SUSTAINABLE PROCUREMENT PRACTICES AND PERFORMANCE OF PROCUREMENT IN FOOD AND BEVERAGES MANUFACTURING FIRMS IN KENYA

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ABSTRACT

The study sought to establish the influence of sustainable procurement practices on the performance of procurement in food and beverages manufacturing firms in Nairobi County, Kenya. Four specific objectives guided this study, namely: to establish the influence of reverse logistics, green specification, green inventory management and green tendering on the performance of procurement in food and beverages manufacturing firms in Nairobi County. The study was grounded on organization theory, system theory, legitimacy theory and stakeholder theory. The study used descriptive cross-sectional survey research design to survey one hundred and eight firms sampled stratifically from two hundred and seventeen food and beverage manufacturing firms registered members of Kenya Association of Manufacturers under Nairobi County. Procurement managers were used as the unit of observation. A structured questionnaire was used to collect primary data. The questionnaires were self- administered with assistance from the research assistants. The study used descriptive statistics such as standard deviation, medium and mean to describe data while multiple regression model was used to test the hypothesised model. The data analysis was facilitated by Statistical Packages for Social Science (SPSS) version 20. The findings were presented on tables and figures. The study revealed that reverse logistics, green specification, green inventory management and green tendering are practiced across the manufacturing firms across Nairobi County. Importantly, the study established that the four sustainable procurement practices (reverse logistics, green specification, green inventory management and green tendering) significantly positively affect procurement performance through reduction of cost, clean environment and increased quality of supplies. Therefore the study concludes that sustainable procurement significantly increase procurement performance with the ultimate positive impact on firm performance. The study therefore recommends that manufacturing firms should institutionalise sustainable procurement practices through formulation and implementing of green procurement policies and procedures in order to manage their operational costs, comply with environmental regulatory authority requirements and increase quality of supplies. Secondly, management should proactively sensitise the general employees on befits of sustainable practices and specifically in regard to procurement function in order to create green culture with consequential performance benefits. Further, the government should take a deliberate step through policy interventions to encourage firms to green their operations as a way of

preserving the environment and sustainably manage the natural resources to support future needs of the populace. Finally, the study recommends that a further study should incorporate service industry in order to compare and bring out a global view.

Key Words: *Sustainable Procurement Practices, Procurement Performance, Manufacturing firms, Nairobi County, Reverse Logistics, Green Specification, Green Inventory Management and Green Tendering*

1.1 Background of the Study

In the world over, citizens' awareness of the effects of climate change have increased tremendously (Hunja, 2013).This has affected the way customers interact with businesses and products. As a result, firms have become a live to the value of inputs in meeting the needs of the ever growing eco-centric customers (Hunja, 2013. This has introduced procurement function to the centre stage of performance planning and firms are appreciating the consequential influence of procurement performance on the attainment of the overall goals of the firms (Grandia, 2015). To provide acceptable level of customers' service through quality supply, acceptable pricing and environmental compliance, firms must attain significant procurement performance level (Grandia, 2015. However, according to Hervani, Helms, and arkis, (2015), manufacturing firms in Kenya are experiencing weak and poor procurement practices making them less attractive to customers, less competitive hence not capable of contributing to the realization of the country Vision 2030 (GoK, 2017). Thus in order to keep pace with the customers' demand for healthy products, environment and stringent environmental protection requirements by regulatory agencies, a number of firms in Kenya are seeking ways to instituted reforms aimed at improving procurement performance (Hunja, 2013). Sustainable procurement practices have been projected by a number of researchers (Grandia, 2015; Amaratunga and Baldry, 2012; Cabras, 2011) as having the capability of significantly improving operational performance, especially the procurement performance with remarkable positive impact on quality, cost and clean environment. This study therefore investigated the influence of sustainable procurement practices on procurement performance in the manufacturing sector based in Nairobi County. The study used cross-sectional descriptive research design to survey manufacturing firms within Nairobi County.

Sustainable procurement (SP) according to Grandia, (2015), is when an institution is able to meet its goods and services' need in a manner that is conducive to the environment, cost effective for the organization and in a manner that adds value to the society at large. Cabras, (2011) defines sustainable procurement as the process of meeting organizational needs in terms of goods and services required as well as utilities and works, in a cost-effective way while at the same time being conscious of the society and doing it with minimal damage to the environment. Amaratunga and Baldry (2012) posits that procurement performance is a paramount requirement for any organization intending to progress and improve competitively through quality of their service to customers. According to Van Weele, (2012), the absence of procurement performance hinders the progression of the purchasing function and inhibits the organization's endeavour to perform. Consequently, it is imperative that firms achieve significant level in procurement

performance in terms of quality of supply, efficiency and environmental compliance (Van Weele, 2012).

