

# IMPACT OF ENVIRONMENTAL PUBLIC RELATIONS MANAGEMENT ON SUSTAINABLE DEVELOPMENT OF NIGER-DELTA REGION, NIGERIA

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## Abstract

Environmental public relations (EPR) management is a branch of public relations involved with aiding the promotion of sustainable development in an area through the management of organizations' strategic communications. This study aimed to investigate the role of environmental public relations in advancing sustainable development in the Niger-Delta. The specific objectives were to: (i) assess the effect of Waste reduction practices on the environmental sustainability of the Niger-Delta; (ii) determine the effect of green marketing communication on the ecological wholeness of the region; (iii) evaluate the effect of behavioral change campaigns on the adoption of sustainable behavior in the Niger-Delta region of Nigeria. To attain this aim, quantitative research was designed with 587 responses gathered. Findings from the study indicates that the various strategic practices such as waste reduction, green marketing communication, and behavioral change campaigns were integral to enhancing both environmental sustainability and economic empowerment in the Niger-Delta region.

**Keywords:** Strategic Communications, Environmental Sustainability, Green Marketing Communication, Behavioral Change Campaigns, Ecological Wholeness.

## 1. INTRODUCTION

In recent time, there has been an increase in awareness of the danger posed to life in Nigeria's Niger-Delta region by environmental factors such as pollution, deforestation, erosion, flooding and other environmental issues (Olowoyeye, 2021). These have led to organizations, government and the general public realizing the importance of addressing these concerns proactively. It is this realization that has given rise to the need for a strategic communications approach that could bridge the gap between environmental stewardship and public perception. As a result of these, the concept of environmental public relations has become too critical to be ignored.

Environmental public relations (EPR) is defined as a strategic communication approach that focuses on managing an organization's relationship with the environment and its stakeholders (Smith, Voß, & Grin, 2019). Among the cardinal objectives of EPR is the crafting of messages and initiatives to address environmental issues and concerns. It also includes the promotion of sustainable practices, responding to environmental crises, and demonstrating a commitment to environmental conservation (United Nations, 2015).

EPR plays a pivotal role in advancing sustainable development by fostering awareness, promoting engagement, advocating for change, and facilitating collaboration among stakeholders (Nwankwo & Ocheni, 2017).

Environmental public relations strategies often include actions such as promoting sustainable initiatives, engaging in transparent communication about environmental practices, partnering with eco-friendly organizations, and addressing concerns raised by stakeholders regarding environmental impact.

Sustainable development on the other hand, is a concept that seeks to balance the needs of the present without compromising the ability of future generations to meet their own needs (UNESCO, 2017) According to Uwem and Ewah (2015), sustainable development emphasizes the integration of economic, social, and environmental goals to create a harmonious and lasting approach to development. At its core, sustainable development recognizes that economic growth, social well-being, and environmental protection are interconnected and should be pursued in tandem. This means that development should not come at the expense of the environment or the well-being of people, but rather should support and enhance both (WCED, 2017).

Sustainable development is a global concern, but perspectives to it can vary significantly based on regional contexts and challenges. Globally, particularly in the United States and the United Kingdom, sustainable development is often approached through a combination of environmental regulations, corporate sustainability initiatives, and community engagement. It also includes efforts focused on reducing carbon emissions, promoting renewable energy sources, and integrating sustainability practices into various sectors (Smith et al., 2019)

In Africa, particularly in countries like Ghana and Kenya, sustainable development involves addressing socio-economic disparities and environmental issues. These nations focus on improving access to education, healthcare, and clean water while promoting sustainable agriculture and ecotourism (United Nations Economic Commission for Africa, 2021).

Nigeria, particularly the Niger Delta region, faces unique challenges due to the impacts of oil and gas exploration and pollution. Sustainable development efforts in Nigeria involve community engagement, environmental restoration, and policies to mitigate the adverse effects of oil and gas industries activities (Nwankwo & Ocheni, 2017). These challenges have led to conflicts, health issues, and a decline in the overall quality of life for the local communities residing in the area.

In recent years, there has been a growing recognition of the need for sustainable development in the Niger Delta, one that addresses the pressing environmental and social issues while also promoting economic growth (Edafejrhaye & Alao, 2019). The concept of sustainable development emphasizes the integration of environmental, social, and economic considerations to create a more balanced and equitable future for the region's inhabitants (Hamilton, 2011).

One critical aspect that plays a pivotal role in driving sustainable development is environmental public relations (EPR). Environmental public relations involve the strategic communication efforts of various stakeholders, including governments, corporations, non-governmental organizations (NGOs), and local communities, to manage and shape perceptions about environmental issues and initiatives (Igben, 2016). EPR can influence public attitudes, policies, and behaviors, thereby contributing to the overall success of sustainable development efforts (Idowu, 2012).

The importance of environmental public relations (EPR) in ensuring sustainable development in the Niger-Delta region cannot be overemphasized. Carrying out EPR activities in the region would entail sustainable development, where economic growth coexists harmoniously with ecological preservation and equitable socio-economic progress.

