

PROCEEDING 2

**Proceedings of
the WABER 2015
Conference
(Volume 1)**

**Accra, GHANA
10-12 AUGUST
University of Ghana**

**Editors
Samuel Laryea
Roine Leiringer**



WEST AFRICA BUILT ENVIRONMENT RESEARCH CONFERENCE



**West Africa Built Environment
Research (WABER) Conference
2015**

**10-12 August 2015
University of Ghana
Accra, Ghana**

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WABER
conference

West Africa Built Environment Research Conference

Knowledge, Interaction, People & Leadership

: Accra, GHANA

: 10-12 AUG.

: University of Ghana

Proceedings of the West Africa Built Environment Research (WABER) Conference 2015
Volume 1

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Editors

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All papers in this publication have been through a review process involving initial screening of abstracts, review of full papers by at least two referees, reporting of comments to authors, revision of papers by authors and re-evaluation of re-submitted papers to ensure quality of content.

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APPRAISAL OF HEALTH AND SAFETY MANAGEMENT PRACTICES OF CONSTRUCTION SMES IN ABUJA, NIGERIA

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The construction industry is a major contributor to the economic growth of developed and developing nations. Surprisingly, it is also a major contributor to the occupational accidents and ill-health record. This research was undertaken to evaluate the health and safety (H&S) management practices of Small and Medium Sized Enterprises (SMEs) operating in the construction sector of the Federal Capital Territory of Nigeria. The data for the study was collected using questionnaires. The research population comprised construction SMEs operating in Abuja and registered with the Federation of Construction Industry (FOCI). The data were analysed using relative importance index (RII). Out of the fifty-eight (58) H&S management practices identified from literature, this study revealed that forty-six (46) were important. The 46 H&S management practices were categorized under five core practices: company commitment, worker consultation and participation, communication, health and safety planning, and education and training. Dominant H & S practices include provision of first aid facilities on site, provision of personal protective equipment and keeping of safety record and follow-ups. It was concluded that all the core H&S practices are capable of improving the health and safety performance of construction SMEs.

Keywords: accident, SME, hazard, health and safety management, Nigeria, risk.

INTRODUCTION

The construction industry has been identified as one of the most risky and hazardous of all industries in terms of health and safety. This is because the industry's fatality record of 13% is placed only after coal and petroleum industries with 21.9% fatality record (Diugwu et al, 2012). The majority of indigenous construction businesses in developing countries, such as Nigeria, are Small and Medium-size Enterprises (SMEs) operating within the domestic markets (Koehn *et al.* 1995; Kheni *et al.* 2006; Idoro, 2011).

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Shittu, A. A., Ibrahim, A. D., Ibrahim, Y. M. and Adogbo, K. J. (2015) Appraisal of health and safety management practices of construction SMEs in Abuja, Nigeria. In: Laryea, S. and Leiringer R. (Eds) *Procs 6th West Africa Built Environment Research (WABER) Conference*, 10-12 August 2015, Accra, Ghana, 121-129.

These businesses have been shown to often lack sufficient capacity to compete effectively in the international market or undertake large and complex development schemes. This, coupled with an underdeveloped local construction material base, inadequate technology and low foreign earnings, explains the continuing dominance of foreign contractors in piloting complex engineering schemes in developing countries (Diugwu et al., 2013). Kheni et al (2006) reported that while foreign contractors operating in developing countries effectively manage health and safety, indigenous construction businesses do not have effective arrangements in place for managing health and safety issues.

The health and safety regulatory environment within which the construction industry operates includes building and related codes, licensing requirements and safety legislation. Yet, previous studies report that management policies do not adequately address employees' health and safety concerns (Akpan, 2011); that the industry still experiences careless attitudes, overconfidence and failure to provide healthy and safe working measures as well as periodic health and safety seminar for the stakeholders and general public (Okpan and Agha, 2013); and that the regulations do not reflect the local environment (Idoro, 2008). Okeola (2009), Idoro (2011) and Idubor & Oisamoje (2013) further reported that the Nigerian contractors operate a production method that are prone to high injury because the level of compliance to and implementation of safety rules by the construction firms is abysmal.