According to Grandia, (2015), there are documented success stories from operationalisation of sustainable procurement by various firms around the world. For example; Coca-Cola Company in the United States recorded significant improvement on procurement performance as a consequence of green procurement (Agarwal & Vijayvargy, 2012), IBM Global Business, USA, reported positive performance due to sustainable procurement practices (Amtzen, Brown, Harrison & Trafton, 2015), Cape Town, South Africa register procurement successes are a result of integration of sustainability criterion within its supply chain management policy which allows the employees to include greening issues in the procurement decision-making process (Brammer & Walker, 2011), Unilever Plc East and West Africa reported enhance competitiveness due to improvement in procurement performance as a result of ecological practices in procurement (Kim & Chai, 2017). Other companies in Africa that have recorded success from green procurement include; Philips, Nestlé, Pepsi etc. (Kim & Chai, 2017).

1.1.1 Sustainable Procurement in Kenya

The government of Kenya in a bid to protect the environment, instituted various policies legislative and institutional frameworks to govern all activities of businesses (Odhiambo, 2014). For example, the constitution of Kenya assigns specific obligations to the individuals and the state on matters related to the management of the environment and the sustainable use of resources (Mwenda & Kibutu, 2014). Article 69(2) of the constitution of Kenya, 2010, states that every Kenyan has a duty to cooperate with the authorities in the protection and conservation of the environment and ensuring ecologically sustainable development as well as use of resources. Articles 185 (2) and 186 (1) as well as article 187 (2) of the constitution have distributed functions for protecting the environment between the national government and the county governments with a view to instituting a system of development that is sustainable and that enhances good governance as far as the environment is concerned (Mwenda & Kibutu, 2014).

As a result, a number of firms in Kenya have embraced ecological procurement practices in order to comply with the regulatory requirement and at the same time improve their procurement performance. For example, Cadbury Kenya Limited, Bidco, East African Breweries Limited, Safaricom, Airtel, MRM, East African Portland Cement, Chandaria industries just to mention a few, have invested huge amounts of shillings in implementing eco-procurement practices (Odhiambo, 2014). However, befits of the eco-procurement practices have not been empirically quantified to justify the continued investment in the practice, hence the study on the influence of sustainable procurement practices on the performance of procurement in food and beverages manufacturing firms in Nairobi County.

1.1.2 Food and Beverages Manufacturing Firms in Kenya

According to the Kenya Association of Manufacturers KAM, (2017) there are a total of 217 food and beverages manufacturing companies in Kenya registered with the Kenya Association of Manufacturers. Manufacturing firms in Kenya are made of both multinational

and local firms and a large number of them are based in Nairobi City County which hosts capital city (KAM, 2017). The stratification of the sector is as follows: dairy and meat processing firms, grain milling firms, edible fats and oils processing firms, beverages, fruits and vegetable processing firms, fish processing firms, wines and beer and spirits firms (Okello, 2010).

Manufacturing sector in Kenya, apart from being considered as the country's economic growth lever under Vision 2030 (RoK, 2007), is expected to contribute to the realisation of the government big four agendas (RoK, 2017). However, the sector has experienced decline in performance over period of time (KAM, 2017) registering losses of 50 million annually as a result of procurement related issues (Hervani, Helms, & Sarkis, 2015). This has created doubt on the sector ability to contribute effectively to the realization of the country development agenda under vision 2030 and the big four agendas (RoK, 2017). This therefore calls for a new approach of management with potential to performance tangent and according to Grandia, (2015) sustainable procurement has been projected to positively influence procurement performance hence this study.

1.2 Statement of the Problem

Manufacturing industry in Kenya used to lead in contributing to the GDP during the early 80's (Obiso, 2011). The industry was employing over 200,000 family households and about 30% of the labour force (Obiso, 2011). However, the sector started declining in the mid-1980s to the current situation where it is registering losses to the tune of Ksh 50 million annually (KAM, 2013) which according to Hervani, Helms, and Sarkis, (2015) is largely due procurement related performance issues. Mwirigi (2013) noted that procurement functions in Kenya operates at 45 percent efficiency compared to countries under the Asian Tiger which average at 70 percent. Further, a number of manufacturing firms in Kenya are struggling with managing piles of wastes which accounts for about 5 percent of operational costs. Omonge (2012) noted that inefficacy in procurement has resulted on high cost of energy, increase in discharge of hazardous chemicals and solid wastes which are causing compliance nightmares to firms and making them attracts huge fines or closer from the ecological management regulatory authority (Mwirigi, 2013; Achuora, 2018) hence the need for a paradigm shift to a management approach with potential to eliminate waste and improve compliance with environmental management regulatory authority requirements.

