

## Assessment of the Environmental Management Practices by Manufacturing Companies in Kano, North West, Nigeria.

<sup>1</sup>J. O. Agwu, <sup>2</sup>K. C. Ogboi, <sup>2</sup>A. D. Chinedu and <sup>1</sup>G. C. Okoro

<sup>1</sup>Department of Soil Science and Environmental Management Ebonyi State University, Abakaliki, Nigeria.

<sup>2</sup>Centre for Environmental Management and Control, University of Nigeria, Enugu Campus.

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### ABSTRACT

Manufacturing Companies play a crucial role in the economy of Kano State, but their activities negatively impact the environment. These impacts can be reduced or eliminated through sound environmental management practices. This study assessed the existing management practices in selected manufacturing companies in Kano State, Nigeria from 2016 - 2018. Descriptive research design through questionnaires was used in this study. The study used a combination of participatory, qualitative and quantitative method to collect the necessary data. The sources of data were divided into primary and secondary sources. The data was analysed using excel spread sheets to produce results which were then presented in tables, graphs and charts. The following were the existing environmental management practices identified among the surveyed Companies; waste treatment (5.5%), waste disposal (18.2%), waste reduction (9.1%), recycling/reuse (23.6%), pollution abatement (2.7%) and environmental awareness (30.9%). The most observed management practice was environmental awareness. All the surveyed companies have existing environmental management practices. In one hand, awareness is good, but top management should monitor and audit the process to ensure continuity.

Keywords: Assessment; Environmental management practice (EMP); Manufacturing Companies; Questionnaire

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### INTRODUCTION

The manufacturing sector plays a crucial role in the economy of Kano State and Nigeria in general. It earns substantial amount of foreign exchange, provides employment opportunities for both skilled and semi-skilled labor, accelerates development of otherwise impoverished communities and also contributes to the revenue generation capacity of the local authorities. However the adverse effects of these manufacturing activities on the environment cannot be overemphasized. They negatively impact the Environment through air pollutant emissions, toxic waste disposal, and water contamination. Besides, they are the primary offenders when it comes to greenhouse gas contributions. Manufacturing Companies are responsible for nearly two-thirds of the emissions responsible for global

climate change [14]. Manufacturing Companies are to show commitment to managing the impact of their operations on the Environment and society. Most environmental degradations and emissions are anthropogenic since industrialization has brought factory pollutants and greater land use that have harmed the Natural Environment [9]. Natural resources are indispensable to economic development and not devoid of environmental consequences as traceable to the ecological degradation and atmospheric pollution experienced in Nigeria [1]. Indeed, environmental issues are related to the continuous consumption of materials, energy, and water by industries resulting in the depletion of these resources. Also, the uncontrolled emission of toxic gases,

waste, and effluents in water bodies and air by the manufacturing companies has adverse effects on the Environment. Climate change, global warming, ozone depletion, and nitrifications are some of the consequences of these negative impacts of the activities of manufacturing companies on the Environment.

#### Environmental Management Practices

There are different understandings about environment management practices. [6] Pointed out that environmental management could provide an overall system perspective to deal with environmental issues. Every organizational activity from raw material inputs, production process, packaging, to waste disposal, are related to environmental issues. Therefore, environmental management practices are a combination of organizational activities aiming at reducing resource consumption and improving waste disposal. Technological options, product design, manufacture and waste management are all included in environmental management practices [6]. [2] Proposed that environmental management practices (green practices) were activities which aimed at improving environmental performance, including improving efficiency, shortening response time, cutting down energy consumption, reducing waste and toxic material usage. [4] Defined environmental management practices as “the level of resources invested in activities and know-how development that lead to pollution reduction at the source”, including the application of environmental management systems (e.g., ISO14001), and efforts to recycle materials and reduce waste. These management practices include environmental audits, total quality management, pollution prevention plans, environmental training for employees, total cost accounting, life-cycle analysis, hiring a designated environmental manager, R&D, environmental standards for suppliers, and employee incentive programs for environmental suggestions [13,3]. There are three motivations for enterprises to implement environment management practices. (1) Environmental regulation: A company can only be

Manufacturing Companies are expected to have healthier environmental management practices that can help safeguard the environment. The objective of this research is to assess the existing environmental management practices in the manufacturing companies in Kano State, Nigeria.

