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Green Product Marketing and Achievement of Global Environmental Sustainable Goals in South-South of Nigeria

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Abstract: *This study examined green product marketing and achievement of global environmental sustainable goals in the south-south zone of Nigeria. Data were collected through a structured questionnaire from 292 marketers and consumers in the six states in the south-south zone. The collected data were analyzed and the hypotheses were tested with the Pearson Product Moment Correlation (r) with the aid of SPSS version 21.0. The findings revealed that there is positive and significant relationship between marketing of energy efficient products and achievement of affordable and clean energy. The study also found a positive and significant relationship between marketing of energy efficient products and achievement of clean water and sanitation. A positive and significant relationship was found between marketing of renewable energy products and achievement of affordable and clean energy. The study also reported a positive and significant relationship between marketing of renewable energy products and achievement of clean water and sanitation. A positive and significant relationship was equally found between marketing of recycling products and achievement of affordable and clean energy. The study also reported a positive and significant relationship between marketing of recycling products and achievement of clean water and sanitation. From the findings, it was concluded that green product marketing significantly relates with achievement of global environmental sustainable goals. Based on the above drawn conclusion, it was recommended that manufacturing companies in south-south zone of Nigeria should practice green marketing as it would enhance the achievement of global environmental sustainable goals in the zone.*

Keywords*: Green Product Marketing, Achievement of Global Environmental Sustainable Goals, Energy Efficient Product, Renewable Energy Products, Recycling Products, Affordable and Clean Energy, Clean Water and Sanitation*

Introduction

The world today is threatened by environmental problems such as climate change, global warming, ozone depletion, excessive wastes, pollution, lack of good water and other man-made dangers. These environmental problems have become so worrisome to world leaders and international organizations in view of its implications on future generations. The quest to achieve the global sustainable environmental goals has prompted governments worldwide to put pressure on companies to switch from their conventional product marketing to green product marketing. The pressure being mounted on companies to produce only green products stemmed from the recommendations reached on the 2002 Johanesbury Summit which called

for a ten-year framework of programmes in support of national and zoneal initiatives to accelerate the shift from conventional products to green product marketing as earlier stated (United Nation, 2007). This call is being implemented by world leaders in their respective countries through the various environmental policies and programmes initiated by the governments. Today, many companies globally are now switching towards from conventional product marketing to green products to relief themselves from the pressures being mounted on them to be environmental conscious.

Nigeria as a nation is presenting struggling to achieve the global sustainable environmental goals. Successive governments in the country particularly those in the South-South zone have established various policies and programmes aimed at achieving the global sustainable environmental goals by the year 2030. However, despite the policies and programmes initiated by successive governments in this zone, no significant progress has been made as the six states in the south-south zone are still struggling to achieve environmental sustainability. The environment in the south-south zone has been jeopardized, degraded and polluted following the increasing waste and decreasing use of renewable energy sources (Ibok & Etuk, 2014). The unsustainable production activities in the zone have further contributed to the environmental degradation experienced today in the zone. Considering the poor state of the environment in south-south, many people have doubted if the South-South Nigeria can ever achieve the global sustainable environmental goals by the year 2030.

It is believed that green product marketing can help to achieve the global environmental sustainable goals (affordable energy, clean water and sanitation, and good health and well-being) by the year 2030. Although some international bodies and scholars have supported green product marketing as a means of achieving the global sustainable environmental goals (e.g. United Nations, 2007; World Health Organizations; Ongisa, 2013), however, empirical evidence that justify this claim are lacking. On this premise, this study examined green product marketing and achievement of the global environmental sustainable goals.

This study is built on the assumption conceptualized below

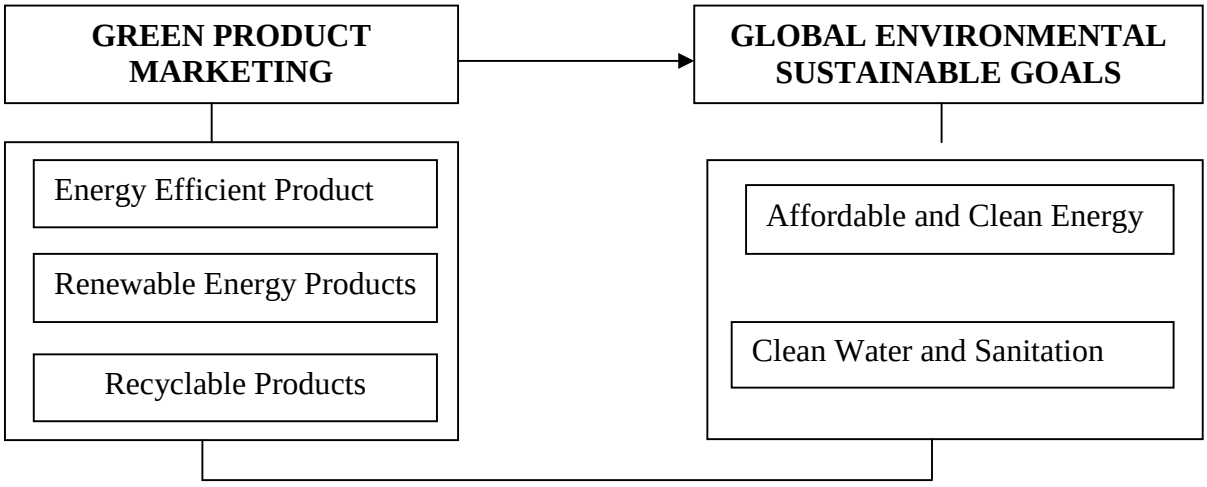

Figure 1: Conceptual Framework of Green Product Marketing and Global Environmental Sustainable Goals.
Source: Sanjay and Gurmet (2004) and Global Sustainable Development Goals (2015).

