# ENVIRONMENTAL POLICY COMPLIANCE OF SAWMILLING INDUSTRIES IN OSOGBO LOCAL GOVERNMENT AREA IN OSUN STATE, NIGERIA.

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## Abstract

*Environmental policy is a course of action deliberately taken to manage human activities with a view to mitigate harmful occurrences. This study determine the demographic variables of sawmillers located in Osogbo Local Government Area of Osun State, as well as identified the various facilities such as fire extinguisher, incinerator, silencer and environmental impact assessment report (EIA) to measure the level of compliance of practitioners to policy statement. It also determined the significant effect of variables such as finance, managerial training, partnership with others, accommodation and vehicles on the policy compliance of practitioners in the location. A survey research design was used with thirty (30) respondents as sample. The results showed that 73% of the respondents were male while 27% were female, age $\leq$ 30 (13.3%), 31- 40 (30%), 41- 50 (23.4%) 51- 60 (33.3%) while 27% had primary level education, 53% had secondary level and 20% had tertiary level. The results on compliance level based on facility assessment were: extinguisher, (40%); incinerator, (36.7%); silencer, (56.7%); EIA, (96.7%). Finance (0.00) and managerial training (0.01) at p<0.05 had significant effect on the policy compliance of practitioners while the presence or absence of other variables such as partnership with others, accommodation and vehicles does not determine compliance to environmental policy in the sawmill location.*

*Keywords:* Environment, Environmental policy, Compliance, Sawmill Industry, Waste Management

## Introduction

Industries have been classified based on activities carried out in them and the results they are poised to achieve. The classification includes: extractive, construction and manufacturing (Sangosanya, 2011). The International Standard Classification of Industry (2007) opined that industries in the world include fishing, agriculture (hunting and forestry), mining and quarrying, construction, manufacturing (breweries, cotton textile, iron and steel) as well as processing industries (sawmill industry).

The sawmill industry is a processing industry that engages in converting log into lumber using different methods such as live sawing (sawing around the log), slash cutting, and cant sawing facilities. The major wood processing plants are large capacity facility types such as large sawmill, plywood mill, pulp and paper plants. There are also quite large numbers of small scale wood products manufacturing companies such as furniture industries, cabinet makers and carpentry. In Nigeria, most of the sawmill plants are located in the wood producing rain forest areas especially in the Southwestern states. The location of sawmills in the urban centres is premised on the desire to satisfy the needs of urban residents for wood products.

However, despite its importance and usefulness, it is imperative to note that sawmilling activities are characterized by a lot of environmental pollution and destruction of the beauty of the physical environment (Oke and Oyedare, 2006).Wood dust (sawdust), a by-product of timber processing, is common to the sawmill environment. It constitutes an occupational hazard (Ugheoke *et al*, 2006). Taking cognizance of these menaces, the Federal Government of Nigeria enacted the Factories Act of Nigeria in 1987 to protect the environment where the activities take place.

The word Environment is derived from the French word "Environ" which means surrounding. Our surrounding includes biotic factors like human beings, Plants, animals, microbes, etc and abiotic factors such as light, air, water, soil, etc. Environment is a complex of many variables, which surrounds man as well as the living organisms. Environment includes water, air and land and the interrelationships which exist among and between water, air and land and human beings and other living creatures such as plants, animals and micro organisms (Kalavathy, 2004). The policy deliberately taken to direct and oversee human activities in the environment is known as environmental policy.

Environmental policy is the commitment of an organization to the laws, regulations, and other policy mechanisms concerning environmental issues. These issues generally include air and water pollution, waste management, ecosystem management, maintenance of biodiversity, the protection of natural resources, wildlife and endangered species. (Eccleston, 2010). Policies concerning energy or regulation of toxic substances including pesticides and many types of industrial waste are part of the topic of environmental policy. This policy can be deliberately taken to direct and oversee human activities and thereby prevent harmful effects on the biophysical environment and natural resources, as well as to make sure that changes in the environment do not have harmful effects on humans. Environmental issues associated with sawmilling and wood products manufacturing primarily include the following: Sustainable forestry practices, solid waste generation, emissions to air, wastewater, noise and fire. Waste generation is a concomitant aspect of living; it cannot be banished but can only be managed (Dosunmu & Ajayi, 2002). Effects of sawmill wastes does not only manifest in the air and soil but even on the health of sawmill workers (Cormier et al, 2000). Environmental policy statements are only beneficial if there is proper implementation and high level of compliance from people surrounding the area of sawmill as well as sawmill workers for their health, safety and welfare: hence, this study.

**Objectives of the Study**

The objectives of the study were to:

i.  determine the demographic variables of sawmillers located in Osogbo Local Government Area of Osun State;

ii.  ascertain the level of compliance of practitioners to policy statements in the location using various facilities; and

iii.  determine the variables such as finance, managerial training, partnership with others, accommodation and vehicles that significantly affect policy compliance of practitioners in the location.

