

# Level Of Adoption Of International Labour Organisation-Occupational Health And Safety Management System (Ilo-Oshms) By Construction Companies In South – South Geopolitical Zone Of Nigeria

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## Abstract

This study investigates the level of adoption and the resultant effectiveness of International Labour Organisation Occupational Safety and Health Management System (ILO-OSHMS) by construction companies in the South-South zone of Nigeria. The objectives are to determine the level of compliance to ILO-OSHMS by construction companies in the south-south zone of Nigeria, compare the level of compliance across the states, and will establish the relationship between level of compliance to the management system and the rate of accident occurrence, determine the effectiveness of the safety and health management system and compare the effectiveness among the states. To achieve the objectives, a field survey involving 453 contractors selected by stratified random sampling of the contractors registered with various Government agencies, carried out by the use of a structured questionnaire. Percentages, Kruskal Wallis (H) test and Pearson Product Moment Correlation were used for the analysis. The results reveal that compliance to elements of ILO-OSHMS was above average. The comparison among the states showed that for elements of policy generation there are no significant difference across the states while there were substantial differences among the states ranging from elements of organization, planning and implementation, measurement, audit and review.

**Keywords:** ILO-OSHMS, Construction companies, South – South Geopolitical Zone, Kruskal Wallis test, Pearson Product Moment Correlation

## I. INTRODUCTION

The construction industry by nature of its activities provides opportunity for a wide range of people to be engaged with different activities and trades and hereby making a livelihood. The International Labour Organisation (ILO) year book for the year two thousand (2000) stated that the construction industry provides about twenty six percent (26%) of jobs worldwide, the highest for any sector of the economy. In the course of these activities the tendency to get injured is very high. Olutua, (2014) opined that the international training centre of the International Labour Organization (ILO) in 2011 stated that one in six accidents in the workplace occur in the construction industry. Keller & Keller, (2009) claimed that not less than sixty thousand (60,000) of the fatal accidents that occur worldwide every year occur in the construction industry.

Agwu & Okezie (2013) opined that in Nigeria, there is no reliable data on accident cases in the construction industries because industry practitioners do not report occurrences to the appropriate authorities or keep records of accidents. The fact that construction is considered highly risky and hazardous does not mean that its susceptibility to accident is not controllable – this largely depends on “work situation” which is humanly controllable. Safety records in the same construction industry in most advanced countries have proven this to be true (Hudson, 2001). Hamid, Rahim, Majid, Zaimi, & Bachan, (2008) stated that the Indian Council of Medical Research in 2003 opined that the causes of accidents are well known, almost preventable and as other business issues, occupational safety and health (OSH) can be managed.

Occupational safety and health (OSH) is an area concerned with the safety, health and welfare of people engaged in work or employment. Since 1950, the International Labour Organization (ILO) and the World Health Organization (WHO) have shared a common definition of occupational health. It was adopted by the Joint ILO/WHO Committee on Occupational Health at its first session in 1950 and revised at its twelfth session in 1995. The definition reads: The implementation of Occupational Safety and Health (OSH) management system provides a structured process to minimize potentials of work related injuries while simultaneously achieving significant cost reduction.

The size of the health and safety problem internationally is difficult to fully quantify in terms of fatalities, injuries and incidence of work related ill-health as data is reported in different ways in different

countries. Globally, it is estimated by the ILO that 2.2 million work-related deaths take place annually with men suffer two thirds of those deaths (International Labour Office 2005).

In the European Union (EU), the European Agency for Safety and Health at Work has identified that a worker is involved in a work-related accident at least every five seconds, and every two hours one worker dies in an accident at work. Every year 5,580 people die in the EU as a result of work-related accidents (Wu, Gibb, & Li, 2010). The Association of Workers' Compensation Boards of Canada, stated in 2010 the number of fatalities reported was 1,014

In comparison, according to the USA's Bureau of Labour Statistics, 5,702 people suffered fatal injury and approximately 4,600,000 people were injured in 2005. The reported statistics for 2010 were 4,547 fatal injuries and approximately 3,500,000 injuries - a rate of 118 per 10,000 full time workers requiring days away from work (Palencher, Heath, & Hocke, 2010).