considered to be “legitimate” and avoid penalties if it meets the requirements of environmental regulation [7]. (2) Economic interests: Apart from reducing negative impact of organizational activities on the environment, environmental management practices bring economic benefits by generating recycling revenue, boosting sales, achieving first-mover advantage, enhancing social reputation, and improving product quality [10, 11]. (3) Competitive advantage: According to the strategic management theory, environmental management practices are one of the strategic choices in order to gain competitive advantages. For example, using clean production technology and product re-design, optimizing production technology, improving resource utilization and reducing production costs can bring competitive advantages and business opportunities. Environment-friendly products, green marketing, and green consumption are beneficial to winning recognition from the public and customers. Establishing a green image by implementing environmental management can lessen the negative impact of competitors, which have earlier implemented environmental management [15]. Based on different motivations, enterprises execute different environmental management practices. Scholars have classified them from different perspectives. [8], [5] classified environmental management practices into “control” and “prevention” on the basis of reducing the environmental contamination. [12] Divided environmental management practices into five groups: noncompliance, compliance, compliance-plus, commercial and natural environment excellence and leading edge, from the perspective of motivation and

corporate strategy. [16] Classified environmental management practices into internal environmental management practices and green supply chain practices. These include the formulation of environmental management policies, the application of environmental management assessment tools (e.g., life cycle assessment, benchmarking, environmental auditing, ISO14001), the establishment of environmental

performance targets, the public disclosure of environmental performance, and the staff training in environmental protection. According to Resource based theory, environmental management practices, as a kind of advantage resources, are crucial for corporate performance [6]. Environmental management practices also play a positive influence on environmental innovation and continuous improvement [11].

## MATERIALS AND METHODS

### Sources of Data

The study used a combination of participatory, qualitative and quantitative methods to collect the necessary data. The sources of data are divided into two categories: the primary data through

interviews, questionnaires and observations and the secondary data which were collected from relevant books, journals, conferences and previous research works.

### Sample Collection

Sample collection is necessary so that some elements of the population can be considered and conclusions made about the entire population [10]. In this study,

the population is the manufacturing companies in Kano. The sample size is the thirty (30) selected companies.

### Research Design

Descriptive research design through questionnaires was used in this research. The questionnaire was designed according to consulted literatures during the study. The instrument was pre-tested

by interviewing an ISO 14001 consultant who provided a balanced perspective on identifying existing environmental management practice.

### Data Analysis

The data collected through the use of structured questionnaires was analysed using excel spread sheets to produce

results which were then presented in tables, graphs and charts.

## RESULTS

According to the study area, the data were segmented into categories that identified the targets of the study and results were presented logically based on the research questions obtained from the questionnaires' responses.

questionnaires were distributed among the thirty (30) selected Companies in Kano State. 80.0% were returned in 2016 and in 2017, 86.7%, were returned. Finally, in 2018, 83.3% were returned, with one (1) invalid questionnaire. The three year average was 83.3%.

Table 1 and figure 1 shows the distribution of questionnaires. Thirty (30)

**Table 1: Distribution of Questionnaire**

Distributed Questionnaire	Returned	% Returned	Not returned	% Not Returned
30	25	83.3	5	16.7

Source: Fieldwork, 2018.

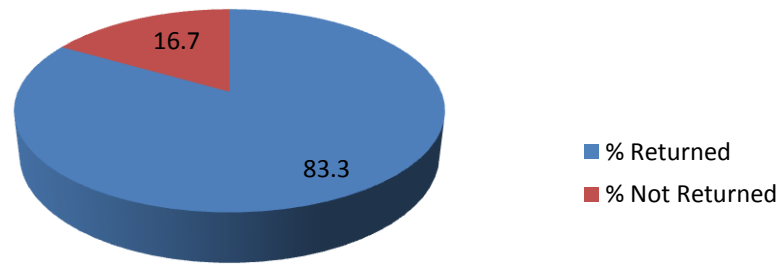


Figure 1. Distribution of Questionnaire (pie-chart)

Source: Adapted from Table 1

Also, table 2 and figure 2 represents company size. Thirty (30) Companies in Kano State were sampled in 2016, 2017, and 2018. Eight (8) of the sampled companies were small scale (<50

employees), sixteen (16) medium-scale (<250 employees), and six (6) large scale (>250 employees). These represents 26.7%, 53.3% and 20% respectively.

