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ABSTRACT
This paper sought to find out the effect of green purchasing on performance of food and beverage processing firms in Kenya. The paper was informed by theory of reasoned action. The study used an explanatory research design whereas the target population for study was the key staff in supply chain, production and safety and environment or equivalent managers working for 187 food and beverage processing firms in Kenya. Purposive sampling technique was used since a census of all the 187 food and beverage processing firms was carried out, the data collection instrument was a structured questionnaire and to accomplish the objective, alternative hypothesis was developed and tested. Data analysis was conducted using descriptive and inferential statistics further other statistical tests were done in the study. Presentation of data in form of charts and tables was deemed appropriate for this study. From the results of the study, green purchasing was found to have a positive significant effect on performance. The study concluded that green purchasing leads to higher performance in the food and beverage processing sector in Kenya. It recommended that green purchasing should be embraced so as to improve the performance of the food and beverage processing sector.

Key Words: *Green Supply Chain Management, green purchasing, firm performance, food and beverage processing companies*.

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INTRODUCTION

The concept of green supply chain management refers to the set of managerial practices that integrate environmental issues into supply chain management to ensure environmental compliance and to foster environmental capability of the entire supply chain (Su-YolLee, 2015). One of these practices is green purchasing. This is the process of cooperating with suppliers for the purpose of developing products that are environmentally sustainable (Zhu *et al.,* 2008a). Environmental consciousness has become increasingly important in everyday life and business practice, hence the effort to reduce the impact of business activities on the environment has been labelled green supply chain management. Supply chain management (SCM) plays a central role in the firm's global competitiveness.

It entails the purchase of products that are designed with environmental objectives and impact in mind, practice involves Cross-functional teams, supplier input and expertise and technology in response to customer demands. Such practices constitute tacit, firm specific and inimitable strategic resources (Kirchoff et al., 2016). Cooperation with suppliers on environmental initiatives is key to the firm's performance. It is essential to have reliable suppliers in order to continuously provide customers all over the world in a timely manner with products and services that are desirable in every aspect, such as quality, price, and environmental impact.

The food & beverage industry is the largest sector and constitutes 22 percent of total KAM membership, the sub-sectors under this includes; dairy products, alcoholic beverages, spirits, juices, bakers & millers, water, cocoa, carbonated soft drinks, chocolate & sugar(K.A.M 2016). Food processing entails the transformation of raw ingredients into food or transformation of food into other forms that can be consumed by humans or animals. Traditionally food processing was meant to make food more digestible and preserve food during times of scarcity. Food processing typically takes clean, harvested crops or butchered animal products and uses these to produce attractive, marketable and often long shelf life food products.

Supply chain performance refers to the evaluation of supply chain management, and includes both the tangible and intangible factors (Chang et al.,2013). Performance measurement is the process of quantifying the effectiveness and efficiency of action where measurement is the process of quantification and action leads to performance (Arif-Uz-Zaman et al., 2014).

Statement of the Problem

The Kenyan food and beverage industry is experiencing an increase in environmental, health and safety expectations as a result of extended responsibility for supply chain impacts, drive for greater resource efficiency and transparency and increased social demands around ingredient traceability and food safety. Kirchoff et al. (2016) affirm that managers are motivated by the potential benefits associated with green supply chain management including; enhanced reputation, increased efficiency, effectiveness, differentiation and revenue growth, but the potential for economic benefits is key for managerial adoption of green practices and the appropriate allocation of resources.

Empirical studies in this area have been conducted before, the notable ones include; Rao & Holt (2005), Green *et al.*,(2012) and Runala and Zaffar (2015) found a positive relationship between environmental practices and organizational performance, whereas other studies such as De Giovanni and Esposito Vinzi (2012) and Huang *et. al.,* (2012) proved that there were no significant relationships between such practices and organizational performance, therefore this study tried to prove it in the African Context.

Objective of the Study

To examine the effect of Green Purchasing on performance of food and beverage processing Sector in Kenya.

Research Hypothesis

H_1Green purchasing has a positive significant effect on performance of food and beverage processing sector in Kenya.

LITERATURE REVIEW

Theoretical Review

Theory of reasoned action (TRA)

The TRA model, developed by Ajzen & Fishbein (1980), is a belief-attitude behavior alintention model, which postulates that an individual's perception of what others consider relevant is affected by their intention and that attitude plays a major role in predicting behaviour (Netemeyer et al., 1993). In this study, green purchasing is related to a firm's intention to buy a product that is less harmful to the environment and the society at large. Vazifehdousta (2013) affirmed that consumer's intention to buy green products is greatly influenced by positive attitude and the perceived green value of the products. Similarly, a study by Rizwan *et al.,* (2013) also found that consumer's attitude impacts his or her green product purchase intention. The theory has been subjected to criticisms by several authors, the most important criticism is that the theory of reasoned action is not falsifiable since a theory must be falsifiable to be a good theory, hence if the theory of reasoned action is not falsifiable, then it is not a good theory regardless of how many researchers believe it to be useful.

