fear or favour to deter recalcitrant companies;
- Regulatory bodies must resource their outfit adequately and build their staff capacity in the area of health and safety to effectively monitor and supervise construction firms to ascertain their level of implementation of health and safety standards;
- Regulatory bodies should put in place mechanisms to internally generate funds for the acquisition of devices for comprehensive record keeping;
- Regulatory institutions could devise motivational packages to stimulate construction companies for enhanced performance;
- Regulatory bodies should sanction mediocre performing staff to stimulate improved performance;
- Regulatory bodies must collaborate with construction firms in the area of training and education of employees on health and safety standard practices.

Construction Firms

- Construction companies should stimulate self-compliance to health and safety regulations;
- Construction firms need to enforce health and safety standard principles at sites without fear or favour, and should sanction defaulting workers;
- Construction firms should institute training and capacity-building programs for staff on health and safety and should be ready to call for help if need be;
- Construction firms should improve their working environment, tools and equipment to ensure health and safety at work sites;
- Management and employee should have registered dialogue about health and safety standard practices at construction sites;
- Owners or managers of construction companies should be willing to disclose fatalities or any poor performance about their companies without the fear of denting their image.

References

- Adams, J., Khan, H.T.A., & White, D. (2007). *Research Methods for Graduate Business and Social Science students*, Sage B1/11, Mohan cooperative Industrial Area. New Delhi.
- Adjortor, F. N. (2013). *The effects of occupational safety and health on labour productivity; A case study of some selected firms in Greater Accra Region of Ghana*. The University of Ghana. Retrieved from <http://www.ugspace.edu.gh>
- Ahadzie, J. (2013). *The perspective of consultants on Health and Safety Provisions in the Labour Act: A case study into Theory and Practice*. Retrieved from <http://www.doi.org/10.5539/emr.v2nlp34>. Accessed on 4th June, 2014. – 7:17pm.
- Aniekwu, N. (2007). *Accident and Safety violation in the Nigeria Construction Industry*.
- Annan, J., Addai, E.K, & Tulashie, S.K. (2014). *A call for Action to improve occupational Health and Safety in Ghana and a Critical Look at the Existing Legal Requirement and Legislation*. Occupational Health and Safety Institute. Retrieved from <http://www.sciencedirect.com/science/article>. Available online 10th January 2015. Accessed on 2nd September, 2015.-10:30pm.
- Baffour, B., King, T., & Valente, P. (2013). *The Modern Census: Evolution, Examples and Evaluation Institute for Social Science Research, University of Queensland, Brisbane, Australia*. School of Education, Communication and Language Sciences, University of Newcastle, Newcastle upon Tyne, United Kingdom. 3. Statistical Division, United Nations Economic Commission for Europe (UNECE), Palais des Nations, Geneva, Switzerland.
- British Safety Council. (2009). *The causes and incidence of occupational accidents and ill-health across the globe*. 70 Chancellor Road. London.
- Cruickshank, B. (2010). *Occupation Management*, Warwick Medical School, UK.
- Danso, F.O., Badu, E., & Ahadzie, D.E. (2005). The preference of Ghana Contractors in providing occupational health and safety items; an exploratory study. *Procs 4th West African Built Environment Research (WABER) Conference, 24-26 July 2012, Abuja, Nigeria*.
- Fraenkel, F.J., & Warren, N.E., (2002). *How to design and evaluate research in education* (4th ed.). New York: McGraw-Hill.

- ILO, (1995). *Safety, health and welfare on construction site*. A training manual. Geneva.
- ILO, (1996). *Recording and notification of occupational accidents and diseases*. PIACT, Geneva.
- ILO, (2003). *Safety in numbers; pointer for global safety culture at work*. Geneva.
- ILO, (2005). *Global estimates of fatal work-related diseases and occupational accidents*, World Bank Regions, ILO, Geneva.
- Kheni, N.A., Dainty, A.R.J., & Gibb, A.G.F. (2008). *Health and Safety Management in developing countries: a study of construction SMEs in Ghana Construction Management Economy*.
- Krejcie, R.V., & Morgan, D.W. (1970). *Determining Sample Sizes for Research Activities*. Educational and Psychological Measurement.
- Kumar, R. (1999). *Research Methodology: A Step-by-Step Guide for Beginners*. Australia, Addison Wesley Longman, Australia Ply Limited.
- Laryea, S. (2010). *Health and Safety on Construction Sites in Ghana In The Construction, Building and Real Estate Research Conference of the Royal Institution of Chartered Surveyors*. Dauphine University, Paris, France <http://centaur.reading.ac.uk/16289>
- MOH, (2010). *Occupational Health and Safety Policy and Guidelines for the health sector*. Ghana Health Service.
- Shao, A.T. (1999). *Marketing Research: An Aid of Decision Making*. Retrieved on <http://www.Sbaer.uca.edn>
- Teddlie, C., & Yu, F. (2007). Mixed methods sampling: A typology with examples. *Journal of Mixed Methods Research*, 1(1),77-100.
- Ward, P. (1997). *Organization and procedures in the Construction Industry*. Macdonald and Evans Ltd. England.
- Zimolong, B., & Elke, G. (2006). *Occupational Health and Safety Management*. In G. Salvendy Ed. *Handbook of Human Factors and Ergonomics*. New York: Wiley.