Surajit, (2012) projected sustainable procurement as a concept which has the potential to eliminate or minimize waste (energy, emissions, and chemical/hazardous, solid wastes) resulting in procurement performance. Additionally, Hervani, Helms, and Sarkis, (2015) report that South Korean firms' registered significant improvement in procurement as a result of sustainable procurement. As a result a number of firms in Kenya have invested in the implementation of sustainable procurement to improve their procurement performance (Mwirigi, 2013), however, the perceived benefits have not be empirically quantified in the manufacturing sector in Kenya. Further, the existing literature on the concept is largely focusing in Asia, America and Europe with a limited number in South Africa creating knowledge gap in the rest of African countries, Kenya included. Therefore, this study sort to

quantified value of sustainable procurement on procurement performance in the manufacturing firms in Kenya thereby localising the knowledge.

1.3 Objective of the Study

The main objective of the study was to establish the influence of sustainable procurement practices on the performance of procurement in food and beverages manufacturing firms in Kenya. The study was guided by the following explicit objectives: To ascertain the influence of reverse logistics, green specification, green inventory management and green tendering on the performance of procurement in the manufacturing firms in Kenya. To address these objectives, the study sought answers for these questions: what is the influence of reverse logistics, green specification, green inventory management and green tendering on procurement performance of manufacturing firms in Kenya?

1.4 Need and scope of the study

The study was driven by the need to address performance issues in the procurement function of the manufacturing firms in Kenya. The study was required to provide solutions to poor performance of procurement functions in the manufacturing firms by addressing high cost of energy, material/inventory, water, and equipment quality of supplies / services, hazardous and solid wastes. As a result, sustainable procurement practices (reverse logistics, green specification, green inventory management and green tendering) as possible solutions to the performance issue in procurement function as suggested by, Hervani, Helms, and Sarkis, (2015). The study was limited to manufacturing firms in Kenya who are members of Kenya Association of Manufacturer as at December 30th, 2019. The unit of observation was staff heading supply chain activities in the respective firms. Procurement performance measures (cost reduction, clean environment and increased quality) propagated by Van Weele, (2012) were adopted. The study was done between January to December, 2019.

2.0 LITERATURE REVIEW

2.1 Theoretical Review

The study used stake holder theory to explain the basis of the study problem. The definitions of the term stakeholder have been given by different researchers (Mainardes, Alves & Raposo, 2011). However, most studies adopt the definition by Freeman (1984) who described stakeholder as individual or group impacted by commercial activities of a company. Stakeholder theory notes that other than shareholders, there are other individuals or groups which the organization is obligated to and who are likely to be directly influenced by the actions taken by it, or have an explicit contractual relationship with it (Alkhafaji, 2011).

With respect to the environment, some stakeholders expect that firms will operate in ways that minimize externalities such as water pollution, solid waste disposal, forest cover depletion and emission of environmentally harmful gases and assume greater responsibility

to correct any effects that may occur (Alkhafaji, 2011). Failure by the organization to meet these expectations results in loss of legitimacy and subsequently diminishes its chances of survival. From a strategic point, firms that adopt sustainable procurement practices have an edge over competition (Alkhafaji, 2011). Barney (2011) argues that corporate brand is a valuable resource overall and that there is evidence linking these to sustainable Procurement which is considered to have business value (Foerstl, Reuter, Hartmann & Blome, 2010).

According to Van Weele, (2012) the performance of a business is affected by the performance of various departments which constitute the organization. Foerstl, et al., (2010) identified procurement performance as critical to organization performance. Van Weele, (2012) pointed that in the manufacturing firms where inputs are the major cost, performance of the firm or lack of will largely depend on performance state of the procurement function. Therefore, Hervani, Helms, and Sarkis, (2015) stated that sustainable procurement practices (reverse logistics, green specification, green inventory management and green tendering) contribute directly to the realization of the stakeholders' expectations of cost reduction, clean environment and increased quality. Alkhafaji, (2011) observed that sustainability is at the centre of stakeholders' view of the organizations and determines the level of interaction and response towards the organizations' products. It is for this that Alkhafaji, (2011) used stakeholders theory to explain the relationship between sustainability and procurement performance and subsequent stakeholders' acceptability of the organizations' products in the market. Barney (2011) explained that sustainable procurement practices such as reverse logistics, green specification, green inventory management and green tendering are core expectations of stakeholders and therefore potentially influence procurement performance.

