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MEASURES FOR PLANNING AND ORGANISATION OF WOOD PROCESSING ACTIVITIES IN INDUSTRIES TO ELIMINATE HAZARDS

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ABSTRACT: *Many workers in wood processing industries such as furniture industries, veneer and plywood industries could be exposed to high levels of wood dust emanating from wood processing activities which could affect them in carrying out their various operations.The purpose of the study was to investigate the measures for planning and organisation of wood processing activities in industries to eliminate hazards.This study adopted a descriptive survey research design.The population of the study comprised all the 7,110 workers in wood processing industries in South-West Nigeria..Stratified random sampling technique was used to determine the sample of the study. Mean and standard deviation were used to interpret the data and answer the research questions while ANOVA test statistics was used to analyse the hypotheses.12 items were identified as measures for planning of wood processing activities while 13 items were obtained as the measures for organization of wood processing industries in order to remove hazards.There was no significant difference in the mean ratings of engineers, foremen and designers on the measures for planning of wood processing activities in industries to eliminate hazards. Based on the results, it was recommended among others that measures such as the identification of hazards that are associated with wood dust and other substances in wood based industries should guide the workers in planning for processing activities in order to eliminate hazards.*

KEYWORDS: Planning, Organization, Measures, Unseen Hazards, Occupational Exposure, Record Keeping

INTRODUCTION

Measures are the actions taken to achieve the objectives of any organizational set up . Actions can be taken to ensure the planning of wood processing activities such as wood turning, cabinet making, logging activities, design of any product and fuel processing activities such as the making of charcoal in industries .Activities refer to what the workers do that require the manipulation of tools and equipment in industries. These activities include turning of chairs and tables' legs, glue making, paper making and upholstery platform.The process of carrying out these activities is systematic using real products.(Olaitan,Nwachukwu, Igbo,Oyemachi &Ekong,1999) These activities are characterized by doing because workers engage in many activities such as the construction of cabinets, doors, tables and chairs in the industries. Some of these activities are carried out in the forest using logging machinery or power saws regardless of the end use of wood. in wood processing industries,

In wood processing industries such as logging industries, adequate protection of workers is a paramount importance before the logs are transported to other wood processing industries such as sawmills. In planning, efforts should be made by identifying hazards and making

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modifications to eliminate or reduce such hazards. Planning could take place under conditions of risk and uncertainty; risks are more easily assessed and managed on the planning stages of operation (FAA,2000) .In planning for wood processing activities such as furniture and paper making, consideration should be given to different types of hazards associated with wood dust and other substances in the industries.

Planning is the determination of goals and objectives and selecting the philosophy, policies programmes, procedures and strategies for achieving them (Ajayi and Ayodele 2002). In view of this, planning involves what to do and how to do it. Planning consists of thinking about solving all the problems connected with the making and future use of the job in hand, (David, 1980. According to Olowu (2000), plans are methods formulated before doing or making something or performing an activity which could be as pre-determining a course of activating. Accordingly, the planning involves the following: selection of objectives, identification of strategies, provision of policies, ascertain programmes and outlining procedures for achieving objectives.

This implies that planning involves the prediction of certain phenomena on how the objectives of wood processing industries could be achieved. Planning according to Yasin (2004) involves selecting missions and objectives and the actions to achieve them .This implies that all the workers in wood processing industries such as foremen, engineers, scientists, machine operators and maintenance officers should work together to achieve their objectives in order to avoid managerial incompetence.

The planning requirements for the elimination of hazards in industries could include emergency planning, reportable quantities of hazardous releases, work place monitoring and measurement. The requirements for planning could also include labour cost, materials cost, lighting cost, electrical services cost, water supply cost, special facilities, insurance cost, traveling expenses , payments for services cost, budget cost, operating cost, cars cost, service cost, machine and tools cost , welfare expenses cost, pay- associated cost, finance charges cost, special expenses cost pay cost (Labour cost) and production cost. These could also include cost of lost time of injured worker, cost of the hospital treatment of the injured worker and cost due to damaged materials, tools, equipment, cost of time lost of foremen, supervisors and other fixed shop woodworkers.. The planning of wood processing activities could begin with the design of the products until they get into the final consumers.

