



GREEN SUPPLY CHAIN MANAGEMENT PRACTICES AND STAKEHOLDER SATISFACTION: THE EXPERIENCE OF MAJOR PETROLEUM MARKETERS IN NIGERIA

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ABSTRACT: This study focused examining the influence of *GSCM* practices on stakeholders' satisfaction. The study adopted green purchasing, eco-design, reverse logistics and green training as proxies of *GSCM* practices, while stakeholders' satisfaction was treated unidimensionally. A descriptive design was adopted. Primary data collected from thirty-six (36) managers consisting procurement, inventory, warehousing, quality control, community relations, and logistics managers from six (6) major oil marketers was used for data analysis. A structured questionnaire designed in a five-point Likert was used to collect primary data. The validity of the instrument was attained by adapting existing scales; and through the opinion of experts in supply chain management and measurement and evaluation; while its internal consistency was determined via the Cronbach's Alpha test, with a threshold of 0.70 criterion. The multiple regression served as the test statistic. The study found that *GSCM* practices have strong positive influence on stakeholders' satisfaction. The study also found that green training had the highest beta contribution of 0.878 to stakeholder satisfaction, followed by green purchasing with a beta contribution of 0.771, reverse logistics came third beta with 0.516; while eco-design came last with a beta contribution of -0.569. The study concludes that *GSCM* practices (green training, green purchasing, reverse logistics and eco-design) of major oil marketers in South-south Nigeria predicts stakeholders' satisfaction. The study thus, recommends that major oil marketers in South-south Nigeria that seek to deliver satisfaction to stakeholders; or desire to improve stakeholders' satisfaction should implement green training, green purchasing, reverse logistics and eco-design, all of which position them as eco-friendly market operators, to endear themselves to stakeholders and elicit their support and cooperation.

Keyword: Eco-design, green supply chain management practices, green purchasing, green purchasing training, reverse logistics, stakeholders' satisfaction

INTRODUCTION

The planning and coordination of business activities of multiple firms in diverse industrial domains to create a fit that develops and delivers value to customers is termed supply chain management. The various activities and operations of firms that culminates in offering value to customers however, often result in adverse environmental consequences. This raises a challenge of how to achieve environmentally friendly development amidst rising global challenges; and have raised activists with particular concern for environmental conservation. One of the many responses industrial actors have adduced to reduce the impact of their activities and operations on the environment is *greening*. Green Supply Chain management (GSCM), which has received vast academic contribution and industry adoption is one component of the green revolution. The increasing awareness of environmental protection, compels firms to adopt practices that preserve the environment and strengthen their image (Tseng & Chiu, 2012; Yang, Hong, & Modi, 2011; Tseng, 2011) a true protectors of the environment.

Indeed, proactive GSCM practices represent viable competitive tools for contemporary firms, whose operations traverse nations, hence, affect various stakeholders. in the business environment. Tools that deliver value for firms also deliver competitive advantage; and them in a favorable and commanding business position. Firms that engage in GSCM practices are postured to achieve improved performance through procedures that involve reducing costs, managing wastes, reducing resource consumption, and improving their image and reputation (Vachon & Klassen, 2008; Zhu, Sarkis, & Lai, 2013) which enhances their ability to



elicit support and cooperation from stakeholders. Stakeholders' support and cooperation can be secured only by delivering or enhancing their satisfaction with a firms' operations and ability to deliver value to them.

GSCM practices provide firms with avenues to reduce or avoid environmental deterioration and degradation that are associated with companies' operations that are characterized by exploitation of natural resources and disposal of wastes that harm the ecosystem. In the ensuing highly competitive operating environment of firms, the ability to operate with zero or minimal harm to the environment is a source of competitive advantage. However, there is dearth of empirical evidence to support this assertion, especially in developing countries, and from the perspective of major oil marketers. This study thus joins the discourse on GSCM practices by examining its influence on the satisfaction of stakeholders of major oil marketers in South-south Nigeria.

Theoretical Foundation of the Study

This study is founded on the Ecological modernization theory (EMT). EMT is a sociological theory that has been further developed and applied in policy and organizational contexts (Spaargaren & Mol, 1992). It is a systematic eco-innovation theory geared towards achieving both industrial development and environmental protection through innovation and technological development, or modernity (Jänicke, 2008; Murphy & Gouldson, 2000). EMT suggests that ecological regulations and policies can motivate GSCM practices of industrial actors (Jänicke, 2008). Berger, Flynn, Hines, and Johns (2001) posits that proper institutional arrangements and legal frameworks by governments are required to promote GSCM practices; since at EMT is the

basis of environmental policy integration by manufacturing firms; hence, necessary for *GSCM* development.

