

# Factors Affecting Implementation of Health and Safety Management Plan on Building Projects in Rivers State, Nigeria

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## Abstract

The problem of non-implementation of health and safety management plan contributes to poor safety, health, and welfare of workers. Professionals in the built environment, including Builders, are saddled with the responsibility of implementing the use of health and safety management plans on building construction sites. The study is aimed at investigating factors affecting the implementation of a health and safety management plan on building projects in Rivers State, to establish measures that will enhance its implementation. The design for this study is a descriptive survey, the population of this study comprises 2800 built environment professionals and the sample size of this study is three hundred and fifty (350) which was derived using the Taro Yamane method. The data for this study was collected and analyzed using a questionnaire and principal component analysis (PCA) respectively. The analysis was aided by the use of Statistical Package for Social Science (SPSS) Software. The study found that the main factors affecting the implementation of Project H and S plan are the absence of monitoring and supervision of Building Projects. Based on this, the study concluded by recommending that effort should be made by construction professionals to properly prepare the H and S management plan, and ensure strict compliance with the provisions of the H and S plan by all participants.

**Key Words:** Health, Safety, Projects, Plan; Implementation, River State, Nigeria.

## 1.0 Introduction

Construction industry when compared with other sectors of the economy, due to the caliber of casualty suffered in the execution of building projects across the globe, has made the construction industry the most dangerous or highly hazardous industry (International Labour Organization, 1999; Smallwood and Haupt, 2002). In Nigeria, Health and Safety regulations at work date back to 1958 when the Factories Act was established to ensure that the systems and structures for the inspection of safety procedures and reporting of accidents are adequately put in place (Dodo, 2014). The Act also defines the nature of punishments for acts of non-compliance. In 1987 the Factory Act was replaced with the Factories Decree No. 16 and Workman's Compensation Decree No. 17 (now Employee's Compensation Act). The aforementioned safety Acts became effective in 1990 (Nigerian Factories Act, 2002).

The Health and Safety Management plan is a document that sets out the key processes and systems for managing health and safety at construction sites. The preparation and use of Health and safety management plans on Building Projects cannot be over-emphasized since it is a major part of production management of building projects. The plan deals with the Health and Safety issues likely to be encountered on a project (Bamisile, 2004). Council of Registered Builders of Nigeria (CORBON), in the year 2000, developed the project health and safety management plan with the following objectives: to secure the health, safety, and welfare of persons who will work or visit the site. According to Douglas and Adeloje (2016); Barikwa (2021); and Aaron; Madume; & Ijah,

(2023) in their study of safety and health challenges in Rivers State, indicates that hazards and injuries abound in Building sites in Rivers State, and efforts at preventing and control them are at best, poor and ineffective level. These are indications of selective or non-implementation of the Health and Safety Management Plan on every building Project in Rivers State. All these necessitated this study. On this note, the study is aimed at investigating factors affecting the implementation of the health and safety management plan on building projects in Rivers State, Nigeria, to establish measures that will enhance its implementation.

## 2.0 Literature Review

Awwad, Souki, and Jabbour (2016) examined construction health and safety practices and challenges in Lebanon, a Middle Eastern developing country. Face-to-face surveys were conducted using structured questionnaires with the construction practitioners, insurance firms, and government agencies. The findings of the study however show the availability of construction labour safety law but a lack of necessary implementation, absence of monitoring, failure of safety awareness, and inadequate support from the participants concerned with the implementation of safety practices on construction sites. This study recommends appropriate awareness within the construction firms which will help curb these challenges.

Nicole, Daniel, Ming, and Sze (2019) in their study show that safety is a lower priority due to cultural differences in organizations, workers' high turnover rates, tight project schedules, obstruction by sub-contractors, and inactive participation in the SMS implementation by the project team members.

Kofi, Barbara, and Seth (2018) in their study carried out in Kumasi, and Greater Accra regions of Ghana. The study used structured questionnaires. The result shows factors that negatively influence the performance of the firms' safety programmes. The identified factors were, among others, 'insufficient communication of safety programmes'; 'lack of workers' self-protection and awareness'; 'contractors ignoring safety, due to the time pressures of the project schedule'; 'poor personal attitudes towards safety', and 'ineffective laws and lack of enforcement'.

