Unsustainable Marketing Practices and Environmental Degradation in Niger Delta Region of Nigeria

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Abstract: *This study explored the link between unsustainable marketing practices and environmental degradation in Niger Delta Region of Nigeria. Data were collected through a structured questionnaire from 204 respondents. The collected data were analyzed and the hypotheses were tested with the Spearman Rank Order Correlation Coefficient (rho) with the aid of SPSS version 21.0. The findings revealed that, unsustainable production process has a significant relationship with carbon emission pollution in the Niger Delta region. The study also found a significant relationship between unsustainable production process and excessive waste in the Niger Delta region. The study equally found a significant relationship between unsustainable packaging and carbon emission pollution in the Niger Delta region. A significant relationship was reported between unsustainable packaging and excessive wastes in the Niger Delta region. There was significant relationship between unsustainable distribution practices and carbon emission pollution in the Niger Delta region. The study also study discovered a significant relationship between unsustainable distribution practices and excessive waste in the Niger Delta region. From the findings, it was concluded that unsustainable production process, packaging and distribution practices have significantly increased the amount of carbon emission and wastes in the Niger Delta region. Based on the above drawn conclusion, it was recommended manufacturing companies in Nigeria especially those in the Niger Delta region should discontinue their unsustainable marketing practices as it would bring the issue of environmental degradation to an everlasting end.*

Keywords: *Unsustainable Marketing Practices, Environmental Degradation, Unsustainable Production Process, Unsustainable packaging, Unsustainable Distribution, Carbon Emission pollution, Excessive Waste.*

Introduction

The issue of unsustainable marketing practices in Nigeria has received much attention in recent times in view of the increasing environmental degradation in the Niger Delta region. There have been several cases of oil spillage, gas flaring, excessive wastes disposal and greenhouse gas emission which causes climate change and global warming. In Niger Delta states such as Rivers and Bayelsa, large amount of black soot have taken over the air, the streets (lands) are filled with excessive wastes and the water have been contaminated oil spills which posed a threat to human health and existence. Excessive dumping of waste has degraded the natural environment and makes it unsuitable for the present and future generations to use to meet their needs. Cheng (2011) stated that excessive waste disposal causes more harm to the ecosystem and limits its capability to support human life. It makes the environment un-conducive and irritating, thereby making it unproductive for the present and future

generations. The continuous degradation of the environment has made life miserable for the people in the Niger Delta region, causing them untold hardship and sufferings.

The major challenge confronting the Federal Government of Nigeria is how to address the issue of environmental degradation in the Niger Delta region. The environment in Niger Delta region has been jeopardized, degraded and polluted following the increasing rate of oil spillage, gas flaring, excessive wastes and Greenhouse Gas Emission (GHG) which caused climate change and global warming. On a daily basis, large amount of carbon emission is released into the air, oil spills have contaminated the water, and wasteful plastics, cardboard, Styrofoam and papers are being dumped on the streets, thereby making the environment unsuitable and unproductive for the present and future generations. Successive governments in Nigeria have established various policies and programmes aimed at addressing the issue of environmental degradation in the Niger Delta. However, despite the policies and programmes initiated by Federal Government, no significant progress has been recorded in terms of reducing the level of environmental degradation in the Niger Delta region. The continuous degradation of the environment in the Niger Delta region has brought untold hardship and sufferings to the people in the region.

Considering the poor state of the environment in the Niger Delta region and its resultant effect on the people, many individuals in the region have doubted the capacity of the federal government to address the root causes of environmental degradation in the region. It is believed that the degradation of the environment in the Niger Delta region is caused by the unsustainable marketing practices of industrial companies in the region. However, there is no empirical evidence to justify this claim as empirical studies that examined the relationship between unsustainable marketing practices and environmental degradation in the Niger Delta region are remarkably absent. It is against this backdrop that this study examines the relationship between unsustainable marketing practices and environmental degradation in the Niger Delta region of Nigeria.

