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ASSESSMENT OF LEVEL OF COMPLIANCE WITH HEALTH AND SAFETY REGULATIONS ON NIGERIAN CONSTRUCTION SITES

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ABSTRACT

Compliance with health and safety regulations (H.S.R) on construction site is fundamental to employees' safe delivery of work or assignment. The effectiveness of H.S.R on construction site leads to safe working condition which will increase efficiency and productivity. The study investigates levels of compliance of contractors, employees and clients with health and safety regulations on construction sites and the factors affecting compliance with H.S.R in Northern Nigeria. The study uses physical observation on site with check list and questionnaire to generate data used. The analysis of data was done by the use of SPSS spread sheet to obtain mean scores. The result indicated that employers/contractors' level of compliance was little, while employees comply averagely and clients show a high compliance level. Lack of contract provision to support compliance with H.S.R., bribery and corruptions, lack of enforcement, management negligent attitude and lack of knowledge on H.S. policy implementation were identified and ranked by the respondents as the 5 top most critical factors affecting compliance with H.S.R on construction site in Northern Nigeria. The study concluded that compliance level of employers/contractors with H.S.R on construction sites in Northern Nigeria was low. It is recommended that provision for H.S. in contract document be made and severe penalties be attached to non compliance with H.S.R on construction site.

Keywords: Compliance, Health and Safety, Employers, Employees, Regulation

INTRODUCTION

The health and safety (H.S.) of the work force of every organization is critical to her success, as such organization cannot achieve its objectives maximally in an unsafe working conditions which jeopardies the ability, effectiveness and efficiency of discharging their duties. Site accident is on the increase on Nigerian construction sites and this disrupts work progress and site activities in general, leading to delay and loss of input man hours which affects productivity, overall project cost and time performance. In 'an'

attempt to reduce site accident and improve workings' conditions on construction site, legislation and code of practice on health and safety were provided to guide the operations, well-being of the the employees and other activities of the construction firms (Isah, 2019; Idoro, 2011). Despite these, accident rate is still on the increase on Nigerian construction sites as compliance with these regulations becomes a major problem (Arum et al, 2019)

In most developing nations of Africa, particularly in Nigeria, health and safety consideration in construction project delivery is not given priority, and employment of safety measures during construction is considered as a burden (Mohammed, 2014).



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Health, safety and environment are always neglected on construction site and rarely managed (Muiruri & Mulinga, 2014). Health and safety is often discussed in site management meetings as a priority but in practical reality low or no priority given to health and safety in their budget and time (Muiruri & Mulinga, 2014).

Construction workers in Nigeria and other developing nations of Africa suffer from simple or complex injuries leading to fatalities almost every year due to lack of proper health and safety facilities like personal protective equipment (PPE) and refusal or ignorance of the employees to make use of the available health and safety equipment (Isah, 2019). Majority of the accidents on construction site in Nigeria are always traced to unsafe act by the employees and unsafe working conditions provided by the employers/contractors (Isah, 2019). These have directly or indirectly affected the performance on construction projects in Nigeria in terms of health and safety, far below expectation (Waziri et al, 2019).

The main reason for this low performance is that most construction firms in Nigeria do not consider health and safety on construction site to be an important matter. They treat the case with levity, since there is no proper structure put in place for enforcement and strict compliance with health and safety provisions and no severe penalty is assigned to defaulters (Idoro, 2011; Makinde, 2014). The construction workers are always at the mercy of the contractors who normally select the type of health and safety facilities they can afford to provide on construction site. There is little or no check and balances on the types and quality of health and safety facilities to be provided by contractors as stipulated in the provision of the law (Umeokafor et al, 2014). This made the case of compliance and

enforcement of health and safety on construction site in Nigeria to be worst.