Organization is the establishment of staffing structure and functions that could lead to the achievement of organizational goals (Ajayi and Ayodele 2002). This implies that organization refers to the people and jobs. Organization is the arrangement of human resources and functions to achieve the organizational goals. Olowu (2000), defined organization as the process of grouping activities, delegating and establishing working relationship that will enable the institution and the employer to realize their mutual objectives. 1t entails the process of stating the functions of individual workers. Organizing involves co-ordinating individual efforts to achieve the organizational objectives. It is necessary to organize and manage various wood processing activities such as wood carving, dressing stools and upholstered chairs to achieve the organizational goals. These activities could be effectively organized to allow workers perform

The organization of wood processing activities is not complete without giving consideration to its sub- elements such as house keeping, storage /record keeping, maintenance of tools and equipment. Record keeping can help workers identify high

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risk areas that require immediate attention .Record keeping can help wood processing industries evaluate the process of safety and health activities. Success can be measured by a reduction or elimination of employees' injuries and illnesses through the record and house keeping. House keeping refers to the orderly arrangement of materials, tools, equipment and storage facilities. This practice deals with the cleaning of the shop, ventilation, tools, materials, painting, safety and preventive maintenance. Akinseinde (1998) opined that saw dust, shavings and waste materials should be removed daily. The floors of the wood processing industries must be free from waste and hazardous materials . Wood industries could be considered to be one of the most dangerous manufacturing industries for workers because they deal with sophisticated machines. With the use of machines for various wood processing activities, some operations are very hazardous which could lead workers to loss of fingers, legs and sometimes to death.

Workers in wood processing industries such as sawmills are at the risk of developing cancer and lung diseases due to their exposure to wood dust and other substances during wood processing activities.. Workers could also be exposed to hazards ranging from logging operations to where the woods are processed into products such as paper ,tables and chairs. Exposure to unseen hazards make itself-felt only after a number of years – often to the surprise of the victim. It is noted that not all the dangers that occur in wood processing industries can cause harm, the effect may not be immediate . Managers of wood based industries such as sawmills need to care about the hazardous working conditions, health and safety of their workers. Despite the importance of safety placed on all the operations in the industries, various categories of hazards still occur during wood processing activities.These situations need a special attention by the workers to reduce various hazards emanating from wood processing activities in industries in order to achieve their objectives

The general purpose of the study was to investigate the measures for planning and organisation of wood processing activities in industries to eliminate hazards

Specifically, this study sought to identify measures for planning of wood processing activities in industries and the organisation of wood processing industries to eliminate hazards

The following research questions were formulated to guide this study

1 What are the measures for planning of wood processing activities in industries to eliminate hazards ?

2 What are the measures for organization of wood processing industries to eliminate hazards ?

The following null hypotheses were formulated and tested at .05 level of significance:

Ho_1 There is no significant difference in the mean ratings of engineers, foremen and designers on the measures for planning of wood processing activities in industries to eliminate hazards.

ISSN :2059-1187, ISSN 2059-1195

Ho_2 There is no significant difference between the mean ratings of designers and engineers on the measures for organization of wood processing industries to eliminate hazards

METHODOLOGY

This study adopted a descriptive survey research design through the use of questionnaire and sampling method.The population for the study comprised all the 7,110 workers in wood processing industries in South-West Nigeria..There are 6000 workers in various sawmill industries in South-West Nigeria, cardboard industries have 240 workers, paper industries have 220 workers, furniture industries have 450 workers and glue industries have 200 workers**.** Stratified random sampling technique was used to determine the sample of the study.The instrument used for the study was questionnaire .The instrument consisted of two sections A and B with 23 items. The reliability coefficient of the instrument was determined using Cronbach alpha (α) internal consistency.The following are the coefficients obtained from the two sections of the instrument 0.5978(planning of wood processing activities) and 0.7316 (organization of wood processing industries)

The instrument was validated by three experts in Industrial Technical Education in the Department of Vocational Teacher Education,University of Nigeria, Nsukka and two specialists in wood processing in Ekiti State of Nigeria before it was administered. Mean, Standard deviation and ANOVA test were used to analyse the data . The mean and standard deviation were used to answer and interpret the two research questions. The ANOVA test was used to test the two hypotheses at 0 .05 level of significance. The mean and standard deviation of each item of the distribution on a five- point likert scale were calculated . The likert scale has five levels, namely: Strongly Agree (SA), Agree (A), Undecided (UD), Disagree (D) and Strongly Disagree (SD).

The real limit is 3.0 while the lower and upper limits of 3.0 are 2.50 and 3.49 respectively.Therefore, any mean rating from 3.50 and above was agreed and where otherwise was disagreed.

For the hypotheses, the null hypothesis was accepted **i**f p-value was equal or greater than .05 and rejected if the p-value was less than .05

RESULTS

Research Question 1

What are the measures for planning of wood processing activities in industries to eliminate hazards?