Conceptual Framework

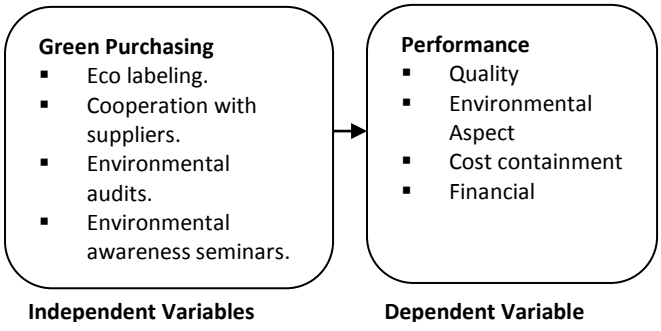

Figure 1: Conceptual Framework

Source: Author (2019)

Empirical Literature Review

The adoption of green purchasing is one of the commonly accepted dimensions of GSCM practice. Tritoset al., (2013) states that buying organization with a green supply chain initiative will pay attention to green practices of their suppliers, especially the small and medium-sized enterprises. In order to ensure that suppliers meet their environmental objectives, the buying firm may deploy collaboration-based activities that include training, environmental information sharing and joint research. Other organizations may adopt a less collaborative approach by simply demanding that their suppliers adopt environmental systems such as ISO 14001.

External motivators and particularly, customer pressure are key drivers of the adoption of ISO 14001 Tritoset.al.,(2013), other aspects of green purchasing that have been discussed in the literature include the facilitation of recycling, reuse and resource reduction (Large & Thomsen, 2011; Diabat & Govindan, 2011). Studies have demonstrated that some organizations adopt a compliance and evaluative approach to the GSCM practices of their suppliers. This involves evaluation of suppliers based on environmental criteria and a requirement for suppliers to develop and maintain some form of environmental management system (Sarkis, 2012)

Green purchasing is an integration of environmental management into the purchasing function of an organization that attempts to ensure that the purchased material meet the environmental objectives set by the purchasing companies, such as promoting reusability, recycling, eliminating hazardous material from the product and substitution of material (Lokesh et .al 2017), it entails purchasing environmentally friendly raw materials without sacrificing the traditional purchasing criteria of product quality, cost and delivery time.

Green purchasing is the alignment of environmental policies with the traditional procurement process, it

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emphasizes on reduction of waste produced, material substitution through environmental sourcing of raw materials and waste minimization of hazardous material.

METHODOLOGY

The study adopted explanatory research design given that the study aimed at examining the effect of green purchasing on performance. The population of interest in this study were managers in supply chain/production and safety & environment working for the 187 food & beverage processing firms in Kenya being the unit of analysis, one response per firm. The production/supply chain and safety & environment managers were chosen because the study was about a major activity of Supply Chain Management further they have a better understanding of Green initiatives in the Supply Chain. A Census survey was conducted to all the 187 Food & Beverage processing firms registered with the Kenya Association of Manufacturers. The data used in this study consisted of questionnaire responses from managers in Kenyan food & beverage processing firms, the survey instrument with a research permit and a cover letter introducing the research & briefly explaining the objectives and including instructions for completion. The survey data was analysed using Descriptive and Inferential Statistical analysis techniques.

FINDINGS AND DISCUSSION

Green Purchasing

The respondents were asked to rate specific aspects of practicing green purchasing in their respective firms based on a five-point Likert's scale where 5= actively practicing 4= Practicing 3=Moderate 2= A little consideration 1=No Consideration. The findings were as shown in table 1. From the findings most firms' have been practising green purchasing. The findings compared with those by Min and Kim (2012) who established that the best practice of green supply chain was green purchasing whereby through purchasing of products that promote green environment, the producers will as well insists on producing green supplies out of which green supply chain will be enhanced. According to Davies and Hochman (2007), green supply chain starts right at the bottom whereby the buyer insists on a certain commodity and the supplier has no option but to comply. However, if the green supply chain is not upheld by the firm doing the purchases, it will be difficult for other parties in the row to comply.

Table 1: Rating Statements on Green Purchasing

Statement	N	Mean	Std. Deviation
Our organization cooperates with suppliers for eco design of inputs.	161	4.36	0.73
Our organization cooperates with suppliers for environmental objectives.	161	4.41	0.71
Our organization carries out environmental audits for suppliers' internal management.	161	4.02	1.08
Our organization has been conducting environmental awareness seminars.	161	3.59	1.08
Reduced-purchase-of-items-difficult-to-dispose-off	161	4.21	0.95
Reduced-purchase-of-hazardous-materials	161	4.29	0.83

Firms' Performance

The study sought to find out the performance of food and beverage processing companies in Kenya as the dependent variable for the study using two dimensions, environmental aspect and cost containment.