Purpose of the Study
The purpose of this study was to examine the link between green product marketing and achievement of global environmental sustainable goals in the south-south zone of Nigeria. The specific objectives were to:

1. determine the relationship between marketing of energy efficient product and environmental sustainable goals in the south-south zone of Nigeria.
2. investigate the relationship between marketing of renewable energy products and global environmental sustainable goals in the south-south zone of Nigeria.
3. explore the relationship between marketing of recyclable products and global environmental sustainable goals in the south-south zone of Nigeria.

Research Questions
In order to adequately address the objectives of the study, the following questions were put forward:

1. To what extent is the relationship between marketing of energy efficient products and global environmental sustainable goals in the south-south zone of Nigeria?
2. To what extent is the relationship between marketing of renewable energy products and global environmental sustainable goals in the south-south zone of Nigeria?
3. To what extent is the relationship between marketing of recycling products and global environmental sustainable goals in the south-south zone of Nigeria?

Research Hypotheses
The following hypotheses were formulated to guide this study:

Ho_1: There is no positive and significant relationship between marketing of energy efficient products and achievement of affordable and clean energy.

Ho_2: There is no positive and significant relationship between marketing of energy efficient products and achievement of clean water and sanitation.

Ho_3: There is no positive and significant relationship between marketing of renewable energy products and achievement of affordable and clean energy.

Ho_4: There is no positive and significant relationship between marketing of renewable energy and achievement of clean water and sanitation.

Ho_5: There is no positive and significant relationship between marketing of recycling products and achievement of affordable and clean energy.

Ho_6: There is no positive and significant relationship between marketing of recycling products and achievement of clean water and sanitation.

Review of Related Literature
Sociological baseline theories
A number of theories and models have been developed to explain how an organization can manage and maintain customer relationship. However, this study is anchored on the

environmental economic theory which was developed in 1966 by Boulding. 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 relationship between cost and benefits. According to the theory, there are externalities associated with every cost (Cheng, 2011). The environmental economic theory believes that economic growth can still be achieved if marketers pay adequate attention to the environment while trying to satisfy needs. The theory believes that environmental challenges facing the world toady have their roots in the failure of the present marketers to protect the environment. Environmental economic theory tends strike a balance between satisfying needs and preserving the environment.

The environmental economic theory is very relevant in explaining the relationship between green product marketing and the achievement of global environmental sustainability goals. The theory explains that the desire to adopt green marketing is to protect the environment from pollution and sustain it for future generations. The environmental economic theory believes that through effective practice of green product marketing, the environment will be safe for the present and future generations. It holds the concept that while marketing activities are encouraged to achieve economic development, the environment should also be protected from pollution. Since green product marketing reduces greenhouse gas emissions, ecological footprints, it becomes obvious that the global environmental sustainability goals can be achieved.

Concept of Green Product Marketing

The concept “green product marketing” has been defined in various ways by different scholars and writers. Some scholars described green product marketing as the production and distribution of products with environmental characteristics (Sarkar, 2012). However, green product marketing is associated with products that have the capacity to be recycled, phosphate free, refillable, and energy efficient (Sanjay & Gurmet, 2004). Tuten (2013) defined green product marketing as an organization's efforts at designing products that has the potentials of reducing energy consumption, saving energy and wastes from the environment. Kinoti (2011) described green product marketing as the production and distribution of products that have minimal impact on the environment. Herbig et al (2007) defined that green product marketing as the production and distribution of products that have one or more of the following characteristics; they are less toxic; are more durable; contain reusable materials and/or are made of recyclable materials.

Green product marketers take the environment into consideration in their quest to satisfy consumer needs. They designed their products to satisfy needs and at the same time protect the environment from degradation and pollution (Alsmadi, 2007). Green product marketing is part of the new marketing approaches which do not just refocus, adjust or enhance existing marketing thinking and practice, but seeks to challenge those approaches and provides a substantially different perspective. In more detail, green product marketing belongs to the group of approaches which seek to address the lack of fit between conventional marketing and the ecological realities of the wider marketing environment (Belz & Peattie,

2009). Awan (2011) stated that green product marketers understand the need for environmental protection and this is why they venture into green product development. Green product marketers produce products for the safe of the environment. Sanjay and Gurmet (2004) stated that green products have the environmental benefits of saving energy, improving health condition (organic food), reducing wastes and greenhouse gas emissions.

Green product marketing plays a vital role in protecting the environment from degradation and pollution. It helps to keep the environment safe for the present and future generations. Chen and Chang in Kong, Harun, Sulong and Lily (2015) suggested that companies should develop products with both green features and high-value attributes to attract consumers. They further argued that increasing consumer perceived value about green products may ease customer skepticism about green products and enhance consumer purchase intention.