Abas, Musa, and Babalola (2019) in their study carried out in Oyo State, Nigeria, using questionnaires. The study identifies some major limitations to the optimum implementation of health and safety standards, which include low level of skilled person power, lack of adequate legislation, insecurity, corruption, bribery, and lack of Government commitment and severity of penalties.

Diugwu, Baba, and Egila (2012), in a study, find that safety attitudes of staff, safety culture, communication, safety knowledge, mentoring, and leadership are major factors influencing health and safety implementation in the construction industry.

Waziri and Kadai (2015) in a study carried out in the six geopolitical zones of Nigeria, via a purposive sampling technique, the results of the study outcome attributed to a low level of awareness among stakeholders, non-existence and/or weak regulations, poor compliance, and poor health and safety plans and programmes.

Agwu and Olele (2014) conducted a study on total safety management (TSM) an approach for improving organizational performance in selected construction firms in Nigeria. The study adopted a questionnaire to seek the opinion of the six most famous construction firms operating in Nigeria, they include: (Julius Berger Nigeria Plc, Setraco Nigeria Ltd, Fourgerolle Nigeria Ltd, Arab-Contractors Nigeria Ltd, Dantata & Sawoe Nigeria Ltd and Costain Nigeria Ltd). The outcome of the research found that the companies adopted the policy of implementing health and safety management plans as part of their organizational policy which reflected on improved safety practices on their construction projects.

Skeppers, and Mbohwa (2016) in the study of improving health and safety in the construction industry that the ultimate benefit for the employee is that they are actively engaged, energized, and confident about their organization's health and safety strategy, changes that are occurring, rather than confused and resigned. Employees know what they are supposed to be doing and how that relates to the tasks to that of their colleagues

### 3.0 Methods

The design for this study is a descriptive survey, the population of this study comprises 2800 Built Environment Professionals, made up of 88 Builders, 850 Architects, 430 Quantity surveyors, and 1432 structural Engineers, who are engaged privately, and under the Rivers State ministry of urban development authority. These figures were gotten from the various professional institutes' attendance register in the study area. The choice of these professionals was informed, based on their knowledge and skill on health and safety, as regards the construction sector. And the sample size of this study is three hundred and fifty (350) which was derived using the Taro Yamane method of calculating sample size. The instrument for primary data collection was the use of a questionnaire, while the Methods of data analysis include simple percentage and principal component analysis (PCA). The analysis was done using a statistical package for social science (SPSS) Software.

### 4.0 Results

The study results are presented as follows:

**Table 1: Level of Awareness and Understanding of Respondents to the Health and Safety Management Plan**

Options	n	%
<b>Awareness of the H and S plan</b>		
Yes	321	92
No	29	8
<b>Understanding of H and S plan</b>		
As an Essential Document	265	76
As a mere Paperwork	60	17
No understanding	25	7

Table 1, shows the respondents' level of awareness and understanding of the H and S plan. It indicates that, out of the three hundred and fifty (350) respondents, three hundred and twenty-one, representing 92% are aware of the H and S plan, while twenty-nine, representing 8% are not aware of it. This shows that the respondents are aware of the H and S plan. The question went further to evaluate their level of understanding of the document. It indicates that, out of the three hundred and fifty (350) respondents, two hundred and sixty-five, representing 76% understand the document as an essential document; sixty, representing 17% saw it as mere paperwork; while twenty-five, representing 7% have no understanding of the meaning of H and S plan. This shows that the respondents understand the meaning of the H and S plan.