However, this ideal remains elusive due to a series of interrelated challenges: Many EPR practitioners being ignorant about their immense role in advocating for change in the Niger-Delta; many advocacy groups using ineffective strategies in advocating for adequate adoption of environmental social responsibility by organizations in the region, especially oil and gas firms. Additionally, sustainable development demands integrated efforts encompassing environmental stewardship, socio-economic equity, and cultural preservation, but achieving this balance proves complex. The result of this is high environmental degradation, social disparities, and low economic growth in the region.

Despite efforts to address the challenges, a significant gap exists between the aspirations of sustainable development and the current reality in the Niger Delta. There is a

“disconnect” between environmental policies, corporate initiatives, and community needs which has remained under-researched and unreported.

To bridge this gap, the study is aim mainly at investigating the role of environmental public relations in advancing sustainable development in the Niger Delta. By analyzing the strategies, impact, and effectiveness of EPR initiatives, the research seeks to identify ways in which strategic communication can promote awareness, engage stakeholders, advocate for policy changes, and foster collaboration.

The specific objectives were to:

- (i) Assess the effect of waste reduction practice on environmental sustainability of the Niger-Delta
- (ii) Investigate the effects of green marketing communication on ecological wholeness of the Niger-Delta region.
- (iii) Assess the effects of behaviour change campaign on sustainable behaviour in the Niger-Delta region.

## **2. LITERATURE REVIEW**

### **2.1. The Concept of Environmental Public Relations (EPR)**

Environmental Public Relations (EPR) is a strategic communications approach focusing on managing an organization's relationship with the environment and its stakeholders. The aim is to promote awareness, understanding, and positive perceptions of an organization's environmental initiatives, practices, and sustainability efforts. This multidimensional communication strategy involves crafting meaningful messages, engaging in dialogue, and implementing campaigns highlighting an organization's commitment to environmental responsibility, transparency, and ethical practices (Nwankwo & Ocheni, 2017).

From the point of view of Nwosu and Uffoh (2005), EPR is a specialty area of reputation management and public relations practice with an emphasis on the most effective ways to employ pertinent public relations principles, practices, strategies, techniques, models, and tactile to address environmental concerns, challenges, and initiatives in a way that makes goals of sustainable development at the local, state, federal, and international levels a reality.

#### **Waste Reduction Practice**

Waste reduction practices are integral to sustainable development efforts globally, aiming to minimize the generation of waste and maximize resource efficiency. These practices encompass various strategies/initiatives implemented across industries, communities, and governments to mitigate environmental impacts associated with waste generation and disposal.

Waste reduction refers to the proactive measures taken to minimize the amount of waste generated, thereby decreasing the environmental impact associated with waste disposal. It encompasses strategies such as source reduction, recycling, re-use, and composting to divert waste from landfills and incineration facilities (United States Environmental Protection Agency, 2020). Waste reduction also involves designing, manufacturing, purchasing, or using materials in ways that reduce the amount or toxicity of waste generated at the source. It focuses on preventing waste generation rather than managing it after it is produced (European Environment Agency, 2018).

The significance of waste reduction cannot be overstated. Waste reduction practices help conserve natural resources, reduce energy consumption, minimize pollution, and mitigate greenhouse gas emissions, contributing to environmental sustainability (Wang, Y., Zhang, L., Wei, S., & Liu, G. 2020).

In the United Kingdom, waste management is governed by the Waste (England and Wales) Regulations 2011, which set recycling and landfill diversion targets. The Waste and Resources Action Programme (WRAP) works with businesses and communities to promote waste reduction and recycling (Waste and Resources Action Programme, 2017). Where-as in Kenya, it focuses on improving collection, recycling, and disposal services, with initiatives such as the National Environment Management Authority (NEMA) coordinating waste management activities and promoting public awareness campaigns (National Environment Management Authority, 2017)

Nigeria faces significant challenges in waste management. These led the government to launch programs like the National Waste Management Project to improve waste collection, recycling, and disposal practices (Federal Ministry of Environment, 2017).

Waste reduction practices are closely linked to environmental sustainability goals, as they help conserve natural resources, minimize pollution, and reduce greenhouse gas emissions (UNEP, 2018). By promoting resource efficiency, waste reduction contributes to the transition to a circular economy, where materials are reused, recycled, and regenerated, rather than disposed of as waste (Ellen MacArthur Foundation, 2020). Implementing comprehensive waste management programs aligned with sustainable development objectives can lead to improved environmental quality, enhanced public health, and increased resilience to climate change impacts (European Environment Agency, 2021). However, addressing the complex challenges associated with waste reduction requires multi-stakeholder collaboration, innovative solutions, and long-term commitment from governments, businesses, and communities (Geyer, R., Jambeck, J. R., & Law, K. L. 2020).

### **Green Marketing Communication**

According to Dangelico and Vocalelli (2017), green marketing is a collection of practices meant to guarantee that the interchange of products has the least possible adverse impact on the environment. For Jurak and Hornak (2012), green marketing refers to the incorporation of an extensive variety of practices and patterns of marketing activities

(such as product, production process, packaging, labelling, and advertising strategy modifications) to meet human needs while having the least possible negative effects on the environment. Whatever the nomenclature or strategy, green marketing is an essential idea that attempts to put businesses' operations into a more compatible and intimate connection with the environment.