Conceptual Framework
This study is built on the assumptions conceptualized below.
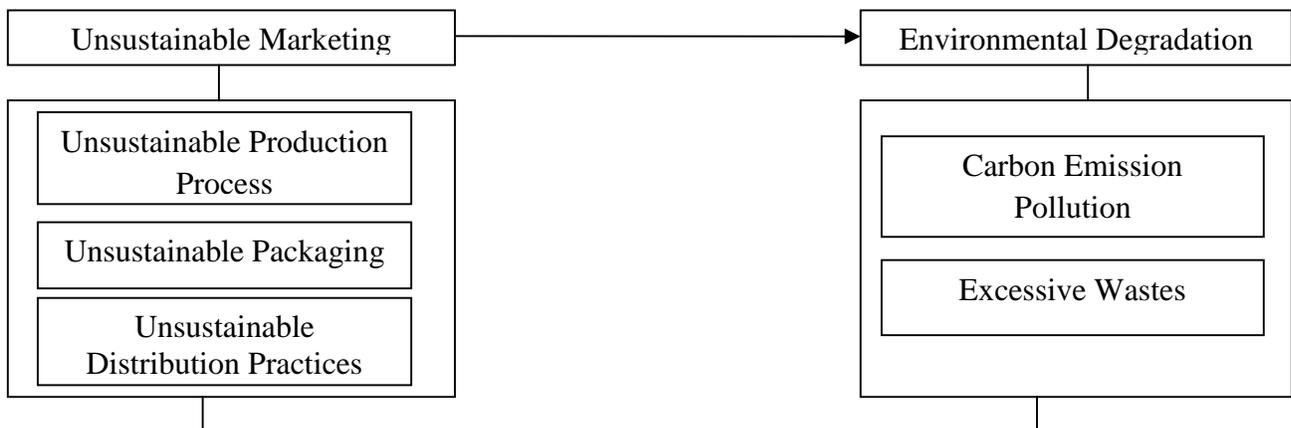
Figure 1: Conceptual Framework of Unsustainable Marketing Practices and Environmental Degradation in the Niger Delta region of Nigeria.
Sources: The study dimensions adapted from Belz and Peattie (2009); Sanchez (2011); Nwokoro and Chima (2017); Claire (2017) while the measures adapted from Ogboru and Anga (2015); Nwokoro & Chima (2017).

Purpose of the Study
The main purpose of the study was to explore the link between unsustainable marketing practices and environmental degradation in the Niger Delta region of Nigeria. The specific objectives were to:
1. ascertain the relationship between unsustainable production process and environmental degradation in the Niger Delta region of Nigeria.
2. explore the relationship between unsustainable packaging and environmental degradation in the Niger Delta region of Nigeria.
3. examine the relationship between unsustainable distribution practices and environmental degradation in the Niger Delta region of Nigeria.

Research Questions
Anchored in the stated objectives, the following pertinent questions were raised.
1. To what extent is the relationship between unsustainable production process and environmental degradation in the Niger Delta region of Nigeria?
2. To what extent is the relationship between unsustainable packaging and environmental degradation in the Niger Delta region of Nigeria?
3. To what extent is the relationship between unsustainable distribution practices and environmental degradation in the Niger Delta region of Nigeria?

Research Hypotheses
The following hypotheses were formulated to guide the study.
Ho_1: There is no significant relationship between unsustainable production process and carbon emission pollution in the Niger Delta region of Nigeria.
Ho_2: There is no significant relationship between unsustainable production process and excessive wastes in the Niger Delta region of Nigeria.
Ho_3: There is no significant relationship between unsustainable packaging and carbon emission pollution in the Niger Delta region.
Ho_4: There is no significant relationship between unsustainable packaging and excessive wastes in the Niger Delta region.
Ho_5: There is no significant relationship between unsustainable distribution and carbon emission pollution in the Niger Delta region.
Ho_6: There is no significant relationship between unsustainable distribution and excessive wastes in the Niger Delta region.

Review of Related Literature

Theoretical Review

This study is anchored on the environmental economic theory which was propounded by Boulding in 1966. The theory states that the eco-system and the natural resources may be depleted in the course of pursuing economic development. The environmental economic theory tends to explain the environmental implications of economic activities. It explains the cost/benefits of human activities. The theory believes that in every given activity, there is always a cost which has to be bared. In this regards, the degradation and depletion of the natural ecosystem (environment) is the cost of engaging in economic activities for human survival (benefits). The environmental economic theory argues that optimal growth can be achieved through an efficient economic system that pays adequate attention to the environment. It tends to explain the need for a balance between economic activity and environmental protection. Pearce in Cheng (2011) observed that our environmental problems have their roots in the failure of the present economic system to maximize our social and human well-being. Environmental economic theory tends to ensure that the eco-systems (environment) are valued as contributors to the human well-being and economic growth.

The environmental economic theory is very relevant in explaining the relationship between unsustainable marketing practices and environmental degradation in the Niger Delta region. The theory believes that environmental degradation is caused as a result of the unsustainable marketing practices of business organizations. It explains why the eco-system and the natural resources are degraded. The theory points accusing fingers to industrial companies that engage in unsustainable marketing activities. It explains that the natural environment is jeopardized in the course of pursuing economic activities that are unsustainable. The environmental economic theory tends to explain the environmental implications of unsustainable marketing activities. It emphasizes the cost/benefits of human activities. The theory believes that in every economic activity whether marketing or production, there is always a cost which has to be bared. In this regards, the degradation of the natural ecosystem (environment) is the cost of engaging in economic activities for human survival (benefits).

