



## Industry Type and Environmental Disclosure by Listed Manufacturing Firms in Nigeria

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### ABSTRACT

Stakeholders have been raising a lot of concern on the level of environmental disclosure by various manufacturing industries globally including Nigeria and this has resulted in studies being conducted to know which industry is more environmentally friendly or not. Therefore this study examined industry type and environmental disclosure by listed manufacturing firms in Nigeria. The study used ex-post facto research design and data was gathered through secondary sources from annual reports and accounts of sampled firms. A sample of 23 manufacturing firms from different industries was arrived at from a population of 61 as at 31<sup>st</sup> December 2022. The study applied One Way Analysis of Variance and Independent t-test as techniques of data analysis covering the period 2010-2022 and findings revealed that there was a significant difference in the level of environmental disclosure by listed manufacturing firms in Nigeria. It was also found that there was a significant difference in environmental disclosure between listed firms in petroleum industry and building materials sector. It was therefore recommended that environmental disclosure using ISO 14031 should be made mandatory in Nigeria to enhance uniformity in measuring environmental disclosure levels by different industries.

**Keywords;** Environmental disclosure, industry type, ISO 14031 and manufacturing firms

### 1.0 Introduction

Firms across the globe, are currently under a lot of pressure to operate in a sustainable manner by publishing information about their environmental performance. Some firms have reputations for polluting the environment more than others and this has been a source of concern to various stakeholders about the level of environmental disclosure by various manufacturing industries around the world. As a result, studies have been conducted to determine which industry is more environmentally friendly or not. According to their propensity to contaminate the environment, manufacturing firms were divided into two categories in numerous earlier studies (Aluwong & Fodio, 2019).

Brammer and Pavelin (2008) and Udo (2019) opined that firms in high profile (or environmentally sensitive) production processes will release more environmental information than those in low-profile industries. There is a widely held belief that a company's environmental disclosures and the sector in which it operates determine their level of environmental pollution. Production processes operating in environmentally sensitive industries must adhere to severe environmental rules (Monteiro & Aibar-Guzmán, 2010) in order to manage their level of environmental pollution and other hazards.

Stakeholders especially investors are always of the opinion that the manufacturing activities in these sensitive industries should communicate their environmental concerns (Emeke *et al.*, 2021). Secondly, because they are more likely to be linked to excess environmental issues like greenhouse gas emissions and the threat of environmental catastrophes, environmentally sensitive firms are subjected to increased societal pressure (Fabian, *et al.* 2022).

Numerous studies have investigated the association between the type of industry and the corporate environmental disclosure levels in annual reports (Ikpore *et al.*, 2019). Each industry has unique traits that can be attributed to competition, growth, political, legal, cultural or historical factors. Additionally, it is also believed that sectors with higher levels of pollution and stronger regulations, such as those in the chemical, mining, refinery, utility, and other sectors, tend to provide more environmental data (Brammer & Pavelin, 2008).

The reactions arising from environmental pressure groups and governments have created awareness to the extent that society now fights against those firms that are environmentally sensitive but do not publish enough environmental information. As a result, manufacturing operations in ecologically sensitive sectors typically release more environmental data (Ilelaboye *et al.*, 2022). According to Brammer and Pavelin (2008) firms in high-profile industries such as oil and gas, chemical, metal, extraction, utility, aviation, paper, and water sectors reveal a lot more environmental data than firms in

low-profile industries. Similarly, Monteiro and Aibar-Guzmán (2010) and Jamil and Rodiel (2020) claimed that industrial sectors had a substantially higher prevalence of environmental disclosure in annual reports and accounts of large listed firms compared to the financial sector.

Although in Nigeria, environmental disclosure by manufacturing firms is voluntary in accordance with international best practices, International Organization for Standardization (ISO) 14031 has produced a standard guideline that improves uniformity in environmental disclosure by manufacturing firms. Consequently, this study examined the level of environmental disclosure by industry type among different listed manufacturing firms in Nigeria using ISO 14031.