Green products take various forms but have a general benefit of preserving the environment. Some of the green products are organic in nature while others are recyclable and energy efficient products. In this study, organic food, energy efficient products and recyclable products are use as the key dimensions of green product marketing. These green products are discussed in details below:

Energy Efficient Product

An energy efficient product is a consumer product that performs the same functions as its non-energy efficient substitutes but reduce energy consumption (Sanjay & Gurmet, 2004). Polonsky (2001) posited that energy efficient products are produced to reduce the overall energy consumption and consumers' energy bill. Energy efficient products do not have special features but they help to eliminate inefficient practices which are associated with traditional and commonly used household items. Examples of energy efficient products are efficient light bulbs, advanced power strips, smart switches, low-flow faucets and shower leads. Albino (2009) stated that energy efficient products or devices have huge environmental benefits because they help to reduce energy use, and the amount of energy that needs to be generated through burning of fossil fuels leading to reduced greenhouse gas emissions that contribute to global climate change. Dangelico (2010) opined that many efficient light bulbs use LEDs which is more efficient than incandescent bulbs in consumption and energy lifetime.

The environmental impact of energy efficient practices at a person's home can contributed a large amount of greenhouse gas emissions. In 2014, the United States domestic sector alone produce approximately 21% of greenhouse gas emissions and of this amount, 68% of these residential emissions occur as a result of electricity use which make up the other 32% (Philip, 2018). If this large percentage of household greenhouse gas emissions is attributed to electricity use, then it becomes obvious that energy efficient products can help to reduce the percentage of household greenhouse gas emissions. In most cases, the money consumer saves from using energy efficient products translate into fewer greenhouse emissions due to the nature of electricity generation. For example, the electricity consumed for lighting makes up about 20% of the average electricity bill in the US (Case, 2014). If a consumer decides to replace his incandescent light bulbs with Energy Star qualify CFL bulbs, he will reduce his amount of electricity consumed for lighting at his home by 75%. If every Nigeria home replaces

incandescent light bulb with a CFL bulb, it will save enough electricity in a year which would reduce the annual greenhouse gas emission. Seyfang (2007) stated that CFL bulbs have the potentials of reducing mercury emissions.

Renewable Energy Products

Renewable energy products are products which are produced from renewable energy sources. Renewable energy is energy that is obtained from renewable resources, which are naturally replenished on human timescale, such as sunlight, wind, rain, tides, waves and geothermal heat (Dangelico, 2010). Examples of renewable energy products are solar generator, solar charger and lights, solar roofs vents, water conservation, Exeltech XP1100 power inverter LED area lights, and energy efficient direct current (DC) alternating current (AC) appliances (Tuten, 2013). Solar generator is a renewable energy product that converts direct energy from sunlight into direct current electricity. Inverter as a renewable energy product converts direct current power output of solar arrays or wind turbine into a clean alternating current for appliances (Case, 2014). Solar charge controller is another renewable energy product that regulars the voltage and current coming from the power voltage (PV) modules to the battery (Albino, 2009). The solar PV module is a renewable energy product that converts directly convert sunlight into direct current electricity (Speier, 2016).

Renewable energy products help to minimize energy costs and reduce carbon footprint. Such products capitalize on the power of nature to reduce operating costs and protect the environment. Dangelico (2010) stated that renewable energy products are more efficient, cleaner and less expensive than traditional conventional energy products. Marketing renewable energy products provide energy, money and environmental benefits. For instance, electricity suppliers or marketers are now offering clean and efficient green electricity to its customers to reduce energy consumption, utility bills and carbon footprint in the environment. Beyond the reduction in utility bills and environmental footprint, renewable energy products can reduce operations and maintenance cost by taking advantage of natural resources (Albino, 2009).

Renewable energy products can also help marketers to boost their public image by demonstrating commitment to protect the environment (Herbig et al, 2007). Renewable energy products like solar photovoltaic can yield high rates of return. As rates of utility increase, the financial benefits of solar become comparable to the environmental advantages. Saxena and Khandelwal (2010) stated that solar energy from renewable energy source can replace fossil fuel which pollutes the environment. By replacing fossil fuel, renewable energy products keep the environment safe and healthier for better living. Tuten (2013) posited that renewable energy products help to prevent fossil fuel and improve the health condition and living standard of the people.

Recycling Products

Recycling products are products which are produced using variety of recycling materials (Herbig et al., 2007). Products produced from variety of materials can be recycled using different processes. Examples of recycling products are asphalt and tarmac, gypsum, plaster and plasterboard products, lead-acid batteries, etc. Dangelico (2010) stated that concrete aggregates can be recycled into gravel which is used for new building project. This process involves collecting concrete aggregates from demolition sites and put into a crushing machine

alongside with bricks, asphalt, dirt and rocks. The machine crushes the concrete into small pieces which are then used as gravel for new building project. If crushed recycled concretes are free from contaminants, they can be use as dry aggregates for new concrete. Broken down bricks can be used for railway ballast and gravel paths.

