

Green Supply Chain Management Practices and Environmental Sustainability: A Study of Fast Food Restaurants in Rivers State of Nigeria

by

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Abstract

This study mainly aims to investigate the impact of green supply chain management practices dimensions, namely: green purchasing, green manufacturing, green packaging, green distribution and green marketing on environmental sustainability in the food industry in Rivers State of Nigeria. This study adopted a cross-sectional design and quantitative method to extricate the impact of green supply chain management (GSCM) practices on environmental sustainability (ES). A self-administered questionnaire was delivered to personally to 450 employees of 90 fast food restaurants in Rivers State of Nigeria by means of the non-probability convenient sampling technique, and a total of 296 questionnaires were received back from respondents, giving a 65.8% response rate. Analyses were carried out in Statistical Package for Social Sciences, where reliability analysis, descriptive statistics and regression analyses were performed. The results illustrated that green purchasing; green manufacturing, green packaging, green distribution and green marketing have direct positive impact on environmental sustainability in the food industry in Rivers State of Nigeria. The study therefore, concludes that green supply chain practices significantly and positively influence environmental sustainability. The study recommends that, managers of fast food restaurants should adopt green manufacturing and green distribution to improve environmental sustainability.

Keywords: Environmental sustainability, Fast food restaurants, Green supply chain management practices, Rivers State.

INTRODUCTION

These days the concept of sustainability is almost ever-present by screening relevance in corporate strategy, consumer choice and academic investigations. The necessity for sustainable environment around the globe is acknowledged to be a consequence of general boost in the consumer awareness of deficient environmental protection

and social imbalance. The broader public apprehension on the subject of sustainability has developed from approximately zero near the beginning of the 1990s to a central premise at the moment. As an upshot, sustainability is currently an indispensable feature for a firm's long-standing accomplishments. In the interim, leaders of foremost conglomerates globally are progressively more in front of the face up to managing businesses that convene the prospects of extensive collections of stakeholders and delivering a return to shareholders under the lens of environmental sustainability.

Green supply chain management (GSCM) is an up-to-date and accepted trend practice which smoothes the progress of environment sustainability globally, since it presents a holistic model in which products, distribution, consumption and disposal of products and services are implemented in a manner that is less damaging to the environment with increasing responsiveness concerning the presumption of global warming, non-biodegradable solid waste, harmful impact of pollutants etc. Testa and Iraldo (2010) stated that green supply chain management (GSCM) possibly will lend a hand to boost brand image, cultivate first-rate relations with stakeholders, and perk up the motivation of workforce.

Consequently, firms and consumers are on track confronting eco-friendly products as they become more disturbed on the environment, health and capital in order to save from harm the earth's wherewithal and the environment. Nagaraju and Thejaswini (2014) stated that companies have gradually applied eco-friendly practices in their ventures as a fraction of public ethics and they are serious about approaching the consumers with their green messages and practices.

Some scholars have concentrated on shaping the fundamental rationale in the direction of green supply chain management and environmental sustainability by providing concrete evidence on how the implementation GSCM could improve environmental sustainability through meticulous empirical studies. For instance, Pratiwa and Widodob (2019) investigated the impact of green supply chain management practices on corporate sustainability performance in the food industry of Indonesia; Ikegwuru and Pokubo (2018) provide empirical evidence on sustainable supply chain management and environmental performance in retail fuel stations in Rivers State of Nigeria; Yu and Ramanathan (2015) examined stakeholders pressures, green operations and environmental performance; Zhu et al. (2012) assessed the effects of green supply chain management and their mediations on performance improvements, and Zhu, Sarkis and Lai (2007) studied green supply chain management practices and performance within the Chinese automobile industry,

From the above studies, there exists a restricted research which has examined the impact of green supply chain management practices on environmental sustainability from emerging economies like Nigeria. Most of the studies have been conducted outside Nigeria, and it is to be acknowledged that when measured from a developing country's context, there is a lack in number of studies. It is against this backdrop from the above discussion that this study maintains that, it is quite clear that there is an outsized research gap in terms of conceptually and empirically categorizing those areas of green supply chain management practices impacting the concept of environmental sustainability. This study therefore, investigates green supply chain management practices and environmental sustainability in the fast food restaurants in Rivers State of Nigeria.