2.2 Conceptual Framework

The foundation for developing this conceptual framework is anchored on the theoretical review; explicitly from Barney (2011) view that sustainable procurement practices such as reverse logistics, green specification, green inventory management and green tendering are core expectations of stakeholders and therefore potentially influence procurement performance. This view is therefore conceptualized for testing in Fig. 2.1 within Kenyan context:
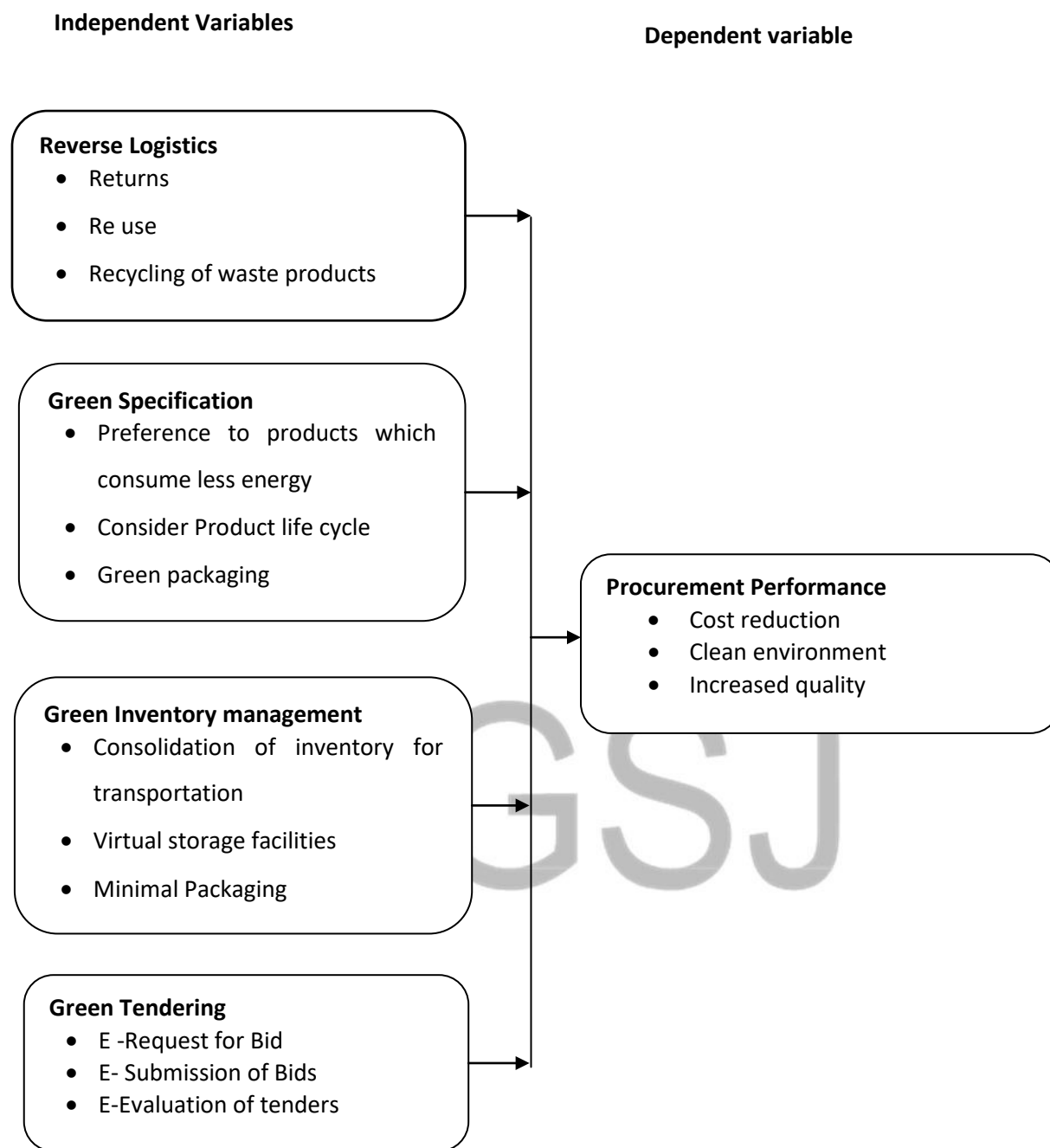
Independent Variables

Dependent variable

Reverse Logistics
- Returns
- Re use
- Recycling of waste products

Green Specification
- Preference to products which consume less energy
- Consider Product life cycle
- Green packaging

Procurement Performance
- Cost reduction
- Clean environment
- Increased quality

Green Inventory management
- Consolidation of inventory for transportation
- Virtual storage facilities
- Minimal Packaging

Green Tendering
- E -Request for Bid
- E- Submission of Bids
- E-Evaluation of tenders

Fig. 2.1 Conceptualised Relationship between SP and Procurement Performance

2.3 Operationalization and Measurement of the variables

Testing of conceptualised model requires operationalization of the study factors which involved identification of factors and latent factors (measures) as presented on Table 2.1:

Constructs	Type	Operationalization/ Indicators	Measurement Scale	Sources
Reverse	Independent	▪ Returns ▪ Re use	Aggregate index	Barney,2011; Alkhafaji,