Recycling asphalt and tarmac products are becoming more and more demanding in the market. While asphalt including asphalt shingle can be melted down and its parts recycled, tarmac scalping is produced when roads are scarified before new surface is laid. Saxena and Khandelwal (2010) stated that recycled product like gypsum; plaster and plasterboard help to reduce the volume of hydrogen sulfide gas. Before the invention of recycled gypsum, about 17% of gypsum products are wasted during the manufacturing (production) and installation processes. Through, mechanical process, gypsum waste from demolition, refurbishing and new construction activities can be recycled, and the recycled gypsum can replace virgin gypsum product in the gypsum industry. Gypsum wastes from construction activities are not the only waste that can be recycled, waste wallboard from construction and demolition sites can also be recycled into new wallboards, thereby reducing wastes in the environment. Wallboard, plasterboard, and gypsum can now be re-used or recycled. Hence, disposal of gypsum materials are strongly discourage in some landfill sites. Saxena and Khandelwal (2010) observed that some landfill sites have banned dumping of gypsum materials because of their tendency to increase the volume of hydrogen sulfide gas.

Recycled lead-acid batteries particularly those in automobiles have increased significantly in the developed nations like the US. Singh and Pandey (2012) stated that recycling rate of lead-acid batteries in the US has increased to 90% with the new batteries containing up to 80% recycled materials. Biodegradable wastes such as kitchen and garden wastes can be recycled into useful fertile topsoil through the process of composition which allows natural aerobic bacteria to break down the waste into fertile topsoil (Speier, 2016). Tuten (2013) posited that electronic wastes from discarded computers, television and mobile phones can be recycled into useful products such as new computers, flat-screen television and new mobile phones. Metal products such as iron, steel, aluminum and food metal cans be recycled for domestic use. For instance, metal such as iron, steel, aluminum and food metal cans be recycled for domestic use, while building metals such as copper and zinc can be recycled into a useful products by specialized companies like specialized scrap dealers on car breakers (Albino, 2009). . In some developed countries such as United Kingdom (UK), United States of America (USA), Germany and Netherland, the direct disposal of electronic and metal equipments (waste) such as computers, television, mobile phones, iron, steel, aluminum, as copper and zinc have been banned due to the toxic contents in some parts of the components (Tuten, 2013).

The environmental benefit of using recycling products is that they help to reduce wastes in the environment and improve the health condition and well-being of the people in the society. Case (2014) agrees that recycled products have the environmental benefits of reducing wastes, pollution and degradation as well as improving the health condition of the citizenry. Speier (2016) stated that a country which encourages the use and marketing of recycled products will enjoy good, safe and healthier environment. Such country will be able to achieve environmental sustainability by the year 2030. Tuten (2013) posited that recycled

products are environmentally friendly products which have the benefits of protecting the environment from excessive waste and litigation. Such products help to improve the health condition and well-being of the people by reducing excessive wastes which is detriment to human health.

Global Environmental Sustainable Goals

The global environmental sustainability goals are clearly spell out in the 2015 Global Sustainable Development Goals. The 2015 Global Sustainable Development Goals contains 17 goals which include: 1. No poverty 2. Zero hungry 3. Good health and well-being 4. Quality education 5. Gender equality 6. Clean water and sanitation 7. Affordable and clean energy 8. Decent work and economic growth 9. Industry innovation and infrastructures 10. Reduced inequalities 11. Sustainable cities and communities 12. Sustainable consumption and production 13. Climate action 14. Life below water 15. Life on land 16. Peace, justice and strong institutions, and 17. Partnership for the goals.

These 17 goals spelt out by the international community covers all aspects of life including health, education, political, social, legal, economic and environmental aspects. The focus of this study is on the environmental sustainability goals which include goal number 6, 7, 13, 14, and 15 listed above. These environmental goals are crucial for various reasons. However, this study will focus on two of the five environmental goals captured in the 2030 Agenda. The two goals are clean water and sanitation, and affordable and clean energy. Achieving clean water and sanitation, and affordable and clean energy is crucial to the international community following the increasing rate of environmental degradation, pollution, lack of good drinking water and greenhouse gas emission from dirty energy sources - which contribute majorly to climate change.

The various continents including Europe, Asia, North America, Africa, etc are strongly aware of the Global Environmental Sustainability Goals which are met to reduce and ultimately stop waste, climate change and pollution, caused by human activities (Schmidheiny, 2002). Europe is contributing to environmental pressures and accelerating feedbacks in other parts of the world through its dependence on fossil fuels, mining products and other imports. Therefore, Europe needs to increase its environmental sustainability efforts so as to achieve the Global Environmental Sustainability Goals. Hasna (2007) stated that Europe and America need to be more conscious of the environmental impact of pollution, waste and climate change since they are the major importer of fossil fuels and mining products in the world. In fact, environmental risks can affect the technological, political, economic and social megatrends. Today, as environmental issues are considered serious by stakeholders (organizations, governments, scientists, and researchers), many improvements have been made in terms of life changes when new technologies are implemented. Indeed, the environment can increase and accelerate technologies. For example, lots of devices or mechanisms are designed and built in order to reduce the quantity of pollution in the air. Electric buses or the availability of bicycles in cities are ways, among others, which enable the worldwide population to minimize the effects of environmental risks. Stakeholders force and promote new and better ways to address environmental risks (Princen, 2003).