Majority of recent studies on environmental disclosure in Nigeria, including those by Aluwong and Fodio (2019), Udo (2019) and Emenike (2020), concentrated on how corporate attributes affected environmental disclosure without investigating whether a significant difference exists in the level of environmental disclosure among different manufacturing industries in Nigeria. Oba and Fodio (2012) conducted one of the few studies in Nigeria that compared environmental disclosure in Nigeria's oil and gas and construction industries. Similarly, Labaran (2012) compared the level of corporate environmental disclosure in Nigeria between oil and gas (Petroleum) and non-oil (building) manufacturing firms. The limitation of these studies was that they used self-made disclosure index rather than ISO 14031 which provides a greater number of disclosure items and this provided a gap to be filled by this study. Additionally, these studies in Nigeria focused on comparing only two manufacturing industries rather than assessing in a holistic manner all the industries involved in manufacturing, which also highlights a gap that shall be filled by this study.

Therefore, the main objective of this study is to examine the level of environmental disclosure by different industries that are into manufacturing business in Nigeria using data from annual reports and accounts covering the period 2010-2022. In view of the specific objective stated above, the following hypotheses are formulated in null forms.

1. There is no significant difference in the environmental disclosure by different industries in Nigerian listed manufacturing firms.
2. There is no significant difference in environmental disclosure between listed petroleum and building materials manufacturing firms in Nigeria.

This study focused on industry type and environmental disclosure by listed manufacturing firms in Nigeria, using disclosure checklist based on ISO 14031 over the period 2010-2022. In Nigeria listed manufacturing firms fall into eight groups which are stated with the firms sampled under each group. Agriculture and Agro Allied Products (Livestock Feeds Plc, Okomu Plc, Presco Plc); Building Materials (Larfarge Plc, Ashaka Cement Plc, Dangote Cement Plc); Chemicals and Paints, (Nigerian-German Chemicals Plc, Chemicals and Allied Products Plc, Berger paints); Petroleum (Conoil Plc, Mobil Plc, Oando Plc); Conglomerates (UAC Plc, Unilever Plc, PZ Plc); Food and Beverages (7up Plc, FMN Plc, Nestle Plc); Pharmaceuticals (GSK Plc, M&B Plc Neimeth Plc); Breweries (Guinness Plc and Nigeria Breweries Plc). The study would be significant to policy makers such as ministry of environment in Nigeria and researchers will equally find it beneficial in view of the gap that it would fill and provision of literature.

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## 2. Review of Concepts and Related Literature

Considering industry type, industries are categorized into high profile and low profile types, in respect of environmental disclosures (Ngozi & Ike, 2019) High profile firms are more exposed to political and social pressures than low profile industries because they are engaged in environmentally sensitive industries (Nkwoji, 2021).

Considering, environmental disclosure, it was defined by Mohammed *et al*, (2022) as a comprehensive approach to maintaining strong corporate governance through the use of transparency or accountability in society's actions. Furthermore, environmental disclosure, according to Olusola *et al*, (2021), is a company's dedication to operating in a manner that is both economically and environmentally sustainable while taking into account the interests of all of its stakeholders. Environmental disclosure is a strategy of environmental management used to inform stakeholders about the environment (Emenike, 2020). The disclosure of environmental data that will reflect the natural environment, environmental protection, and resource utilization is what is meant by environmental disclosure. Environmental disclosures, according to Nwafor (2021) are the disclosure of environmental issues such as the increasing number of environmental rules and pressure organizations concerned about the social and environmental ramifications of a firm. According to Ndukwe and Onwuchekwa (2015), firms frequently underreport their environmental impact because of the voluntary nature of environmental disclosure. Due to this, numerous corporate entities have neglected to report on their social and environmental performance. Environmental disclosure, in the opinion of Pahuja (2009), is the purposeful decision of manufacturing firms to include more environmental information in their annual reports and accounts at the end of the year as a form of accountability to the public.

According to Crowther (2016) environmental risk issues are not usually taken into account in traditional or conventional accounting functions but should be included in a firm's annual reports and accounts so that stakeholders can use them as a basis for decision-making. The disclosure of corporate environmental operations stresses the necessity of continuously monitoring natural resources as well as the firm's detrimental effects on the society in which it operates. The operations of production processes, especially those in manufacturing, oil and gas, negatively affect the environment. These consequences include noise pollution, waste accumulation, toxic emissions, spills, and degradation (Parmigiani *et al*. 2015).