### Factors affecting the implementation of the Health and Safety Management Plan in the study area

Table 2.1 KMO and Bartlett's test of Factors affecting the implementation of the Health and Safety Management Plan in the study area

<b>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</b>	<b>.918</b>
<b>Bartlett's Test of Sphericity</b>	
<b>Approx. Chi-Square</b>	12393.300
<b>Df</b>	78
<b>Sig.</b>	.000

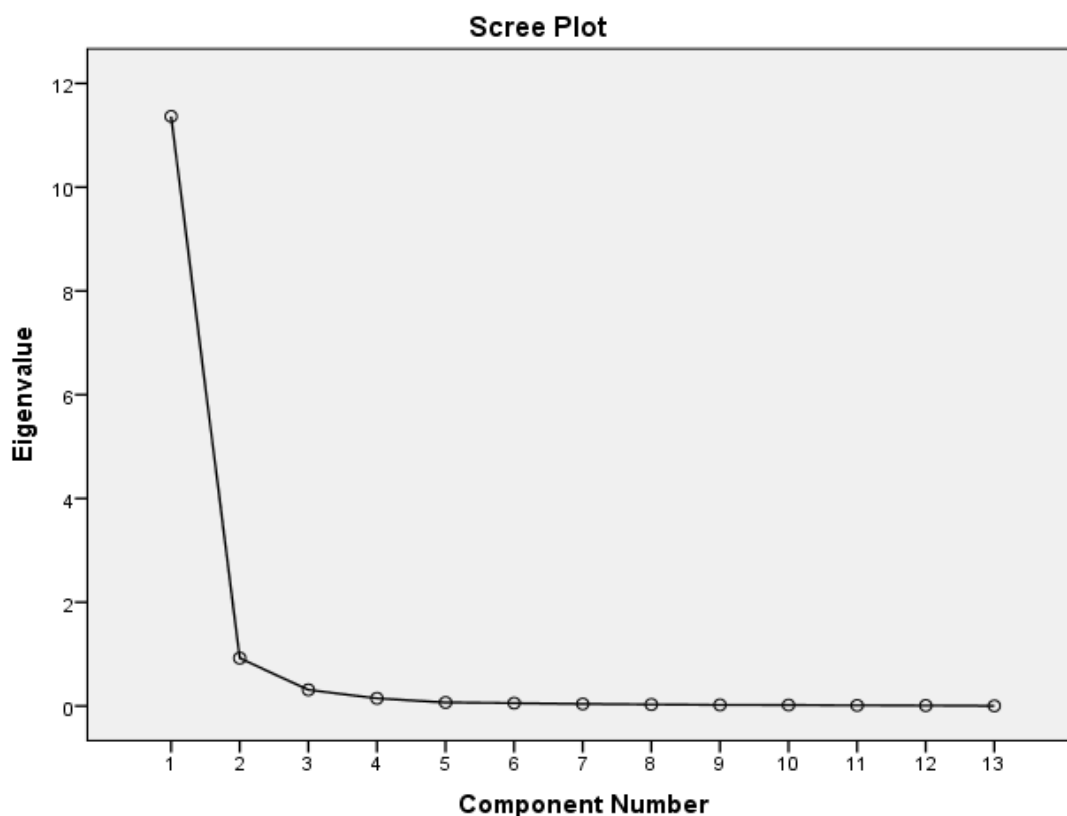
**Table 2.2 Total Variance of Factors affecting the implementation of Health and Safety Management Plan in the study area**

Component Factors	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Absence of monitoring and supervision	11.363	87.409	87.409	11.363	87.409	87.409
Substandard safety awareness by managers	.923	7.098	94.507			

Lack of involvement by all participant	.311	2.393	96.900
Poor planning of the work at the project preparation stage	.147	1.134	98.034
Reduction of the amount of legislation and safety regulation enforcement	.069	.528	98.563
Insufficient training and safety education of workers for safety	.056	.430	98.993
Lack of communication and safety meetings	.040	.305	99.298
Low availability of skilled labour and inferior equipment	.029	.225	99.523
Lack of a site-safety manager	.021	.162	99.686
Unwillingness to commit resources to safety	.018	.139	99.825
Lack of disciplinary actions	.012	.089	99.914
Lack of Government commitment and severity of penalties	.008	.065	99.979
Lack of adequate funds and resources	.003	.021	100.000

**Table 2.3 Extracted and rotated Factors Affecting the Implementation of the Health and Safety Management Plan in the study area**

	Component
	1
Absence of monitoring and supervision	.921
Substandard safety awareness by managers	.931
Lack of involvement by all participant	.939
Poor planning of the work at the project preparation stage	.917
Reduction of the amount of legislation and safety regulation enforcement	.921
Insufficient training and safety education of workers for safety	.928
Lack of communication and safety meetings	.935
Low availability of skilled labour and inferior equipment	.950
Lack of a site-safety manager	.941
Unwillingness to commit resources to safety	.950
Lack of disciplinary actions	.940
Lack of Government commitment and severity of penalties	.921
Lack of adequate funds and resources	.958



**Figure 1:** Scree Plot of factors inhibiting the implementation of the Health and Safety Management Plan in the study area.  
**Source:** field data, 2023.