EMT has been widely used to explain environmental planning by firms and the restructuring of production in a way that lessen environmental impact by major manufacturers (Murphy & Gouldson, 2000). Jänicke (2008) explains that firms that pursue ecological modernization in their business practices will benefit from improved performance both economically and environmentally. Industrial ecology, of which *GSCM* is an important aspect, helps in the achievement of sustainable development (Spaargaren & Mol, 1992). EMT-based *GSCM* studies explain how environmental policy can promote the adoption of *GSCM* practices and demonstrate that such practices hold the potential to confer improved economic and environmental performance (Hall, 2001). This study thus adopts the EMT as a viable baseline theory to explain how and why *GSCM* practices can influence satisfaction of stakeholder of major petroleum marketers in Nigeria.

Concept of Green Supply Chain Management Practices

GSCM is a supply chain management approach that integrates environmental innovativeness in ensuring material and information flow in a way that leave zero negative effect on the environment. It is an amalgam of both managerial dexterity and environmental conservation is a firm's approach to executing business operations. Zhu *et al.* (2013) and Klassen and Whybark (1999) defined *GSCM* as the "intra- and inter-firm management of upstream and downstream supply chain activities aimed at minimizing the overall environmental impact of both forward and reverse flows of materials." It is an innovative, profitable, widely acceptable, and socially and environmentally responsible way of carrying out supply chain activities (Sarkis, 2012; Zhu *et al.*, 2013).



Green supply chain management (GSCM) evolved in response to the increasing number of environmental challenges occasioned by degradation of the environment by business operations and the predictions of ecologists of even more and worse ecological challenges in future (Huserbraten, Eriksen, Gjøsæter, & Vikebø, 2019). The non-sustainable use of natural resources, and the high levels of generation and improper disposal wastes have really caused significant harmed to the environment. The extent of harm the environment has suffered have forced governments the world over, and international agencies to formulate and enforce policies aimed at preventing further environmental degradation (Song & Wang, 2018; Mani, Gunasekaran, Papadopoulos, Hazen, & Dubey, 2016).

GSCM gained scholarly popularity through knowledge sharing in various fields, all of which accord import to the construct. In organisational studies, GSCM hold particular importance in lieu of their contribution to company performance. Different terms have thus been used to describe the construct. These include cleaner supply chain management (Subramanian & Gunasekaran, 2015), sustainable supply chain management (Beske, Land & Seuring, 2014; Ahi & Searcy, 2013), and environmental supply chain (Jabbour, Latan, Teixeira, & De Oliveira, 2015). The central ideas however, is the incorporation of environmental thinking into SCM activities (Laosirihongthong, Adebajo & Tan, 2013; Zhu *et al.*, 2013).

GSCM practices are thus firms' initiatives directed at "greening" the supply process; and includes product based practices, delivery process and practices that focuses on the conduct business activities with environmental consciousness. They are eco-friendly activities that ensure reduction of pollution and waste while carrying out distribution and logistics activities in the supply chain (Azevedo, Carvalho, & Machado, 2011) and generally

comprise actions that reduce or eliminate waste and pollution, hazardous materials; as well as consider product life-cycles, environmental performance, emphasize compliance, and remediate environmental problems (Rao & Holt, 2005). In essence, green SCM practices concentrate on minimizing the environmental impact of forward and reverse flows in the supply chain, while creating economic value and lowering costs (Vachon & Klassen, 2008).

GSCM is multidimensional; the most common components identified by scholars include green purchasing (bound greening), green manufacturing, green distribution (bound greening) environmentally-friendly reverse logistics, cooperation with customer on green requirements, green design, eco-design, green marketing and consumption, recycling, green packaging (Sarkis, 2012; Eltayeb, Zailani, & Jayaraman, 2010; Holt & Ghobadian, 2009; Zhu *et al.*, 2008; Rao & Holt, 2005). In this study however, green purchasing, eco-design, reverse logistics and green training are adopted as the dimensions of GSCM practice.