Conceptual Review

Concept of Unsustainable Marketing

Unsustainable marketing is a marketing practice that we cannot continue to do because it is harmful to the environment. Garbers, Tan, Gradmann and Srebotnjak (2015) defined unsustainable marketing as a marketing activity that cannot keep going on because it causes damages the environment even though it satisfies needs. El-Haggar (2007) stated that unsustainable marketing practices are those marketing activities that cannot be sustained or continued because of their negative impact on the environment. Such marketing activities include the design of unsustainable production system or process that release carbon emission into the air, the market of products that consume too much energy which cannot be renewable, a packaging system or material that cannot be recycled, reused or biodegraded, and distribution system that use fossil fuel to pollute the environment. These marketing activities

cannot be continued or sustained because of their negative impact on the environment. If a marketing activity is unsustainable, it means that we can no longer continue with it or prolong it (Little, Lee & Nair, 2019). The reason for not sustaining such marketing activity is because it causes damages to the environment and poses a threat to human health and existence. For instance, when a company set-up a production process that produces what consumers want or need but such production process releases dangerous substance (carbon emission) into the environment and cause health challenges to the people, then such production system cannot be sustained or continued with because it causes damages to the environment.

Unsustainable marketing has gained much criticism from environmentalists and stakeholders who care about the environment. Many environmentalists have called on companies to desist from their unsustainable marketing practices due to the harm or damages it has done to the environment. Yeomans (2015) stated that the increasing environmental pollution and degradation experienced in all parts of the world is caused by unsustainable marketing practices of business organizations. He further stated that unsustainable marketing practices have not only caused damages to the natural ecosystem but have also made it difficult for the people to meet their present needs. Sanchez (2011) argued that companies have degraded the environment with their unsustainable marketing philosophy and this present several health challenges to the people. Unsustainable marketing is a multi-dimensional construct that revolves around unsustainable production process, unsustainable products, unsustainable packaging, unsustainable promotion and unsustainable distribution practices. However, in this study, the focus is on unsustainable production process, unsustainable packaging and unsustainable distribution practices. These dimensions of unsustainable marketing practices are discussed below:

Unsustainable Production Process
Unsustainable production is a production process which focuses on satisfying the needs of the current generation without a guarantee of the same benefits for the next generation (Johnson in Mbonigaba, 2018). It is a production process that is likely to results in a continual decrease in the socio-economic welfare across generations (Garbers et al., 2015). Sanchez (2011) defined unsustainable production process as a manufacturing process that generates large amount of waste and pollution in the environment. Unsustainable production process requires the use of hazardous substances and energy inefficient technology. The use of energy inefficient technology increases power consumption in products and reduces product life-span and machine uptime and machine performance. It leads to higher costs of raw materials, inefficiency in the use of materials and increased environmental pollution (Yeomans, 2015). In the environmental domain, food production becomes unsustainable when the biodiversity (natural environment) that is essential to the social and economic welfare of the next generation is reduced through hazards production processes (Little, Lee & Nair, 2019). For instance, a company may decide to design a production process that might result in deforestation in one setting or lead to the release of greenhouse gas emission into the environment (Mbonigaba, 2018).

Unsustainable Packaging
Unsustainable packaging is the use of packaging materials that are not be recyclable, reusable and biodegradable (Amy, 2014). It involves the use of packaging materials that goes straight to the waste bins and never to be used again. Hanson (2016) stated that unsustainable packaging involves the use of non-biodegradable packaging materials which are dumped in the landfill site which slowly infiltrate the landscapes. A non-biodegradable material is a type of material that air, sunlight, water, and ground soil cannot breakdown (Claire, 2017). Examples of non-biodegradable materials are plastic and expanded polystyrene foam. These non-biodegradable materials account for a large amount of wastes piled in the landfills and they occupy a longer space. They also produce a greenhouse gas emission called methane which experts believed to be the major culprit for the rapid increase in global temperature (Claire, 2017). Apart from the increased temperature which causes sea water levels to rise and global warming, non-biodegradable and recyclable packaging materials cause flooding in the environment because they block the drainage system and prevent free flow of water. Instead of ground water draining out into the sea, water stays inland especially when there is heavy rainfall (Claire, 2017). As water stays inland, insects and pests such as mosquitoes, worms and rodents come to spawn and breed in the waste materials and bring diseases like malaria and fever to the communities around the most affected areas. These materials are also dangerous to marine life as they pollute the water and harm marine life.