The result presented in Table 2.1 shows the KMO and Bartlett's Test of factors affecting the implementation of the Health and Safety Management Plan in the study area. The KMO measure of sampling adequacy is (.918) which is very close to (1.0) the result predicts that the sample was adequate. The sig. value of Bartlett's Test of Sphericity which is the *p*-value is (.000).

The result in Table 2.2 shows the total variance among the factors affecting the implementation of the Health and Safety Management Plan in the study area. Under the Initial Eigenvalues column, the Total column containing an eigenvalue above 1.0 is one 'Absence of monitoring and supervision' with an eigenvalue of 11.363 this factor accounts for 87.409% variance within the construct. And accounts for 87.409% cumulative variance. While, the result in Table 2.3 also shows the extracted and rotated factors affecting the implementation of the Health and Safety Management Plan in the study area, in which only factors with eigenvalues higher than 1.0 were extracted. This result suggests that 'Absence of monitoring and supervision' with an eigenvalue of 11.363 scaled through the iterations of reliability analysis.

**Measures that would improve the implementation of the Health and Safety Management Plan**

Table 3.1 KMO and Bartlett's test of Measures for implementation of the Health and Safety Management Plan

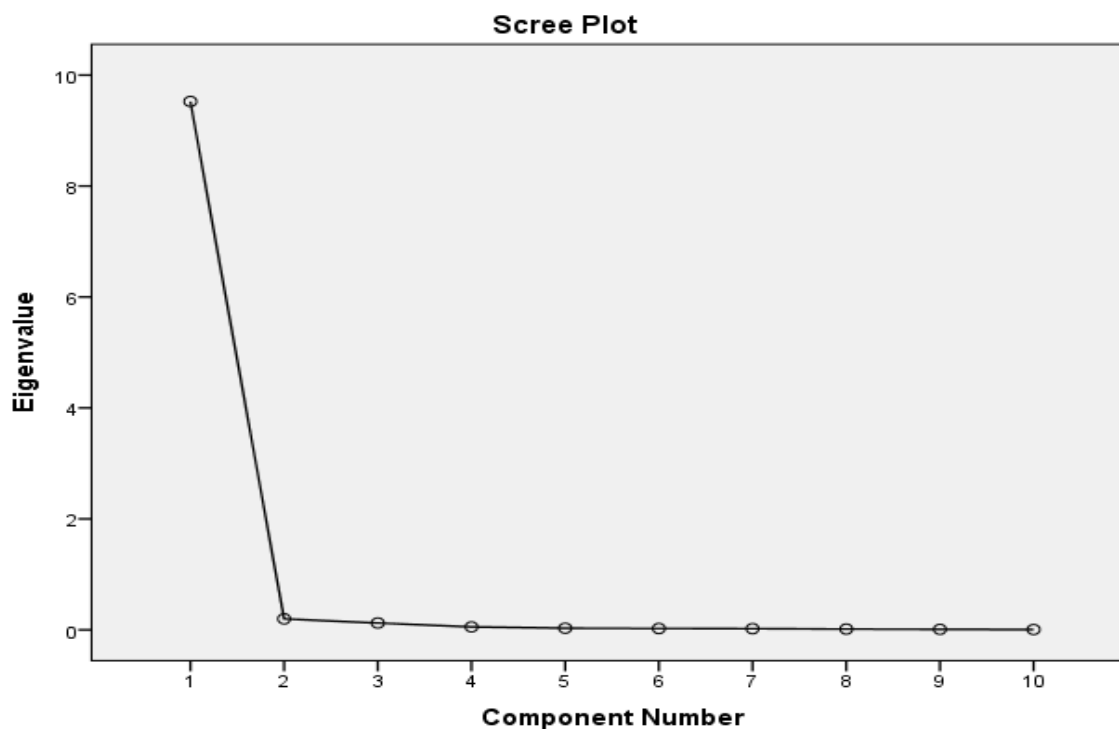
<b>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</b>	<b>.908</b>
<b>Bartlett's Test of Sphericity</b>	
<b>Approx. Chi-Square</b>	10284.272
<b>Df</b>	45
<b>Sig.</b>	.000

