

Stakeholders' Perception on Cost Implication of Health and Safety Measures in Construction Projects in Minna, Nigeria

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Abstract- Health and safety (H&S) measures are crucial in mitigating risks and ensuring the well-being of workers on construction sites. However, implementing these measures often incurs significant costs, which stakeholders may perceive differently. This paper aims to evaluate the major factors influencing the cost of H&S measures in construction projects in Nigeria from the perspective of various stakeholders, including contractors, project managers, and regulatory bodies. A quantitative methods approach was adopted, to gather data from industry professionals, data collected were analyzed using statistical products for services solutions (SPSS), in order to attain the objective of the study as discussed, mean items score (MIS) was used, descriptive statistics was used to show the frequencies and mean of reaction to questions. The findings indicate that factors such as lack of training and re-training of the staff, providing safety environment, trained safety representative, policy and regulatory compliance, Safety equipment costs, and site-specific risks significantly influence the cost of implementing H&S measures. Recommendations for optimizing safety standards are provided, along with suggestions for future research.

Keywords: *Cost implication, Construction project, Health and Safety, Nigeria, and Stakeholders*

I. INTRODUCTION

Health and safety (H&S) in the construction industry are critical for preventing accidents, injuries, and fatalities. In Nigeria, the construction sector is characterized by high risks due to inadequate safety practices, poor regulatory enforcement, and limited awareness of H&S protocols (Awodele and Ayoola, 2020). The cost implications of H&S measures can be substantial, often leading to resistance from stakeholders who perceive them as an added financial burden (Oladapo and Windapo, 2021). However, the long-term benefits of implementing effective H&S strategies, including reduced accidents, lower

insurance costs, and enhanced productivity cannot be overlooked (Idoro, 2011).

This study aims to evaluate the factors influencing the cost of implementing H&S measures on construction sites in Minna, Nigeria, considering the perceptions of various stakeholders. Understanding these perceptions is essential for developing cost-effective H&S strategies that align with stakeholders' interests while ensuring a safe working environment.

II. LITERATURE REVIEW

Health and Safety in construction are governed by a combination of local regulations and international standards, aimed at minimizing risks and ensuring a safe working environment (Anumba *et al.*, 2006). However, Enshassi *et al.* (2008) affirm that, the cost of implementing these measures often varies significantly depending on several factors, such as project size, location, and complexity. Sawacha *et al.* (1999) identify the following has factors affecting safety performance on construction sites, lack of training and retraining of the staff, Adequate knowledge of handling safety equipment on site, Inadequate implementation of the policy by the management, The economic factors such as payment of Hazard, and Behaviours of the workers on site toward safety. In addition, Sawacha *et al.* (1999), added that, accidents occurred on site due to lack of knowledge, training or supervision, lacks of means to carry out a task safely, errors in judgement, carelessness, laziness or total irresponsibility. However, the identification of the fewest number of elements causing poor construction safety performance is of strategic importance for the construction stakeholders in Minna, Nigeria. This is presented in Table 1.0

Table 1.0 Elements affecting construction safety performance in Minna, Nigeria

No.	Elements affecting construction safety performance	Relevant literature
1	insufficient training	Ng, Cheng and Skitmore (2005)
2	careless operations	Kadiri <i>et al.</i> (2014)
3	insufficient skilled labour	Abdul-Rashid, Bassoni and Bawazeer (2007)
4	Policy implementation by management	Sawacha <i>et al</i> (1999)
5	Workers attitude	Sawacha <i>et al</i> (1999)

Source: Researchers Compilation (2026)

Furthermore, Hinze, Hallowell and Baud (2013) in Serder, *et al* (2017) examined 22 safety practices carried out on construction sites for safety performance advancement. The results derived from data analysis divulge that the following safety activities distinct safety performance: tracking of first-aid injuries, worker observation programs, active owner involvement in safety, site-specific safety training for managers, worker safety perception surveys, supervisor involvement in policy making, adequate safety staffing, and other practices.