Unsustainable packaging materials are found everywhere. Many companies have cultivated the habit of packaging their luxury products with excess materials and inflate the price to match it. For example, cornflakes is wrapped in cellophane and also enclosed in a cardboard box to give the item a sense of class. For this plastic material to decompose it takes a longer time like hundred years to weather and can never fully biodegrades. There is no need using cellophane and cardboard wrappers for individual cornflake. These packaging materials can be discarded and replaced with a wrapper made from plant fibre that covers all the cornflakes and which can quickly decompose into the soil.

Unsustainable Distribution Practices
Unsustainable distribution practices are those distribution activities embarked upon by business entities that produces large amount of carbon emission into the environment (Eberle & von Helmolt, 2010). Belz and Peattie (2009) described unsustainable distribution practices as the neglect of environmental concerns in the whole distribution processes ranging from storage and warehousing, order processing and picking, loadings, transportation, and delivery of goods to the purchaser. These practices increase the amount of fossil fuels and greenhouse gases released into the environment in the process of distribution (Mwaura, Letting, Ithinj & Orwa, 2016). Wu and Dunn in Ochieng, Awino, Njihia and Iraki (2016) stated that shipping of products to customers is the most crucial contributor to environmental degradation. Many companies engage in unsustainable distribution activities by transporting their products using vehicles that rely solely on fuel or diesel which release large amount of toxic chemicals and gases into the atmosphere during transit. When these vehicles are used frequently, they become a menace to

the environment (Ochieng et al., 2016; Eberle & von Helmolt 2010; Imafidon & Etuk 2013; Belz & Peattie, 2009).

Concept of Environmental Degradation

Environmental degradation is the deterioration of the environment through depletion of natural resources (such as water, air and soil), pollution, destruction of ecosystems, extinction of wildlife and habitat destruction. El-Haggar (2007) defined environmental degradation as the exhaustion of the world's natural resources such as land, air, soil and water. Similarly, Onuoha (2008) described environmental degradation as the situation of declining resources of the environment which provide life support systems to every human society. These resources according to Onuoha (2008) include fresh and safe water, fish, arable land, plants, animals, mineral resources and air. These natural resources come in different quantity and quality. Human beings therefore exploit these resources for their survival and in the course of doing so over-exploit and misuse thee resources which affects their quantity and quality. When the quantity and quality of these natural resources diminish as a result of human activities, one can say that the environment has been degraded.

Environmental degradation is considered as a crime committed by human beings against nature (Akinwumi, Oyebisi & Salami, 2001). El-Haggar (2007) argued that over-exploitation of natural resources is more profitable in the short-run due to its cheap means of disposing waste, avoiding the costs of waste treatment and the excluding of social losses in cost calculations; but in the long-run, natural resources will be depleted and the losses will be irreversible (El-Haggar, 2007).

Carbon Emission

Carbon emission or footprint is a measure of the total amount of carbon dioxide (CO_2) and methane (CH_4) emissions of a defined population, system or activity, considering all relevant sources, sinks and storage within the spatial and temporal boundary of the population, system or activity of interest (Wright, Kemp & Williams, 2011). Carbon emission is caused by an individual, organization, product or event expressed as carbon dioxide equivalent. Carbon emission including Greenhouse Gas (GHG) emission can be emitted through land clearance and the production and consumption of food, fuels, manufactured goods, materials, wood, roads, buildings, transportation and other services (Wikipedia, 2017). Most of the greenhouse gas emission emanated from production and consumption of energy via the process of driving car, manufacturing goods or by boiling water using kettle (Jones & Kammen, 2011). They also arise from fuel burned during the process of manufacturing and distribution of goods. Bellassen (2015) stated that an individual or company's carbon footprint can be determined by carrying out a GHG emission assessment or a product life cycle assessment. Once the exact size of the carbon footprint is determined, a plan can be devised to minimize it (Bellassen, 2015).

Carbon emission pollutes the environment and brings about climate change which poses a threat to human health and existence. A report released by the U.S. Environmental Protection Agency (2016) has it that carbon emission which takes the form of carbon dioxide contributes more than 80% of the greenhouse gases emitted in the United States. The carbon dioxide and GHG emission is associated with the burning of fossil fuels such as crude oil, coal and natural

gas. The carbon emission released into the air is harmful to the environment as it does not only bring about climate change but also lead to health challenges. The amount of carbon emission released into the environment can be reduced by using less energy and switching to energy efficient measures (Jones & Kammen, 2011).