Logistics	Variable	▪ Recycling	of 1-5	2011
Green Specification	Independent Variable	▪ Preference to products which consume less energy ▪ Consider Product life cycle ▪ Green packaging	Aggregate index of 1-5	Hervani, Helms, and Sarkis, 2015; Van Weele, 2012
Green Inventory Management	Independent Variable	▪ Consolidation of inventory for transportation ▪ Virtual storage facilities ▪ Minimal Packaging	Aggregate index of 1-5	Van Weele, 2012; Alkhafaji, 2011
Green Tendering	Independent Variable	▪ E-Request for Bid ▪ E-Submission of Bids ▪ E-Evaluation of tenders	Aggregate index of 1-5	Hervani, Helms, and Sarkis, 2015; Van Weele, 2012
Procurement Performance	Dependent Variable	▪ Cost reduction ▪ Clean environment ▪ Increased quality	Aggregate index of 1-5	Hervani, Helms, and Sarkis, 2015; Van Weele, 2012

2.4 Empirical Review

2.4.1 Reverse Logistics and Procurement Performance

Several studies have been conducted on the effect of reverse logistics on performance. Muttimos (2014), conducted a study on how organizational performance is affected by practices of reverse logistics in manufacturing firms in Kenya. The study used a survey research design and used a sample of ten manufacturing firms in the country. The study established that reverse logistics practices such as recycling, re-use, returns significantly positively influence firm performance. Kabergey and Richu (2015) study on effect of reverse logistics on operational performance in sisal processing firms in Nakuru County, Kenya. The study found a positive relationship between reverse logistics and operational performance. The study recommendation was that for organizations should adopt reverse logistics for competitive advantage.

Gitau and Shalle (2014), studied on the influence of reverse logistics on the performance of supply chain in the manufacturing sector in Kenya: a case of Hewlett Packard Kenya. The study concluded that the adoption of reverse logistics significantly impacts on the performance of Supply chain. Njuguna and Kagiri (2017) study on the effect of reverse logistics on operational performance of Bata Shoe Company which used descriptive survey research design with a sample size of 92 respondents established that product reuse and product repackaging influence the operational performance of Bata Shoe Company to a very great extent. The study concluded that reverse logistics has a significant impact on operational performance of an organization.

2.4.2 Green Specification and Procurement Performance

Russo and Cardinali, (2012) posits that it is a good management practices to incorporate environmental considerations in both strategic and operational decisions of the organization. Consequently, a number of organizations have blended sustainable thinking with various management concepts (Huang and Keska, 2013). Thus procurement function has found itself by design in the centre of sustainability as organizations work towards environmental fit and compliance. As result, green initiatives of certain procurement practices have been projected to have positive performance impacts on procurement (Huang and Keska, 2013). One of green procurement initiative with loud pronouncement is green specification (Agarwal and Vijayvargy, 2012).

Marshall and Farahbakhsh, (2013) explored the influence of green specification practice on procurement within automobile industry and concluded that indeed there is a positive relationship. This conclusion was supported by Early, (2013) study which was focused on service industry. Zhang and Zhao, (2012) added their voice with their study titled "effect of green specification on procurement performance; a case of textile manufacturing firms in China. The study used descriptive cross-sectional survey research design. Structural modelling equation was used to analyse data. The study concluded that there is a positive significant effect on the procurement performance. Similar observation was made by Liao and Rittscher (2013) when they were researching on the value of sustainability on procurement and Agarwal and Vijayvargy (2012) further presented the same view in their study of green procurement practices on performance of the manufacturing firms.

2.4.3 Green Inventory Management and Procurement Performance

The trends in sustainable practices in organizations are driven by consumers' awareness of direct environmental and economic benefits of green products (Fu & Han, 2017). This has shifted focus on procurement function as a major performance contributor through greening initiatives hence the current interest by both researchers such as Fung, Cheung, Lee and Kwok, (2015) who established that virtual warehousing optimizes production, reducing costs and providing supply chain channels with customer service that is of high-quality. According to Landers, Cole, Walker and Kirk, (2010) explored the relationship between the consolidation of inventory for transportation and procurement performance

using VW as a case. The study found a positive significant relationship between the factors and recommended that firms should consolidate goods for mass transportation in order to benefit from economy of scale and reduce the paper work in order to increase their procurement performance.

Wanke and Saliby, (2009) conducted a study on the influence of minimal packaging on the performance of procurement. The study used descriptive research design to survey eighty six distribution firms, The study established that minimal packaging positively affect procurement performance through reduction of packaging costs, protecting environment and reduction of volumes of consignments and solid wastes. Further, Mathien and Suresh (2015) researched on the value of green inventory management practices on procurement performance. Their study used structural equation modelling and surveyed ninety firms. The study concluded that green inventory management practices positively influence procurement performance by increasing environmental regulation compliance level of the function and the whole firm, increases loyalty of the customers, uses minimal material hence minimal cost and encourages returns for recycling and re-use hence cheap sources of raw material.