**Research Questions**

i.        What are the demographic variables of sawmillers in Osogbo local government area in Osun State?

ii.       What is the level of compliance of practitioners to policy statements in the location using various facilities?

**Research Hypothesis**

i.        There is no significant effect of variables such as finance, managerial training, partnership with others, accommodation and vehicles on policy compliance of practitioners.

**Method**

The descriptive survey research design was employed for this study. However, field verification was carried out to authenticate specific claims. The target population were sawmill managers, saw doctors and plank sellers in Osogbo local government area of Osun state. A total of 30 respondents were selected as sample using convenience sampling technique. The instrument for data collection consisted of well structured interview that contains close ended and open ended questions. The instrument was divided into two sections. Section A comprised three items on demographics variables such as sex, age and level of education. Section B comprised information on measures put in place to control environmental pollution in line with the policy statements. Descriptive statistics and logistic regression were employed to analyze the data.

**Results**

**Research Question One:** *What are the demographic variables of sawmillers in Osogbo local government area of osun state?*

The data collected on the demographic variables were analyzed frequency and using simple statistical analysis. The results are presented in Tables 1, 2 and 3 respectively.

**Distribution of respondents according to sex**

The frequency and percentage of the demographic variables of respondents were presented as shown in Tables 1, 2 and 3 respectively before the research questions were answered.

**Table 1: Frequency and Percentage of Sex of Respondents**

| Sex | Frequency | Percentage(%) |
|---|---|---|
| Male | 22 | 73 |
| Female | 8 | 27 |
| **Total** | **30** | **100** |

Table 1 showed the frequency and percentage of sex of respondents. The result showed that 22 (73.0%) were male, while 8 (27.0%) were female which may be due to the strenuous nature of sawmilling activities.

**Table 2: Frequency and Percentage of Age of Respondents**

| Age | Frequency | Percentage (%) |
|---|---|---|
| ≤ 30 | 4 | 13.3 |
| 31-40 | 9 | 30.0 |
| 41-50 | 7 | 23.4 |
| 51-60 | 10 | 33.3 |
| **Total** | **30** | **100.0** |

Table 2 showed the frequency and percentage of age of respondents. The results showed that 4 (13.3%) were below age 30 years, 9 (30%) were between 31-40 years, 7 (23.3%) were between 41- 50 years while 10 (33.3%) were age 51- 60.

**Table 3: Frequency and Percentage of Educational Level of Respondents**

| Educational Level | Frequency | Percentage (%) |
|---|---|---|
| Primary | 8 | 27.0 |
| Secondary | 16 | 53.0 |
| Tertiary | 6 | 20.0 |
| **Total** | **30** | **100.0** |

The results from table 3 showed that 8 (27%) of the respondents completed primary school, 16 (53%) had secondary school certificate while 6 (20%) were tertiary graduate.

**Research Question Two**: *What is the level of policy compliance of practitioners in the location?*
The data collected on the level of policy compliance were analyzed using simple percentage statistical analysis as presented in Tables 4 and 5 respectively.

**Table 4: Availability of Environmental Policy Compliance Materials**

| S/N | FIRE EXTINGUISHER | INCINERATOR | SILENCER | ENVIRONMENT IMPACT ASSESSMENT (EIA) |
|---|---|---|---|---|
| 1 | 0 | 1 | 0 | 1 |
| 2 | 1 | 0 | 0 | 1 |
| 3 | 0 | 0 | 1 | 1 |
| 4 | 1 | 1 | 1 | 1 |
| 5 | 1 | 0 | 1 | 1 |
| 6 | 1 | 0 | 1 | 1 |
| 7 | 0 | 1 | 1 | 1 |
| 8 | 1 | 0 | 0 | 1 |
| 9 | 0 | 0 | 0 | 1 |
| 10 | 0 | 0 | 1 | 1 |
| 11 | 0 | 0 | 1 | 1 |

| 12 | 0 | 0 | 1 | 1 |
|----|---|---|---|---|
| 13 | 0 | 0 | 1 | 1 |
| 14 | 0 | 1 | 1 | 0 |
| 15 | 0 | 0 | 1 | 1 |
| 16 | 0 | 0 | 1 | 1 |
| 17 | 1 | 0 | 0 | 1 |
| 18 | 1 | 0 | 0 | 1 |
| 19 | 0 | 0 | 1 | 1 |
| 20 | 0 | 0 | 1 | 1 |
| 21 | 0 | 0 | 1 | 1 |
| 22 | 0 | 0 | 0 | 1 |
| 23 | 0 | 0 | 0 | 1 |
| 24 | 0 | 1 | 0 | 1 |
| 24 | 1 | 1 | 0 | 1 |
| 25 | 0 | 1 | 0 | 1 |
| 26 | 1 | 1 | 0 | 1 |
| 27 | 1 | 1 | 1 | 1 |
| 28 | 1 | 1 | 0 | 1 |
| 29 | 0 | 1 | 0 | 1 |
| 30 | 1 | 1 | 1 | 1 |