Excessive Wastes

Wastes are unwanted materials, substance or objects which are discarded into the environment (Naila, Malik & Naushad, 2007). Waste can take various forms such as solid waste, liquid waste, hazardous waste, radioactive waste amongst others (Ejaz, Akhtar, Nisar & Ali, 2010). Wastes are generated during the process of extracting raw materials, production (processing of the raw materials into finished goods) and consumption of the final products (Bernache, 2003). Excessive wastes in the environment can attract insects and rodents which carry dangerous diseases such as malaria, yellow fever, bacterial diseases amongst others. When these wastes are burned, they produce toxic pollution which is dangerous to human health. Toxic waste materials can contaminate the surface of water, soil and the atmosphere (air) which makes the environment unproductive and unsuitable for farming activities. Waste disposal produces large amount of greenhouse gas emission mostly methane which contributes to global warming and environment degradation (Naila, Malik & Naushad, 2007). Many households and companies burn their plastic wastes to create space for more waste. Bernache (2003) stated that when plastic wastes are burnt, they produce toxic substances like dioxins and the gases that emanated from the burning process cause air pollution which contributes to acid rain while the ashes from burnt waste contain heavy metals and toxic substance which is dangerous to human health and well-being.

Empirical studies have been conducted on unsustainable marketing practices and environmental degradation. For instance, Ogbanga, Amadi and George-Anokwuru (2018) empirically examined environmental degradation as a constraint to sustainable rural entrepreneurship in the Niger Delta region of Nigeria. Their study adopted the cross-sectional survey research where a structured questionnaire was used to collect data from 350 entrepreneurs who own small and medium scale enterprises in the Niger Delta region. The data collected from the respondents were analyzed using percentage and frequency analysis. The result revealed that the sustainability constraints facing rural entrepreneurs in the Niger Delta region include acid rain, water and land pollution, oil spills, gas flaring and coastal flooding and erosion. The study also reported that these sustainability constraints have greatly hindered to economic activities of entrepreneurs in the region. The study equally revealed that the non-environmental factors affecting rural entrepreneurs in the region include infrastructure challenges, funding, insecurity, policy issues, management challenges and socio-cultural factors. Nwokoro and Chima (2017) examined the impact of environmental degradation on agricultural production and poverty in rural Nigeria. Their study highlighted the impact of unsustainable agricultural practices on environmental degradation in the rural areas in Nigeria. The researchers collected their data from rural farmers in the Niger Delta region. After analyzing the data collected for the study, the researchers found out that lack of access to societal resources and inequality in Nigeria has compelled rural people to over exploit the natural resources in the

immediate environment to meet their needs. The study also revealed that this over exploitation of the natural resources in their immediate environment has a negative implication on environmental protection or preservation. The study equally revealed that poverty among the rural populace has prompted agriculturalists to abandon their traditional methods of conserving natural resources for immediate benefits. The study concluded that unsustainable agricultural practices have contributed significantly to environmental degradation.

Ogboru and Anga (2015) investigated the relationship between environmental degradation and sustainable economic development in Nigeria. Their study employed a qualitative research approach. The data collected were analyzed statistically and the findings showed that the increasing rate of environmental degradation in Nigeria. The study also reported that the increasing cases of cancer, tuberculosis and viral diseases occur as a result of the environmental pollution and degradation. The study equally found several cases of flood, erosion, and drastic decline in agricultural produces which occur as a result of environmental degradation. The study however concluded that environmental degradation has continued to pose a great challenge to sustainable economic development in Nigeria.

Duru (2014) examined environmental degradation as a key challenge to sustainable economic development in the Niger Delta region of Nigeria. The study was conducted in Ogoniland where 200 indigenes were sampled using a structured questionnaire. The data collected were analyzed statistically using frequency and percentage analysis, mean and standard deviation. The findings revealed that the environment in Ogoniland has been degraded as a result of the oil exploration and exploitation activities of multinational oil companies in the land. The study also reported that the environmental pollution and degradation has negatively affected the standard of living of the people in Ogoniland. The study concluded that environmental degradation has constituted a setback to sustainable economic development in the Niger Delta region of Nigeria.

Omofonmwan and Osah-Edoh (2008) carried out a study to determine the challenges of environmental problems in Nigeria. Their study adopted the descriptive survey research design and used a structured questionnaire to obtain data from 150 environmentalists in Edo State. After analyzing the data collected, the researchers discovered that the increasing rate of urbanization and deforestation has resulted to environmental degradation. The study also revealed that man's desire to meet their basic needs such as food, shelter and clothing has forced them to embark on economic activities that have to a great extent degraded the environment. The study equally revealed that environmental degradation has constituted a threat to human health and existence.