Green Purchasing

Green purchasing is the integration of environmental consciousness during purchase activities. It is a deliberate effort by firms to ensure that products purchased, meet environmental standards, and reducing wastage and promoting product reuse and recycling. Purchasing has evolved over the years into a strategic function due to a growing trend to focus on core activities, and outsourcing the non-core ones (Eltayeb *et al.*, 2010). This means shifting some part of a firm's activities outside its boundary; and the purchasing function is relied upon to contribute not only to the firm itself, but also to the protection of the operating environment (Zsidisin & Siferd, 2001).



The purchasing function connects the firm to its suppliers and ensures seamless flow of materials at the lowest possible cost, for improved product quality, and maximization of customer satisfaction (Olaore & Adebisi, 2013; Wisner *et al.*, 2012). The purchasing function play vital roles in choosing the right raw materials, components parts and supplies for the firm (Wisner *et al.*, 2012). However, the increase in environmental issues have given rise to a concern for firms to "green" their purchasing. Environmental challenges like pollution resulting from industrialization have called purchasing practices of firms into question; and have emphasized the need for green purchasing (Walker, Di Sisto & McBain, 2008). Different terms used to describe green purchasing include "green procurement", "sustainable purchasing" and "environmental purchasing." Green purchasing initiatives include the procurement of products that reduce wastages; promote recycling and reuse; minimize resource consumption; and encourage substitution of materials (Zsidin & Siferd, 2001; El Tayeb *et al.*, 2010). Similarly, Yang and Zhang (2012) states that green purchasing is the practice of choosing suppliers that provide eco-friendly materials and services.

Eco-design

There are pressures from customers, regulators and activists on the need for firms to manage the negative impact of their activities on the environment (Giri, Mondal, & Maiti, 2019). In order to satisfy these demands, firms have to come up with innovative initiatives, practices and policies that promote technologies and environmental management systems (Zhu *et al.*, 2008). This led to the introduction of eco-design - plans to ensure reduction of negative environmental consequences of product's entire life before actual manufacturing decisions are made. Eco-design, also referred to as design for environment, green design, environmentally conscious design, life cycle design, clean design

and sustainable design (Schmidt, Foerstl, & Schaltenbrand, 2017; Younis, Sundarakani, & Vel, 2016) is important to sustainable business development. It is a set of projects and practices whose aim is the creation of eco-efficient products and processes. It is a proactive process that influences all stages of the life cycle of products (Jeswiet & Hauschild, 2005); and mainly involves identifying environmental aspects of a product and including them in the design stage of product development (Nowosielski, Spilka & Kania, 2007).

Karlsson and Luttrupp (2006) opine that eco-design is a sustainable solution of products that ensures reduction of negative and toxic substances for social and environmental sustainability; while Fiskel and Wapman (1994) viewed the eco-design process as one that considers design performances with respect to environmental, health and safety. In essence, eco-design ensures the reduction of negative environmental consequences of a product's entire life cycle before manufacturing decisions are put into action; and includes all efforts towards avoiding hazardous materials, reduction of environmental impacts of products, and improved revenue performance. Hemel and Brezet (1997) and Singhal (2012) explain eco-design in five different aspects: design for use of raw materials, design for manufacture, design for distribution, design for product use and design for end of life.

Design for use of raw materials emphasize that non-renewable materials should be avoided since the source can become exhausted with time. Design for manufacture focuses on minimizing the use of auxiliary materials and energy to limit loss of raw material and generate as little waste as possible (Singhal, 2013). Design for distribution emphasize reducing transportation by working with local suppliers to avoid long-distance transport (Hemel & Brezet, 1997) in order to reduce both environmental



impact and cost (Singhal, 2013). Design for product use emphasizes making use of less harmful sources of energy as well as encourage the use of clean and renewable energy sources (Hemel, 1995). Design for end of life ensures the reuse of products, components or materials to reduce the environmental impact of a product by reinvesting the materials and energy involved in its manufacture while preventing hazardous emissions (Hemel & Brezet, 1997).

Reverse Logistics

The primary direction of product flows in a supply chain is forward; however, in instances where customers have genuine need to return purchased products to their makers brings the ideas of a backward or reverse flow. The concern here, is the obligation and responsibility to return products to their manufacturers in a sustainable way (Agrawal, Singh, & Murtaza, 2015, Govindan, Soleimani, & Kannan, 2015). Reverse logistics is the process of returning products that have completed their cycles to the manufacturer for reuse or proper disposal so as to reduce negative impacts on the environment. Reverse logistics meets the demand of reducing the negative impacts on the environment, as the manufacturers destination the best way to reuse, recycle or dispose them (Agrawal *et al.*, 2015).