In business communication, a wide variety of media may be used to carry it out, including social media, websites, newspapers, pamphlets, television ads, and magazines (Chan, 2004). To live a greener lifestyle is good for the environment and their health. Green marketing According to Ganganaboina and Sana (2017), these communication channels aim to convince consumers that choosing communication uses both spoken and non-spoken messages. For example, green labels, often called environmental or eco-labels, are used to teach customers about green production, packaging, and waste management practices by using pictures or text to communicate messages of environmental compatibility (Jerzyk, 2016).

### **Behaviour Change Campaigns**

Behaviour change campaigns are multifaceted strategies designed to influence individuals and communities, prompting them to adopt or modify behaviours that align with specific goals, such as sustainability, health, or social change. Behavior change campaigns represent a critical facet of public policy, advocacy, and marketing initiatives aimed at addressing societal and environmental issues. These campaigns leverage a variety of communication and psychological techniques to encourage individuals and communities to make informed choices and embrace behaviours conducive to personal and collective well-being.

Behaviour change campaign refers to a purposeful and structured effort to influence individuals' or groups' behaviours, attitudes, or beliefs with the aim of achieving specific societal or environmental outcomes. The campaigns often utilize strategic communication and messaging (Witte, 2012). It often provides information to raise awareness and understanding of a particular issue. Behaviour changes campaigns play a vital role in maintaining sustainable behaviours by continuously reinforcing positive actions, raising awareness of their importance, and building a community of individuals committed to lasting change.

Understanding the elements and the obstacles that need to be removed before people and organisations alter their behaviour is essential for developing an initiative that will be successful. It also requires a solid grasp of societal norms and values. Three general categories may be used to categorise the elements affecting behaviour: personal, societal, and environmental. Personal elements are inherently personal to each person. It also involves their conviction that they can alter their conduct. Social aspects refer to how actions taken by others affect an individual. Environmental influences, like the state of the economy or technology, are beyond a person's control. To create a successful campaign, each of these elements must be taken into consideration. It is uncertain to be



successful in trying to explain and change behaviour by focusing on a single set of elements (Budge, S. L., Adelson, J. L., Howard, K. A., & Lo, B. K. 2009).

### **Sustainable Development (SD)**

After being linked to many definitions, and interpretations, the term "sustainable development" (SD) has come to be used interchangeably in the discourse around development. According to Dennbach (2003) and Stoddart (2011), "development that can be continued either indefinitely or for the given period" is the literal definition of sustainable development. Structurally, the concept can be seen as a phrase consisting of two words, "sustainable" and "development." Just as each of the two words that combine to form the concept of SD, it has been defined variously from various perspectives, the concept of SD has also been viewed from various angles, leading to a plethora of definitions of the concept.

Although definitions abound concerning SD, the most often cited definition of the concept is the one proposed by the Brundtland Commission Report (Schaefer & Crane, 2005). The Report defines SD as development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs.

### **Environmental Sustainability**

The concept of environmental sustainability is about the natural environment and how it remains productive and resilient to support human life. Environmental sustainability relates to ecosystem integrity and the carrying capacity of the natural environment (Brodhag & Taliere, 2006). It requires that natural capital be sustainably used as a source of economic inputs and as a sink for waste (Goodland & Daly, 2006). The implication is that natural resources must be harvested no faster than they can be regenerated while waste must be emitted no faster than they can be assimilated by the environment (Diesendorf, 2000;). This is because the earth's systems have limits or boundaries within which equilibrium is maintained.

The effects of climate change, for instance, provide a convincing argument for the need for environmental sustainability. Climate change refers to significant and long-lasting changes in the climate system caused by natural climate variability or by human activities (Coomer, 2009). These changes include warming of the atmosphere and oceans, diminishing ice levels, rising sea levels, increasing acidification of the oceans and increasing concentrations of greenhouse gases (Du & Kang, 2016).

Climate change has already shown signs of affecting biodiversity. In particular, Kumar, R., Raizada, S., & Biswas, A. (2014) have observed that higher temperatures tend to affect the timing of reproduction in animal and plant species, migration patterns of animals and species distributions and population sizes.

Broadly speaking, this concept of "environmental sustainability" might be seen as adding depth to a portion of the meaning of the most common definition of sustainable development, i.e., "meeting the needs of the current generation without compromising the

ability of future generations to meet their needs,” by taking on the general definition “meeting the resource and services needs of current and future generations without compromising the health of the ecosystems that provide them,” (“Our Common Future”). More specifically, environmental sustainability could be defined as a condition of balance, resilience, and interconnectedness that allows human society to satisfy its needs while neither exceeding the capacity of its supporting ecosystems to continue to regenerate the services necessary to meet those needs nor by our actions diminishing biological diversity.

### **Ecological Wholeness**

Ecological wholeness is a concept that emphasizes the interconnectedness, balance, and harmony within ecosystems, recognizing the intricate relationships between living organisms and their environments. It underscores the importance of preserving biodiversity, ecosystem integrity, and natural processes to sustain ecological health and resilience.