However, it is imperative to provide and maintain high quality health and safety standard on construction site. This will go a long way to reduce accidents rate, as the workers will work with free mind, care and caution, consequently increase effectiveness, efficiency and productivity. This paper focuses on assessing the level of compliance with health and safety regulations on construction sites in Northern Nigeria by Employers/Contractors Employees, and Clients, with a view to visit the selected sites, observe the available H.S. facilities, and determine the factors militating against compliance with the provision of law on health and safety measures on construction site. Effectiveness of health and safety regulations in work place is fundamental to employee's safe delivery of work or assignment in work place (Waziri, et al, 2015). However, enforcement of health and safety regulations for total and effective compliance on construction sites in Nigeria remains a problem, probably due to lack of adequate resources available for the enforcement agencies (Ogbonna et al, 2016). Also, because majority of the indigenous contractors are small and medium enterprises operating within their markets are illiterate "money bags" who have no value for laws and order are the majority (Makinde, 2014).

In Nigeria and other developing nations of the world, code of practice and legislations on health and safety on construction site were provided to maintain safe work environment (Ogbonna et al., 2016). For instance, the international labour organization (ILO, 1992) code of practice on health and safety on construction sites provides guidance in the implementation of the health and safety practice on construction sites for workers. Section 3.1.1 of this code stated that the

employer should ensure that all work places are safe and without risk of injury to the safety and health of workers. This section also stated that employer should protect persons present at or in the vicinity of construction site from all risk which may arise from such site.

Similarly, Act Building and Construction Industry (2007) under the occupational health and safety act stated clearly the responsibility of the employers and the employees on construction sites. Section 3.1.2 of the code stipulated that all opening and other areas likely to pose danger to workers should be clearly indicated. Section 2.6 of the code stipulates general duties of designers, architects, and Engineers. Section 2.6.1 requires that those concern with designing and planning of a construction project should receive training in health and safety and should integrate the health and safety of the construction workers into the design and planning process in accordance with the national laws, regulations and practice. Section 2.6.2 stated that the designers and other professionals should not include anything in the design which would necessitate the use of dangerous structural or other procedures or hazardous materials which could be avoided by design, modifications or by substitute materials. Section 2.6.3 Stress that designers should take into account the safety problems associated with subsequent maintenance and upkeep where maintenance and upkeep would involve special hazard.

In Nigeria, the legislation on health and safety in building construction industry include: Labour Act of 1974 modified to labour Acts 1990, and updated to labour Act cap L1, Laws of the Federation of Nigeria (LFN), 2004; Factories Act of 1987 which became effective in 1990 and updated to factories Act cap F1; LFN, 2004; the workman compensation act of

1987 which became effective in 1990 and later modified to workman compensation act cap N6, LFN, 2004. This was repeal to employee's compensation Act No 13, 2010 of LFN. The insurance Act of 2003 and the labour safety, health and welfare bill of 2012. The National Building Code of 2006 which was approved by executive council 2006 is yet to be enacted and enforced. One of the biggest problem with these Acts is that they are adopted from either UK or America and do not sufficiently capture the situation of Nigerian construction industry and their operations (Idoro, 2011). This made total compliance difficult as some important activities and operations of the industry will not be covered. These lapses gave entrance to non-compliance by Contractors, Employees and Clients since the enforcement agencies have no proper structure that clearly defines the boundries of the responsibilities of the Contractors, Employees and Clients.

MATERIALS AND METHODS

Research Methodology

Research methodology is a science of how to conduct studies (Bishop & Herron, in Adeagbo et al, 2019). A research design is a strategy or plan on how data for research will be collected. In this study mixed method of research design was adopted. The application of the mixed method in this research enable the researcher to obtain quality information required for the objectives of the study, since the short comings of single method will be complemented by mixed method.

The target population of study includes ontractors, project managers Engineeres/Builders and craftsmen on construction site. The study uses purposive sampling technique. This technique becomes most appropriate for this study, as the participants were selected among stake holders in construction project. A total of 25



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construction sites were purposively selected from 4 states in Northern Nigeria and Abuja, the Federal Capital of Nigeria. The states include: BAUCHI STATE, KADUNA STATE, NIGER STATE, SOKOTO STATE and ABUJA the FEDERAL CAPITAL. The data used for the study was collected from primary source using structured questionnaire designed on scale of 1-5 with (1= no compliance; 2= little compliance; 3 = average compliance; 4 = high compliance; 5 = very high compliance) and physical observation on available health and safety facilities on construction site. As for the secondary sources, related literature on health and safety on construction site were used. The physical observation uses a check list prepared based on information from National Policy on Occupational, safety and Health (OSH) regulations and safety handbook (2007) and information on safety Acts/Law from literature. The check list act as a minimum bench mark on provision of health and safety items by contractors and clients, and cooperation and behaviours of workers (work attitude) on construction site.