### Empirical Reviews

Several empirical studies have been conducted on industry type and environmental disclosure and they present contradictory results as indicated in the literature below. For example, Urban and Garender (2012) studied empirical data on environmental management techniques in South Africa and in order to gather empirical data from a sample of production processes that had implemented Environmental Management Systems (EMS) utilizing International Organization for Standardization (ISO), specifically ISO 14000 series, the study used a quantitative cross-sectional survey approach. These requirements

were created with the intention of giving organizations the building blocks for an efficient environmental management system that can be combined with other management demands and help them accomplish their environmental and financial objectives. The survey, which featured 84 respondents, indicated that firms operating in export markets are more dedicated to higher levels of EMS practices because it is even stated in their goal statements. The findings also showed that the majority of the surveyed firms have integrated environmental management into their strategic planning processes to some degree.

Besides, a comparison of environmental disclosure in Nigeria's oil and gas and construction industries was conducted by Oba and Fodio (2012) in order to determine whether there was a significant difference between the two industries, a comparative analysis of the environmental information contained in the annual reports from 2005 to 2009 of the 10 sampled listed firms was carried out. In order to ascertain if there was a significant difference in the mean scores of the two industries, data was collected using content analysis, and the Independent T-test data analysis technique was used. The oil and gas industry was found to have higher mean disclosure levels of items, but the difference was not significant. Additionally, over the course of the study, both firms provided relatively little environmental information in their annual reports. The significant limitations of this study was that it only covered a 5-year period and just two industries comprising of construction and oil and gas.

Furthermore, the factors influencing environmental disclosure in Thai corporate annual reports were studied by Suttipun and Stanton (2012) by investigating the scope and content of environmental information disclosure provided in the annual reports of firms listed on the Stock Exchange of Thailand (SET). It was tested whether there was any correlations between the amount of environmental disclosure and various firm characteristics like firm size, industry type, ownership status, country of origin, and profitability, which were taken from earlier studies done in more developed nations. Based on their 2007 annual reports, 75 listed firms were chosen for the study using a straightforward random sampling technique. According to the findings, 62 manufacturing firms (or 83%) included environmental information in their annual reports and accounts. The resource industry group firms disclosed the most environmental data while agricultural and food industry type firms disclosed the least environmental data. Also, there was a strong inverse correlation between the volume of environmental disclosure and industry type, ownership status, country of origin, and profitability while there was a positive correlation between the volume of environmental disclosure and firm size.

In order to determine whether there is a significant difference between the two classes of industries, Labaran (2012) assessed corporate environmental disclosure in Nigeria: a comparative study of the oil and gas (Petroleum) and non-oil (manufacturing) industries. Content analysis was used to extract data from the annual reports of the 10 sampled firms (five from each industry), which covered the years 2005–2010. The study created a disclosure index score based on twenty-one environmental data points that were anticipated to be published in company annual reports. Independent t-test analysis of the data revealed that the petroleum industry's (oil and gas) corporate environmental disclosure levels were greater than those of manufacturing industry in Nigeria.

In addition, Onyali *et al.* (2014) assessed the scope, type, and effectiveness of Nigerian manufacturing firms' practices for disclosing environmental information by examining the annual reports and accounts of the chosen firms using content analysis to determine their environmental disclosure procedures. In order to determine if Nigerian firms' environmental disclosure policies have improved, a survey method was also used to gather the necessary data, through questionnaires administered to 40 chartered accountants. The data collected was analysed using one sample t-test as a technique of data analysis. The study's conclusion showed that firms' environmental disclosure in Nigeria were still haphazard and don't often include measurable information. The study thus recommended the creation of environmental disclosure guidelines that will integrate corporate disclosure procedures and results in the production of measurable environmental data.

Furthermore, Omaliko *et al.* (2018) compared the environmental disclosure standards of the Global Disclosure Initiatives (GRI) with the environmental information given in the annual reports of five listed oil and gas firms in Nigeria over five-year period (2012–2016). The research design adopted by the study was content analysis to extract environmental data from five listed oil and gas firms in Nigeria over the period of the study. Through this, a disclosure compliance index was derived and it served as the source of secondary data for the study. The Analysis of Variance (ANOVA) was the statistical technique used and findings of the study, indicated among the variables tested, that there is a sizable positive correlation between the business compliance and the Global Disclosure Initiative (GRI) disclosure criteria. However, given the oil and gas industries' high propensity for environmental degradation and pollution as well as the significant environmental impact of their industrial activities, the study recommended that the accounting standard setters (IFRS) draft a more thorough framework for environmental disclosure in Nigeria.