2.4.4 Green Tendering and Procurement Performance

Lyons and Farrington, (2016) looked into the relationship between green tendering and procurement performance through descriptive research design. The study used multiple regression analysis to test the study hypothetical model and established that green tendering positively significantly affect procurement performance. The study recommended that firms should use e-tendering practices in order to reduce paper work, reduce lead time and generally bring efficiency in the tendering process in order to improve procurement performance. Liao and Rittscher, (2013) in their study looked at the relationship between green tendering framework and procurement performance. They found out that when tender documentations are greened and tendering processes are laced with green elements; minimal cost is used, turnaround time reduced and none value adding activities are removed hence the performance of procurement.

Gitau and Shalle, (2014) studied the effect of e-evaluation on the performance of procurement in the manufacturing sector. The study used cross sectional descriptive research design to survey seventy five firms. The structural equation modelling was applied to analyse data and the study established a positive significant relationship between the study factors. The study recommended that firms should automate their tender evaluation process in order to increase transparency, improve audit trail and be efficient. Further, Humphreys, (2013) surveyed fifty five firms in their bid to establish the value of incorporating environmental criteria into the process of selecting suppliers. They found out that factoring environmental considerations in selecting vendors result in getting an all-around vendor capable of delivering quality supplies at a reasonable price. As Avery, (2015) in a study on the influence of e-tendering on procurement performance recommended that

organizations should monitor activities of their suppliers and deduce the impact they have on the environment and consequently develop a purchasing environmental policy that aimed at reducing their impact on the environment.

3.0 RESEARCH METHODOLOGY

3.1 Research Design

The study used descriptive cross-sectional research design. Descriptive cross-sectional survey research is a method of collecting information by interviewing and administering questionnaires to a sample of individuals at a point in time (Mugenda & Mugenda, 2009). The design was chosen because it offers a quick way to collect data even from a large targeted population and the risk of missing key data points is less as compared to other research designs (Field, 2015)

3.2 Target Population

The target population in this study was all the 217 food and beverage manufacturing firms in Kenya, who are registered members of the Kenya Association of Manufacturers as at 31st December, 2019 (KAM, 2019). Table 3.1. Presents their structure:

Table 3.1: Structure of Food and Beverages Firms in Kenya

Category	Frequency	% of Total Population
Alcoholic Beverages & Spirits	36	16.7%
Bakers & Millers	35	16%
Cocoa, Chocolate and Sugar Confectionery	24	11%
Dairy Products	21	9.7%
Juices / Waters / Carbonated Soft Drinks	45	20.7%
Slaughtering and Preservation of Meat	22	10.1%
Tobacco	4	2%
Vegetable Oils	30	13.8%
Total	217	100%

Source: KAM (2019)

3.3 Sample and Sampling Technique

A sampling frame is a list of all the sampling units from which a sample could be selected (Cooper & Schindler, 2011). The study sampling frame was a list of all 217 food and beverages manufacturing firms registered by the Kenya Association of manufacturers as at 31st December, 2019. For determination of sample size, the study applied (50%) fraction as recommended by Mugenda and Mugenda, (2009) that when a population is small, forty percent (40%) plus fraction is sufficient to compute a sample size. Thus fifty percent (50%) fraction was used to compute a sample size of 108 firms out of a total of 217 firms. Based on this fraction, the study applied stratified random sampling as presented on Table 3.2 to obtain the right proportion of the sample per stratum. A simple random sampling was then used to determine the specific respondents per stratum:

Table 3.2: Sample Size

Category	Frequency of Firms	Sample fraction (50%) (Mugenda & Mugenda, 2009)
		Sample Size
Alcoholic Beverages & Spirits	36	18
Bakers & Millers	35	17
Cocoa, Chocolate and Sugar Confectionery	24	12
Dairy Products	21	10
Juices / Waters / Carbonated Soft Drinks	45	23
Slaughtering, Preparation and Preservation of Meat	22	11
Tobacco	4	2
Vegetable Oils	30	15
Total	217	108

3.4 Data Collection Instruments of and Procedure

A mixed structured questionnaire was used to collect the primary data. This type of the instrument was selected because it offers the possibility of quantification of the responses and at the same time provides room to respondents to give unfettered views related to the study (Ngechu, 2014) thus affording the study a holistic data. Further, a questionnaire has proved to be a scientific instrument which is easy and cheaper to apply even in circumstances where multiple factors are involved in a study (Kagwiria, 2014). The questionnaires were self- administered with the help of two research assistants. This method was selected due to its effectiveness and efficiency compared to alternatives (Mugenda & Mugenda, 2009).

3.5 Pilot Test

Pilot testing was conducted on the data collection instruments to determine its validity and reliability (Joppe, 2010). Ten percent (10%) of the sample size was used for piloting as recommended by Connelly (2008), who suggested that a pilot study sample should be 10% of the sample projected for the larger parent study. The ten percent (10%) of the sample size was computed to be eleven (11) firms thus eleven (11) firms which were not included in the main study were used for piloting (Kombo & Tromp, 2013).