The structured questionnaire was used to obtain information on the work attitudes of the employees and the administrative responsibilities of the clients as well as reasons why contractors/employers failed to comply completely with H.S. regulations. The researchers personally went to all the selected sites, checking the items provided for health and safety by the contractors in line with occupational health and safety regulations (OHS). The structured questionnaires were personally distributed by the researchers alongside with physical observation. A total of 280 questionnaires were distributed across the 25 selected construction sites in Northern Nigeria and 238 were dully completed and returned representing 85% response rate.

Analysis of the data was done using mean item scores with the aid of SPSS. To determine the level of compliance, Morenikeji (2006) mean scores range were used as follows:

Mean scores range:

1.0 – 1.49	=	No Compliance
1.50 – 2.49	=	Little Compliance
2.50 – 3.49	=	Average Compliance
3.50 – 4.49	=	High Compliance
> 4.50	=	Very High Compliance.

RESULTS

This section present and discusse the results on the two objectives of the study

The level of compliance with H.S. regulations by Employers/Contractors, Employees, and Clients and factors militating against compliance with H.S. regulations on construction sites are shown in Tables 1 to 4 and Table 5 respectively.

Table 1 to 4 show the results of the levels of compliance with health and safety regulations on construction sites across Northern Nigeria by Contractors/employers, Employees and Clients. The level of compliance with each facility or item was ranked. The overall levels of compliance by Contractors /Employers, Employees, and Clients were determined using mean of means (see Table 4).

Table 1: Level of Compliance with Occupational Health and Safety Regulation on Construction Site by Contractors (C).

Codes	Occupational Health and Safety Regulations.	Mean scores	Ranking	Decision
C ₁	Provide plant and equipment that is safe for use on site	2.364	6 th	Little compliance
C ₂	Adequate and timely provision of personal protective equipment (PPE) appropriate for the job.	2.362	7 th	Little compliance
C ₃	Provision of adequate informations on hazard	2.356	8 th	Little compliance
C ₄	Provision of safety training for workers	1.394	10 th	No compliance.
C ₅	Instruction and supervision to help the workers to do work safely	4.081	1 st	High compliance
C ₆	Provision of first aid	3.361	2 nd	Average compliance
C ₇	Proper display of safety caution signs	2.243	9 th	Little compliance
C ₈	Provision of qualified occupational health and safety personal on site	1.354	11 th	No compliance
C ₉	Provision of emergency exit	2.760	4 th	Average compliance
C ₁₀	Availability and adequacy of clinical services	1.309	13 th	No compliance.
C ₁₁	Regular Safety audit	1.322	12 th	No compliance
C ₁₂	Arrange workplace to ensure safety and absence of risk to health, in use, handling, storage and transportation of articles and substance.	2.413	5 th	Average compliance
C ₁₃	Undertake research to keep abreast of new scientific and technical knowledge necessary to comply with safety and health regulation	1.288	14 th	No compliance
C ₁₄	Provide compensation for work related disabilities of works and rehabilitation of such	3.120	3 rd	Average compliance

Sub-heading

Table 1 shows the result of level of compliance with health and safety regulations on construction site, using a check list prepared based on Natonal policy on occupational health and safety (OHS) regulations, safety hand book (2007), and safety laws/Acts. The result indicated that items C₄, C₈, C₁₀, C₁₁, and C₁₂, have mean scores lower than 1.50. Going by the adopted mean score range of Morenikeji (2006), there is no compliance with health and safety regulations (H.S.R) on these items. However,

items C₁, C₂, C₃, and C₇, have mean scores between 1.5 to 2.4, showing that in these items there were little compliance to health and safety regulations by contractors. Also, C₆, C₉, C₁₂, and C₁₄ have mean scores of between 2.5 and 3.4 impling that there was average compliance with H.S.R by contractors on these items. However, item C₅ was with a difference, as it has a mean score of 4.088. This value indicates that there was high compliance with H.S.R. on this item by contractors. The overall assessment of contractors' compliance with H.S.R. on items

