



INFLUENCE OF GREEN SUPPLY CHAIN MANAGEMENT PRACTICES ON PROCUREMENT PERFORMANCE OF PRIVATE HEALTH INSTITUTIONS IN KENYA: A CASE OF AGA KHAN HOSPITAL KISUMU

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ABSTARCT

This study sought to investigate influence of green supply chain management practices on procurement performance of Aga Khan Hospital, Kisumu. Specific objective for this study were to determine the influence of Eco-design, green procurement, reverse logistics on procurement performance of Aga Khan Hospital, Kisumu. The study adopted the descriptive research design. Target population for this study was 95 from where Yamame's formula was used to get 77 respondents which consisted of procurement officers, operations staff and marketing staff. Stratified random sampling was used to select respondents. The study used questionnaire to collect primary data. Both descriptive and inferential statistics were used to analyze data which was computed by use of Statistical Package for Social Sciences (SPSS 24.0). Multiple regression analysis and correlation analysis were used to measure the relationship between independent and dependent variable. A total of 71 out of the sampled 77 respondents returned dully filled questionnaires which showed a response rate of 92.2% which was excellent for generalizability of research findings to a wider population. Both descriptive and inferential statistics indicated that all conceptualized independent variables significantly influenced procurement performance in Aga Khan Hospital, Kisumu. The study concluded that one; vendor eco design significantly influences procurement performance, thus effective eco designing can improve procurement performance of firms that practice it; two; green sourcing is a significant predictor of procurement performance, thus private health institutions that embrace green sourcing can experience a significant boost on their procurement performance. The study recommended that one; private health institutions should embrace supply of eco designs of procured products which are environmental friendly, and two, private health institutions should foster green sourcing practices so as to ensure waste reduction and provide environmentally friendly products.

Key Words: Eco-Design, Green Procurement, Reverse Logistics, Procurement Performance

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INTRODUCTION

In today's competitive business environment, green supply chain management is an important element implemented by companies in order to integrating environmental concerns in their business operations and in interactions with their stakeholders in embracing environmental sustainability into business strategies (Chege, 2012). Environment has become a sensitive issue for its surrounding for instant the societies, governments and business organizations. This has led to socially responsible issues being looked into by firms to achieve an advantage over local and international competitors (Marege, 2014).

Additionally, one of the critical issues that have affected people's human lives is the pollution of the environment. According to Shan and Wang (2018), people are concerned about what is done to the climate. Moreover, governments are taking actions to prevent environmental degradation such as solid wastes, ozone depletion, global warming, and air pollution with an aim to encourage companies to become more profitable while decreasing damage in the environment. The concept of conserving the environment has emerged in many departments within organizations and governments.

Mutheka (2015), green supply chain covers every stage in manufacturing from the first to the last stage of the product life cycle that is from product design to recycle or disposal. Nevertheless, an increase in economic growth increases the level of energy and material consumption, therefore contributing to environmental issues and resource depletion problems. With this growth trend, organizations are forced to go green in their business to promote environmental sustainability. Furthermore, organizations have adopted green technology to achieve greater benefits during supply chain practices which hence an effect to both the suppliers and customers (Seman, Zakuan, Jusoh, & Arif, 2012).

According to Shan and Wang (2018), the concept of green supply chains originated from the concept of green purchasing proposed by Webb in 1994 which

was first proposed for the environmental responsibility manufacturing study in 1996. Shahriarpour and Tabriz (2017) argues that supply chain management is an important element that is directly linked to productivity and competitive position. The researcher further indicates the need to make supply chain green which is the process of taking into account environmental criteria or environmental considerations in organizational purchasing decisions and long-term relationships with suppliers.

Mbaabu (2016) defines green supply chain management as the strategic, transparent, integration and achievement of an organization's social, environmental, and economic objectives in the systemic coordination of key inter-organizational business processes for improving the long-term performance of the firm and its supply chain partners. GSCM practices include green sourcing, green production, green distribution and reverse logistics (Masudin, Wastono & Zulfikarijah, 2018).

The government of Kenya has too addressed the issues of green supply chain. Mbaabu (2016) indicate that the government of Kenya through NEMA has pushed for greater environmental controls within the healthcare setting. Moreover, issues like energy conservation, proper disposal of medical waste and the safe handling of highly potent pharmaceuticals have been discovered by the healthcare facilities. Marege (2014) cites that hospitals, clinics, and doctors' offices are greatly adopting formal environmental management systems and sharing best practices.