Statement of the Problem

Over the previous decade environmentalism has materialized to be a fundamental facet owing to mounting questions associated with acid rains, depletion of the ozone layer, and degradation of the land and many more burning environmental problems.

It is clear as crystal that businesses are expected to lead in the area of environmental sustainability as they are considered to be the biggest donors and are also in a position where they can make a significant difference, but for certain, most businesses have acted with little gaze at or concern for the unconstructive impact they have on the environment. There is an enormous evidence of their actions in depletion of non renewable energy resources which go along with invention of non bio degradable pollutants. Many large and small organizations are guilty of notably polluting the environment and engaging in practices that are basically not sustainable.

This resulted in swell in consumer fear with regards to re-establishment of ecological balance by current demands for eco friendly products in countries in the region of the world (Doyle 1992; Vandermerwe & Oliff 1990) which has led to an enhancement in consumer and organizational attentiveness of green marketing concerns. Considering the fact that the implementation of green supply chain management practices may possibly impact on environmental sustainability, this paper seeks to add to the existing body of knowledge by making available new data and empirical shrewdness into the impact of green supply chain management practices on environmental sustainability of the fast food restaurants in Rivers State of Nigeria.

Literature Review and Hypotheses

Green Supply Chain Management Practices

The development of green marketing research dates back to 1980s when there was materialization of concept of green marketing. Timely literature designates green marketing to be an approach which point out signs of move in consumer interest to green product. Green marketing emerged as a result of environment and environmental problems. Green marketing integrates an extensive assortment of activities, including product modification, changes to the production process, packaging changes, as well as modifying advertising. Green marketing refers to the process of promoting products or services based on their environmental benefits. Such a product or service may be environmentally friendly in itself or produced in an environmentally friendly way (Ward, 2020).

Put in plain words, Srivastava (2007) clarifies that the green supply chain management (GSCM) consists of green purchasing, green design, green production, and green distribution, logistics, marketing, and revenue logistics. Green supply chain management practices are well thought-out to be enormously all-embracing in line with the supply chain management (SCM) perception. This study adopts the following five dimensions of GSCMP.

Green Purchasing Green purchasing is an indispensable GSCM element. Rao and Holt (2005) allude to the green purchasing function is an environmental problem that involved the procedure of procurement. The accomplishment of green supply chain management utterly hinges on the environmental effort combination, such as through purchase activities and the environmental objectives of the organization (Carter, Kale, & Grimm, 2000; Srivastava, 2007).

Green Manufacturing The green manufacturing task embraces the performance and planning of the actions that have need of lesser amount of energy and resources in the production route and also pilot negligible pollution of the environment (Carter, 2005; Gao, Li, & Song, 2009). Thus, the intention of green manufacturing is to persistently advance the industrial production process to lessen water, soil, and air pollution. Routroy, (2009) illuminates green manufacturing as providing environmentally friendly products, while reducing resources and wastage.

Green Packaging Green packaging practices engross the abridging packing, paper wrapping usage, doing away with unnecessary packaging, and use of uncomplicated packaging of the materials and green packaging practices (Kung,

Huang, & Cheng, 2012). Green packing is very important constituent of GSCMP for the reason that its direct influence on the environment is well thought-out to be more imperative (Routroy, 2009).

Green Distribution Green distribution is measured to be central goings-on that pressure green supply chain performance. Green supply take account of every single activity that diminishes the harm of environmental and shipment wastage (Gao et al., 2009). Built-in here are fuel consumption, from conveying product from one place to another, and packaging attributes, which have an enormous consequence on green distribution and advance sustainable performance (Sarkis, 2003).

Green Marketing Green marketing is defined as all activities premeditated to engender and smooth the progress of any exchanges projected to satisfy human needs or wants such that the fulfillment of these needs and wants transpires, with negligible harmful impact on the natural environment (Polonsky (2011). Green marketing in business meet the terms human needs while curtailing pressure on the environment (Singh & Pandey, 2012). In the Likewise, Olu Adeyoyin (2005) explicates that green marketing consists of designing, price setting, promoting, and distributing products in a mode that will not generate any awful outcome on the environment.