Gap in Empirical Review
From the empirical literature reviewed, it was observed that a significant number of studies have been conducted on environmental degradation in the Niger Delta region but none of these studies related unsustainable marketing practices (unsustainable production process, unsustainable packaging and unsustainable distribution practices) to measures of environmental degradation (carbon emission pollution and excessive wastes disposal) in the

Niger Delta region. This has created a gap in empirical literature which the present study has filled.

Methodology

This study adopted the correlation survey research design. The target population of this study comprised of all the manufacturing companies in the six states in the Niger Delta region while the accessible population was limited to twenty (20) selected manufacturing companies in two states in the Niger Delta region (Rivers and Bayelsa States). A population of 495 managers and marketers were drawn from the selected manufacturing companies in Rivers and Bayelsa States. A sample size of 221 managers and marketers were used for the study. The sample size was determined using the Taro Yamen's formula. The simple random sampling technique was used in selecting the sample size from the study population. A structured questionnaire was used as the main instrument for data collection. The questionnaire was validated by two research experts in marketing discipline and its reliability was determined using the test-retest method. A total copy of 221 questionnaires was administered to the respondents and 204 copies were completed and retrieved. The data collected were analyzed statistically while the hypotheses were tested using the Spearman Rank Order Correlation Coefficient (rho) with the aid of the SPSS 21.0 version.

Data Analysis and Results

The results of the correlation analysis carried out on the study variables are presented in tables and interpreted accordingly. The correlation analysis was done using the SPSS software program. Here, the independent variables (unsustainable production process, unsustainable packaging and unsustainable distribution practices) were correlated with the dependent variables (carbon emission pollution and excessive wastes). The results are presented below:

Table 1: Result of correlation analysis between unsustainable production process and carbon emission pollution in the Niger Delta region

			Unsustainable Production Process	Carbon Emission Pollution
Spearman Rank (rho)	Unsustainable Production Process	Correlation Coefficient	1.000	.814*
		Sig. (2 tailed)	.	.001
		N	204	204
	Carbon Emission Pollution	Correlation Coefficient	.814*	1.000
		Sig. (2 tailed)	.001	.
		N	204	204

**Correlation is significant at 0.01 levels (2 tailed)

*Correlation is significant at 0.05 levels (2 tailed)
    Source: SPSS-generated Output

Table 1 presents the result of correlation analysis between unsustainable production process and carbon emission pollution. The result indicates that unsustainable production process is positively correlated to carbon emission pollution (rho = .814*) and the symbol * signifies that this correlation is significant at 0.05 level. As a result of this, the null hypothesis (Ho$_1$) is rejected and the alternate hypothesis is accepted. This means that there is significant relationship between unsustainable production process and carbon emission pollution in the Niger Delta region.

Table 2: Result of correlation analysis between unsustainable production process and excessive wastes in the Niger Delta region

			Unsustainable Production Process	Excessive Wastes
Spearman Rank (rho)	Unsustainable Production Process	Correlation Coefficient	1.000	.861*
		Sig. (2 tailed)	.	.002
		N	204	204
	Excessive Waste	Correlation Coefficient	.861*	1.000
		Sig. (2 tailed)	.002	.
		N	204	204

 **Correlation is significant at 0.01 levels (2 tailed)
*Correlation is significant at 0.05 levels (2 tailed)
    Source: SPSS-generated Output

Table 2 shows the result of correlation analysis between unsustainable production process and excessive wastes generation in the Niger Delta region. The result revealed that unsustainable production process has a positive correlation with excessive wastes generation (rho = .861*) and the symbol * indicates that this correlation is significant at 0.05 level. Based on this result, we then reject the null hypothesis (Ho$_2$) and accept the alternate hypothesis which states that there is significant relationship between unsustainable production process and excessive wastes in the Niger Delta region.

Table 3: Result of correlation analysis between unsustainable packaging and carbon emission pollution in the Niger Delta region

			Unsustainable Packaging	Carbon Emission Pollution
Spearman Rank (rho)	Unsustainable Packaging	Correlation Coefficient	1.000	.743*
		Sig. (2 tailed)	.	.003
		N	204	204
	Carbon Emission Pollution	Correlation Coefficient	.743*	1.000
		Sig. (2 tailed)	.003	.
		N	204	204

 **Correlation is significant at 0.01 levels (2 tailed)
*Correlation is significant at 0.05 levels (2 tailed)
   Source: SPSS-generated Output

Table 3 contains the result of correlation analysis between unsustainable packaging and carbon emission pollution in the Niger Delta region. The result indicates that unsustainable packaging is positively correlated to carbon emission pollution (rho = .743*) and the symbol * implies that this correlation is significant at 0.05 level. Consequently, null hypothesis (Ho_3) is rejected and the alternate hypothesis is accepted which implies that there is significant relationship between unsustainable packaging and carbon emission pollution in the Niger Delta region.