Table 2. Company Size

Company size	Frequency	Percentage
Small (<50)	8	26.7
Medium (<250)	16	53.3
Large (>250)	6	20.0
Total	30	100.0

Source: Fieldwork, 2018.

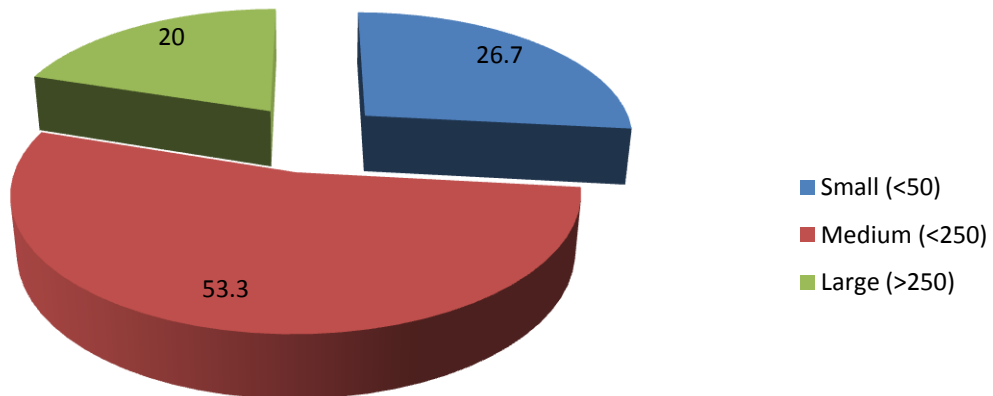


Figure 2: Company Size (pie-chart)

Source: Adapted from Table 2

Table 3 and figure 3 shows positions of respondents. The same number of Companies were sampled within 2016 - 2018. 26.7% were HSE Managers, 30%

Lab/Quality control Managers, 6.7% H.R. Managers, 3.3% Station Manager, and 33.3% Factory Managers.

Table 3. Positions of Respondents

Positions of Respondents	Frequency	Percentage (%)
HSE	8	26.7
Lab/Quality Mgr	9	30.0
H.R. Manager	2	6.7
Station Manager	1	3.3
Factory Manager	10	33.3
<b>Total</b>	<b>30</b>	<b>100.0</b>

Source: Fieldwork, 2018.

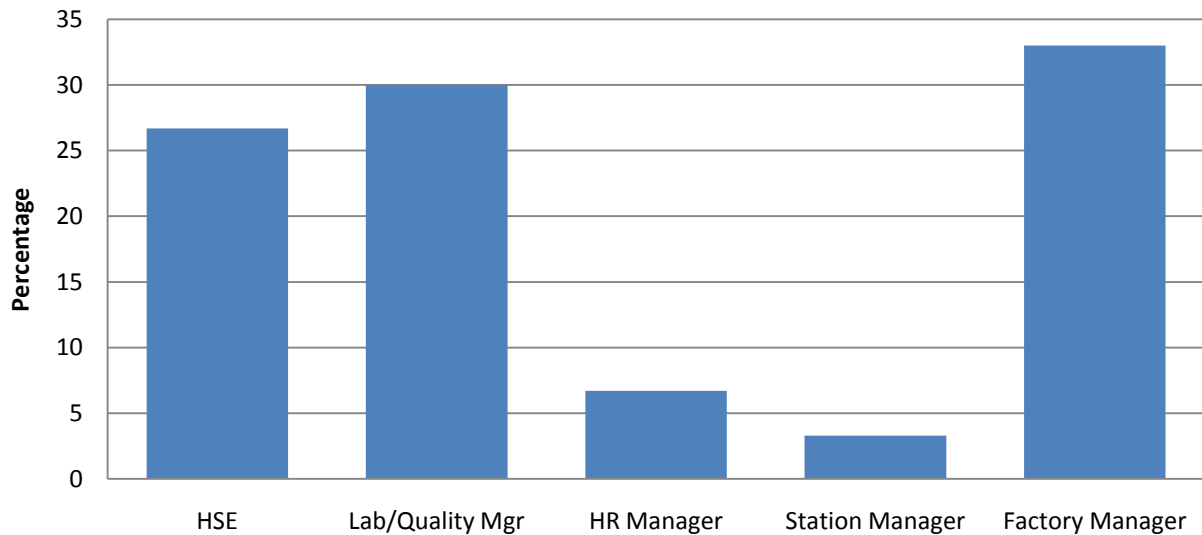


Figure 3: Position of Respondents (Bar-Chart)

Source: Adapted from Table 3.