Environmental Sustainability

Environmental sustainability engross making decisions and taking action that are in the wellbeing of shielding the natural world, with meticulous prominence on safeguarding the potential of the environment to hold up human life. Environmental sustainability is concerns making accountable decisions that will lessen industry adverse influence on the environment. Environmental sustainability compels firms' not only to look further than making short term achievements but also, look at the long term influence they are containing on the natural environment

Previous Empirical Studies on Green Supply Chain Management Practices and Environmental Sustainability

Previous empirical literature suggest affluent discernment into the embedded blueprints of green supply chain management (GSCM) practices for humanizing environmental sustainability (e.g., Pratiwa & Widodob, 2019; Ikegwuru & Pokubo, 2018; Yu & Ramanathan, 2015; Zhu et al., 2012; Sungchul & Alex, 2011; Zhu & Sarkis, 2007) The obtainable literature conceives that the implementation of green supply chain management practices can enhance firms' environmental sustainability. For example, Pratiwa and Widodob, (2019) investigated the effect of GSCM practices on corporate sustainable performance by means of a cross sectional research design. Data for the study were gathered from 609 managers of the food industry through the convenient sampling technique, capitulating a 65.68% response rate. Additionally, the data were analyzed by means of the PLS-SEM. It was revealed that the environmental education system and green information system have an insignificant relationship with sustainable performance, whereas the additional six constituents have a significant relationship with sustainable performance.

Ikegwuru and Pokubo (2018) provide empirical evidence on the association between sustainable supply chain management practices and environmental performance in retail fuel stations in Rivers State, Nigeria. Data for the study was gathered by means of questionnaire administered to an entire sample of 200 managers of retail fuel stations in Rivers State of Nigeria, whose sample selection was based on convenient sampling technique, yielding a response rate of 62%.. The analysis engrossed statistical methods such as reliability and validity tests and correlational test. The study findings sustained the hypotheses that economic sustainability is positively associated

with environmental performance, environmental sustainability is positively associated with environmental performance and social sustainability is positively associated with environmental performance.

Sungchul and Alex (2011) examined the impact of two sustainability dimensions (i.e., environmental and economic) and price on consumer responses by means of an experimental method. The findings of the study portray that consumers' support sustainability in both dimensions by bequeathing confirmatory appraisals of the company and purchase intent. Further, consumers take action more negatively to meager company sustainability than to high company sustainability. In assessment, consumers take action more negatively to the company's meager commitment to caring for the environment than to the company's meager commitment to economic sustainability. The study also discovers that consumers do not take action positively to low prices when they have information about the firm's meager environmental sustainability. Lastly, the study upheld an interaction effect between consumer support for sustainability and corporate sustainability.

Other studies such as that of Yu and Ramanathan, (2015) and Zhu et al. (2012) gave the impression that a positive relationship exists between implementation of sustainable supply chain management (SSCM) practices and environmental performance.

Zhu, Sarkis and Lai (2007), also found that the implementation of eco-design measures within supply chain management perspective can pilot the enrichment of environmental performance.