Recommendations from previous studies have remained ineffective in addressing the challenges of health and safety in the Nigerian construction sector because the studies have been largely generalised without taking cognisance of the peculiar determinants of effective health and safety system such as the size, age and sector of operation of the key players. The study reported in this paper is a pilot study, which is part of an ongoing doctoral research aimed at assessing the effect of organisational characteristics on health and safety management practices by Nigerian construction firms. The purpose of the paper is to report on the evaluation of health and safety management practices of Nigerian construction SMEs.

PREVIOUS RELATED STUDIES ON HEALTH AND SAFETY MANAGEMENT PRACTICES OF CONSTRUCTION SMES

Past researches have shown that certain practices can lead to improved health and safety performance. Kheni (2008) and some other authors provided a summary of these previous studies as presented in Table 1.

Table 1: Summary of Researches on H&S Management Practices

Year and Authors	Summary of Research	Health and Safety Management Practices
Laska et al. (1993) cited in Kheri (2008)	Identified zero accident techniques.	Identified the following to be associated with safety success: * safety training and orientations; * provision of safety incentives; * safety pre-task planning included in safety goals; * safety person or personnel; * safety policies and procedures; * fire protection programme; * accountability/responsibility and safety budget; * alcohol and substance abuse programme in place; * accident and near-miss investigation; and, * record keeping and follow-ups.
Jaselskis et al. (1996) cited in Kheri (2008)	Strategies for achieving excellence in construction safety performance.	Companies with lower recordable incidence rates were characterized by the following: * more detailed safety programmes; * expended large percentage of revenue on safety programmes; * greater safety training time; * more formal safety inspections per month; and, * more safety meetings.
Gallagher (1997) cited in Kheri (2008)	Identified factors associated with improved health and safety performance.	The study identified the following factors to be associated with better health and safety performance: * high level of top management commitment; * health and safety responsibility known; * supervisor involvement encouraged; * active involvement of health and safety representatives who have a broad role; * effective health and safety committees; * planned identification of risk and hazard elimination/control emphasis; and, comprehensive approach in inspections and investigations.
Aksorn and Hadikusumo (2008) cited in Kheri (2008)	Investigated the effectiveness of safety programmes in the construction industry.	Safety performance was found to be influenced by the nature of the implemented programmes. Particular elements of safety programmes found to be positively associated with safety performance included: accident investigations; * jobsite inspections; * job hazard analysis; * safety inductions; * safety record keeping; * safety committees; * safety incentives; and, * control of subcontractors.
Idoro (2011)	Studied the influence of mechanization on OHS performance of the Nigerian Construction Industry.	Mechanization was discovered to have the tendency to worsen OHS performance of the construction industry when not properly managed. It was then recommended that: * stakeholders should give more attention to OHS management plan; and, * hazard management plan in the use of plant and equipment on site should be given more priority.
Agwu (2012a)	Studied the implications of integrating safety and social responsibility initiatives at the organizational level in the Nigerian construction industry.	It was concluded that integrating safety and social responsibility in construction activities results in better corporate performance. The following were suggested as linking factors between safety and social responsibility: * the use of ISO 26000; * holding top management accountable for safety; and, * communicating safety value to corporate stakeholders.
Agwu (2012b)	Assessed the impact of employees' safety culture on organizational performance	The organizational cultural factors identified to be improving employees safety performance at work are: * visibility of management commitment to construction employees' safety culture; * establishment of monthly safety incentive schemes for employees; * training and retraining of employees on safe work procedure; * increase in site safety audits; and, * focusing on monthly safety meetings on employees' attitudinal change towards safety.
Agumba and Haupt (2014)	Examined the validity and reliability of H&S practices and respondents demographic attributes perception on these H&S practices implementation of South African construction SMEs.	It was established that management commitment & involvement, employee involvement & empowerment, project supervision, project H&S planning & communication and H&S resources & training are valid health and safety practices for improving health & safety performance of construction SMEs.

From Table 1, the health and safety management practices capable of improving the health and safety performance of construction contractors can be summarized under five core practices. These are company's commitment, health and safety planning, workers' involvement, education and training and communication.

It was revealed from the study's background and reviews of literature that health and safety researches in developing countries, especially in Nigeria, have not properly addressed the issue of safety practices of construction contractors in relation to the provision of enabling environment to promote good health and safety management practices for improving health and safety performance. In order to develop a good background to bridge this gap, this study gave a critical appraisal of health and safety practices of the Nigerian construction SMEs which specifically identified important practices which are capable of enhancing safety performance of construction SMEs.