Govindan *et al.* (2015) and González-Torre and Adenso-Díaz (2006) observed that any type of product into the natural environment trigger some sort of negative impact and, consequently, generates a complex problem for the environment. Hence, there is need to urgently consider reverse flow of movement of goods to avoid these negative impacts. The concept of reverse logistics was first mentioned in 1992 by Stock Autry; but has grown in importance over the years. The essence of this growth according to McKinnon (2010) is associated with the volume of waste being recycled and reused especially by firms.

Reverse logistics integrates social and environmental aspects in order to ensure the actualization of well-being of people and the environment. *Reverse logistics (RL), is a process by which a manufacturing company governs the return of its products, parts and materials from the consumption sites, in order to reuse them, recover their residual value, or to dispose of them* (Gandolfo & Sbrana, 2008).

In a definition put forward by the Council of Supply Chain Management in 2010, reverse logistics is "a specialized segment of logistics focusing on the movement and management of products and resources after sale and delivery to customers." It enables firms to become more environmentally capable through recycling, reuse and reducing the amount of materials consumed; and ensures that end-of-life products are returned from consumers for value recreation. Zhang (2010) delineate reverse logistics as follows; 'the physical movement of goods formed by repairing and returning substandard goods as well as turnover containers returned to supply side from demand side.

Green Training

Concern for environmental protection and pressures from environmental activists have stimulated firms' awareness of meeting consumers demands and in environmentally sustainable manners (Pham, Tučková & Jabbour, 2019). Hence, firms are becoming more responsible for sustainable outcomes in general and specifically for the environmental effects caused by their activities (Koberg & Longoni, 2019), especially the role of human resource management (HRM). One of the key responsibilities of a human resource professional is getting the support of employees to implement eco-friendly initiatives (Priya, Suri, & Singh, 2014). Ahmad (2015) emphasize the role of employees in promoting practices such as carpooling, recycling and energy conservation. Individual's green competencies are crucial for pro-



environmental performance (Subramanian, Abdulrahman, Wu, & Nath, 2016). In recent years, research on green human resources management and, in particular, environmental training has evolved and is being considered one of the most promising tools to develop human resources (Teixeira, Jabbour, de Sousa Jabbour, Latan, & De Oliveira, 2016) and to facilitate the transition to a more sustainable society.

Since inception, scholars' interest on green training has increased; the concept has attracted studies in various industries such as the hospitality industry (Kim, Kim, Choi, & Phetvaroon, 2019; Pham *et al.*, 2019), manufacturing industry (Chaudhary, 2019), health industry (Jia, Liu, Chin, & Hu, 2018), and information technology industry (Ojo & Raman, 2019) because environmental-training is reported as one of the most crucial aspects of human resource practices. Training is systematic acquisition of knowledge, skills, and attitudes that result in improved work performance. Thus, environmental training provides employees with the knowledge, skills and attitudes required for more proactive environmental management. It develops attitudes, behaviors, knowledge and skills in the employees that stop the corrosion of the environment. Green Training is also defined as a process of on-the-job training and continued education intended to achieve corporate environmental management targets and purposes. It refers to a system of activities that motivate employees to learn environment protection skills and pay attention to environmental issues, which is key in accomplishing environmental objectives. Training can increase employees' awareness, knowledge, and skills in environmental activities (Fernandez, Junquera & Ordiz, 2003).

Stakeholder Satisfaction

In recent times, whether and how stakeholder satisfaction affects firm performance is gaining significant attention in

business praxis. Stakeholder satisfaction established itself among academics and management professionals as a new managerial model incorporate shareholders, employees, suppliers, clients, and other parties that have or may have interest in a firm's activities (Clarkson, 1995). Stakeholders are persons or institutions that have, in any way, claims, interests, or rights in a company or its activities, in the present, past or future (Clarkson, 1995). Stakeholders are people or institutions, who as employees, consumers, suppliers, financial institutions, communities, government, political groups, business and trade associations and labor unions; affect a firm's survival and development.