presented in Table 1 show a mean score of 2.266, implying that there was a little compliance with H.S.R. by the contactors on the selected construction sites in Northern Nigeria. This finding was supported by Isah, (2019) who investigated health and safety issues on Nigerian construction site and concluded that there no adequate provision of PPE in all sites visited, no training programmes for both the new and the old employees on health and safety and only a few have health and safety officers on site. The findings are also in line with Waziri et al, (2015) who investigated heal and safety practices in some selected construction sites in Nigeria and concluded that health and safety practices on Nigerian construction sites were poor and skeletal

Table 2 shows result of analysis of level of compliance with health and safety regulations

on construction sites by Employees in Northern Nigeria. The result indicated that the of compliance of the Employees with items E7 was little with mean score of 2.293 while that of items E2, E3, E6 and E9 was average. On the contrary, the compliance level with items E4, and E8 was high with mean scores of 3.514 and 4.234. On the other hand, there was no compliance for items E1 and E5 by the Employees. This result is in line with Adeagbo et al (2019). The authors studied safety practices on building construction site in Jos, Nigeria and discovered that the Employees are not cooperating with their contractors in willingness to adapt to health and safety practices on site, and keeping good safety records. The findings of this study were also supported by Muiruri and Mulinga, (2014). In all, the overall level of compliance to health and safety regulations was average with a mean score of 2.621.

Table 2: Level of compliance with Occupational Health and Safety Regulations on construction site by Employees (E)

Codes	Occupational Health and Safety regulations.	Mean scores	Ranking	Decision
E1	Keep a good safety record which will help the employer to win more job	1.280	8 th	No compliance
E2	Must cooperate with employer and government and follow all health and safety instruction and regulations	2.641	6 th	Average compliance
E3	Must wear/use all necessary personal protective equipment (PPE)	2.811	4 th	Average compliance
E4	Must not willfully or recklessly misuse or interfere with anything in the interest of safety and health.	3.514	2 nd	High compliance
E5	Raise safety standard in the industry.	1.129	9 th	No compliance
E6	Work safely to create sense of safety and security in doing their work	2.951	3 rd	Average compliance
E7	Keep job running smoothly without accident trauma and disruption.	2.293	7 th	Little compliance.
E8	Take all practical steps to care for his/her safety and health and avoid risking health and safety of co-workers and general public	4.234	1 st	High compliance

Table 3: Level of compliance with Occupational Health and Safety Regulations on construction site by Clients.

Code	Occupational Health and Safety Regulation	Mean	Ranking	Decision
K1	Inform all contractors on the project special risk to safety and health which client should be aware.	4.562	1 st	Very high compliance
K2	Co-ordinate all activities relating to health and Safety on their construction projects.	3.314	2 nd	Average compliance

Table 3 shows the result of level of compliance to health and safety regulations on construction site by clients in Northern Nigeria. From the result it was obvious that client’s compliance to item C1 was very high with a mean score of 4.562 while that of C2 was average with a mean score of 3.314. This result implies that the clients informed contractors on projects special risks to safety and health which clients should be aware and ensure that contractors comply to it by coordinating activities relating to health and

safety on construction projects. On the whole the clients overall mean on level of compliance to health and safety regulation on construction site in Northern Nigeria was 3.938 indicating that the level of compliance to health and safety by client was high. This finding is contrary to Mustapha et al, (2016) who submitted that clients did not cooperate in compliance with health and safety on construction site in Ghana

Table 4: Summary of level of compliance with all Health and Safety regulations on construction site.

	Overall Mean	Decision
Contractors	2.266	Little compliance
Employees	2.621	Average compliance
Clients	3.938	High compliance

Table 5 presents the result of analysis of factors affecting compliance with health and safety regulations (H.S.R.) by Contractors, Employees, and Clients. Fifteen factors were presented from relevant literature on H.S. on construction site. The respondents submitted that all the factors presented significantly affect their compliance with H.S.R. on construction site. The respondents from the 25 selected construction sites across Northern Nigeria rated lack of contract provision to support compliance with H.S.R. on site as the most serious factor militating against compliance with H.S.R. on site with a mean score of 4.83.