Table 4: Result of correlation analysis between unsustainable packaging and excessive wastes in the Niger Delta region

			Unsustainable Packaging	Excessive Wastes
Spearman Rank (rho)	Unsustainable Packaging	Correlation Coefficient	1.000	.897*
		Sig. (2 tailed)	.	.004
		N	204	204
	Excessive Wastes	Correlation Coefficient	.897*	1.000
		Sig. (2 tailed)	.004	.
		N	204	204

**Correlation is significant at 0.01 levels (2 tailed)
*Correlation is significant at 0.05 levels (2 tailed)
Source: SPSS-generated Output

Table 4 presents the result of correlation analysis between unsustainable packaging and excessive wastes in the Niger Delta region. The result revealed that unsustainable packaging has a positive correlation with excessive wastes generation (rho = .897*) and this correlation is significant at 0.05 level as indicated by the symbol *. Hence, null hypothesis (Ho_4) is rejected and the alternate hypothesis is accepted. This implies that we then accept that there is significant relationship between unsustainable packaging and excessive wastes in the Niger Delta region.

Table 5: Result of correlation analysis between unsustainable distribution practices and carbon emission pollution in the Niger Delta region

			Unsustainable Distribution Practices	Carbon Emission Pollution
Spearman Rank (rho)	Unsustainable Distribution Practices	Correlation Coefficient	1.000	.854*
		Sig. (2 tailed)	.	.005
		N	204	204
	Carbon Emission Pollution	Correlation Coefficient	.854*	1.000
		Sig. (2 tailed)	.005	.
		N	204	204

**Correlation is significant at 0.01 levels (2 tailed)
*Correlation is significant at 0.05 levels (2 tailed)
Source: SPSS-generated Output

Table 5 shows the result of correlation analysis between unsustainable distribution practices and carbon emission pollution in the Niger Delta region. The result revealed that unsustainable distribution practices are positively correlated to carbon emission pollution (rho = .854*) and this correlation is significant at 0.05 level as indicated by the symbol *. As a result of this, the null hypothesis (Ho_5) is rejected and the alternate hypothesis is accepted. This means that there is significant relationship between unsustainable distribution practices and carbon emission pollution in the Niger Delta region.

Table 6: Result of correlation analysis between unsustainable distribution practices and excessive wastes in the Niger Delta region

			Unsustainable Distribution Practices	Excessive Wastes
Spearman Rank (rho)	Unsustainable Distribution Practices	Correlation Coefficient	1.000	.810*
		Sig. (2 tailed)	.	.005
		N	204	204
	Excessive Wastes	Correlation Coefficient	.810*	1.000
		Sig. (2 tailed)	.005	.
		N	204	204

**Correlation is significant at 0.01 levels (2 tailed)
*Correlation is significant at 0.05 levels (2 tailed)
Source: SPSS-generated Output

Table 6 presents the result of correlation analysis between unsustainable distribution practices and excessive wastes in the Niger Delta region. The result revealed that unsustainable distribution practices has a positive correlation with excessive wastes generation (rho = .810*) and the symbol * indicates that this correlation is significant at 0.05 level. Consequently, the null hypothesis (Ho$_6$) is rejected and the alternate hypothesis is accepted which implies that there is significant relationship between unsustainable distribution practices and excessive wastes in the Niger Delta region.

Discussion of Findings

Based on the result of the analysis carried out, it was discovered that unsustainable production process has a significant relationship with carbon emission pollution in the Niger Delta region. This finding was derived from the result of the correlation analysis carried out on two variables. The result revealed that unsustainable production process is positively correlated to carbon emission pollution and this correlation is significant at 0.05 levels (See table 1). This finding is supported by Little, Lee & Nair (2019) who noted that unsustainable production has contributed large amount of carbon emission pollution in the Niger Delta region. Yeomans (2015) also supported this finding when they posited that unsustainable production has increased the amount of greenhouse gas emission in many countries.

This study also found a significant relationship between unsustainable production process and excessive waste in the Niger Delta region. This finding was deduced from the result of the correlation analysis carried out on the two variables. The result revealed that unsustainable production process has a positive correlation with excessive wastes generation

and this correlation is significant at 0.05 level (See table 2). This finding is in line with Sanchez (2011) postulation that unsustainable production activities have increased the level of waste generation around the globe. Yeomans (2015) also agreed with this finding when they stated that unsustainable production process has contributed immensely to the increasing volume of wastes found in the landfills and sea.