ISSN :2059-1187, ISSN 2059-1195

Table 1: Mean and Standard Deviation of the Measures for Planning of Wood Processing Activities in Industries to Eliminate Hazards

S/N	MEASURES	X	SD	REMARKS
1	A complete schedule is drawn up identifying action items and the parties responsible for the various stages of implementation	4.76	.57	Agree
2	Set procedures for monitoring the implementation of the entire plan	4.79	.43	Agree
3	Involvement of workers who are highly intelligent to plan on woodprocessing activities	4.79	.43	Agree
4	Identification of hazards that are associated with wood dust and substances	4.83	.39	Agree
5	Determining the need for surveys and appraisal that help identify conditions or practices affecting safety and health.	4.89	.35	Agree
6	Evaluating hazards and assessment risk in the industries as a mechanism to facilitate effective planning	4.87	.43	Agree
7	Principles of all hazards planning on the product innovation and development	4.93	.28	Agree
8	Addressing of hazards by the planning team to enhance product development	4.72	.54	Agree
9	The level of productivity ,cost of labour and plant must be addressed before hand with fair and accuracy	4.85	.45	Agree
10	Planning on the use of computerized systems through the use of robots to carry out the various operations in wood processing industries	4.81	.51	Agree
11	Marketing activities for the sale of industrial Products is hoghly essential for planning wood processing activities.	4.75	.49	Agree

Research Question 2

What are the measures for organization of wood processing industries to eliminate Hazards?

ISSN :2059-1187, ISSN 2059-1195

Table 2: Mean and Standard Deviation of the Measures for Organization of Wood Processing Industries to Eliminate Hazards.

S/N	MEASURES	X	SD	REMARKS
1	Implementing measures identified in the plan of exposure to hazards	4.84	.45	Agree
2	Adopts the use of waste strategy approach for all waste material in the industries	4.82	.42	Agree
3	Examines the equipment and materials necessary for wood processing activities	4.88	.32	Agree
4	Connects dust connectors on wood working machines to exhaust outside	4.86	.37	Agree
5	Organizational committee to select appropriate measures for maintenance	4.79	.49	A gree
6	Organize various activities in wood processing to achieve the organizational objectives	4.88	.42	Agree
7	Follow the appropriate sequence of operation to carryout specific task in the industries	4.86	.41	Agree
8	Correct use of logging machinery and power saws is highly essential for effective organization of wood processing industries	4.93	.47	Agree
9	Identification of high risk areas that require immediate attention through record keeping	4.86	.40	Agree
10	Removal of saw dust, shavings and waste materials daily	4.41	.50	Agree
11	Provision of physical arrangement of machines within the assigned areas	4.79	.43	Agree
12	Wood products agreement to ensure that products are of good quality	4.82	.47	Agree
13	Provision of first aid equipment and materials for wood processing industries	4.20	.45	Agree

Hypothesis 1

There is no significant difference in the mean ratings of engineers, foremen and designers on the measures for planning of wood processing activities in industries to eliminate hazards

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Table 3: Summary of Analysis of Variance (ANOVA) test of the Mean Ratings of Engineers,Foremen and Designers on the Measures for Planning of Wood Processing Activities in Industries to Eliminate Hazards

Source of variation	SS	Df	MS	F-cal	Sig	Decision
Between groups	82.295	10	8.230	1.547	7.313	N/S
Within groups	3462.845	651	5.319			Accept Ho_1

*** Significant at sig. of F > .05**

S= Significance difference N/S = No Significant difference Df= Degree of freedom

SS = Sum of Squares MS= Mean of Squares

The p- values are compared with .05 at the degree of freedom between groups (10) and within groups (651)

Table 3 shows the summary of all analysis of variance. P- value was greater than .05. Therefore, the null hypothesis Ho_1 was accepted. Hence, there was no significant difference in the mean ratings of engineers, foremen and designers on the measures for planning of wood processing activities in industries to eliminate hazards.

Hypothesis 2

There is no significant difference between the mean ratings of designers and engineers on the measures for organization of wood processing industries to eliminate hazards

Table 4 : Summary of Analysis of Variance (ANOVA) test of the Mean Ratings of Designers, and Engineers on the Measures for Organization of Processing Industries to Eliminate Hazards

Source of variation	SS	Df	MS	F-cal	Sig.	Decision
Between groups	41.704	10	4.170	1.351	6.307	N/S
Within groups	2009.661	651	3.087			Accept Ho_2

*** Significant at sig. of F > .05**

S= Significance difference N/S = No Significant difference Df – Degree of freedom

SS = Sum of Squares MS= Mean of Squares

The p- values are compared with .05 at the degree of freedom between groups (10) and within groups (651)

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Table 4 shows the summary of analysis of variance. P- Value was greater than .05. Therefore, the null hypothesis Ho_2 was accepted.. Hence, there was no significant difference in the mean ratings of designers and engineers on the measures for organisation of wood processing industries to eliminate hazards.