Ecological wholeness refers to the interconnectedness and interdependence of all components within ecosystems, including species diversity, habitats, and ecological processes (Capra, 2016). According to (Holling, 2017), ecological wholeness entails maintaining dynamic equilibrium and resilience within ecosystems, where natural systems can adapt to disturbances, recover from stressors, and maintain ecological stability over time. Ecological wholeness involves adopting a holistic perspective and systems thinking approach to understanding and managing ecosystems, recognizing the complex interactions and feedback loops between biotic and abiotic factors (Leopold, 2019).

There are different types of ecological wholeness, these are biodiversity conservation, ecosystem restoration, sustainable land use and management (Capra, 2016). Biodiversity conservation initiatives aim to protect and restore the diversity of species, ecosystems, and genetic resources, preserving ecological wholeness and promoting ecosystem resilience. Ecosystem restoration efforts focus on rehabilitating degraded ecosystems, restoring habitat connectivity, and enhancing ecosystem services to promote ecological wholeness and biodiversity conservation. Sustainable land use and management practices aim to minimize habitat fragmentation, prevent land degradation, and promote ecosystem health and resilience, supporting ecological wholeness and sustainable development.

The importance of ecological wholeness cannot be overstated. Ecological wholeness is essential for preserving biodiversity, which provides critical ecosystem services such as pollination, soil fertility, water purification, and climate regulation (Leopold, 2019). According to Holling (2017), maintaining ecological wholeness enhances ecosystem stability and resilience, enabling ecosystems to withstand environmental changes, recover from disturbances, and adapt to evolving conditions.



Different countries view ecological wholeness in various ways. In the United States, ecological wholeness is promoted through national parks, wildlife refuges, protected areas, conservation easements, and biodiversity conservation programs administered by federal agencies such as the National Park Service and the U.S. Fish and Wildlife Service (U.S. Department of the interior, 2020). In Europe particularly the United Kingdom, Ecological wholeness initiatives include habitat restoration projects, biodiversity action plans, and protected area management strategies implemented by government agencies, non-profit organizations, and local communities (UK Government, 2020).

In Nigeria, ecological wholeness is promoted through national parks, forest reserves, protected areas, biodiversity conservation programs, and sustainable land use practices supported by government agencies and conservation organizations (Nigerian Conservation Foundation, 2020).

Ecological wholeness leads to enhanced biodiversity and ecosystem health, improved ecosystem services and resilience, increased habitat connectivity and species mobility, and greater ecological stability and sustainability (Millennium Ecosystem Assessment, 2005). Green marketing communication plays a vital role in promoting ecological wholeness by raising awareness about environmental issues, advocating for biodiversity conservation, and promoting sustainable lifestyles and consumption patterns. Through green marketing campaigns, businesses and organizations can educate consumers about the importance of ecological wholeness, highlight their commitment to environmental stewardship, and encourage environmentally friendly behaviours and purchasing choices (Kotler, P., Kartajaya, H., & Setiawan, I. 2010).

### **Sustainable Behavior**

Sustainable behaviour involves choices and actions aimed at minimizing environmental impact and conserving natural resources (Steg, Bolderdijk, Keizer, & Perlaviciute, 2014). It includes reducing energy consumption, using eco-friendly products, and recycling to protect the planet. It encompasses consumer choices that prioritize products and services from socially responsible and environmentally conscious companies. This includes supporting fair trade, organic, and eco-certified products (Gifford, 2011).

Sustainable behaviour extends to actions that promote social equity, community engagement, and ethical employment practices. It incorporates everyday decisions that reduce an individual's ecological footprint, such as conscious consumption, partaking in community service and environmental initiatives, advocating for social and environmental justice.

Strategies for promoting sustainable behavior includes:- raising awareness about environmental and social problems, the benefits of sustainable behavior, campaigns, workshops, and educational programs; encouraging sustainable behaviour through incentives such as tax credits, rebates for energy-efficient products, or rewards programs; implementing policies and guidelines that encourage workable practices, such as emissions reduction targets and plastic prohibitions; fostering community engagement

and collective action through local initiatives and events; utilizing technological advancements and innovation to develop eco-friendly products and services (Ryan & Deci, 2000).

The benefits of maintaining or implementing sustainable behaviour cannot be overstated. According to Dietz, Gardner, Gilligan, Stern, and Vandenberg (2009), sustainable behaviour helps protect natural resources, reduce pollution, and conserve ecosystems. It leads to economic savings as energy and resource-efficient practices often lead to cost savings for individuals and organizations. It contributes to social justice, fair labour practices, and community well-being.

Various types of sustainable behaviour abound in literature, these include: consumer behaviour, environmental stewardship, social responsibility, economic sustainability, and lifestyle choices (Stern, 2000).

Behaviour change campaigns are instrumental in promoting sustainable behaviour. They raise awareness, provide education, and motivate individuals and communities to adopt more sustainable practices. These campaigns utilize various strategies, such as social marketing, community engagement, and policy advocacy, to drive behaviour change. For example, campaigns encouraging recycling or energy conservation can significantly impact public perception and motivate sustainable behaviour (Dietz, Gardner, Gilligan, Stern, & Vandenberg, 2009).