Reliability Test

Reliability is concerned with the question of whether the results of a study are repeatable (Rousson, Gasser & Seifer, 2012). Cronbach Alpha was used to test the reliability of the instrument. The study used a construct composite reliability co-efficient (Cronbach alpha) of

0.7 or above to determine adequacy of reliability of the study constructs. The tests established that all constructs recorded alphas of 0.7 plus hence were all reliable and acceptable for the study (Rousson, Gasser & Seifer, 2012).

Validity Test

Mugenda and Mugenda (2009) define validity as the accuracy and meaningfulness of inferences, based on the research results. The study used expert (supervisor) to test and ensure both content and face validity of the data collection instrument (Gillham, 2011). The feedback from the expert (supervisor) was used to make the necessary adjustments on the instrument for instance by removing the ambiguous items, reviewing to constructs and their measures in line with theoretical foundations of the study.

3.6 Data Analysis and Presentation

The study generated both qualitative and quantitative data. Content analysis was used to analyse the qualitative data for the purposes of validating the quantitative data. Quantitative data was coded and entered into Statistical Packages for Social Science (SPSS) and analysed using both descriptive statistics and inferential statistics. Descriptive statistics (frequencies, percentages, mean and standard deviations) were used to describe and summarise data (Kothari, 2014). Inferential statistics (multiple regressions analysis) modelled in the form of:

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$ was used to test the hypothesised model (conceptual framework) where follows:-

Y = Procurement performance

X1 = Reverse logistics

X2 = Green specification

X3 = Green inventory management

X4 = Green tendering

$\beta_1, \beta_2, \beta_3$ and β_4 are coefficients of determination and ε is the error term.

The model parameters for interpretation were: R-squared and P-values. R-squared is a statistical measure of how well the data fit the regression line (Cooper & Schindler, 2011). It is also known as the coefficient of determination, or the coefficient of multiple determination for multiple regression. The p-value is used as an alternative to rejection points to provide the smallest level of significance at which the null hypothesis would be rejected. A smaller p-value means that there was stronger evidence in favour of the alternative hypothesis (Kothari, 2011). The study findings were presented on tables and figures.

4.0 RESULTS AND DISCUSSIONS

4.1 Response Rate

The study targeted 108 respondents out of which 100 (representing 93%) fully completed and returned the questionnaires while the rest (8) or 7% did not. The response rate of ninety three percent (93%) was taken to be adequate for this study in line with Rousson *et*

al., 2012) that a response of fifty percent plus (>50%) is enough in social research.   This finding is presented on Table 4.1:

Table 4.1: Rate of Response

Category	Frequency	Percent
Filled questionnaires	100	93
Unfilled questionnaires	8	7
Total	**108**	**100**

4.2 Model Tests

In order to establish the influence of sustainable procurement practices on the performance of procurement in food and beverage firms in Kenya, a multiple regression analysis model: *Procurement Performance = B_0 + B_1RL +B_2GS + B_3GI +B_4GT + E* was used where B_0 is the value of Procurement Performance when all the independent factors (*RL, GS, GI*, and *GT*) are zero, B_1 to B_4 are regression coefficient and *E* is the error term. The test result on Table 4.2 shows that the model coefficient of determination (R Square) is 0.796, while Table 4.3 shows that p-value to be 0.000; F =92.821. These findings indicate that 79.6 percent of procurement performance in the food and beverage firms is explained by sustainable procurement practices and that the influence of sustainable procurement practices on procurement performance is positively significant, p-value (0.000) <0.005 and F calculated at 5 percent level of significance (92.821)>F critical (value = 2.428). Table 4.4 shows that the predictor equation for procurement performance (Y) versus independent factors (Xi) takes the form:

Procurement Performance = 1.319 +0.634 (RL) +0.793(GS) +0.608 (GIM) +0.542 (GT) +1.073

These denote that procurement performance increases by 0.634 when reverse logistics increases by 1 index unit, goes up by 0.793 when green specification increases by 1 index unit, increases by 0.608 when green inventory management goes up by 1 index unit, goes up by 0.542 when green tendering adjusts by 1 index unit. Further, the results indicate that green specifications exert greatest influence on procurement performance at 79.3 percent followed by reverse logistics at 63.4 percent, green inventory management at 60.8 percent and the least is green tendering at 54.2 percent

Table 4.2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.892	0.796	0.791	1.073

Table 4. 3: ANOVA Results

Model	Sum Squares	Df	Mean Square	F	Sig.