Stakeholder satisfaction is defined as the economic returns of stakeholders during the process of realizing their own objectives (Ruf, Muralidhar, Brown, Janney, & Paul, 2001). It is the degree to which firms meet or exceed the needs of internal and external players that may influence the internal success of firms. From strategic management perspective, stakeholder satisfaction is a way of gaining competitive advantage by understanding and meeting the demands of those who participate in a firm's business management directly and indirectly, or actively and passively. The concept of stakeholders, and their involvement and relationship with a firm are contemporary characteristics of modern companies. This is as the "stakeholder theory" provides a useful lens to explain how stakeholders influence and are influenced by firms (Clarkson, 1995). The underlying assumption of the stakeholder concept is that a company should take into consideration, the needs, interests and influences of people and groups who either impact, or may be impacted, by its policies and operations (Frederick, Post, & Davis, 1992).

The current business-scape, characterized by globalization and intensive competition, accommodate numerous individuals and groups as stakeholders. These individuals and groups may be



classified into primary stakeholders: those having formal contractual relationships with the firm, such as clients, suppliers, employees, shareholders, etc.; and secondary stakeholders - those not holding such contracts, such as governments and the local community (Clarkson, 1995). A firm's challenge is to identify the stakeholders' most important for survival; and meeting their respective needs and expectations (Julian, Ofori-Dankwa, & Justis, 2008; Baron, 2009).

The focal stakeholder in this study are the community stakeholder; and their expectation of firms' ability to engage in corporate social responsibility (CSR). Firms CSR activities play critical roles in shaping their reputation in the minds of stakeholders; and this in turn, impacts corporate performance (Lai, Chiu, Yang, & Pai, 2010). Managers therefore, design strategies and actions to respond to key stakeholders' expectations (Wing-Hung Lo, Fryxell, & Tang, 2010). Such activities as, sponsoring community events, partaking in local community activities or donating to community development in the form of building schools, libraries, hospitals, to win local support and cooperation (Cho & Kim, 2012) can stimulate stakeholder satisfaction. Positive CSR reputation generate goodwill, respect and support from stakeholders and inform their overall satisfaction (Foote, Gaffney, & Evans, 2010).

Green Supply Chain Management Practices and Stakeholder Satisfaction

The green revolution made corporate organisations to rethink how they interact with the natural environment in their business operation and how these impact the environment. With pressure from environmental activists and regulatory frameworks, firms are increasingly taking responsibility, and also examining the positives of green-oriented company operations on overall wellness. Literature is replete with studies that have examined

and identified how various aspects of "greening" relates to performance and competitiveness of firms.

Guenther, Scheibe, and Farkavcova (2010) posits that green purchasing, which is a key aspect of GSCM is instrumental to reduced wastage by promoting reuse and recycling; and impact various performance measures of firms. This is discernible, since green purchasing minimizes negative environmental impacts in manufacturing and transportation by preferring durable, recyclable and reusable materials (Sarkar, 2012). Wisner *et al.* (2012) aver that firms practicing green purchasing benefit from cost savings, better public image and decreased liability; while Carter, Kale, and Grimm (2000) found that green purchasing effects firm performance positively, via reuse, recycle and reduced resource consumption. Bowen, Cousins, Lamming, and Faruk (2006) claim that green supply is essential to improved environmental performance in terms of recycling and waste reduction. Other scholars (Schmidt *et al.*, 2017; Wijethilake, 2017; Sarkis, 2012) argue that green purchasing impact corporate performance positively, via cost advantages, increased competitive capabilities, increased production and environmental performance, creation of new capabilities, waste reduction, and improved product and process quality. Green purchasing is also associated to reduced wastage and energy costs, which increases corporate reputation and loyalty; higher profitability (Schmidt *et al.*, 2017).

Other facets of GSCM like eco-design, reverse logistics and green training have also been identified with company wellness and stakeholders' satisfaction. Eco-design is widely believed to offer firms environmental, economic and social benefits and opportunities (Borchardt, Wendt, Pereira, & Sellitto 2011). This is in lieu of its core objective of reducing waste and emissions;



and increasing environmental commitment. Hart and Ahuja (1996) observed that firms can achieve competitive advantage by adopting advanced eco-friendly practices built on low emissions. Russo and Fouts (1997) states that firms with low manufacturing emissions relative to competitors gain first-mover advantage in emerging green product markets; just as Ambec and Lanoie (2008) link eco-design practices to increased revenue, reduced material, energy, services and capital costs, and risk and external stakeholders' relations management; which improves overall financial performance (Lindell & Karagozoglu, 2001). It also results in increased shareholders value, customer satisfaction, job satisfaction, enhanced efficiency; and new market opportunities (Azevedo *et al.*, 2011).