DISCUSSION OF FINDINGS

The data presented in table 1 provided answer to research question 1. Findings Hence, there was no significant difference in the mean ratings of engineers, foremen and designers on the measures for planning of wood processing activities in industries to eliminate hazards. Such measures include principles of hazards planning on product innovation and development in all wood processing activities through the establishment of appropriate design services and related areas. These could be determined by giving consideration to different types of hazards associated with wood dust and other *substances in industries. These hazards include dust, heat, noise, fungi, mould, chemical,* machine and electric shock.. It was revealed that the respondents agreed on the planning of the use of computerized systems through the use of robots to carry out the various operations in wood processing activities. This finding is in agreement with Ekong (2006), who stated that when a system is computerized, activities formerly performed manually are instead done by the computer .Technology is responsible for improving workers productivity by enabling a single operator to manage a multiple machines. A woodworker can automatically perform a sequence of operations that result in for greater reliability and precision with the use of computerized system through the use of robots. Productivity in wood processing industries could improve due to the use of computerized system which could reduce the act of working in the night by workers.

The finding indicated that the level of productivity and the cost of labour and plant must be addressed before hand with fair accuracy. This finding is consistent with the finding of Onyeka (2008) who stated that production shop must be oriented sin order to take a maximum advantage of natural light. Production in wood processing industries could be improved when equipment items have instructions which could guide the operators in manipulating the machines

The data presented in table 2 provided answer to research question 2. Findings revealed that the 13 items are the measures for organization of wood processing industries to eliminate hazards.The finding revealed that the ability to follow the appropriate sequence of operation to carry out specific task in the industries as a measure for organization of wood processing industries in order to eliminate hazards. This is in agreement with the finding of .Ibidapo (2001) who stated that the sequence of operations that is to be followed in carrying out specific task would be easily observed and accomplished. Many activities such as wood carving, sawing activities, paper making, glue making and upholstery platform involve many operations in wood processing industries. These activities contain risks which need to be addressed. The finding of the study indicated the identification of high risk areas that require immediate attention through record keeping .This finding agreed with OSHA (2007) who stated that records should include the preparation of supplementary records of occupational injuries. These records should be retained for many years to prevent the future occurrence. The finding emphasized on the removal of saw dust, shavings and waste materials daily. This is in line with the view of Ademuleguns (1999) who stated that dirty environment can cause terrible atmosphere pollution especially when the industrial wastes are such that could result

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in health hazards.

Findings such as the provision of first aid equipment and materials for wood processing industries is also a measure for organization of wood processing industries to eliminate hazards.This is in line with the view of Ezedun (2011) who stated that first aid is the immediate and temporary care given to the victim of an accident or illness before the attention of a medical expert .First aid is necessary to sustain the life of a victim of an accident before the attention of a medical expert .Findings also indicated that it is snecessary to organize various activities in wood processing industries to achieve the organizational objectives This is consistent with Olaitan et al(1999) who suggested some guide lines for organizing new and existing facilities which include: the review of the layout the facilities and equipment on a plan to scale for ease of adjustment or installation

The findings in table 3 revealed that there was no significant difference in the mean ratings of engineers, foremen and designers on the measures for planning of wood processing activities in industries to eliminate hazards. The finding of the study does not support the finding of Aderibigbe (2010) who stated that awareness of hazards had significant influence on the level of safety measures.This may be attributed to many factors such as inability of the managers, foremen and engineers to perform their management roles in design and inability to involve workers who are highly intelligent in planning wood processing activities. This shows that there is need to address the existing hazards through the planning of wood processing activities in industries to eliminate hazards. The finding of the study is in line with the finding of Jones and Kamaras (2004) who stated some occupational injuries and illnesses in the saw mill industry. This is the fact that occupational injuries and illnesses occur in wood processing industries which need excessive planning to ensure that workers aware the health effect of wood dust exposure in industries

Table 4 revealed that there was no significant difference between the mean ratings of designers and engineers on the measures for organization of wood processing industries to eliminate hazards. The finding is consistent with the finding of Lillian and Menezes (2010) who stated that work employed relation survey 2004 (WERS) include the use of specific quality and human reinforcement management practices.This is the fact that workers in wood processing industries could be organized to perform their various organizational functions in order to eliminate hazards

CONCLUSION AND RECOMMENDATIONS

It is necessary to plan wood processing activities in order to ensure a good organization of industries.The study has established high risk areas that require immediate attention through record keeping and principles of all hazards planning on the product innovation and development .

Based on these findings, the following recommendations are made.

1 Measures such as the identification of hazards that are associated with wood dust and other substances in wood based industries should guide the workers in planning for processing activities in order to eliminate hazards.
2 Efforts should be made by the managers, foremen and engineers to identify high risk areas that require immediate attention in industries. This can be done by

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marking all the hazardous areas in the industries to alert people to take care

3 Experienced woodworkers should be appointed as supervisors who are responsible for the work of a group of woodworkers. They can advance into these positions by accepting additional responsibility and by attending workshops,

4 An attempt should be made by machine operators to remove dust, shavings and waste materials around the machines daily in order to prevent hazards.

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