Regression	734.11	4	183.528	92.821	0.000
Residual	187.83	95	1.9772		
Total	**921.94**	**99**			

Table 4.4: Regression Results: SP Practices and Procurement Performance

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.319	0.352		3.747	0.000
Reverse logistics (RL)	0.634	0.214	0.591	2.963	0.003
Green specification (GS)	0.793	0.317	0.648	2.502	0.013
Green inventory management (GIM)	0.608	0.271	0.575	2.244	0.021
Green tendering (GT)	0.542	0.233	0.517	2.326	0.026

4.3 Discussion of the Result

The study aimed to establish the influence of sustainable procurement practices on the performance of procurement in food and beverages manufacturing firms in Kenya. This study is anchored on the holder theory which postulate a relationship between sustainable procurement practices and procurement performance. According to this theory, sustainable procurement practices offer firms opportunities to reduce cost of operations through use of minimal packages, products re-use, recycling, preference to recycled products, bio-degradable products, and minimal usage of tree products like papers. The theory content that such practices have the potential to endear the firm to community resulting on customer loyalty and reduces the cost of compliance with statutory environmental management requirements (Mainardes, Alves & Raposo, 2011; Alkhafaji, 2011; Foerstl, Reuter, Hartmann & Blome, 2010; Van Weele, 2012). These therefore inform the discussions of the study results. The findings of the study indicate that food and beverage manufacturing firms which have embraced sustainable procurement practices registered remarkable improvement on the performance of their procurement function; $P<0.005$ (P=0.000) with an explanatory power of 79.6 percent. The study question for the main objective is therefore affirmatively answered that sustainable procurement practices significantly positively influence procurement performance of the firms. This finding therefore agrees with a number of past studies (Mainards *et al*., 2011; Van Weele, 2012; Muttimos, 2014) which established a significant positive relationship between sustainable procurement practices and procurement performance.

The study first specific objective was to determine the influence of reverse logistics on the performance of procurement. The findings r=0.634, p< 0.05 (p=0.003) indicate that reverse logistics positively significantly affect performance of procurement performance with an explanatory power of 63.4 percent. These findings were in line with those of Muttimos (2014), which established a positive correlation between reverse logistics and performance of manufacturing firms through cheaper raw material, reduction of waste through recycling and re-use.

The second specific objective of the study was to ascertain the effect of green specification on the performance of procurement. The study findings indicate a positive significant effect of green specification on the procurement performance of food and beverages manufacturing firms in Kenya, r=0.793, p< 0.05 (p=0.013). These findings were consistent with those of Russo and Cardinali, (2012) who posits that green specification potentially contributes to the quality of supplies and further increases chances of selecting competent and responsive suppliers.

The third specific objective of the study was to establish the influence of green inventory management practices on the performance of procurement. The study findings r=0.608, p<0.05 (p=0.026) shows that green inventory management positively affects procurement performance in food and beverages manufacturing firms in Kenya. These findings were consistent with those of Fung, Cheung, Lee and Kwok, (2015) who postulates that virtual warehousing is a model developed for businesses with the aim of optimizing production, reducing costs and providing supply chain channels with customer service that is of high quality

Finally, the fourth specific objective of the study was to determine the influence of green tendering of the performance of procurement. The study findings; r=0.542, p<0.05 (p=0.021) indicate a positive significant effect of green tendering on procurement performance in food and beverages manufacturing firms in Kenya. These findings were in line with those of Gitau and Shalle, (2014) which established that greening the tendering activities potentially cut cost of documentation, reduces cycle time and provide an opportunity to practice lean procurement.

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Appositive significant relationship between sustainable procurement practices and procurement performance was established. However, among the sustainable procurement practices, green specification was found to be the one exerting greatest influence on procurement performance followed by reverse logistics, green inventory management and green tendering respectively.

Conclusion

Based on the study findings, it is concluded that procurement performance is most affect by green specification followed by reverse logistics, green inventory management and green tendering respectively. It is further concluded that the combined effect of sustainable procurement practices is higher than those of individual practices.

Recommendations

The study therefore recommends that manufacturing firms should institutionalise sustainable procurement practices through formulation and implementing of green procurement policies and procedures in order to manage their operational costs, comply with environmental regulatory authority requirements and increase quality of supplies. Secondly, management should proactively sensitise the general employees on befits of

sustainable practices and specifically in regard to procurement function in order to create green culture with consequential performance benefits. Further, the government should take a deliberate step through policy interventions to encourage firms to green their operations as a way of preserving the environment and sustainably manage the natural resources to support future needs of her populace. This will have a multiplier effect of increasing performance of firms and make them catalysers of Vision 2030.

Suggestions for Further Studies

Further studies are recommended focusing on a different sector of the economy for comparison. It is further suggested that a study with more factors should be considered to provide an in-depth understanding of the concept sustainable procurement with possible intervening variables under considerations. A similar study should be conducted using longitudinal research design for comparison.

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