This study equally found a significant relationship between unsustainable packaging and carbon emission pollution in the Niger Delta region. This finding was obtained from the result of the correlation analysis carried out on the two variables. The result revealed that unsustainable packaging was positively correlated to carbon emission pollution and this correlation was significant at 0.05 level (See table 3). This finding is supported by Amy (2014) who noted that unsustainable packaging materials have increased the level of carbon emission pollution in Nigeria. Bernache (2003) agreed with this finding when they posited that many households burn their packaging materials which cannot be recycled or reused and this burning process releases large amount of greenhouse gas emission which cause climate change and poor health status of the people.

A significant relationship was reported between unsustainable packaging and excessive wastes in the Niger Delta region. This finding emerged from the result of the correlation analysis carried out on the two variables. The result revealed that unsustainable packaging has a positive correlation with excessive wastes generation and this correlation was significant at 0.05 level (See table 4). This finding is in line with Hanson (2016)'s argument that non-biodegradable packaging materials (unsustainable packaging materials) have increased the volume of waste disposed into the environment. Claire (2017) also supported this finding when he posited that non-recyclable plastic containers (non-biodegradable and recyclable packaging materials) have contributed immensely to the large volume of waste found in the landfills, blocking our drainage system and causing flooding and untold hardship to the people.

This study also found a significant relationship between unsustainable distribution practices and carbon emission pollution in the Niger Delta region. This finding was derived from the result of the correlation analysis carried out on the two variables. The result showed that unsustainable distribution practices were positively correlated to carbon emission pollution and this correlation was significant at 0.05 level (See table 5). This finding is supported by Ochieng, Awino, Njihia & Iraki (2016) who noted that many companies engage in unsustainable distribution activities by transporting their products using vehicles that rely solely on fuel or diesel which release large amount of toxic chemicals and gases into the atmosphere during transit. When these vehicles are used frequently, they become a menace to the environment. Imafidon & Etuk (2013) also supported this finding when they stated that smoking vehicles and trucks on our highways cause different forms of pollution to the environment and unhealthy living to the people.

This study discovered a significant relationship between unsustainable distribution practices and excessive waste in the Niger Delta region. This finding was obtained from the result of the correlation analysis carried out on the two variables. The result revealed that unsustainable distribution practices have a positive correlation with excessive wastes generation and this correlation was significant at 0.05 level (See table 6). This finding is

supported by Mwaura, et al (2016) who noted that many vehicles are dumped on the street without any effort on the part of the owners to fix their problems. These vehicles breakdown constitute waste products which litter the environment and make it unsuitable for tourist activities. Imafidon & Etuk (2013) agreed with this finding when they posited that the breakdown of vehicles used in transporting goods litters the environment and contributes to the large volume of wastes found in the landfills.

Conclusion

It is obvious from our robust discussion that the Niger Delta environment has been degraded and polluted. The continuous degradation of the environment constitutes a threat to human health and existence. The large amount of carbon emission released into the air and the increasing volume of wastes brought into the landfills and sea make the environment unsuitable and unproductive for the present and future generations. The continuous degradation of the environment has caused untold hardship to the people in the Niger Delta region. Efforts to address this problem have proved unsuccessful as the unsustainable marketing practices have continued to degrade and pollute the environment in the Niger Delta region. The empirical results of this study clearly showed that unsustainable production process, packaging and distribution practices have significantly increased the amount of carbon emission and wastes in the Niger Delta region. The implication of these findings is that if manufacturing companies did not discontinue their unsustainable marketing practices, it will wipe out the entire generation since the people would not have access to good air, maintain good health status and sustain their means of livelihood.

Recommendations

In line with the findings and conclusion, the following recommendations are made:

a) That, manufacturing companies in Nigeria especially those in the Niger Delta region should discontinue their unsustainable marketing practices as it would bring the issue of environmental degradation to an everlasting end.

b) That, manufacturing companies in the Niger Delta region should desist from their current unsustainable production process and adopt a sustainable production process using energy efficient technology as it will help to reduce the level of carbon emission released into the atmosphere.

c) That, manufacturing companies in the Niger Delta region should switch from their unsustainable packaging system to sustainable packaging as it would not only reduce the amount of wastes brought into the landfills and sea but also reduce the amount of carbon emission released into the air when these wastes are burnt.

d) That, manufacturing companies in the Niger Delta region should desist from the practice of using smoking vehicles in distribution of their products as this form of unsustainable distribution practice increases the amount of carbon emission released into the atmosphere, causing climate change and acid rain which are dangerous to human health and well-being.

e) Finally, it is recommended that manufacturing companies in the Niger Delta region should embrace sustainable marketing concept as it would help to prevent or reduce environmental degradation and achieve environmental sustainability in Nigeria.

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