Omolo (2017) argues that performance measurement is one of the main ways used in measuring the effectiveness of organizational management processes. Additionally, Babu (2013) reveals that firm's performance is measured against standard indicators of effectiveness, efficiency and environmental responsibility like cycle times, productivity, waste reduction and regulatory compliance. The researcher further cites that performance indicator can be divided into three

elements. Which include; financial performance (profit), internal non- financial performance (productivity) and external non-financial performance (customer satisfaction).

However, Nderitu and Ngugi (2014) argue that organizational performance is limited to economic outcomes with dimensions ranging from profitability, liquidity, growth and stock market performance. Furthermore, the researcher reveals the need for organizational performance management which involves systems evaluation, employees' performance and management of departments of the organization as a whole in assessing progress toward goals and identifying and adjusting factors which hinder progress. Nevertheless, techniques for monitoring progress, including the performance of systems, subsystems, departments and employees assists in responding to crisis as they arrive, fixing broken systems, replacing failing management and redefining unmet able goals.

Agakhan hospital, Kisumu was established in the year 1952. The Agakhan hospital in Kisumu is a 61-bed acute care facility that offers quality health care. In 2004, Agakhan hospital in Kisumu was awarded the ISO 9001:2000 certificate. According to Ndemaki (2014), AKHK hospital has undergone major refurbishment like installation of a Computerized Tomography Scan, expansion and modernization of the laboratory, pharmacy and Physiotherapy Departments and the introduction of a Haemodialysis Unit and training doctor interns. Furthermore, the objective of AKHK is to enhance access to quality health.

Moreover, AKHK being a private hospital and nursing homes, it operates many satellite medical centers in Nyanza, Western Rift valley provinces in Kenya. Gidoi (2011) argues that Aga Khan Health Services is an organization providing community health services. Moreover, East Africa Aga Khan Health Services belongs to the Aga Khan Development Network (AKDN). The network was founded and guided by Prince Karim Aga Khan IV, and consists of a group o f private, non-

denominational development agencies and institutions working together to improve living conditions and opportunities in over 20 of the poorest countries in the developing world.

A report by Kisumu County integrated development plan 2013 – 2017 indicates that national policy on health provides an enabling environment for good health by giving high priority to improvement of health standards for Kenyans in recognition of the fact that good health is a prerequisite for socio-economic development. Additionally, the report reveals that people in the Kisumu region are subjected to broad vision of an efficient, high quality health care system that is accessible, equitable, and affordable.

Statement of the Problem

Government of Kenya launched the Kenya Vision 2030 which promotes sustainability and environmental protection. However, it failed to mention the use of environmental criteria during public procurement (Mwacharo, 2015). Nevertheless, despite the enforcement of Environmental Management Act in order to achieve environmental sustainability, health sector still encounters some challenges like infrastructure degradation, inadequate medical equipment, inadequate transport for major health centers, favorable environment for breeding of vectors and poor sanitation especially pit latrines, increased pollution from solid wastes such as polythene and plastic generated waste, liquid and industrial waste disposal (Kisumu County integrated development plan 2013 – 2017).

Moreover, despite the national government vesting in some of its spending on health sector, healthcare systems are still a national challenge (Kariuki, 2018). This is evidently seen as the total expenditure of health services by the national government was expected to increase by 15.9% to KSh 65.6 billion in 2017/18 while development expenditure was expected to grow by 33.6% to KSh 35.8 billion (Economic Survey, 2018). Moreover, health provision in Kenya aims at attaining the highest possible health standards by ensuring the provision

of equitable, affordable and quality health and related services to all Kenyans. However, for this to be achieved there must be a link between health and other sectors such as environment, infrastructure, transport services, water and sanitation (Mugo, Onsomu, Munga, Nafula, Mbithi & Owino, 2018).

A study by Aruna and Gunasilan (2017) indicated that green supply chain management practices are common in the United States and that ecological issues strengthen ill-health throughout the organizations which impacts pressure on hospital supply chains. Moreover, the study notes that medical waste is a risk to human health and environment at large. As a result, it has forced the public and government to be aware of hospital waste hence leading to implementation of green supply chain. Additionally, the innovative technologies and instruments have been developed to handle hospital wastes.

A study by Al Khattab, Abu-Rumman and Massad (2015) on the impact of green supply chain management on environmental-based marketing performance revealed that some firms are certified for the ISO14001 certificate but lose their certification due to the difficulties in applying these standards. The study further indicates that internal environmental management, green purchasing, green information systems, cooperation with customers, eco-design and packaging, and investment recovery affects environmental-based procurement performance.

Muma, Nyaoga, Matwere and Nyambega (2014) assert that organizations need to put measures in place to ensure all dimensions of its operations are environmentally friendly. Nevertheless, there is a positive relationship between green supply chain management practices and environmental performance. This is so as the strategy one adopted it reduces environmental pollution and reduces cost of environmental management thereby enhancing their environmental performance. The study further recommends that manufacturing firms should embrace green strategies in their purchasing,

manufacturing, distribution, marketing and reverse logistics operations.