## **2.2 Theoretical Review**

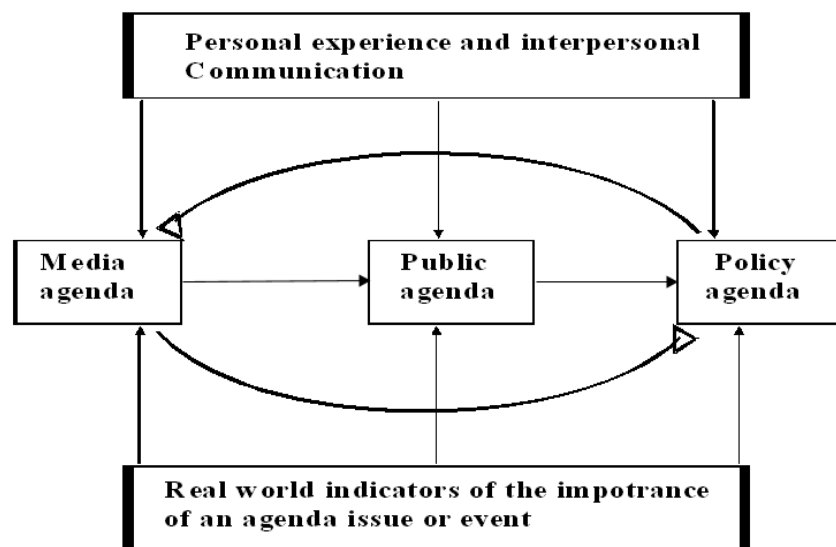
### **Agenda-Setting Theory**

The agenda-setting theory states that the mass media has a significant impact on audiences by determining the newsworthiness of topics and the amount of significance, time, and space given to them (McCombs, 2009). The mass media have the unique capability to shift significant issues from their agenda to the public agenda, a phenomenon referred to as salience transfer, a fundamental principle of the Agenda Setting Theory. The agenda-setting hypothesis is a widely accepted concept in communication. Maxwell McCombs and Donald Shaw formulated the theory in 1972 after conducting research in Chapel Hill, North Carolina, USA. They surveyed 1000 undecided voters during the 1968 US presidential campaign to determine the topics they considered significant and compared these with the media coverage.

The data obtained from the investigation enabled them to provide empirical evidence in support of their principal premise. The idea suggested that the mass media shapes public opinion by focusing on some subjects while ignoring others. This clearly showed that using different mass media in communication efforts to promote a specific behaviour shift from negativity to positivity may enhance the effectiveness of the campaigns. The mass media would raise consciousness and impact public opinion, knowledge, and attitudes toward sustainable development, especially in the Niger Delta by highlighting environmental issues.

The Agenda-Setting Theory demonstrates that media organisations often influence the public by determining which topics they should prioritise. If news or advertising media fails to influence the opinions of individuals effectively, it is unlikely to succeed in today's society.

The University of Twente's study in 2009 detailed the Agenda Setting Theory, which highlights the significant effect of the media in determining which concerns individuals should prioritise. The study suggests that the theory is suitable for aiding researchers in comprehending how the media might influence consciousness and shape public opinion, as seen in the Conceptual model on Fig. 2.2.



**Fig 2.2: A Conceptual Model of the Agenda-Setting Theory**

Source: McQuail and Windahl (1973),

<http://www.cw.utwente.nl/theorieenoverzicht/theory%20clusters/mass%20media/Agenda>

Figure 2.2 illustrates the process of media agenda being transformed into a public agenda and public opinion, leading to the emergence of a policy problem in the perception of the public. The Agenda Setting Theory posits that individuals who are confronted with the same media would prioritise the same topics highlighted by the media (McCombs, 2009). McCombs (2009) demonstrates the influential role of mass media in shaping public opinion in the research "The Agenda Setting Role of the Mass Media in the Shaping of Public Opinion." Local agenda-setting impacts have been seen in several international settings, providing support for both national and local agenda-setting impacts. A study conducted by Canel, M. J., & Voltmer, K. (1996) in Spain revealed a strong association between the topics covered by the media and the problems that the public was concerned about, namely regarding unemployment and congestion in urban areas.

The term "setting the agenda" has become widely used in discussions of research on public opinion, information, and communications (including methods of communication measurement), as these and numerous other studies have demonstrated that the news media have a significant impact on the content of the public agenda.

### **2.3 Empirical Review**

This study analysed past, comparable, and related studies conducted by other academics and intellectuals.

Ebitu, Joshua, and Basil (2014) examined "Environmental Public Relations (EPR) strategies as intervention measures to caution against the challenges of climate change on agricultural development in Nigeria".

The project aimed to investigate the impact of drought, flood, and desert encroachment on agricultural growth in Nigeria, as well as to explore the use of EPR tactics to engage residents as a major intervention tool. An analysis of the literature highlighted the negative impacts of climate change on the cultivation of food, livestock, and income crops.

A cross-sectional survey design was used to get the required data. The research included a sample size of 201 participants from two chosen states: Yobe in the North and Cross River in the South. The study's results showed that climate change contributed to reduced agricultural productivity and extensive loss of farmland.