Health And Safety Measures in Construction Site

Various kinds of construction sites are prone to different hazard due to behaviours of the workers on site toward safety. Health and safety practices on site involves economic and humanitarian concerned and therefore requires proper control and management because construction managers are of the belief that engaging health and safety practices on site increases the cost and reduces profit of the construction project, but according to research, occupational injury, illness and fatality currently accounts for significant losses, with over 3% GDP losses annually due to these causes

(Hughes and Ferret, 2008). According to Loewenson, (1998) investments in occupational health and safety can bring gains in productivity and market access. Hughes and Ferret, (2008) accept that the protection of bodies and minds of people from illness resulting from materials, process or proceedings used in the workplace refers to health, whereas protection of people from physical injury is safety.

Regulatory Compliance and Policy

According to Okoye and Okolie, (2014) compliance with H&S regulations can lead to additional costs, including fees for safety inspections, certifications, and penalties for non-compliance. In Nigeria, the enforcement of H&S regulations remains a challenge due to insufficient monitoring and lack of resources (Windapo and Oladapo, 2012). Regulatory compliance plays a vital role in shaping the H&S landscape in construction, as it enforces standards that must be adhered to by all industry participants. In Nigeria, the regulatory framework for H&S in construction is influenced by a combination of national laws, such as the Factories Act of 1987, and international standards set by organization (ILO) and the World Health Organization (WHO) (Amusan *et al.*, 2021). However, compliance with these regulations is often inconsistent due to inadequate enforcement, corruption, and a lack of resources and training (Akomolafe *et al.*, 2022).

One of the significant challenges faced by the Nigerian construction industry is the lack of effective enforcement of existing H&S regulations. Many construction companies, particularly small and medium-sized enterprises (SMEs), view regulatory compliance as an additional cost rather than a necessity, leading to poor adherence to safety standards (Eze *et al.*, 2023). However, the recent policy reforms by the Nigerian government introducing more stringent requirements for obtaining construction permits, including mandatory safety audits and risk assessments (Adedokun *et al.*, 2022).

Training and Awareness

Providing adequate training for workers on safety protocols is essential but can be costly. However, Haupt and Smallwood, (2003) opined that, the effectiveness of H&S measures largely depends on the

level of training and awareness among workers. In Minna, the lack skilled labour and inadequate training programs further escalate these costs (Okeola and Salami, 2012).

Cost of Safety Equipment

Gibb *et al.* (2014) affirmed that, the cost of personal protective equipment (PPE) and other safety devices is a significant factor influencing the overall cost of H&S measures. In developing countries like Nigeria, Idoro, (2011) also, affirm that, the high cost of importing safety equipment often discourages compliance.

Site-Specific Risks

Construction work is a hazardous land-based work. Some project site works include: maintaining infrastructures, repairs, building houses and roads. This work includes a lot of dangerous task and conditions such as working at high, power tools and equipment, dust, and excavation. Over the past few years, construction work has been increasing in developing and undeveloped countries of which Nigeria is not excluded. However, the unique characteristics of each construction site, such as its location, size, and the complexity of the project, can also affect the cost of H&S measures (Kartam *et al.*, 2000). Adeleke *et al.* (2017) in his own view, affirm that, projects in remote areas or regions with challenging terrains may require additional safety precautions, leading to higher costs.

III. METHODOLOGY

Participants

The participants for the study include active construction stakeholders in construction project sites. A quantitative methods approach was adopted, to gather data from industry professionals, however, 40 questionnaires were administered randomly among the participant through well-structured questionnaire, the data collected were analyzed using statistical products for services solutions (SPSS), in order to attain the objective of the study as discussed, mean items score (MIS) was used, descriptive statistics was used to show the frequencies and mean of reaction to questions.

Data Analysis

Analysis of the Respondent's profile: forty (40) numbers of questionnaires was administered during the course of the study. From the questionnaire received, it shows a response rate of 18 quantity surveyor (45%), 4 Architecture (10%), 3 Estate Survey (7.5%), 10 Builder (25%), 5 Civil engineer (12.5%).