Based on the review of literature, the following operational model was designed

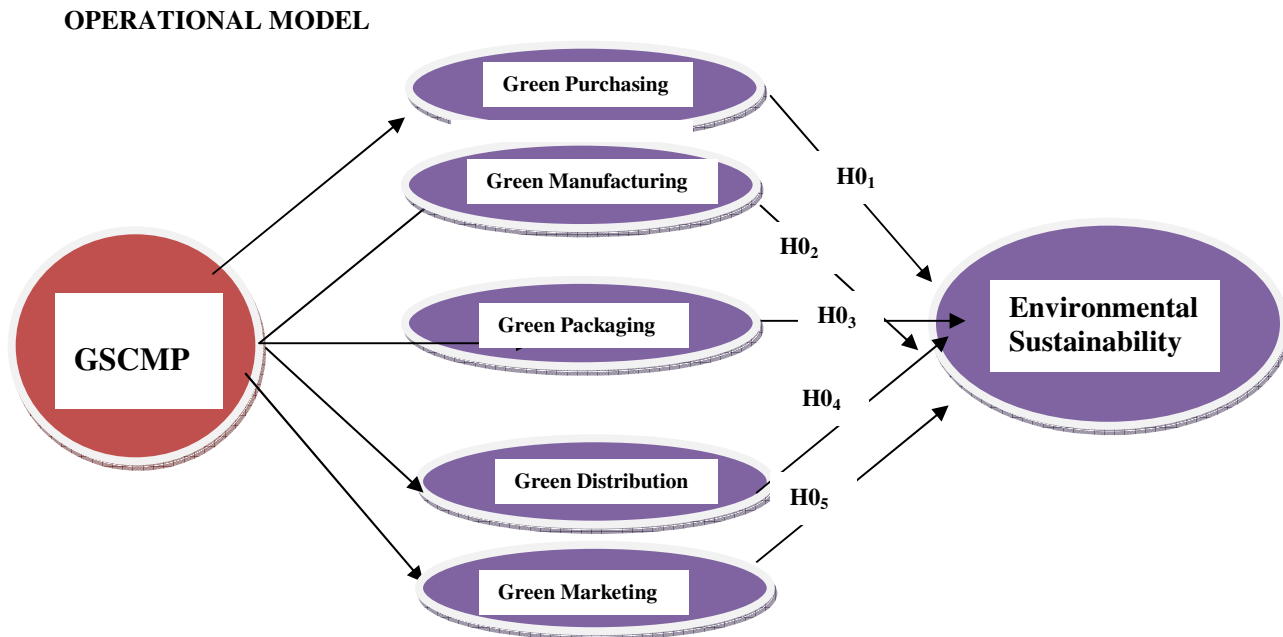


Figure 1: Operational Model of Green Supply Chain Management and Environmental Sustainability

Source: Designed by the Researchers

From the operational model, the following hypotheses were raised:

- Ho₁**. Green purchasing significantly influences environmental sustainability.
- Ho₂**. Green manufacturing significantly influence environmental sustainability.
- Ho₃**. Green packaging significantly influences environmental sustainability.
- Ho₄**. Green distribution significantly influences environmental sustainability.
- Ho₅**. Green marketing significantly influence environmental sustainability.

Methodology

This study adopted a cross-sectional design and quantitative method to disentangle the impact of green supply chain management (GSCM) practices on environmental sustainability (ES). A self-administered questionnaire was delivered to personally to 450 employees of 90 fast food restaurants in Rivers State of Nigeria by means of the non-probability convenient sampling technique, and a total of 296 questionnaires were received back from respondents, giving a 65.8% response rate. By and large, a response rate above 20% is suggested in the existing literature for SCM practices investigations (Darnall, Henriques, & Sadorsky, 2010). The scale for the green supply chain management practices was modified from the works of (Shang, Lu, & Li, 2010; Shang et al., 2010; Lieb & Lieb, 2010). Correspondingly, the scale for the environmental sustainability was modified from the works of Shang et al., 2010 & Paulraj, 2011). In the current study, all the questions in the questionnaire were evaluated by means of a 5-point Likert scale format, anchored on strongly agree=5 to strongly disagree=1. The analysis was executed by the aid of the statistical package for social sciences (SPSS) version 22.0.

RESULTS AND DISCUSSIONS

Reliability Analysis

Reliability Coefficient was computed for the composite scale and each of the subscales, and the results are reported in table 4.1. As we can see, the value of the Alpha coefficient for the composite scale and the subscales are all above the threshold ($\alpha \geq 0.70$); hence, they are all reliable. Table 4.1 shows the reliability assessment of our predictor variables using Cronbach's alpha. It indicates how the items for each factor were internally related in the manner expected.

Table 1 Test of Reliability (n=296)

Scale	Dimension	Items	Reliability
GP	Green Purchasing	5	0.761
GM	Green Manufacturing	5	0.820
GPK	Green Packaging	5	0.712
GD	Green Distribution	5	0.912
GMK	Green Marketing	5	0.742
ES	Environmental Sustainability	5	0.762

Source: SPSS 22.0 Window output (based on 2020 field survey data).

Table 1 summarizes the reliability result of transit green supply chain management practices and environmental sustainability, which also includes the individual item reliability test. Significantly, all items are reliable and are used to study green supply chain management practices and environmental sustainability in fast food restaurants in Rivers State of Nigeria. The extent of the association between green supply chain management practices and environmental sustainability can be operationalized using Green Purchasing (.761) with 5-items measure; Green Manufacturing (.820) with a 5-item measure; Green Packaging (.712) with 5-items measure; Green Distribution (.912) with a 5-item measure and Green Marketing (.742) with 5-items measure and environmental sustainability (.762) with a 5-item measure.

4.2.3 Most Frequently used GSCMP

Respondents were asked to indicate the most frequently used green supply chain management practices in their organizations. Their responses are shown in Table 2.