Reverse logistics on the other hand has been linked to improved reputation and enhanced image (Rao & Holt, 2005) efficient management of returned materials that allows new profits; it provides direct and indirect economic benefits such as decreasing costs, reduced use of materials, or obtaining valuable from spare parts (Lambert & Cooper, 2000); reduced customer's purchase-related risks, and increase customer value. Hosseini, Chileshe, Rameezdeen, and Lehmann (2014) argue that reverse logistics contributes to waste reduction; cost saving; increased process efficiency through recycling and remanufacturing methods that enhance sustainability, improve supply chain performance and increase customers' satisfaction.

Employees are the building blocks of firms, and their eco-friendly behaviours lead to firms' environmental friendliness (Kim, Kim, Choi, & Phetvaroon, 2019). Improving firms' performance is not easy, as it involves managing numerous resources; including human resource. Human talent must be well leveraged if firms must achieve their environmental goals (Jackson, Schuler & Jiang,

2014) and overall marketing performance. Recent studies suggest that green training relates positively to greening of firms. Sarkis (2012) claim that green training is relevant to the adoption of advanced environmental practices among companies which increase their chances of achieving improved performance.

Green training is relevant to cleaner production programmes. Teixeira *et al.* (2016) suggest that sustainable development will only succeed when it is well-aligned to human resource practices. Thus, green training is thought to improve employees' awareness of environmental issues, build positive environmental attitude, and develop their competency to conserve energy and reduce waste. it is crucial to successful implementation of eco-management systems and creation of eco-friendly culture in firms (Teixeira *et al.*, 2016). Through green training, employees enhance their knowledge of, and skills in environmental protection and improve their ability to deal with complex environmental problems (Govindarajulu & Daily, 2004). Green training also associates with marketing, economic, social and environmental performance (Zaid, Jaaron & Bon, 2018). It helps firms improve their environmental performance through enhanced employee awareness about environmental issues. Dutta (2012) thus states that green training is the best way for firms to achieve improved environmental performance. It is believed that employees with environmental values play crucial roles in firms' proactive adoption of environmental sustainability principles that boost their environmental performance (O'Donohue & Torugsa, 2016). Thus, by increasing employees' understanding of green practices, firms can improve their marketing performance in a more sustainable manner that aligns with stakeholders' expectations. In view of the forgoing, the study formulates the following null hypotheses for the purpose of conducting statistical analyses:



H₀₁: Green purchasing does not significantly influence stakeholder satisfaction.

H₀₂: Eco-design does not significantly influence stakeholder satisfaction.

H₀₃: Reverse logistics does not significantly influence stakeholder satisfaction.

H₀₄: Green training does not significantly influence stakeholder satisfaction.

METHODOLOGY

This study examined the influence of GSCM practices on stakeholders' satisfaction. The study adopted a descriptive research design. The population of the comprised major oil marketers in South-South, Nigeria. Information from the Major Oil Marketers Association in Nigeria (MOMAN) indicates that there are only six (6) registered major oil marketers in Nigeria with liaison offices in all the thirty-six (36) States of the country and Abuja. This information is obtainable at <https:mowan.org>. Therefore, the target population of the study are the managers operating in the different liaison offices in the six (6) States of the South-south. The study took a census; while convenience sampling was used to arrive at the test units of the study. Thirty-six (36) managers consisting procurement, inventory, warehousing, quality control, community relations, and logistics managers from the six (6) major oil marketers in the six (6) states of the South-south served as respondents for the study. The study used a structured questionnaire designed in a five-point Likert to collect primary data. The content validity of the instrument was attained by adapting existing scales used in previous works; and through the opinion of informed and experienced persons in the subject area, and in measurement and evaluation; as well as industry experts. The internal consistency of the instrument was determined via the Cronbach's Alpha test,

with a threshold of 0.70 criterion. Table 1 summarizes the results of the test.

Table 1: Cronbach Alpha Reliability Coefficients for Study Variables

Variables	Items	Alpha Coefficient
Green purchasing	6	0.888
Eco-design	5	0.909
Reverse logistics	5	0.811
Green training	5	0.881
Stakeholder satisfaction	5	0.799

Source: SPSS output of data analysis on green supply chain management practices and stakeholders' satisfaction (2021).

The multiple regression served as the test statistic to analyze the strength and direction of influence of *GSCM* practices on stakeholder's satisfaction, based on the data collected from respondents. The reason for using multiple regression as test statistic because it allows the determination of the relative influence of multiple independent variables on a dependent variable. The analyses were carried out using the Statistical Package for Social Sciences (SPSS) version 23.0.