Years of company's experience

Table 2.0 shows that 60% of the company had more than 20 years' experience, 10% has between 10-15 years, 25% has between 5-10 years' experience, and 5% of the remaining company has less than 5 years' experience.

Table 2.0 Company's experience

Rank	Company's	Occurrence	Percentage
1	A More than 20 years	24	60
3	B 10-15 years	4	10
2	C 5-10 years	10	25
4	D Less than 5 years	2	5
100	Total	40	

Source: Field Survey (2026).

Sector of the company

Table 3.0 shows that 7.5% of the respondents worked with the private sector, 70% worked with the public sector while the remaining 22.5% worked with both.

Table 3.0 Sector of the Company

Company sector	Occurrence	Percentage	Rank
Private	10	25	3
Public	21	52.5	1
Both	9	22.5	2
Total	40	100	

Source: Field Survey (2026).

Factors Influencing HS Cost on Construction Sites
 Table 4.0 shows the major factors influencing the cost of HS in construction site.

Table 4.0 Factors influencing the cost of H&S in Construction Sites

S/N	Parameter(s)	MIS	RANK	DECISION
1	Lack of training and retraining of the staff	3.750	1 st	Often
2	Providing safety environment	3.700	2 nd	Often
3	Appointing a trained safety representative on site	3.675	3 rd	Often
4	Inadequate implementation of the policy by the management	3.500	4 th	Often
5	The economic factors such as payment of Hazard	3.425	5 th	Moderately often

6	Adequate knowledge of handling Safety equipment on site	3.350	6 th	Moderately often
7	Behaviours of the workers on site toward Safety	3.350	6 th	Moderately often
8	Management talk on safety	3.325	8 th	Moderately often
9	Provision of safety booklets	3.200	9 th	Moderately often
10	Replacement labour cost	3.125	10 th	Moderately often
11	Provision of safety equipment's	3.000	11 th	Moderately often
<i>AVERAGE</i>		<i>3.400</i>		

Source: Field Survey (2026).

Table 4.0 shows that lack of training and retraining of the staff often increased Health and Safety cost and was ranked 1st with mean item score (MIS) of 3.750, providing safety environment ranked 2nd with MIS of 3.700, appointing a trained safety representative on site ranked 3rd with MIS of 3.675, while inadequate implementation of the policy by the management ranked 4th with MIS of 3.500 and provision of safety equipment's ranked 11th with MIS of 3.000 having the overall MIS of 3.40. These findings are in agreement with Jannadi and Bu-khamsin (2002) in Serder *et al* (2017) that identify those factors as the most significant affecting safety performance on construction site.

Recommendations and Conclusion

Based on the findings, the following recommendations are proposed to optimize the cost of implementing H&S measures in Nigerian construction projects:

- 1) Enhanced Regulatory Framework: Strengthening the regulatory framework and ensuring consistent enforcement of H&S regulations can encourage compliance and reduce the associated costs in the long term.
- 2) Subsidizing Safety Equipment: Introducing subsidies or tax incentives for importing safety equipment can make compliance more affordable for contractors.
- 3) Investing in Training programs: Government and industry stakeholders should invest in training programs to improve safety awareness and reduce accidents on construction sites.
- 4) Adopting a Proactive Approach: Stakeholders should adopt a proactive approach to H&S management, focusing on risk prevention rather than merely compliance.

In conclusion, the cost implications of implementing H&S measures in construction projects in Minna, Nigeria are influenced by various factors, including training and retraining of the staff, providing safety environment, appoint a trained safety personnel, policy and regulatory compliance, safety equipment costs, and site-specific risks. By addressing these factors through strategic planning and collaboration among stakeholders, the construction industry can enhance safety standards while minimizing costs to about 70-72% in the cost of HSE as result of accidents, fatalities or injuries on sites.

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