Affordable and Clean Energy

Affordable and clean energy is one of the Global Sustainable Development Goals that make up the 2030 Agenda. The United Nations Development Programmes (2016) reported that about

three million of people rely on coal, wood and charcoal for cooking and heating, while the number people with access to electricity have increased by 1.7 billion (United Nations Development Programmes, 2011). These sources of energy are the major contributors to climate change, accounting for about 60% of the total global greenhouse gas emissions (UNDP, 2011). Throsby (2008) stated that power generation is the major cause of air population and global warming. He noted that most of the electricity generated globally comes from power stations that use fossil fuels such as coal and oil. Coal, natural gas and oil produce most of the power (electricity) but come with large volume of greenhouse gas emission which is harmful to the environment. The power stations burn the fossil fuels to produce electricity and in the process a lot of toxic chemical and greenhouse gas emission including carbon dioxides and methane are released into the air and water, causing environmental and health challenges. This is why coals, natural gas and oil are called dirty sources of energy. Uberoi (2007) noted that the releasing of toxic chemical and greenhouse gas emission including carbon dioxides and methane into the air is what is causing the Earth's atmosphere to warm which scientists say will cause climate change. It is obvious that these dirty sources of energy will threaten the habitant of all living things.

To address these environmental challenges, the international community sets a goal of achieving affordable and clean energy by the year 2030. Clean energy is a energy source that create less pollution and help to keep the environment safe (Shi, 2010). It is an energy sources that reduce greenhouse gas emissions that lead to climate change. Such energy is from nuclear and natural sources. Uberoi (2007) posited that nuclear and natural sources of energy produce very little amount of greenhouse gas emission once it is operated. They are also renewable which implies that they can be used over and over again. Solar, wind and water are good examples of clean energy sources (Shi, 2010). Nuclear power is "clean" from emissions standpoint and the power plants produce no air pollution when they are operating.

The international community sets a goal of achieving an affordable and clean energy by the year 2030. The global population is increasing on a daily basis and as the population continues to increase, the demand for affordable and clean energy will increase in the same direction. The global economy relies on fossil fuels for electricity and heating, and this increase the volume of greenhouse gas emissions that is responsible for climate change (Schmidheiny, 2002). Efforts are being made by world leaders to encourage clean energy. The efforts to encourage clean energy have led to 20% increase in power generated from renewable energy sources in 2011 (UNDP, 2016). Wang (2006) reported that one out of every five persons lack access to electricity and as such there is need to increase the supply of renewable energy across the world to meet the growing demand for electricity, ensuring universal or global access to affordable electricity by the year 2030 means investing in clean energy sources such as solar, thermal and wind. The global electricity consumption can be reduced drastically by using clean energy. Expanding infrastructure and upgrading technology to provide clean energy in all developing countries is a crucial goal that can both encourage growth and help the environment (United Nations Development Programme, 2016).

Clean Water and Sanitation

Universal access to clean water and sanitation is among the 17 Global Sustainable Development Goals that make up the 2030 Agenda. Achieving clean water and sanitation by the year 2030 is an environmental sustainability goal. The international community intends to achieve clean water and sanitation in both developed and developing countries of the world. The specific targets as outlined by the UNDP Department of Economics and Social Affairs Division for Inclusive Social Development include:

- To achieve universal and equitable access to safe and affordable drinking water for all by the year 2030.
- To achieve access to adequate and equitable sanitation and hygiene for all, and end open defection, paying special attention to the needs of women and girls and those in vulnerable situations.
- To improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.
- To substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and substantially reduce the number of people suffering from water scarcity.
- To implement integrated water resources management at all levels including through trans-boundary cooperation as appropriate.
- To protect and restore water related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.
- To expand international cooperation and capacity building support to developing countries and programmes, including water harvesting, desalination, water efficiency wastewater treatment, recycling and reuse technologies.
- To support and strengthen the participation of local communities in improving water and sanitation management by 2030 (UNDP, Department of Economics and Social Affairs Division for Inclusive Social Development, 2016).

Empirical Review

Some related empirical studies have been conducted on green product marketing and achievement of Global Environmental Sustainability Goals. For instance, Juwaheer *et al*. in Ongisa (2013) carried out an empirical study on the impact of green marketing strategies on consumer purchasing patterns. Their study found that there was a strong positive correlation between marketing strategies and consumer purchasing patterns of green products. The study conducted by Perry and Singh (2002) also showed that consumers play a major role in environmental sustainability since they can exert considerable pressures and demand goals of sustainability or environmental performance from businesses.

Singh and Pandey (2012) examined green marketing and its policies and practices for sustainable development. They studied organic products (food) in the Florida, United States. Their study reported that green product marketing significantly enhance sustainable development. The study also reported that the marketing of green products such as organic

food, renewable energy products, energy efficient products and recyclable products helps to achieve the global sustainable development goals.

In another study conducted on green marketing and sustainable development in the United Kingdom, it was reported that green products such as recycling products, energy saving products, energy efficient products and organic food products significantly help to achieve the sustainable development goals (Szuster (2008). The study concluded that that green product marketing plays a significant role in achieving sustainable development. Other studies conducted in developed nations such as UK (e.g. Macdonald & Oates, 2006; Donaldson, 2005) and in US (e.g. Polonsky, 2001; Prothero, 2008), also discovered the contribution of green product marketing to sustainable development.

Saxena and Khandelwal (2010) carried out a study to determine the relationship between green product marketing and sustainable consumption. The data for their study were collected using a structured questionnaire. After analyzing the data collected, the researchers discovered that the marketing of green products such as recycling products, energy saving products, energy efficient products and organic food significantly encourage sustainable consumption. The study however concluded that green product marketing helps toachieve the Global Sustainable Development Goals.