Total Variance of Measures for the Implementation of Health and Safety Management Plan

Component measures	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Serving as part of the organizational policy	9.525	95.249	95.249	9.525	95.249	95.249
Improved organizational leadership	.198	1.978	97.227			
Increased employee involvement in the Health and Safety Practices	.123	1.230	98.457			
Enhanced employee training on Health and Safety precautions at the workplace	.053	.528	98.985			
Government policy on monitoring and enforcement of construction sites	.030	.297	99.283			
Effective communication between management and the middle-level and bottom-level staff	.024	.240	99.523			
Better safety attitudes among all participants	.020	.203	99.725			
Formal safety meetings must be held regularly to review the safety records	.013	.133	99.859			
Management should ensure sufficient resource allocation for safety activities	.009	.087	99.945			
An efficient enforcement scheme should be developed and implemented	.005	.055	100.00			

Table 3.3 Extracted and Rotated Measures for the Implementation of Health and Safety Management Plan

	Component 1
Serving as part of the organizational policy	.967
Improved organizational leadership	.978
Increased employee involvement in the Health and Safety Practices	.980
Enhanced employee training on Health and Safety precautions at the workplace	.982
Government policy on monitoring and enforcement of construction sites	.983
Effective communication between management and the middle-level and bottom-level staff	.982
Better safety attitudes among all participants	.974
Formal safety meetings must be held regularly to review the safety records	.969
Management should ensure sufficient resource allocation for safety activities	.964
An efficient enforcement scheme should be developed and implemented	.981



**Figure 2:** Scree Plot of measures that would improve the implementation of the Health and Safety Management Plan in Rivers State. **Source:** field data, 2023.

The result presented in Table 3.1 shows the KMO and Bartlett's Test of the measures that would improve the implementation of the Health and Safety Management Plan in Rivers State. The KMO measure of sampling adequacy is (.908) which is very close to 1.0 the result predicts that the sample was adequate. The sig. value of Bartlett's Test of Sphericity which is the *p*-value is (.000).

The result 3.2 shows the total variance among measures that would improve the implementation of the Health and Safety Management Plan in Rivers State. Under the Initial Eigenvalues column, the Total column containing an eigenvalue above 1.0 is (Serving as part of the organizational policy) with an eigenvalue of (.908) this factor accounts for 95.249% variance within the construct. And accounts for 95.249% cumulative variance. While in Table 3.3, shows the extracted and rotated measures that would improve the implementation of the Health and Safety Management Plan in Rivers State, in which only factors with eigenvalues higher than 1.0 were extracted. This result suggests that (Serving as part of the organizational policy) with an eigenvalue of (.908) scaled through the iterations of reliability analysis.

### 6.0 Conclusion

The study concludes that the majority of construction professionals in the study area are aware of the Health and Safety Management plan, and the respondents understand the meaning of the H and S plan. However, the plan was not fully in use. Because the H and S plans were not frequently included as part of their plan for projects. Building approval agencies in the study area rarely give attention to the sight H and S plan before permission to build is granted. The Absence of monitoring and supervision is a major factor inhibiting the implementation of the Health and Safety Management Plan on Building Projects Rivers State. Health and Safety should be adopted as a mandatory part of organizational policy, This will be a great measure that would improve the implementation of the Health and Safety Plan in Rivers State. Also, it is recommended that; the Health and Safety Management Plan be included as part of the documents required for all building development approvals by the Rivers State Ministry of Urban Development. Agencies and stakeholders should follow up with monitoring and supervision at the approval and construction stages for its implementation.

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