Similarly, the impact of corporate characteristics on environmental disclosure made by Nigerian oil firms was examined by Aluwong and Fodio (2019). The study made use of secondary data gathered from the 2011 to 2017 annual reports and accounts of nine randomly chosen oil firms. The logistic regression method was used in the study's technique of data analysis. According to the study, firm characteristics have a positive and significant impact on how Nigerian oil firms disclose their environmental information. According to the findings, financial leverage and profitability significantly improved environmental accounting disclosure made by Nigerian oil firms and the study also found that the size of the firm significantly influenced the disclosure of environmental accounting information. Furthermore, the study found a favorable but negligible impact of auditor types on Nigerian oil firms' environmental accounting disclosure. The study recommended that the regulators of oil firms in Nigeria should support the use of more debt in their capital structures, since this will force them to reveal more environmental information in response to close monitoring and demand from the debt holders.

Also, Udo (2019) studied environmental disclosure by listed oil and gas enterprises in Nigeria using an ex-post facto studies design and the population of the study, which used a census sampling technique, consisted of the ten (10) oil and gas firms listed on the Nigerian Exchange Group (NEG). Environmental data from annual reports of the listed 10 oil and gas firms were gathered using content analysis, and an environmental disclosure index with 40 items in conformity with the Global Disclosure Initiative (GRI) was created.

Descriptive, correlation and multiple regression statistical techniques were used to analyze the data. The results showed that the sampled oil and gas firms disclosed very little financial and nonfinancial environmental information in their annual reports, with minimum disclosure practices of 0.0283 and maximum disclosure practices of 0.2727. The study also found that as at 31<sup>st</sup> December 2018, the average disclosure level of the sampled firms' environmental disclosure stood at about 11.67%. The results showed that profitability had a considerable negative influence on environmental disclosure, while leverage and liquidity have significant positive influences and long-term financing contribution has a negligible positive influence. As a result, the study concluded that a firms' financial characteristics (profitability, leverage, and liquidity) were the major determinants of environmental disclosure in Nigerian oil and gas industry. It was also found that many listed oil and gas firms only disclose very little qualitative environmental accounting information in their annual reports and accounts. Consequently, it was recommended that efforts should be directed by the firms in Nigeria toward preparing environmental information in monetary terms and that there is need for standardized environmental disclosure of the industry in Nigeria through mandatory disclosures.

Menike (2020) assessed the performance of firms attributes in the food, beverage, and tobacco sectors that are listed on the Colombo Stock Exchange and its impact on environmental disclosure. The data of the study was gathered from the annual reports of 26 firms, covering the years 2012 through 2019. The disclosure index, which serves as a stand-in for environmental disclosure, was created using an indexing processes to measure the disclosures using content analysis. Return on Assets was used as a proxy to assess the success of the company while liquidity and firm size were taken into consideration as the control variables.

Panel data regression was used in the study and the findings demonstrated that firm size and environmental accounting disclosure both significantly boosted return on assets. However, there was no discernible correlation between the liquidity and return on assets. In order to meet the expectations of stakeholders and protect the environment, managers should be encouraged to use environmentally friendly resources and actions as a long-term company plan to increase sustainability.

Ilelaboye and Alade (2022) used restoration costs, community development costs, and health & security costs as variables to examine the impact of environmental accounting on the performance of family-owned businesses in Nigeria. Ex-post facto research design was employed in the study and twelve family-owned businesses from the industrial and oil and gas industries that were listed on the Nigerian Stock Exchange (NSE) made up the population. Purposeful sampling technique was used to arrive at a sample of six (6) family-owned businesses that disclosed environmental information for the years 2012 to 2020. For data analysis, the study used descriptive statistics, correlation, and Ordinary Least Squares methods and it found that costs associated with restoration have a negative and insignificant impact on financial performance, costs associated with community development have a negative and significant impact, and costs associated with health and safety have a positive and insignificant impact.

Mohammed *et al.* (2022) assessed the relationship between the disclosure of environmental information and the financial performance of firms in the steel industry. Ex-post facto and content analysis research designs were used in the study. The 41 manufacturing companies that are registered on the Nigerian Stock Exchange from 2012 to 2019 made up the study's population, and a census sampling technique was utilized to choose samples from all 41 listed manufacturing companies. The study made use of secondary data gathered from the annual reports of the Nigerian Exchange-Group listed manufacturing firms and information from the fact book for a period of six (6) years. Multiple regression analysis was employed in the study and it found that the financial performance (ROA) of listed pharmaceutical manufacturing firms in Nigeria is not significantly affected by disclosure of material used.