Table 4 and Figure 4 show the existing environmental management practices among the sampled manufacturing companies. 5.5% waste treatment existed,

18.2 % waste disposal, 9.1% noise reduction, 23.6% recycling /reuse, 12.7% pollution abatement, and 30.9 % environmental awareness.

Table 4. Existing Environmental Management Practices

Existing Environmental Management Practices	Frequency	Percentage (%)
Waste treatment	3	5.5
Waste disposal	10	18.2
Noise reduction	5	9.1
Recycling/reuse	13	23.6
pollution abatement	7	12.7
Environmental awareness	17	30.9
<b>Total</b>	<b>55</b>	<b>100</b>

Source: Fieldwork, 2019.

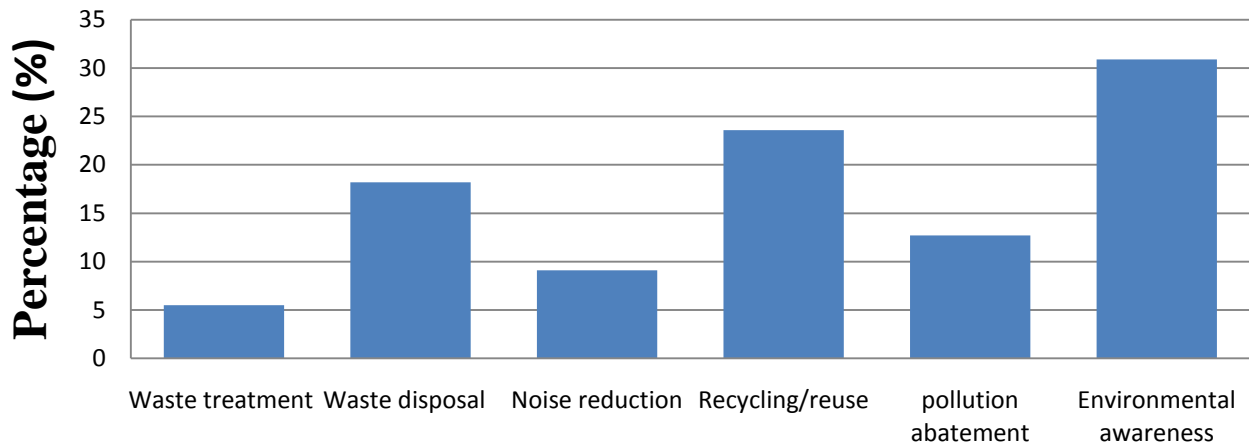


Figure 4: Existing Environmental Management Practices (bar-chart)  
 Source: Adapted from Table 4

DISCUSSION

The assessment of existing environmental management practices in manufacturing companies in Kano was carried out as a descriptive survey research and the use of questionnaires is considered the most suitable instrument. The document is confidential and gives the respondents the needed cover to express their sincere opinion on the subject matter. The essence of distributing questionnaires to different categories of companies is to ensure equity participation in the survey. Eight (8) small scale (<50 employees), sixteen (16) medium-scale (<250 employees), and six (6) large scale (>250 employees) companies took part in the study. Responsible managers of the surveyed companies responded well to

the research questions. 33.3% of the respondents are factory managers and this made gathering of data for the research less cumbersome.

The existing environmental management practices among the sampled manufacturing companies are waste treatment, waste disposal, noise reduction, recycling/reuse, pollution abatement and environmental awareness. Awareness topped the companies' environmental management practices with 30.9% response. The implication is that all the sampled companies have one form of management practice or the other. For the fact that they are aware means that they have shown some level of commitment to environmental protection.

CONCLUSION

Through the analysis of data obtained using the questionnaires distributed to responsible managers of the selected companies, it was observed that all the companies have existing environmental management practices, but environmental

awareness is the most practiced by the surveyed companies. In one hand, environmental awareness is good, but top management should monitor and audit the process to ensure sustenance.

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