A report on the occupational health and safety situation in the Arab region of 2007 produced by the ILO confirmed that in Kuwait during 2006, 2,818 work-related accidents and 31 deaths occurred. Similarly, in Bahrain during the same period, 2,247 occupational accidents and 19 deaths occurred (Wu, Gibb, & Li, 2010). Data derived by the Japan Construction Safety and Health Association confirmed fatalities were 1,472 for year 2007, with the construction industry representing approximately 35% of these. The frequency (based on a 1,000,000 multiplier) of accidents (including deaths) for all industries was approximately 1.9 and the annual incidence per 1.000 workers was 2.4. (Moodley, 2009)

Over the past decade the use of OHSMS has become common in workplaces both in Nigeria and other developed economies. Their increasing use can be attributed to many factors. Overseas they evolved as a response to defective management systems exposed by disasters such as the Piper Alpha oil rig fire. Perhaps too they represent a natural evolution of the workplace focus on OHS that began in the 1970s with the Robens reforms (Gallagher, Underhill, & Rimmer, 2001). In particular OHSMS embody the application to occupational health and safety of the principles of 'continuous improvement' which have been used extensively by enterprises seeking improved business competitiveness. The growing use of OSHMS also stems from public policy. Whilst in Europe such policy interventions span both mandatory and voluntary approaches, the Nigerian Federal and State governments have focused more on the latter (Nnedinma, David, Jones, & Umeadi, 2014).

The growing use of OSHMS in Nigeria and any other country can be measured against any of the known occupational health and safety management systems. Nigeria however happens to be a signatory to the International Labour Organization (ILO) treaty and this organization has its own OSHMS recommended for its member countries.

This paper attempts to answer one basic question which is, the extent of compliance to contents of the International Labour Organization's Occupational Safety and Health Management System (ILO-OSHMS) in the construction industry in the South – South Geopolitical Zone of Nigeria.

The variable groups are:

- a) States in South – South Geopolitical Zone of Nigeria
- b) Elements of occupational safety and health management system

## **II. LITERATURE REVIEW**

### **2.1 Health and Safety and the Construction Industry**

For a long time, the construction industry has been labelled with a poor occupational safety and health culture. Efforts to improve occupational safety and health performance will not be effective until the occupational safety and health culture is improved (Dester & Blockley, 1995). Agwu & Olele, (2013), stated that this industry alone produces 30% of all fatal industrial accidents across the European Union (EU), yet it employs only 10% of the working population, in The United States of America (USA), the construction industry accounts for 22% of all fatal accidents, in other countries such as Japan, United Kingdom, (UK) and Ireland, the situation is even not better. Lingard & Rowlinson, (2005) notes that in Japan, construction accidents account for 30%-40% of the overall industrial accidents, with the total being 50% in Ireland and 25% in the United Kingdom (UK). This situation is worse in the developing countries, particularly Nigeria where there are no reliable sources of data of such accident records. In the developing world, the risks associated with construction work are much greater. Available data would suggest they are 3–6 times greater (Benjamin, 2008). In comparison with developed countries, construction sites in developing countries are ten times more dangerous (Micheal, Guo, Wiedenback, & Ray, 2006). Other research conducted in developing countries corroborates evidence of this relatively high proportion of accidents on construction projects (International Labour Office, (2005), Murie, (2007)). However, there is a challenge of reporting accidents in developing countries (ILO, 2005). Agwu & Olele, (2013), further opined that globally, construction workers are three times more likely to be killed and twice as likely to be injured as workers in other occupations.

## **2.2 Occupational Safety and Health Management System**

Occupational Safety and Health Management Systems (OSHMS) have been defined by Gallagher *et al* as “...a combination of the planning and review, the management organisational arrangements, the consultative arrangements, and the specific program elements that work together in an integrated way to improve health and safety performance” (Gallagher, Underhill, & Rimmer, 2001)

(Bottomley, 1999)notes what makes an OSHMS a system ‘is the deliberate linking and sequencing of processes to achieve specific objectives and to create a repeatable and identifiable way of managing OSH. Corrective actions are also central to a systematic approach.

## **2.3 Occupational Safety and Health Management Systems in the Construction Industry**

There are a number of Occupational Health and Safety management systems which are used in the construction industry worldwide. They include but not limited to the following:

1. Health and Safety Guidance (HS(G) 65)
2. Occupational Health and Safety Management System (OHSAS 18001: 2007)
3. International Labour Organisation- Occupational Safety and Health Management Systems (ILO-OSHMS)

## **2.4 Why adopt ILO-OSHMS**

The international labour organisation is a tripartite United Nations agency that influences the development of labour laws across the globe. Its publications and guidelines are authoritative and its 2001 Guidance on Occupational Safety and Health Management Systems established an international model, following a detailed review of over twenty (20) management systems worldwide (Arora, 2007).Ligarde & Thalange, (2013)stated that the ILO- Guidelines on Occupational Safety and Health Management Systems (ILO-OSH 2001) follow a structure that uses the following key elements: Policy; Organising; Planning and Implementation; Evaluation and Audit; Actions for improvement;

Nag & Nag, (2003)opined that the advantages of adopting the ILO-OSHMS were numerous but adopted four key advantages as follows: It came to be as a result of studying and combining over twenty management systems, It is a management system that emphasises on auditing all the processes involved in the system, Above all it is the only system that also calls for an action for improvement of all the processes involved, It is the only management system that requires participation of the workers in the decision making in all the processes.