According to the previous studies, there are few known studies in Kenya that has researched on the influence of green supply chain management practices on procurement performance of private health institutions in Kenya. This study addressed this gap by establishing the influence of green supply chain management practices on the procurement performance of private health institutions in Kenya.

Objectives of the Study

The general objective of this study was to establish the influence of green supply chain management practices on procurement performance of private health institutions in Kenya. The specific objectives were:-

- To examine the influence of Vendor eco-design on procurement performance of private health institutions.
- To determine the influence of green sourcing on procurement performance of private health institutions.
- To establish the influence of reverse logistics on procurement performance of private health institutions.

Study Hypotheses

H₀₁: There is no significant influence of Vendor eco-design on procurement performance of private health institutions.

H₀₂: There is no significant influence of green sourcing on procurement performance of private health institutions.

H₀₃: There is no significant influence of reverse logistics on procurement performance of private health institutions.

LITERATURE REVIEW

Theoretical Framework

Systems Theory

Mele, Pels and Polese (2010) define a system as an assemblage of objects united by some form of regular interaction or interdependence. Organization is a system built by energetic input

and output. Moreover, organizations are considered viable systems if they are able to survive in a particular context due to continual dynamic processes and several kinds of internal changes. Nevertheless, in the systems approach, the decision maker, by analyzing the structure of his own system requires employs to intense actions needed for survival. According to Carayannis, Campbell and Scheherazade (2016), systems theoretical approach in an economic context refers to the interaction of supply and demand.

System theory focuses on interactions and relationships between parts of organizations that enhance better understanding of functions and outcomes. Organizations receive inputs and transform them into outputs which are exported to the environment, therefore subsystems should be developed to assist in the coordination of transformation process. Moreover, system theory focuses on the interchange between a system and environment. This means that an organization is an open system where there must be a continual interaction with the broader external environment to contribute to the survival and success of the entire organization, (Cornell & Jude, 2015).

Resource Based View Theory

According to Jang (2013), internal resource was recognized as the indicator of organizational performance by Penrose (1959). Additionally, Wernerfelt (1984) viewed resources as the core element of businesses. And finally, Barney (1991) contributed to the development of RBV toward the fine-grained level. RBV are explains how a firm can achieve sustainable competitive advantage from firm resources that are rare, valuable, hard or impossible to imitate or duplicate, and hard to substitute. Furthermore, RBV predicts a serial correlation in performance. Its assumption is that everyone knows all practices in the public domain, and when implemented helps firms to benefit thereby eliminating its ability to explain variation in performance (Bromiley and Rau, 2016).

Almarri and Gardiner (2014), RBV theory examines the links between the firm's internal features and

processes, and its performance. It also indicates that any firm within an industry is unique in its strategic resources, and that the heterogeneous characteristics of a firm have a potential for creating an advantage over its rivals. Resource-based view allows rationalization of the management, identify and use the hidden economic resource potential. These can be practically seen when a company outsource for supply of basic resources in the contemporary conditions of radically transforming environment (Balashova and Gromova, 2016).

Institutional Theory

Institutional environment is defined as crucial to organizational behavior, or as an independent variable in relation to it. Institutional theory addresses the macro organizational environment and identifies rules, beliefs and values created and consolidated through social interaction and routines (More, Telles, Marinho and Correa, 2016). Nevertheless, government plays a major role in the adoption of GSCM practices. With this in mind, it's a necessity for firms to comply with environmental regulations.

Kaberger and Richu (2015), organizations are formal institutions that have structures and stakeholders who have varied interests. To curb conflict of interest, the government has enacted regulations and conventions that guide organizational practices. The researchers further posit that strategies like sustainable supply chain management practices must be implemented through well-developed models and a collaborative and participative approach. In addition, there has been an increased pressure from the government, NGOs and the general community on issues concerning environmental management. This theory will be useful in determining the influence reverse logistics on organizational performance of private health institutions in Kenya . Reverse logistics is one of the organizational strategies which need to be implemented by firms to achieve performance.

Empirical Review

Vendor Eco- Design and Procurement Performance

Al Khattab et al. (2015) defines Eco-design as environmental design of a product and/or a process which focuses on reducing/ preventing the environmental effects of a product before it is produced, distributed and used. The researchers further posit that eco-design originates from the concept of concurrent engineering and design for manufacturability and assembly which aims at simplifying product designs so that they could be made inexpensively over the full product's life cycle. Nevertheless, eco-design involves five processes which include, assessment of environmental impacts; research of the market; brainstorming or ideas generation; selection of design strategies and designing of the product.