Results and Interpretation

Table 2: Regression analysis of the influence of *GSCM* practices on Stakeholder Satisfaction

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	Green Purchasing, Eco-Design, Reverse Logistics, Green Training ^b		. Enter

a. Dependent Variable: Stakeholder Satisfaction

b. All requested variables entered.

Source: SPSS output of data analysis on green supply chain management practices and stakeholders' satisfaction (2021).



Table 3: Model summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.877 ^a	.769	.745	22.01786

a. Predictors: (Constant), Green Purchasing, Eco-Design, Reverse Logistics, Green Training
 Source: SPSS output of data analysis on green supply chain management practices and stakeholders' satisfaction (2021).

Table 4: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		
	B	Std. Error				Lower Bound	Upper Bound	
	(Constant)	14.628	11.933	1.249	.000	-8.459	33.714	
1	Green Purchasing	.771	.271	.204	-1.837	.001	-.917	.058
	Eco-Design	-.569	.689	-.541	-.238	.000	-.547	.435
	Reverse Logistics	.516	.821	.477	5.187	.000	.956	2.243
	Green Training	.878	.909	.801	-.903	.008	-.952	.377

a. Dependent Variable: Stakeholder Satisfaction

Coefficients

Source: SPSS output of data analysis on green supply chain management practices and stakeholders' satisfaction (2021).

Regression Model: $SS = 14.628 + [(0.771GP) - (0.569ED) + (0.516RL) + (0.878GT)]$

Table 5: Analysis of Variance

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	203292.277	4	50823.069	104.836	.000 ^b
	Residual	9695.723	29	484.786		
	Total	212988.000	33			

a. Dependent Variable: Stakeholder Satisfaction

b. Predictors: (Constant), Green Purchasing, Eco-Design, Reverse Logistics, Green Training

Source: SPSS output of data analysis on green supply chain management practices and stakeholders' satisfaction (2021).

Regression line

$$Y = a + bX_1 + bX_2 + bX_3 + bX_4$$

$$SS = 14.628 + [(0.771GP) - (0.569ED) + (0.516RL) + (0.878GT)]$$

Where:

$$R = 0.877$$

$$R^2 = 0.769$$

$$F_{4, 33} = 104.836$$

$$P\text{-value} = 0.000$$

Tables 2-5 revealed the significant influence of green purchasing, eco-design, reverse logistics, and green training on stakeholder satisfaction. The result indicates that $(R) = 0.877$, coefficient of determination $(R^2) = 0.769$ which was equivalent to 76.9%. The result showed that GSCM practices have strong positive influence on stakeholder satisfaction (that is, green purchasing, eco-design, reverse logistics, and green training influence stakeholder satisfaction). This entails that 76.9% variation of stakeholder satisfaction can be attributed to factors within the model used for the study while the remaining 23.1% may be explained by other factors not covered in the study. The f-ratio ($F_{4, 33} = 104.836$) showed significant effects in existence and this reveal the strength of the model used for the study. The t-ratio showed the significance of green purchasing, eco-design, reverse logistics and green training to the manifestation of stakeholder satisfaction.

The beta value determines the strength or the extent of contributions of individual elements of GSCM practices to the manifestation of stakeholder satisfaction. The outcome of the analysis revealed that green training made the highest beta contribution of 0.878 value, followed by green purchasing with a beta contribution of 0.771 value, reverse logistics made the third beta contribution of 0.516 value while eco-design came last with a beta contribution of -0.569 value. This result revealed that



green supply chain management practices significantly contribute to stakeholder satisfaction. Furthermore, the probability value (p-value) is less than ($<$) 0.05, the null hypotheses are therefore rejected.

Discussion of Findings

This study examined the influence of GSCM practices on stakeholders' satisfaction. The results from the analysis reveal that GSCM practices have strong positive and statistically significant influence on stakeholders' satisfaction. The evidence shows that green supply chain management practices like green purchasing, eco-design, reverse logistics and green training contributes to the degree to which major petroleum marketers in South-south Nigeria satisfy their stakeholders. It suggests that major petroleum marketers' creativity and unique eco-friendly practices and policies enhance their image and reputation in their minds of their stakeholders, and position them well within the business society.