Countries such as Argentina, Brazil, Israel, Ireland, France, and Macedonia have formally recognized the ILO guidelines as a model for national promotion or the development of OSHMS guidelines adapted to their national needs(Cox, Regin, & Hillage, 2008). A good indicator of the worldwide endorsement of the ILO Guidelines is the fact that they have been translated into over 22 languages and used in at least 30 countries (Sa, Seo, & Choi, 2009).

## **III. METHODOLOGY**

From literature, three frameworks derived from previous studies were discovered to be related to this study and were adopted as theoretical frameworks for the study. The summary of these framework are explained as follows.

**Table 1: Theoretical framework from previous studies**

S/N	Theoretical Frameworks	Author(s)
1	Factors associated with improved health and safetyperformance	Gallagher(1997)
2	Factorsthatinfluencesafetyperformance of specialtycontractors	Hinze(2003)
3	Effectivenessofsafetyprogrammesinthe construction industry	Aksornand Hadikusomo(2008)

Source: Author’s Compilation from Literature

This research work adopted the survey research design approach. It adopted both qualitative and quantitative approaches, hence a triangulated survey technique. Data for the research was gotten by cross sectional survey. The south-south Geopolitical which is primarily the study area for this research is otherwise referred to as the Niger Delta region. The population of the study consist mainly of contractors involved in the construction industry in the South – South Geopolitical Zone.

A structured questionnaire was used in obtaining data for this study. The survey data was compiled and subsequently coded into SPSS. Exploratory analysis of the data using frequencies and descriptive commands of

the SPSS software enabled responses to be categorised and summary reports written. The statistical methods as well as the aims and objectives achieved and hypothesis tested are shown in the table below.

**Table 2: Summary of selected tools for data analysis/objectives and hypothesis they address**

S/N	Analysis/Objectives of the study	Hypothesis of the Study	Selected Tools for Data Analysis
1	Determine and compare the level of compliance to the elements of ILO-OSHMS by construction companies in the South-South Geopolitical Zone of the country.	There is no significant difference in the level of compliance of companies to ILO-safety management system by construction companies among the states in the South-South Zone of Nigeria	Average/Kruskal Wallis
2	Determine the relationship between the level of compliance to ILO-OSHMS and the rate of accident occurrence for construction companies in South-South Geopolitical Zone of Nigeria	There is no relationship between the level of adherence to ILO-OSHMS and the rate of accident occurrence on construction sites.	Pearson Product Moment Correlation

#### IV. RESULTS AND DISCUSSIONS OF FINDINGS

The analysis of the data collected and the results obtained are presented and discussed as follows;

##### 4.01 Level of Compliance to Elements of ILO-OSHMS by Companies in the South – South Zone of Nigeria

This was evaluated under the four broad headings of ILO-OSHMS compliance elements- Policy generation, OSHMS organisation, OSHMS planning and implementation and OSHMS audit and review. The data gotten were ranked and Kruskal Wallis (H) test was used to measure the variance amongst the states under each heading. The Kruskal Wallis results are as shown below

**Table 3: Results of Kruskal Wallis (H) Test for the Evaluation of ILO-OSHMS Policy Generation Variables**

States in the Zone	N	Mean Rank of Level of Compliance
AkwaiBom State	95	248.71
Bayelsa State	84	228.95
Cross River State	71	214.28
Delta State	69	223.24
Edo State	55	206.71
Rivers State	79	227.66
Total	453	
Chi Square ( $\chi^2$ )		6.014
Degree of Freedom ( <i>df</i> )		5
Asymp sig.		0.305

N= Number of Companies

**Table IV: Results of Kruskal Wallis (H) Test for the Evaluation of ILO-OSHMS Organisation Variables**

States in the Zone	N	Mean Rank of Level of Compliance
AkwaiBom State	95	232.99
Bayelsa State	84	212.40
Cross River State	71	302.05
Delta State	69	227.56
Edo State	55	298.51

Rivers State	79	117.60
Total	453	
Chi Square ( $x^2$ )		96.460
Degree of Freedom ( $df$ )		5
Asymp sig.		0.000