RESEARCH METHOD

The study involved the conduct of questionnaire survey comprising of both closed and open-ended questions which were used to examine the significance of health and safety practices of construction SMEs. The population of the study comprise of contractors registered with Federation of Construction Industry (FOCI, Nigeria), which is 84. These contractors are majorly indigenous contractors. Questionnaires were administered to 55 firms adjudged to be SMEs, out of which 40 were completed and returned (response rate of 72.7%). All the 40 questionnaires were found to be suitable for analysis.

Analysis of data was carried out using relative importance index (RII). This was used to rank the identified health and safety management practices adopted by the construction SMEs. The analysis of data was carried out with the aid of Microsoft Excel Software Package. The decision rule used for the analysis using RII is given in Table 2.

Table 2: Decision Rule for Ranking Collected Data

RII	Decision/Remark
0.8 to 1.0	Most Important
0.6 to 0.8	Important
0.4 to 0.6	Undecided
0.2 to 0.4	Less Important
0.0 to 0.2	Least Important

DATA ANALYSIS, PRESENTATION AND DISCUSSION OF RESULTS

The review of literature revealed that 58 health and safety management practices are adopted by construction SMEs to control the risks of hazards on construction sites. The results of the RII showing the important health and safety management practices are presented in Table 3.

Table 3 revealed 46 important health and safety (H&S) practices under 5 major or core H&S categories: *company's commitment, workers' consultation and participation, H&S communication, H&S planning and H&S education and training*. Twelve (12) important H&S practices were identified under company's commitment with RII ranging between 0.92 and 0.71. The practices here range from *provision of first aid box* which is the highest ranked (0.92) to *implementation of employee drug testing* which is the least ranked (0.71). Four (4) important H&S practices were identified under workers' consultation and participation. These range between *rewarding workers who demonstrate exemplary safe behaviour on site* with RII of 0.81 and *consulting trade union representatives on health and safety matters* with RII of 0.78.

H&S communication comprises of 8 (eight) important H&S practices ranging from using health and safety posters and other signs to give safety education (RII = 0.88) to communicating health and safety through company newsletter (RII = 0.70). The twelve (12) important H&S practices discovered under H&S planning range between identifying hazards on sites before work commences (RII = 0.90) and obtaining a labour certificate for every contract (0.70). The H&S education and training has 6 (six) important H&S practices ranging between organizing health and safety training and retraining for supervisors and/or senior management (RII = 0.88) and organizing alcohol- and substance-abuse programme (RII = 0.74).

The finding of this study agrees with the studies of Kheni (2008), Idoro (2011), Agwu (2012(a) and (b)) and Agumba and Haupt (2014). Kheni (2008) used these health and safety practices to enhance the development of a framework for improving the health and safety performance of construction SMEs in Ghanaian construction industry. Idoro (2011) adopted some of these health and safety practices to enhance hazard management plan in the use of plant and equipment by construction contractors in the Nigerian construction industry. Agwu (2012(a)) used most of these health and safety practices to study the implications of integrating safety and social responsibility initiatives at the organizational level in the Nigerian construction industry. Agwu (2012(b)) identified most of these health and safety practices as organizational cultural factors capable of improving employees' safety performance at work. Agumba and Haupt (2014) identified most of these core health and safety practices as leading indicators which can be used to identify incidences beforehand and put preventive measures in place. All these studies support the result of this study that the five core health and safety practices are important and capable of improving health and safety performance of contractors.