These findings are consistent with the findings of scholars that GSCM practices have positive environmental, economic and social performance outcomes of firms. Particularly, the current findings align with the position of Guenther *et al.* (2010) that green purchasing reduces wastage by promoting reuse and recycling; and impact various performance measures of firms. The current finding's alignment with this position is legit because green purchasing minimizes negative environmental impacts in manufacturing and transportation by preferring durable, recyclable and reusable materials (Sarkar, 2012). The findings also agree with Wisner *et al.* (2012) that firms practicing green purchasing benefit from cost savings, better public image and decreased liability; and with Bowen *et al.* (2006) that greening is essential to improved environmental performance through recycling and waste reduction. The findings of this study also

support Schmidt *et al.* (2017); Wijethilake (2017); McMurray *et al.* (2014); Sarkis (2012) that green purchasing impact higher profitability through lowered costs associated with waste and hazardous materials management, reporting; and cost saving via reduced resource utilization, energy conservation, waste reduction, and improved product and process quality.

Additionally, the current findings cohere with observation by scholars that other facets of *GSCM* like eco-design, reverse logistics and green training influence company wellness and stakeholders' satisfaction. Borchardt *et al.* (2011) posits that eco-design confer environmental, economic and social benefits and opportunities on firms; while Hart and Ahuja (1996) observed that firms can achieve competitive advantage by adopting advanced eco-friendly practices. Similarly, Ambec and Lanoie (2008) and Lindell and Karagozoglu (2001) link eco-design to increased revenue, reduced material, energy, services and capital costs, and risk and external stakeholders' relations management; which improves overall financial performance. Eco-design is also believed to result in increased shareholders value, customer satisfaction, job satisfaction, enhanced efficiency; and new market opportunities (Azevedo *et al.*, 2011). Similarly, reverse logistics has been linked to improved reputation and enhanced image (Rao & Holt, 2005) efficient management of returned materials that allows new profits. Russo and Cardinalli (2012) observe that reverse logistics reduces customer's purchase-related risks and increases customer value; while Hosseini *et al.* (2014) aver that reverse logistics contributes to waste reduction; cost saving; and process efficiency.

Furthermore, the findings of this study supports the claim of Sarkis *et al.* (2010) that green training is relevant to the adoption of advanced environmental practices among companies which



increase their chances of achieving improved performance; our findings also align with the position of Teixeira *et al.* (2016) that sustainable development will only succeed when it is well-aligned to human resource practices. The potential of green training to improve employees' awareness of environmental issues, build positive environmental attitude, and develop their competency to conserve energy and reduce waste is why it relates to stakeholders' satisfaction. Also, the relevance of green training to successful implementation of eco-management systems and creation of eco-friendly culture in firms (Teixeira *et al.*, 2016) presents it as a driver of stakeholders' satisfaction. The believe that employees with environmental values play crucial roles in firms' proactive adoption of environmental sustainability principles that boost their environmental performance (O'Donohue & Torugsa, 2016); and that by increasing employees' understanding of green practices, firms can improve their marketing performance in a more sustainable manner that aligns with stakeholders' expectations gives further credibility to the findings of the current study.

CONCLUSION AND RECOMMENDATIONS

Gaining the support and cooperation of stakeholders is essential to the seamless operation and profitable growth of firms. This is because a firm cannot sustainably operate, and maintain a fit with its stakeholders in the absence of cordiality and mutual support. This is why firms continually invest in, and engage with stakeholders to earn their support. This study examined the influence of GSCM practices of major oil marketers in South-south Nigeria on stakeholders' satisfaction. Based on the outcome of the empirical analyses conducted, the study observed that GSCM practices manifested as green purchasing, eco-design, reverse logistics and green training strongly influence stakeholders' satisfaction; and this influence was also found to

be significant. These findings were also confirmed to align with the positions, findings and statements of prior studies; and fit with extant theories in supply chain management.

The study concludes that *GSCM* practices (green purchasing, eco-design, reverse logistics and green training) of major oil marketers in South-south Nigeria predicts stakeholders' satisfaction; or that the extent to which stakeholders' major oil marketers in South-south Nigeria are satisfied with can be ascribed to the *GSCM* practices of these marketers. The study thus, recommends that major oil marketers in South-south Nigeria that seek to deliver satisfaction to stakeholders; or desire to improve the level of satisfaction of their stakeholders should adopts and implement *GSCM* practices like green purchasing, eco-design, reverse logistics and green training, all of which position them as eco-friendly market operators, thus capable of endearing them to stakeholders and eliciting their support and cooperation.

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