This factor was closely followed by bribery and corruption, lack/weak enforcement by the authorized government agencies, management negligent attitude and lack of knowledge on H.S policy implementation. These factors were considered as the top 4 critical factors militating against compliance with H.S.R on construction sites in Northern Nigeria with mean scores of respectively. The other 10 factors also have significant effect on Contractors and Employees compliance with H.S.R. on site, as non of these factors has mean value less than 3.28 which is within averagely affected and strongly affected.

Table 5: Factors affecting compliance with Health and Safety Regulations (H.S.R.) on Nigerian construction sites.

FACTORS	AVS	AS	AA	AL	NA	Mean
1.Lack of contract provision to support compliance with Health and Safety regulations.	189	36	9	0	4	4.83
2.Bribry and curruptions	88	94	0	16	39	4.79
3.Weak or Lack of proper enforcement by govt agencies responsible for enforcement of H.S.R.	156	44	11	7	11	4.76
4.Negligent attitude of management						4.69
5. Lack of knowledge on health and safety policy implementation						4.57
6. Lack of training of employees on health and safety regulations.						4.32
7.lack of proper funding for effective enforcement.	108	98	0	6	26	4.28
8.Health and safety regulations being used for political victimization reasons	87	91	0	5	55	4.05
9.No proper structure that clearly defines the responsibilities and boundries of the contractors, Employees, and the Clients on health and safety provisions on construction site.	66	93	32	2	30	3.92
10.The believe that health and safety is An act of GOD.	22	141	54	16	59	3.60
11. Lack of safety culture.	33	98	17	20	70	3.57
12. Lack of basic resources by companies.	13	115	29	23	58	3.44
13. Lack of severe penalties for non compliance.	8	96	48	33	53	3.41
14. Un-availability of health and safety policy.	0	64	68	22	84	3.37
15. Cutting down of cost.	2	45	86	12	93	3.28

The findings on factors affecting level of compliance of Contractors and Employees with H.S.R.in this study is in line with that of Windapo and Oladapo, (2012). The authors investigated the determinants of construction firm’s compliance with H.S. and submitted that management negligent attitude, lack of knowledge on H.S, lack of training, cutting down of cost and non- severe penalties for non compliance with H.S.R. on construction sites were the major factors affecting compliance with H.S.R.in South African construction firms. Similarly, Mustapha et al.

(2016) reported 10 factors affecting compliance with H.S.R.in Ghana small and medium construction firms. The authors listed unavailability of H.S. policies, limited knowledge of O.H.S, inability to employ H.S. personnel,and lack of training as the first five most significant factors affecting compliance with H.S.R.in small and meium construction firms in Ghana. Arewa and Farrel, (2012) submitted that lack of awareness of legislative requirement on HS, inadequate knowledge on how to comply with H.S obligations and lack of fund were among the

major factors affecting compliance with H.S.R in small and medium construction firms in U.K. From the discussion so far, it is obvious that the factors affecting compliance with H.S.R. around the globe are common. It is therefore not out of place to adopt workable regulations in the advanced countries for the developing countries with peculiar cases as submitted by some literatures, hence modification of such regulations to suit the country concern is allowed.

CONCLUSION

Findings from the study reveal the various levels of compliance with H.S.R. on the selected construction sites by Contractors, Employees and Clients in Northern Nigeria. The Contractors on the average show a little compliance with H.S.R. on the selected construction sites, while the Employees complied averagely with H.S.R. on site. The client showed a high compliance with H.S.R. on site. The reasons for high rate of non compliance by employers/contractors and average non compliance by employees were majorly attributed to lack of contract provision to support compliance with H.S, bribery and corruption, weak enforcement by the authorized government agencies, management negligent attitude, lack of knowledge on H.S. implementation policies and lack of training. The study recommended provision for H.S. in contract documents (in B.O.Q) and severe penalties for non compliance with H.S.R. on construction site. This will not only make compliance compulsory but it will as well create a great fear in the individuals involved, as the defaulters will be severely punished.

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