Table 2: Most Frequently used GSCMP (n=296)

GSCMP	Frequency	Percentage (%)
Green Packaging	56	19
Green Manufacturing	109	37
Green Distribution	98	31
Green Marketing	11	11
Green Purchasing	6	2
Total	296	100

Source: SPSS 22.0 Window output (based on 2020 field survey data).

As table 2 shows, firms who engages in green manufacturing most frequently (37 percent) have the highest population in our sample, followed by those who engage in green distribution most frequently (31 percent). Companies that engage in green packaging most frequently (19 percent) came third, while those that engage in green marketing most frequently constitute 11 percent, and companies who engage in green purchasing most frequently comprise 2 percent.

Test of Hypotheses

Decision Rule

Significant/probability value (Pv) < 0.05 (level of significance = conclude significant influence.

Significant probability value (Pv) > 0.05 (level of significant = conclude insignificant influence.

Table 3 Influence of Components of GSCMP on Environmental Sustainability (n=296)

Hypothesis	R	Coefficient	t-value	P-value	Results
Ho1: GP-ES	.507	13.440	8.878	0.000	Accept
Ho2:GM-ES	.874	1.432	10.206	0.000	Accept
Ho3:GPK-ES	.681	6.234	4.869	0,000	Accept
Ho4: GD-ES	.810	.690	3.169	0.000	Accept
Ho5:GMK-ES	.634	6.816	4.513	0.000	Accept

Source: SPSS 22.0 Window output (based on 2020 field survey data).

Note:

- GP= Green Purchasing
- GM= Green Manufacturing
- GKP= Green Packaging
- GD= Green Distribution
- GMK= Green Marketing
- ES=Environmental Sustainability

The information in table 3 reveals that the components GSCM practices (Green purchasing, Green manufacturing, Green packaging, Green distribution and Green marketing) significantly influence environmental sustainability ($r=0.507^{**}$; $r=0.874^{**}$; $r=0.681^{**}$; $r=0.810^{**}$ and $r=0.634^{**}$ respectively). This is in agreement with the earlier decision rule that if the Significant/probability value (P_v) < 0.05 , the level of significance entails a significant influence. The influence is also significant (significant/probability value (p_v) = 0.000. The t-value that stood at (8.878; 10.206; 4.869; 3.169 and 4.513 respectively), indicating remarkable outcome. The study therefore, upholds the hypotheses that the components of GSCMP significantly influence environmental sustainability in fast food restaurants in Rivers State of Nigeria.

Discussions and Conclusion

The main objective of this paper was to determine the impact of green supply chain management practices on environmental sustainability. The investigation furthers the theory of GSCM by assessing the influence of GSCM practices on environmental sustainability, by scrutinizing the effect of five GSCM practices on environmental sustainability. Schmidt et al. (2017) inferred a positive association among GSCM practices and market and financial performance. In line with Paulraj (2011), the findings inferred a positive relationship between green purchasing and environmental sustainability. This entails that cautious procurement of company's products and thoughtfulness of environmental, social, and economic point of view possibly will improve environmental sustainability. Correspondingly, green manufacturing significantly influence environmental sustainability. These findings corroborates the studies of Chan et al. (2012), who dispute that a company possibly will increase its sustainability performance by mounting a valuable internal environmental management system. Besides, Singh and Pandey (2012) investigation advocate that making an allowance for the environment in a firm's promotional behavior may augment its CSP in the course of developing a positive image and trust among society

Likewise, green marketing was found to significantly influence environmental sustainability, and green distribution and packaging significantly influence environmental sustainability. These findings upholds the findings of Zsidisin and Sierd (2001) who revealed that Green packaging may perhaps diminish harmful environmental impact by implementing recycling progression; and Kumar et al. (2015), who found that green distribution possibly will direct fuel consumptions by optimizing distribution channels and course.

CONCLUSION AND RECOMMENDATION

Green supply chain management practices are useful for protecting the environment for future generation and the implementation of green supply chain management will definitely have a positive impact on the firm. This study therefore, concludes that green supply chain practices significantly and positively influence environmental sustainability.

The study recommends that, managers of fast food restaurants should adopt green manufacturing and green distribution to improve environmental sustainability.

Contribution

The current study contributed to the extant literature by recommending that GSCM practices be an important predictor for maintaining the environmental sustainability of a firm. The study also contains implications for supply chain managers, especially in the fast food restaurants.

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