Note: 0 = Not Available, 1= Available

**Table 5: Level of Environmental Policy Compliance**

| Environmental Policy Compliance Materials | Availability | | Non-Availability | |
|---|---|---|---|---|
| | F | % | F | % |
| Fire Extinguisher | 12 | 40.0 | 18 | 60.0 |
| Incinerator | 11 | 36.7 | 19 | 63.3 |
| Silencer | 17 | 56.7 | 13 | 43.3 |
| EIA | 29 | 96.7 | 1 | 3.3 |

**Note:** EIA = Environment Impact Assessment, F = Frequency, % = Percentage

**Research Hypothesis**

$H_O$: There is no significant effect of variables such as finance, managerial training, partnership with others, accommodation and vehicles on policy compliance of practitioners. Logistic regression was used to determine the effect of finance, managerial training, partnership with others, accommodation and vehicles on policy compliance of practitioners as presented in Table 6. The logistic equation is thus given as

$$Z = b_o + b_1(FIN) + b_2(MGT) + b_3(PWO) + b_4(ACC) + b_5(VEH)$$

Where z = policy compliance (dependent variable), FIN = Finance, MGT = Managerial Training, PWO = Partnership with Others, ACC = Accommodation, VEH = Vehicles

**Table 6: Logistic regression Analysis of effects of Variables on Environment Policy Compliance**

| Independent Variables | β Coefficient | S.E | P value | Odd Ratio | df |
|---|---|---|---|---|---|
| Finance | 0.30 | 0.38 | 0.00 | 0.1 | 1 |
| Managerial Training | 0.30 | 0.29 | 0.01 | 2.5 | 1 |
| Partnership with Other | -1.30 | 0.08 | 0.14 | 0.6 | 1 |
| Accommodation | 0.10 | 0.47 | 0.15 | 1.5 | 1 |
| Vehicles | 0.30 | 0.05 | 0.60 | 1.4 | 1 |
| Constant | 0.10 | | | | |

**Significant at p < 0.05**

Table 6 gives the estimated logistic regression equation $Z = 0.10 + 0.30(FIN) + 0.30(MGT) - 1.40(PWO) + 0.40(ACC) + 0.30(VEH)$ and associated significant tests ($p < 0.05$). The results also showed the standard error values and the odd ratio of each of the independent variables respectively. As indicated by p value only finance and management training had $p < 0.05$ while other variables such as partnership with others, accommodation and vehicles had values greater than the p value. This implied that while finance and management training had significant effect on environmental policy compliance, partnership with others, accommodation and vehicles had no significant effect on environmental policy compliance.

However, the odd ratio indicated that finance had 0.1 times the likelihood the respondents will indicate compliance, management training had 2.5 times the likelihood the respondents will indicate compliance, partnership with others had 0.6 times the likelihood the respondents will indicate compliance, accommodation had 1.5 times the likelihood the respondents will indicate compliance and vehicles had 1.4 times the likelihood the respondents will indicate compliance

## Discussion of Findings

The result of the research question one analysis indicated that majority of the sawmillers are male this could be as a result of the rigorous work involved, also the result indicated that most of the sawmill industry workers were mostly secondary school leaver. The result on research question two on the level of compliance indicated that fire extinguisher is of utmost importance when it comes to sawmilling; however, only few of the sawmillers complied as this may portends a potential danger if case of fire outbreak. Also only few sawmillers complied to the use of the incinerator, indicating harm waste is released more into the atmosphere. The sawmillers that make use of silencer which is to limit the noise that comes out of the machine were a little above average; this indicated that level of awareness is high. EIA compliance is also on the high note. These results contradicted the findings by Alamu (2013) that only few workers use silencer and that the level of ignorance when it comes to health of workers is low, also that incinerator availability is high and that EIA is so low in compliance suggesting that environmental officers are not up to the task of environmental protection. The findings of hypothesis one as indicated by p value, only finance and management had significant effect on environmental policy compliance while other variables such as partnership with others, accommodation and vehicle implied that the presence or absence of any of the facilities does not determine compliance to environmental policy. However, the odd ratio of the variables indicated that there is likelihood that the sawmillers will indicate compliance.

## Conclusion

The study concluded that the level of compliance of practitioners to environmental policy of sawmillers in Osogbo local government area in Osun State is on the average.

## Recommendations

Based on the findings of this study, the following recommendations are made:

1. Continuous awareness should be employed as a means of encouraging practitioners to comply with environmental policy.

2. To enforce environmental policy compliance there should be proper environmental monitoring at the federal, State and local level.

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