Table 3. Ranking of Health and Safety Practices

S/NO	COMPANY'S COMMITMENT	RII	RANK
1	Provision of first aid box	0.92	1st
2	Provision of personal protective equipment	0.88	2nd
3	Keeping of safety record keeping and follow-ups	0.88	3rd
4	Provision of procedures for investigating accidents and near-misses	0.87	4th
5	Existence of formal health and safety policy	0.86	5th
6	Provision of adequate work space and neat environment	0.84	6th
7	Having a designated safety personnel	0.84	7th
8	Having fire protection programme	0.84	7th
9	Provision of cloak and toilet	0.82	9th
10	Provision of procedures for reporting accidents	0.79	10th
11	Using outside health and safety consultants	0.78	11th
12	Existence of minimization policy for cost of ill-health and injury	0.83	12th
13	Provision of drinking water on site	0.76	13th
14	Provision of canteen service on site	0.74	14th
15	Use of ISO 26000 to identify social responsibilities of employees	0.74	14th
16	Implementing employee drug testing	0.71	16th
	HEALTH AND SAFETY COMMUNICATION	RII	Rank
17	Using health and safety posters and other signs to give safety education	0.88	1st
18	Using verbal communication with operatives during site tours.	0.88	1st
19	Communicating safety value to corporate stakeholders and use of two-way safety communication	0.84	3rd
20	Discussing health and safety during site meetings	0.83	4th
21	Communicating health and safety performance to employees	0.83	4th
22	Focusing your monthly safety meetings on employees' attitudinal change towards safety	0.83	4th
23	Networking with other companies/institutions	0.78	7th
24	Communicating health and safety through company newsletter	0.70	8th
	HEALTH AND SAFETY PLANNING	RII	Rank
25	Identifying hazards on sites before work commences	0.90	1st
26	Providing job hazard analysis	0.90	1st
27	Documenting risk assessments	0.88	3rd
28	Carrying out post-accident investigation	0.87	4th
29	Price health and safety in preliminaries	0.85	5th
30	Carrying out safety pre-task planning	0.85	5th
31	Documenting method statements	0.84	7th
32	Exercising disciplinary measures to correct wrong behaviours to H&S	0.83	8th
33	Providing emergency response plan	0.81	9th
34	Providing insurance cover for sites and Employer-paid insurance plan	0.77	10th
35	Ensuring adequate welfare provisions on site	0.74	11th
36	Obtaining a labour certificate for every contract	0.70	12th
	WORKERS' CONSULTATION AND PARTICIPATION	RII	Rank
37	Rewarding workers who demonstrate exemplary safe behaviour on site	0.84	1st
38	Asking workers for their ideas on health and safety matters	0.80	2nd
39	Involving workers to participate in hazard identification on sites	0.80	2nd
40	Consulting trade union representatives on health and safety matters	0.78	4th
	HEALTH AND SAFETY EDUCATION AND TRAINING	RII	Rank
41	Organizing health and safety training and retraining for supervisors and/or senior management	0.88	1st
42	Organizing orientation on safety for new workers	0.88	1st
43	Organizing health and safety training of operatives - first aid, manual lifting etc	0.88	1st
44	Organizing site inductions for operatives	0.86	4th
45	Organizing toolbox talks	0.74	5th
46	Organizing alcohol- and substance-abuse programme	0.74	5th

CONCLUSIONS

The study identified, from literature review, 58 health and safety management practices adopted by construction SMEs in controlling the risks of hazards on construction sites. Out of these 58 practices, 46 were established by the study reported in this paper to be important. These 46 important health and safety management practices were categorized under five core practices: company commitment, worker consultation and participation, health and safety communication, health and safety planning, and education and training.

Twelve important practices were identified under company's commitment ranging between provision of first aid box and implementation of employee drug testing. Four important health and safety practices were identified under workers' consultation and participation ranging between rewarding workers who demonstrate exemplary safe behaviour on site and consulting trade union representatives on health and safety matters. Health and safety communication comprises of 8 health and safety practices ranging from using health and safety posters and other signs to give safety education to communicating health and safety through company newsletter. Twelve important health and safety practices were discovered under health and safety planning range between identifying hazards on sites before work commences and obtaining a labour certificate for every contract. Health and safety education and training has 6 health and safety practices ranging between organizing health and safety training and retraining for supervisors and/or senior management and organizing alcohol- and substance-abuse programme.

It can be concluded that all the 46 health and safety practices are important and capable of improving the health and safety performance of Nigerian construction SMEs. In the light of these, the construction SMEs need to be aware of these important health and safety management practices which can greatly control or minimize the risks of accidents and hazards to workers and visitors on construction sites. Construction SMEs are therefore advised to always make provision for first aid box, mobile clinic and Personal Protective Equipments and ensure regular usage. In addition, there is need for regular employees' awareness and training on good safety conduct and the use of illegal substances and drugs to enhance good safety performance.

The outcome of this research therefore forms a good background for the larger study. This is because it forms a good basis for the development of a framework for improving the safety performance of construction SMEs.

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