Environmental Aspects

The findings were shown in table 2 which compared with those by Mathiyazhagan, Govindan, Noorul

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Haq & Geng (2013) who found that the main measure of performance of supply chain in organizations is the ability to meet the environmental needs by ensuring it minimizes the pollution rates through control of emissions and wastes. Seman (2012) on the other hand recorded that green supply chain is an aspect of ensuring all the processes of supply chain are controlled within the environmental requirements and that pollutions are minimized during the organization operations.

Table 2: Rating the Aspects of Environmental Performance

Statement	Mean	Std. Deviation
Reduction-in-air-emission	4.18	0.74
Reduction-of-waste-water	4.45	0.76
Reduction-of-solid wastes	4.45	0.74
Decrease-of-consumption-for-hazardous/harmful/toxic materials	4.34	0.96
Decrease-of-frequency-for-environmental-accidents	4.44	0.77
Improve-an-enterprise's-environmental-situation	4.39	0.76

Cost Containment

The study sought to find out the supply chain performance among the food processing companies based on the cost containment. The findings were indicated in table 3. The findings implied that food processing companies in Kenya were working towards enhancing their supply chain performance by upholding green supply chain practices. The findings concurred with those by Large and Thomsen (2011) who stipulated that as a result of effectively observing the green supply chain practices, firms benefit from decreased operational cost in both the short-term and long-term.

Table 3: Cost Containment

Statement	Mean	Std. Dev.
Decrease-of-cost-of-material-purchasing	4.22	0.84
Decrease-of-cost-of-energy-consumption	4.27	0.92
Decrease-of-fee-for-waste-treatment	4.14	1.07
Decrease-of-fee-for-waste-discharge	4.20	1.10
Decrease-of-fine-for environmental-accidents	4.39	0.90
Increase-amount-of-goods-delivered-on-time	4.32	0.94
Decrease-inventory-levels	4.10	0.79
Decrease-scrap-rate	4.26	0.81

Regression Analysis

Effect of Green Purchasing and Performance of Food and Beverage processing firms

H_A: Green purchasing has a positive significant effect on performance of food and beverage processing sector in Kenya

On the first hypothesis of the study, model summary, Analysis of Variance (ANOVA) and regression coefficients were used to establish the relationship between the independent variables (green purchasing) and the dependent variable (Supply Chain performance). The findings on the model summary as shown in table 4 revealed that the R^2 for the model was 0.084 which implied that green purchasing explained up to 8.4% variation of the supply chain performance. Elsewhere, the findings on the Analysis of Variance revealed that at the F-calculated of 14.565, the model was significant at p-value of 0.000 and implication that the model was statistically significant and could be used to place a decision on the hypothesis of the study. The findings imply that green purchasing can be a good indicator of the supply chain

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performance among food and beverage processing companies in Kenya.

The regression coefficients results shown in table 4 on the other hand revealed that the beta coefficient for green purchasing was 0.283 at a significant level of 0.000<0.05. This was an implication that a unit change in green purchasing can explain up to 28.3% of the performance. The original model; $Y=\alpha_0+\beta_1X_1+\varepsilon$ now becomes; $Y=3.071+0.283X_1+\varepsilon$

The findings therefore justified the move to accept the alternative hypothesis that green purchasing has a significant and positive influence on the supply chain performance in food and beverage processing companies.

Table 4: Regression Results for Green Purchasing

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.290[a]	.084	.078	.46032

a. Predictors: (Constant), Green Purchasing

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.086	1	3.086	14.565	.000[b]
	Residual	33.692	159	.212		
	Total	36.778	160			

a. Dependent Variable: Firm performance

b. Predictors: (Constant), Green Purchasing

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.071	.316		9.707	.000
	Green Purchasing	.283	.074	.290	3.816	.000

a. Dependent Variable: Firm Performance

CONCLUSIONS

The study concluded that most food and beverage processing firms in Kenya had adopted this dimension. This could be attributed to the strong relationship between green purchasing practices and performance of food and beverage processing firms in Kenya. Among the aspects of green purchasing that were widely practised in the processing sector include; cooperation with suppliers for eco-design of inputs, cooperation with suppliers for environmental objectives, reduced purchase of hazardous materials, reduced purchase of items to dispose of, organizations carry out environmental audits for supplier's internal management and conduct of environmental awareness seminars. The study therefore concluded that to enhance firms' performance it is imperative for manufacturing firms to invest heavily in green purchasing practices with respect to green supply chain management practices.

RECOMMENDATIONS

From the study findings and conclusions, the study recommended the adoption of green purchasing practice in order to performance of food and beverage manufacturing firms in Kenya. The study found a positive significant relationship between green purchasing and performance of the food and beverage processing firms in Kenya. It was recommended that manufacturing firms should fully adopt and implement green purchasing practice in compliance with all applicable legislations as a complement.

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