Smith, Johnson, and Brown (2020) carried out a study on "Assessing the Environmental Impact of Waste Reduction Practices in Urban Areas in US" in order to evaluate the effectiveness of waste reduction practices, such as recycling programs and waste minimization initiatives, on environmental sustainability in urban settings. The researchers conducted a longitudinal analysis of waste management data from urban municipalities over a five-year period.

They employed statistical modeling techniques to assess the relationship between waste reduction practices and environmental indicators such as air and water quality, land use, and biodiversity. The study found that municipalities implementing comprehensive waste reduction programs experienced improvements in environmental quality indicators, including reduced emissions, decreased landfill usage, and enhanced ecosystem health.

Similarly, in a study on "Assessing the Effectiveness of Waste Reduction Practices on Environmental Sustainability in Residential Communities in China," Wang, Liu, and Zhang, (2019) evaluated the effectiveness of source reduction practices, such as waste minimization at the household level, on environmental sustainability in residential communities.

The researchers conducted a survey of residents in multiple residential communities to assess their participation in source reduction practices, such as composting, reuse, and purchasing decisions. They also collected data on waste generation rates, recycling behaviors, and perceptions of environmental quality. Statistical analyses were performed to identify correlations between source reduction practices and environmental outcomes.

The study found that residential communities with higher levels of participation in waste reduction practices exhibited lower per capita waste generation rates, higher recycling rates, and greater overall satisfaction with environmental quality.

Correia, Sousa, Viseu, and Larguinho (2023) conducted research to investigate the impact of customers' focus on firms' green marketing communication on their green purchasing behaviour. The study also examines how customers' attributes, such as gender, education, and environmental beliefs, influence their engagement with firms' green marketing messages. An online survey was conducted on the adult population of Portugal, resulting in 690 valid responses.

Data analysis methods such as descriptive analysis, parametric and non-parametric testing, linear correlation, and regression analysis were used. The findings indicate that customers pay close attention to firms' green marketing messages. A significant association was found between customers' focus on firms' environmentally friendly marketing messages and their environmentally conscious buying habits. The findings further validate that persons with greater levels of education, environmentally friendly views, and females are the most responsive to organisation's green marketing messages.

Odiah (2017) conducted research to assess how green marketing influences customer purchasing behaviour. The research used a sample size of 301 customers from fast-moving consumer goods manufacturing companies in Lagos State, Nigeria. A survey study approach was used, including statistical tools: frequency, correlation, and regression analysis. The study revealed that customer buying behaviour is significantly influenced by green awareness, green packaging, and green prices, but not by green advertising. Consumers are more aware of environmentally friendly goods and see them as safe for usage owing to the rising trash creation. It was determined that many environmentally conscious clients understand the importance of the environment for their health.

Furthermore, Uche and Kalu (2023) conducted a study titled "Promoting Sustainability: The Effect of Behavioral Change Campaigns in the Niger-Delta" to assess the impact of behavioral change campaigns on the adoption of sustainable behavior in the Niger-Delta. They conducted a quasi-experimental study involving 800 participants from different communities in the Niger-Delta.

The participants were divided into a control group and an intervention group exposed to a comprehensive behavioral change campaign promoting sustainable practices. Surveys and behavioral observations were used to measure changes in sustainable behavior over six months. The study found a significant increase in sustainable behaviors among the intervention group compared to the control group.

Participants exposed to the campaign demonstrated higher levels of recycling, energy conservation, and participation in community activities. The findings suggest that well-designed behavioral change campaigns can effectively promote sustainable behaviors in the Niger-Delta.

Finally, Adeola and Ekemini (2022) evaluated the effect of behavioral change campaigns on the adoption of sustainable behavior in the Niger-Delta in their study, "Behavioral Change Campaigns and Environmental Sustainability in the Niger-Delta." They implemented a longitudinal study with 600 participants from the Niger-Delta.

They launched a year-long behavioral change campaign focused on reducing plastic waste and promoting sustainable agricultural practices. Surveys were conducted before, during, and after the campaign to track changes in attitudes and behaviors. The results showed that the campaign significantly influenced participants' behaviors and attitudes towards sustainability.

There was a notable reduction in plastic waste and an increase in sustainable farming practices among the participants. The study concluded that sustained behavioral change campaigns are effective in fostering long-term sustainable behaviors in the region.

*In view of the above discussions, the following hypotheses are adopted:*

**H<sub>01</sub>:** *Waste reduction practice does not have significant effect on environmental sustainability of the Niger-Delta*

**H<sub>02</sub>:** *Green marketing communication does not have significant effect on ecological wholeness of the Niger-Delta region.*

**H<sub>03</sub>:** *Behavioural change campaign does not have significant effect on sustainable behaviour in the Niger-Delta region.*

### 3. METHODOLOGY

This study adopted the descriptive survey research design. It was conducted in three states out of the nine states of Niger-Delta geopolitical region of Nigeria. One state was selected from each of the three major segments of the Niger-Delta region, namely Eastern Niger-Delta, Western Niger Delta and South-Eastern Niger-Delta.