Seyfang (2007) carried out an empirical study on growing sustainable consumption communities – the case of local organic food networks. The study applied the New Economics Theory to assess the effectiveness of initiatives at achieving sustainable consumption. The result indicated that the initiative was effective at achieving sustainable consumption in each of the dimensions of the appraisal (localization, reducing ecological footprints, community building, collective action and creating new socio-economic institutions). The study also reported that green product marketing helps to encourage sustainable consumption and achieve environmental sustainability.

Sarkar (2012) examined the relationship between green marketing and sustainable development in India. The researcher focused on the challenges and opportunities of green marketing as a viable tool for sustainable development. The result of their study confirmed that green marketing significantly enhance sustainable development. The study also reported that green products such as energy saving products, recycling products, organic food products and energy efficient products significantly enhance sustainable development. The study carried out by Macdonald & Oates (2006) also found a direct relationship between green product marketing and sustainable development. The result of these empirical studies implies that the achievement of sustainable development goals largely depends on effective practice of green marketing.

Ongisa (2013) empirically investigated the relationship between green marketing and green consumption in Kisii County, Kenya. He examined the concepts of green marketing, green purchasing and green consumerism in order to identify the disconnection between the theory and practice. The result of his study showed that Kenyan consumers pay little attention to eco-labelling, eco-advertising. He also reported that product characteristics such as recyclability and easy disposal are rarely considered when making purchases.

Tuten (2013) carried out an empirical study on promoting sustainability by marketing

green products to non-adopters. His study employed the descriptive survey research design where data were collected from green marketers in US. The data collected for the study were analyzed using SPSS 21.0 version and the result showed that green products such as recycling products, energy saving products, energy efficient products and organic food significantly promote sustainability. The study concluded that green product marketing significantly helps to achieve the Global Sustainable Development Goals.

Albino (2009) empirically examined environmental strategies and green product development. His study focused on sustainability driven companies. His study adopted the descriptive survey research design where data were collected from green marketers in UK using a structured questionnaire. After analyzing the data collected using both descriptive and inferential statistics, the researcher reported that green products such as recycling, energy saving products, energy efficient products and organic food significantly enhance environmental sustainability. The study concluded that green product marketing significantly enhance the achievement of the Global Sustainable development Goals.

Dangelico (2010) carried out a study on mainstreaming green product innovation. Her study focused on how green products can help to achieve environmental sustainability. The study employed the descriptive survey research design where data were collected from green marketers in Sweden. The data collected for the study were analyzed using SPSS 19.0 version and the result showed that green products such as recycling products, energy saving products, energy efficient products and organic food significantly promote sustainability. The study concluded that green product marketing significantly helps to achieve the Global Sustainable Development Goals.

Gap in Empirical Review

From the review of empirical literature, two major gaps were noted. First, it was observed that there are limited empirical studies on green product marketing and achievement of global environmental sustainability goals in Nigeria as most of the empirical studies conducted on green product marketing and achievement of global environmental sustainability goals were carried out in the developed countries. Only three notable empirical studies have been carried out in Nigeria which is too scanty. The present study will add to the existing stock of literature within the Nigerian context.

Secondly, it was noted that previous studies did not relate each dimensions of green products (energy efficient products, renewable products and recycling products) directly to the global environmental sustainability goals (affordable and clean energy, and clean water and sanitation) as captured in the 2015 Global Sustainable Development Goals. This has created a gap in empirical literature which the present study has filled.

Methodology

This study investigated the link between green product marketing and achievement of global environmental sustainable goals in South-South Nigeria. The study adopted descriptive survey research design. A marginal estimate of 2,584 marketers and consumers of green products in the six states in the south-south, Nigeria constituted the population of the study. 346 sample size was determined sample size was determined using the Taro Yamen's formula. The

researchers adopted the balloting without replacement to pick 346 respondents from a population of 2,584 marketers/consumers. The researcher decided to adopt the simple random sampling technique because it ensures a fair representation of the population of interest. However, the total number of respondents that participated in the study was two hundred and two (292). Questionnaire was utilized as the instrument of primary data collection. Respondents were required to tick from 1-5 on a Likert scale, where 1= strongly disagree; 2= disagree; 3= neutral; 4= agree; 5= strongly agree. To justify the study instrument, a comprehensive reliability test was conducted, with a threshold of 0.7 while the opinion of scholars and practitioners with relevant experience on the study constructs were used to validate the instrument. The hypotheses were tested using the Pearson Product Moment Correlation Coefficient with the aid of Statistical Package for Social Sciences (SPSS) 21.0 version.

Table 1: Correlation between marketing of energy efficient products and achievement of affordable and clean energy

			Energy Efficient Products	Affordable and Clean Energy
Pearson (r)	Energy Efficient Products	Correlation Coefficient	1.000	.712*
		Sig. (2 tailed)	.	.001
		N	292	292
	Affordable and Clean Energy	Correlation Coefficient	.712*	1.000
		Sig. (2 tailed)	.001	.
		N	292	292

**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 carried out on energy efficient products and affordable and clean energy. The result shows that marketing of energy efficient products has a positive correlation with the achievement of affordable and clean energy (r = .712*) and this correlation is significant at 0.05 level as indicated by the symbol *. As a result of this, the null hypothesis is rejected and the alternate hypothesis is accepted. This means that we then accept that there is positive and significant relationship between marketing of energy efficient products and achievement of affordable and clean energy.