The effect of environmental accounting disclosure on the profitability of listed firms in Nigeria from 2017 to 2021 was evaluated by Fabian *et al.* (2022). Five firms were chosen at random from a variety of economic sectors as part of the study's ex post facto research design. The annual reports and accounts of the chosen firms served as sources of data for this study. The data were analyzed using descriptive statistics, correlation analysis, and simple least squares regression. According to the study, Nigerian quoted firms' return on assets are significantly impacted by environmental accounting disclosure. The return on equity of listed companies in Nigeria was also found to be significantly impacted by environmental accounting disclosure. Environmental accounting disclosure, however, was found to have a little effect on quoted firms' return on capital employed. In Nigeria. According to the study, listed firms should adopt common reporting and disclosure requirements for environmental activities in order to monitor and assess performance.

One of the major limitations of these studies was that none of them used full disclosure items of ISO 14031 which involves more disclosure items such as environmental information, products and safety information, employee information, energy usage information and community information. The use of only a few randomly selected disclosure items by these studies may provide misleading results. Also, none of the studies reviewed above, investigated the entire manufacturing industry in Nigeria in terms of their various levels of environmental disclosure and this also presented a gap to be filled by this study

### **Theoretical Reviews**

According to legitimacy theory, production processes will take any action they deem necessary to maintain the reputation of a legitimate business in society in order to ensure their continuous existence (Villiers & Staden, 2006). Furthermore, it is thought that legitimacy is attained by proving that the firm's operations and results are consistent with the social norms of that culture (Raar, 2007). In light of today's rising concern for environmental protection, legitimacy theory places an emphasis on how an organization will respond to the expectations of a specific community. Any response or action by a firm's management to the community's expectations should, however, be accompanied with disclosures because legitimacy theory is founded on perception (Magness, 2006).

Furthermore, such disclosures must be made public in order for users or outside parties to be aware of the environmental performance of the firms (Cormier & Gordon, 2001). The disclosure of environmental performance in annual reports is one of the practical method for doing so (Cho & Patten,

2007, Raar, 2007, Villiers & Staden, 2006). Larger firms, which are often more visible, may show their dedication and effort to be more ecologically responsible to the communities by taking steps such providing more high-quality environmental disclosures via annual reports. This is primarily due to the possibility of considerable political costs and issues resulting from the lack of relevant environmental information, as larger enterprises may draw political and regulatory attention. As a result, managers of these firms would be encouraged to give more accurate environmental disclosures (Iatridis, 2013). This study is anchored by the by the legitimacy theory because manufacturing firms have to adhere to public expectations on environmental issues through disclosure in annual reports since such a move may help to ensure the company's continued survival and growth. This is because production processes must adhere to the "expectation of protecting the environment in which they operate in order to gain acceptance for them to continue in business operations in a conducive environment.

### 3.0 Methodology

The target population of this study, which adopted content analysis technique was all the 61 listed manufacturing firms operating in Nigeria as at December 31<sup>st</sup>, 2022. After establishing three criteria based on the study's hypotheses, where all manufacturing firms that met them had a chance of being selected, the sample size of the study was 23 listed manufacturing firms and was determined using the purposive/judgmental sampling technique. The criteria were that:

- (i) The manufacturing firm must be listed on the floor of the Nigerian Stock Exchange as far back as 1<sup>st</sup> January 2010 and its shares being traded to date.
- (ii) The listed manufacturing firm must have made profit all through the period of the study (2010-2022), because profit making firms are likely to report more environmental information (Bassey *et al.*, (2013).
- (iii) The manufacturing firm must have a published annual report and accounts over the period (2010-2022) of the study for easy extraction of relevant data.

The qualitative data was coded into categories using the data collection method of content analysis in order to produce quantitative scales with varied degrees of complexity. The Disclosure Score (RS) was calculated using a dichotomous processes known as the Kinder Lydenberg Domini (KLD) environmental performance grading system. According to Uwigbe (2011) and Uyagu (2019) a score of one (1) was given if an item was reported, and a score of zero (0) is given if it is not reported. As a result, any of the sampled firms in the study had a potential score range of zero to sixty (60) points since there are sixty (60) possible disclosure items in the checklist. The formula for calculating the disclosure score using the sixty (60) disclosure items in ISO 14031 benchmark is shown below.

$$RS = \frac{\sum_{i=1}^{60} r_i}{60}$$

Where:

RS = Disclosure score

$r_i$  = a score of (1) if the item is reported and (0) if the item is not reported.