Hence, the study's area covered Imo State (Eastern Niger-Delta), Rivers State (South-Eastern Niger-Delta), and Bayelsa State (Western Niger-Delta). The study adopted the primary data source through the use of structured questionnaire.

A 5-point Likert scale was used for the study based on previous related studies of Boulianne (2015); and Larsson, Moe & Eliassen (2017).

The population for the study was made up of environmental public relations practitioners/ environmentalists and community members of the Niger-Delta region.

The sample size was calculated using the Taro Yamane formula (1973) which is presented as follows:

$$n = \frac{N}{[1 + N (e)^2]}$$



Thus, the total sample size for the current study is five hundred and eighty-seven (587), made up of one hundred and eighty-seven (187) public relations practitioners / environmentalists and four hundred (400) community members.

The study initially adopted the stratified sampling technique to share the sample among the three selected states proportionally based on their population as shown in table 3.2. Thereafter, the judgmental sampling technique was used to choose specific respondents with regard to their ability to provide the needed information.

**Table 3.2: Allocation of sample size among the states in the study**

S/No	State	Population	Sample allocated	Total
1	Imo	PR/Environmentalists 120 Comm. Members 197,900	$120/350 * 187 = 64$ $197,900/1,387.300 * 400 = 57$	121
2	Rivers	PR/Environmentalists 143 Comm. Members 665,000	$143/350 * 187 = 76$ $665,000/1,387,300 * 400 = 192$	268
3	Bayelsa	PR/Environmentalists 87 Comm. Members 524,487	$87/350 * 187 = 47$ $524,400/1,387,300 * 400 = 151$	198
4	Total	1,387,650		587

Source: Researchers compilation

## 4. DATA ANALYSIS AND RESULTS

Data was analysed using linear regression statistics to test the hypotheses at a 5% level of significance.

### 4.1 Test of Hypothesis One

***H<sub>01</sub>:*** Waste reduction practices do not significantly affect the environmental sustainability of Niger-Delta region.

***H<sub>1</sub>:*** Waste reduction practices significantly affect the environmental sustainability of Niger-Delta region.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.306 <sup>a</sup>	.093	.092	.72445

a. Predictors: (Constant), WRP

**ANOVA<sup>a</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	31.658	1	31.658	60.320	.000 <sup>b</sup>
	Residual	307.027	585	.525		
	Total	338.684	586			

a. Dependent Variable: ES

b. Predictors: (Constant), WRP

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.805	.120		23.329	.000
	WRP	.256	.033	.306	7.767	.000

a. Dependent Variable: ES

The Model Summary shows that 30.6% variation in environmental sustainability was as a result of waste reduction practice. The null hypothesis which stated that “Waste reduction practices do not significantly affect the environmental sustainability of Niger-Delta region.” was rejected based on the ANOVA result where  $F = 60.320$ ;  $p (.000) < .05$ .

This implies that waste reduction practices significantly affect the environmental sustainability. The Coefficients table also shows waste reduction practice ( $\beta = .256$ ;  $t = 7.767$ ;  $p < 0.05$ ). The statistical result implies that waste reduction practice has statistically significant effect on environmental sustainability.

## 4.2 Test of Hypothesis Two

***H<sub>02</sub>:*** Green marketing communication does not have a significant effect on the ecological wholeness of the Niger-Delta region.

***H<sub>1</sub>:*** Green marketing communication have a significant effect on the ecological wholeness of the Niger-Delta region

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.395 <sup>a</sup>	.156	.154	.65859

a. Predictors: (Constant), GMC

**ANOVA<sup>a</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	46.786	1	46.786	107.867	.000 <sup>b</sup>
	Residual	253.737	585	.434		
	Total	300.524	586			

a. Dependent Variable: EW

b. Predictors: (Constant), GMC

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.504	.146		17.171	.000
	GMC	.390	.038	.395	10.386	.000

a. Dependent Variable: EW

The Model Summary shows that 39.5% variation in ecological wholeness was as a result of green marketing communication. The null hypothesis which stated that “Green marketing communication does not have a significant effect on the ecological wholeness of the Niger-Delta region” was rejected based on the ANOVA result where  $F = 107.867$ ;  $p (.000) < .05$ . This implies that green marketing communication have a significant effect on the ecological wholeness. The Coefficients table also shows green marketing communication ( $\beta = .390$ ;  $t = 10.386$ ;  $p < 0.05$ ). The statistical result implies that green marketing communication have a significant effect on the ecological wholeness of the Niger-Delta region.

### 4.3 Test of Hypothesis three

***H<sub>03</sub>:*** Behavioural change campaigns do not have significant effect on the adoption of sustainable behaviour in Niger-Delta.

***H<sub>1</sub>:*** Behavioural change campaigns have significant effect on the adoption of sustainable behaviour in Niger-Delta.