Table 2: Correlation between marketing of energy efficient products and achievement of clean water and sanitation

			Energy Efficient Products	Clean Water and Sanitation
Pearson (r)	Energy Efficient Products	Correlation Coefficient	1.000	.704*
		Sig. (2 tailed)	.	.001
		N	292	292
	Clean Water and Sanitation	Correlation Coefficient	.704*	1.000
		Sig. (2 tailed)	.001	.
		N	292	292

**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 the correlation analysis carried out on marketing of energy efficient products and achievement of clean water and sanitation. The result shows a positive correlation between marketing of energy efficient products and achievement of clean water and sanitation (r = .704*) and the symbol * indicates that this correlation is significant at 0.05 level. Consequently, the null hypothesis is rejected and the alternate hypothesis is accepted. This means that there is positive and significant relationship between the marketing of energy efficient products and achievement of clean water and sanitation.

Table 3: Correlation between marketing of renewable energy products and achievement of affordable and clean energy

			Renewable Energy Products	Affordable and Clean Energy
Pearson (r)	Renewable Energy Products	Correlation Coefficient	1.000	.869*
		Sig. (2 tailed)	.	.002
		N	292	292
	Affordable and Clean Energy	Correlation Coefficient	.869*	1.000
		Sig. (2 tailed)	.002	.
		N	292	292

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

*Correlation is significant at 0.05 levels (2 tailed)

Source: SPSS-generated Output

Table 3 shows the result of the correlation analysis carried out on marketing of renewable energy products and achievement of affordable and clean energy. The result revealed a positive correlation between marketing of renewable energy products and achievement of affordable and clean energy (r = .869*) and this correlation is significant at 0.05 level as indicated by the symbol *. Based on this result, the null hypothesis is rejected and the alternate hypothesis is accepted. This implies that there is positive and significant relationship between marketing of renewable energy products and achievement of affordable and clean energy.

Table 4: Correlation between marketing of renewable energy products and achievement of clean water and sanitation

			Renewable Energy Products	Clean Water and Sanitation
Pearson (r)	Renewable Energy Products	Correlation Coefficient	1.000	.824*
		Sig. (2 tailed)	.	.002
		N	292	292
	Clean Water and Sanitation	Correlation Coefficient	.824*	1.000
		Sig. (2 tailed)	.002	.
		N	292	292

**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 the correlation analysis carried out on marketing of renewable energy products and achievement of clean water and sanitation. The result showed a positive correlation between marketing of renewable energy products and achievement of clean water and sanitation (r = .824*) and the symbol * implies that correlation is significant at 0.05. Consequently, the null hypothesis is rejected and the alternate hypothesis is accepted. This means that we then accept that there is positive and significant relationship between the marketing of renewable energy products and achievement of clean water and sanitation.

Table 5: Correlation between marketing of recycling products and achievement of affordable and clean energy

			Recycling Products	Affordable and Clean Energy
Pearson (r)	Renewable Energy Products	Correlation Coefficient	1.000	.517*
		Sig. (2 tailed)	.	.003
		N	292	292
	Affordable and Clean Energy	Correlation Coefficient	.517*	1.000
		Sig. (2 tailed)	.003	.
		N	292	292

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

*Correlation is significant at 0.05 levels (2 tailed)

Source: SPSS-generated Output

Table 5 presents the result of the correlation analysis carried out on marketing of recycling products and achievement of affordable and clean energy. The result revealed a positive correlation between marketing of recycling products and achievement of affordable and clean energy (r = .517*) and the symbol * implies that correlation is significant at 0.05. As a result of this, we then reject the null hypothesis and accept the alternate hypothesis which states that there is positive and significant relationship between the marketing of recycling products and achievement of affordable and clean energy.

Table 6: Correlation between marketing of recycling products and achievement of clean water and sanitation

			Recycling Products	Clean Water and Sanitation
Pearson (r)	Recycling Products	Correlation Coefficient	1.000	.838*
		Sig. (2 tailed)	.	.003
		N	292	292
	Clean Water and Sanitation	Correlation Coefficient	.838*	1.000
		Sig. (2 tailed)	.003	.
		N	292	292

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

*Correlation is significant at 0.05 levels (2 tailed)

Source: SPSS-generated Output

Table 6 shows the result of the correlation analysis carried out on marketing of recycling products and achievement of clean water and sanitation. The result indicates a positive correlation between marketing of recycling products and achievement of clean water and sanitation (r = .838*) and the symbol * implies that correlation is significant at 0.05. Hence, the null hypothesis is rejected and the alternate hypothesis is accepted. This means that there is positive and significant relationship between the marketing of recycling products and achievement of clean water and sanitation.

Discussion of Findings

This study found a positive and significant relationship between the marketing of energy efficient products and achievement of affordable and clean energy. This finding was obtained from the result of the correlation analysis carried out on the two variables. The result revealed that marketing of energy efficient products has a positive correlation with the achievement of affordable and clean energy (r = .712*) and this correlation is significant at 0.05 level. As a result of this, the null hypothesis was rejected and the alternate hypothesis was accepted. This means that there is positive and significant relationship between marketing of energy efficient products and achievement of affordable and clean energy. This finding is supported by Dangelico (2010) and Albino (2009) as they all believe that the marketing of energy efficient products would help to achieve global sustainable goals including affordable and clean energy.