N= Number of Companies

**Table 5: Results of Kruskal Wallis (H) Test for the Evaluation of ILO-OSHMS Planning and Implementation Variables**

States in the Zone	N	Mean Rank of Level of Compliance
Akwalbom State	95	249.63
Bayelsa State	84	205.48
Cross River State	71	267.05
Delta State	69	215.50
Edo State	55	261.76
Rivers State	79	172.52
Total	453	
Chi Square ( $x^2$ )		30.288
Degree of Freedom ( $df$ )		5
Asymp sig.		0.000

N= Number of Companies

**Table 6: Results of Kruskal Wallis (H) Test for the Evaluation of ILO OSHMS Measurement, Audit and Review Variables**

States in the Zone	N	Mean Rank of Level of Compliance
Akwalbom State	95	263.08
Bayelsa State	84	200.06
Cross River State	71	255.65
Delta State	69	207.99
Edo State	55	256.23
Rivers State	79	182.77
Total	453	
Chi Square ( $x^2$ )		30.384
Degree of Freedom ( $df$ )		5
Asymp sig.		0.000

N= Number of Companies

The result for policy generation indicates that the calculated Chi-Square value was 6.014 and the asymptotic significance (p-value) was 0.305. Since the p-value is greater than 0.05, it can be concluded that there is no significant variation in the level of compliance to key process of ILO-OSHMS policy generation by states in the South-south Geopolitical Zone of Nigeria. The result for OSHMS organization indicates that the calculated Chi-Square value was 96.46 and the asymptotic significance (p-value) was 0.000, the result for OSHMS planning and implementation indicates that the calculated Chi-Square value was 30.288 and the asymptotic significance (p-value) was 0.000, The result for OSHMS audit and review indicates that the calculated Chi-Square value was 30.384 and the asymptotic significance (p-value) was 0.000. Since the p-value is less than 0.05, it can be concluded that there is a significant variation in the level of compliance to key process of ILO-OSHMS organisation by states in the South-South Geopolitical Zone of Nigeria. This may however be because of the type of jobs involved by the companies.

From the above analysis it was noticed that there was no significant variation in the level of compliance to key processes involved in OSHMS policy generation, but there was significant variation among the companies for level of compliance to key processes involved in OSHMS, organisation, planning and measurement

#### **4.0.2 Comparison between Level of Compliance to Elements of ILO-OSHMS by Companies in the South – South Geopolitical Zone of the Nigeria and the Rate of Accident Occurrence**

The rate of accident occurrence was computed for all the companies in the South – South Geopolitical Zone. Pearson correlation was used to establish the relationship. The result is as shown below:

**Table 7: Descriptive result of correlation between Level of Compliance and Rate of accident occurrence**

		Accident rate on construction sites	Level of compliance for all companies
<b>Accident rate on construction sites</b>	Pearson Correlation	1	-.105*
	Sig. (2 – tailed)		.025
	N	453	453
<b>Level of compliance for all companies</b>	Pearson Correlation	-.105*	1
	Sig. (2 – tailed)	.025	
	N	453	453

The analysis shows that there is a significant correlation with an r- value of -0.105. The rule of thumb states that if  $-0.1 \leq r \leq -0.29$  then significance is low, we can conclude that there is a low relationship between the level of compliance to ILO-OSHMS and the rate of accident occurrence. The negative r- value indicates that an increase in either of the variable brings a decrease in the other and vice versa.

## V. CONCLUSION

This study has investigated and compared the level of compliance to elements and processes of ILO-OSHMS across the South- South states and its relative effectiveness. The result of the investigation shows that ILO-OSHMS policy generation processes adopted across the states do not differ significantly. The measures and policies to be formulated to improve on this aspect of OSHMS need not be considered state-wise but holistically for the Zone. For elements of ILO-OSHMS- organisation, planning and measurements, there was a significant difference in level of compliance across the states. This shows that each state has its peculiar challenges, measures and policies need be considered relative to each state. This may be due to the availability of monitoring and regulatory agencies in some states but not available in others. Also level of effectiveness of these regulatory agencies may also be responsible for this disparity. The study further indicated a negative relationship between the level of compliance to elements of ILO- OSHMS and accident. This proofed that an increase in the level of compliance will bring a decrease in the rate of accident occurrence.

From the results it can be deduced that location does affect some aspects of compliance to OSHMS and its effectiveness but does not affect other aspects. Efforts should be geared towards effective management of health and safety by taking health and safety seriously and also becoming proactive rather than reactive.

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