**.Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.376 <sup>a</sup>	.141	.140	.59965

a. Predictors: (Constant), BCC

**ANOVA<sup>a</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	34.559	1	34.559	96.110	.000 <sup>b</sup>
	Residual	210.351	585	.360		
	Total	244.910	586			

a. Dependent Variable: SB

b. Predictors: (Constant), BCC

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.678	.162		16.507	.000
	BCC	.395	.040	.376	9.804	.000

a. Dependent Variable: SB

The Model Summary shows that 37.6% variation in adoption of sustainable behaviour was as a result of behavioural change campaigns. The null hypothesis which stated that “Behavioural change campaigns do not have significant effect on the adoption of sustainable behaviour in Niger-Delta” was rejected based on the ANOVA result where  $F=96.110$ ;  $p(.000) < .05$ . This implies that behavioural change campaigns has significant effect on adoption of sustainable behaviour. The Coefficients table also shows behavioural change campaigns ( $\beta = .395$ ;  $t=9.804$ ;  $p<0.05$ ). The statistical result implies that behavioural change campaigns have significant effect on the adoption of sustainable behaviour in Niger-Delta.

## 5. DISCUSSION OF THE FINDINGS

Hypothesis one was tested using regression analysis to ascertain the effect of waste reduction practices on the environmental sustainability of the Niger-Delta region. The result reveals that waste reduction practices have significant effect on environmental sustainability ( $\beta = .256$ ;  $t=7.767$ ;  $p<0.05$ ). This result is also in line with the result of Smith,

Johnson, and Brown (2020), who carried out a study on "Assessing the Environmental Impact of Waste Reduction Practices in Urban Areas in USA." The study found that municipalities implementing comprehensive waste reduction programs experienced improvements in environmental quality indicators, including reduced emissions, decreased landfill usage, and enhanced ecosystem health.

Hypothesis two was tested using regression analysis to determine the effect of green marketing communication on the ecological wholeness of the Niger-Delta region. The result shows that green marketing has a significant effect on the ecological wholeness of the Niger-Delta region ( $\beta = .390$ ;  $t=10.386$ ;  $p<0.05$ ). This result is in line with that of Odiah (2017) whose research assessed how green marketing influences customer purchasing behaviour. The study revealed that customer buying behaviour is significantly influenced by green awareness, green packaging, and green prices, but not by green advertising. Consumers are more aware of environmentally friendly goods and see them as safe and secure for usage owing to the rising trash creation.

Hypothesis three was tested using regression analysis to assess the effect of behavioural change campaigns on the adoption of sustainable behaviour in Niger-Delta. The result shows that Behavioural change campaigns have significant effect on adoption of sustainable behaviour in the Niger-Delta region ( $\beta = .395$ ;  $t=9.804$ ;  $p<0.05$ ). This result is in line with the result of Adeola and Ekemini (2022) whose study evaluated the effect of behavioral change campaigns on the adoption of sustainable behavior in the Niger-Delta. The results showed that the campaign significantly influenced participants' behaviors and attitudes towards sustainability. There was a notable reduction in plastic waste and an increase in sustainable farming practices among the participants.

### **Summary of Findings**

The findings at the end of this study include the following:

1. Waste reduction practices significantly affected the environmental sustainability of Niger-Delta region ( $\beta = .256$ ;  $t=7.767$ ;  $p<0.05$ ). This implied that without adequate waste management, the region's ecological health will continue to deteriorate.
2. Green marketing communication had a significant effect on the ecological wholeness of the Niger-Delta region ( $\beta = .390$ ;  $t=10.386$ ;  $p<0.05$ ). This suggested that promoting environmentally friendly products and practices can lead to greater environmental conservation and awareness.
3. Behavioural change campaigns had significant effect on the adoption of sustainable behaviour in Niger-Delta ( $\beta = .395$ ;  $t=9.804$ ;  $p<0.05$ ). This implied that well-designed campaigns can successfully promote sustainable behavior among the population.

## 6. CONCLUSION

The study concludes that various strategic practices such as waste reduction, green marketing communication and behavioral change campaigns are integral to enhancing both environmental sustainability and economic empowerment in the Niger-Delta region. Each of these practices plays a critical role in fostering a sustainable and economically viable environment.

Effective waste management is fundamental to the mitigation of environmental degradation. The study reveals that proper waste reduction practices not only preserve natural resources but also contribute significantly to the overall health and sustainability of the ecosystem in the Niger-Delta.

Promoting green marketing practices has a direct positive impact on ecological integrity. The study shows that environmentally conscious marketing can drive both consumer behavior and corporate responsibility towards better environmental practices.

Campaigns designed to change public behavior towards sustainability are effective. The findings suggest that strategic campaigns can lead to widespread adoption of sustainable practices, contributing to long-term environmental health and community well-being.

### Implication to Policy and Management

Based on the findings, the following recommendations were made:

1. Local government authorities should implement and enforce stricter waste management regulations. They should also provide incentives for businesses and communities to adopt waste reduction practices and invest in recycling and waste treatment infrastructure.
2. Public relations consultants and environmental advocacy groups should promote green marketing initiatives that highlight the environmental benefits of products and services. They should support businesses in obtaining green certifications and educate consumers about the importance of choosing eco-friendly options.
3. Public relations professionals and media outlets should design and implement targeted behavioral change campaigns using a mix of media and community outreach programs. They should focus on educating the public about the benefits of sustainable practices and provide practical steps and resources for adopting sustainable behaviors.

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