This study also found a positive and significant relationship between the marketing of energy efficient products and achievement of clean water and sanitation. This finding was derived from the result of the correlation analysis carried out on the two variables. The result showed a positive correlation between marketing of energy efficient products and achievement of clean water and sanitation (r = .704*) and the symbol * indicates that this correlation is significant at 0.05 level. Consequently, the null hypothesis was rejected and the alternate hypothesis was accepted. This means that there is positive and significant relationship between the marketing of energy efficient products and achievement of clean water and sanitation. This finding is supported by Tuten (2013) and Sarkar (2012) as they reported that the marketing of energy efficient products can be used as a tool for achieving global sustainable development goals including clean water and sanitation.

A positive and significant relationship was found between marketing of renewable energy products and achievement of affordable and clean energy. This finding was deduced from the result of the correlation analysis carried out on the two variables. The result revealed that marketing of renewable energy products has a positive correlation with the achievement of affordable and clean energy (r = .869*) and this correlation is significant at 0.05 level. Based on this result, the null hypothesis was rejected and the alternate hypothesis was accepted. This implies that there is positive and significant relationship between marketing of renewable energy products and achievement of affordable and clean energy. This finding is consistent with the research conducted by Singh and Pandey (2012) which revealed that marketing of

renewable energy products help to achieve the global sustainable development goals.

This study equally found a positive and significant relationship between marketing of renewable energy products and achievement of clean water and sanitation. This finding was derived from the result of the analysis carried out on the two variables. The result showed a positive correlation between marketing of renewable energy products and achievement of clean water and sanitation (r = .824*) and this correlation is significant at 0.05. Consequently, the null hypothesis was rejected and the alternate hypothesis was accepted. This means that there is positive and significant relationship between marketing of renewable energy products and achievement of clean water and sanitation. This finding is supported by Singh and Pandey (2012) and Szuster (2008) as both studies reported that marketing of renewable energy products can help to achieve the global sustainable development goals including clean water and sanitation.

A positive and significant relationship was found between marketing of recycling products and achievement of affordable and clean energy. This finding emerged from the result of the correlation analysis carried out on the two variables. The result revealed a positive correlation between marketing of recycling products and achievement of affordable and clean energy (r = .517*) and this correlation is significant at 0.05. As a result of this, the null hypothesis was rejected and the alternate hypothesis was accepted. This implies that there is positive and significant relationship between marketing of recycling products and achievement of affordable and clean energy. This finding is consistent with the research conducted by Saxena and Khandelwal (2010), Sarkar (2012), Tuten (2013) and Albino (2009) as they all reported that recycling products enhance the achievement of affordable and clean energy.

Finally, it was revealed that positive and significant relationship exists between marketing of recycling products and achievement of clean water and sanitation. This finding was obtained from the result of the analysis carried out on the two variables. The result indicated a positive correlation between marketing of recycling products and achievement of clean water and sanitation (r = .838*) and this correlation is significant at 0.05. Consequently, the null hypothesis was rejected and the alternate hypothesis was accepted. This means that there is positive and significant relationship between the marketing of recycling products and achievement of clean water and sanitation. This finding is supported by Dangelico (2010) and Singh and Pandey (2012) as both studies reported that marketing of recycling products help to achieve the global sustainable development goals including clean water and sanitation.

Conclusion and Recommendations

Considering the increasing environmental pollution and its implications on human health and well-being, it becomes imperative for companies to embrace green product marketing since it has the capacity of achieving the global environmental sustainable goals including affordable and clean energy, and clean water and sanitation. This can be achieved by producing only energy efficient products, renewable energy products and recyclable products since they have the capacity of reducing energy consumption and ensure clean water and sanitation. The empirical results clearly shown that green products (energy efficient products, renewable energy products and recyclable products) have a positive and significant relationship with the

achievement of affordable and clean energy as well as clean water and sanitation. The implication of this is that if only green products are marketed worldwide, it would enhance the achievement of the global environmental sustainable goals by the year 2030.

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

1. Manufacturing companies in Nigeria especially those in south-south zone should adopt switch from the conventional marketing to green marketing as it would help to achieve the global environmental sustainable goals.
2. Considering the huge energy consumption in Nigeria and its implications on the environment and human health, manufacturing companies should replace their energy inefficient products with energy efficient products as it would help Nigeria to achieve clean energy and water by the year 2030 which will consequently improve the health condition of the people.
3. Products using coals, fossil fuel and oil as the sources of energy are the major causes of environmental pollution, hence, manufacturing companies should produce their products using energy from renewable sources such as sunlight and wind as this would help to achieve affordable and clean energy as well as clean water and sanitation by the year 2030.
4. It is obvious that excessive waste disposal on lands and seas are the major causes of contaminated water experienced in Nigeria today, hence, it is recommended that manufacturing companies in Nigeria should produce and market recyclable products as this would not only reduce wastes disposal on our lands and seas but would also enhance the achievement of clean water and sanitation by the year 2030.
5. Since consumers are the driving force of sustainable production and play a key role in sustainable development, it is therefore recommended that Nigerian consumers should switch from their unsustainable consumption pattern to sustainable consumption pattern as this would force companies to produce only sustainable (green) products that will lead to the achievement of the global environmental sustainable goals.

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