$i = 1, 2, 3, \dots, 60$ .

The technique of data analysis adopted for the study in hypothesis 1 is One Way Analysis of Variance (ANOVA) because it allows for overall comparison that tells whether or not there is a significant difference between the means of two or more groups (Adefila, 2014). Furthermore, for hypothesis 2, independent t-test was adopted because it is the best measure of comparing the mean of two groups of data (Adefila, 2014)

### 4. Results and Discussions

A null hypothesis was formulated that there was no significant difference in the environmental disclosure by different industries in Nigerian listed manufacturing firms.

**Table 1 Environmental disclosure means by industries in Nigeria**

Industry type	Mean	Std deviation	Minimum	Maximum
Livestock feeds	11.08	2.766	8	17
Breweries	20.96	8.747	11	35
Building material	17.87	6.00	10	26
Chemical and paints	11.82	3.77	9	19

Food and beverages	18	7.38	8	27
Pharmaceuticals	10.9	4.20	9	25
Petroleum	14.49	6.71	8	28
Conglomerates	11.03	2.33	8	14
Probability (p) values	0.00			
F. Statistics	17.518			

**Source. SPSS output of One Way ANOVA**

Table 1 shows the summary descriptive statistics of the mean, standard deviation, minimum and maximum values of environmental disclosure by different industries that are into manufacturing business in Nigeria. All the industries had small standard deviations compared to the means suggesting that there is a wide dispersion in environmental disclosure practices of different industries that are into manufacturing business in Nigeria. The implication of this is that listed manufacturing firms in Nigeria have differences in the quantity and quality of environmental information disclosed.

The table also showed that the brewery industry had the highest disclosure mean of 20.96 items over the period of the study. This was followed by food and beverages industry, building materials industry and petroleum industry with environmental disclosure means of 18.00 17.87 and 14.49 items respectively while the pharmaceutical industry had the lowest environmental disclosure mean of 10.9 items. The table showed a probability value of 0.00 which is less than 5% level of significance and this informed the decision to reject the null hypothesis. This finding is consistent with the finding by Labaran (2012) who found that there was a significant difference between industry type and environmental disclosure in Nigeria.

Also a formulated null hypothesis stated that there was no significant difference in environmental disclosure between listed petroleum industry and building materials manufacturing firms in Nigeria.

**Table 2 Environmental disclosure means of Building materials and Petroleum**

Industry type	Mean	Std deviation
Building materials	17.87	6.00
Petroleum	14.49	6.716
Mean difference	3.385	
Probability (P Values)	0.022	

**Source. SPSS output of independent t-test**

From table 2 above, both the building materials industry and petroleum sectors had a small standard deviation compared to their means. This suggested that there is a wide disparity in the level of environmental disclosure by firms in each industry type and this implied that environmental disclosure between the two industries were not similar.

The table also showed that building materials industry had a mean environmental disclosure of 17.87 items while the petroleum industry had a mean value of 14.49 which gave a mean difference of 3.385 between building materials industry and petroleum industry in Nigerian listed manufacturing firms. The table also revealed that the probability value of 0.022 was less than 5% level of significance ( $0.022 < 0.05$ ) and on the basis of this, the study rejected the null hypothesis. This finding is well supported by Labaran (2012) who found that there was a significant difference between industry type and environmental disclosure. This position is however contradicted by Oba and Fodio (2012) who documented that there was no significant difference in industry type and environmental disclosure in Nigeria.

## 5.0 Conclusion and Recommendation

Based on the findings of the study, it was found that a significant difference existed in environmental disclosure by different industries in Nigerian listed manufacturing firms. The study also found a significant difference in environmental disclosure between building materials industry and petroleum industry. This study therefore recommended that regulatory authorities such as the Nigerian Ministry of Environment should make environmental disclosure by listed manufacturing firms mandatory using ISO 14031 guideline which has a large scope of disclosure items because the present practice of voluntary disclosure makes firms to report very scanty levels of environmental information. This guideline will provide manufacturing firms with the elements of an effective environmental management guideline that can be integrated with other management requirements and assist them in achieving environmental and economic goals. This will also, enhance uniformity in the standard of disclosure and ease in comparing environmental disclosures made by different industries in Nigeria.

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