Sisodiya (2017) argues that Eco-design is an international concept developed by the World Business Council for Sustainable Development (WBCSD) at the Rio summit which consists designing a product or service in order to minimize its impacts on the environment. Additionally, it is effective at every stage in a product's life that promotes: raw material extraction, production, packaging, distribution, use, recovery, recycling, and incineration. Due to this, eco design impacts on procurement efficiency hence performance.

Green Sourcing and Procurement Performance

According to Nderitu and Ngugi (2014), green procurement entails consideration of social and environmental factors alongside financial factors during sourcing decisions. More so, it involves looking beyond the traditional economic parameters and making decisions based on the whole life cost, the associated risks, measures of success and implications on society and the environment. A study by Kaumbuthu and Wanyoike (2015) on effects of green public procurement adoption in public sector indicated that government of Kenya has stipulated the use of green public procurement policy in its public procurement processes and that public entity encourage

selection of green suppliers where possible to supply green goods and services to them in future.

Amemba (2013) defines green sourcing as an environmental purchasing which consist of activities that include the reduction, reuse and recycling of materials in the process of purchasing. The researcher indicates that during the purchasing and procurement process, suppliers and purchasing managers must ensure waste reduction and provide environmentally friendly product.

Reverse Logistics and Procurement Performance

According to Hassan et al. (2016), the concept of reverse logistics deals with the return of products and materials from the viewpoint of supply chain consumption for recycling, reusing, remanufacturing, repairing, or disposing. Mogeni and Kiarie (2016) establish the effect of green logistics practices on performance of supply chains in multinational organizations in Kenya. Findings for this study shows that reverse logistics has a significant positively effect on performance of supply chains in multinational organizations. This is achievable due to coordinated backward distribution, shorter lead time, and timely disposal of scrap/material.

A study by Halim, Abdullah and Yaakub (2014) on reverse logistics: pressure for adoption and the impact on firm's performance indicate that reverse is the movement of product or materials in the opposite direction of the supply chain for the purpose of creating or recapturing value, or for proper disposal. The researchers further asserts that recycling entails reduction of products basics elements, which are reused while disposition is how a product is disposed. However, the study found out that reverse logistics adoption level has no influence on performance due to lack of 'true' commitment by these manufacturers.

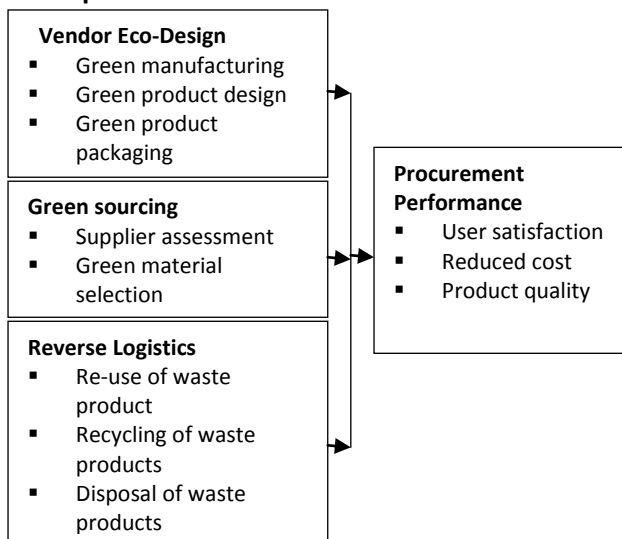
Procurement Performance

Procurement performance process is geared to the coordination and enhancement of work activities and outcomes within an organization with regards to procurement. According to Kurien and Qureshi

(2012), performance measurement is a crucial element to improve business performance which has pushed organizations to realize that environmental management is one of their strategic goals. Properly planned, implemented and managed GSCM enables organizations to be responsible corporate citizens and thus resulting in higher profitability, and retain competitive advantage. Selection and use of appropriate Green SCPMS is critical for success of the green SC.

Tundys and Wisniewski (2018), performance measures is used to determine the efficiency and effectiveness of an existing system. The researchers propose that environmental performance measurement should lead to satisfaction of cost, quality and performance goals. Furthermore, it should aim at reducing environmental impacts and conserve valuable resources. However, the scholars argue that some of the tools for the evaluation process in the sustainable and green supply chain are key performance index, end of life inventory, management packaging assessments, sustainable balanced scorecard, environmental quality function deployment, material flow analysis and responsible product assessment.

Conceptual Framework



Independent Variables **Dependent variable**

Figure 2.1: Conceptual Framework

Source: Researcher (2019)

METHODOLOGY

This study used descriptive research design and a case study strategy. Kaumbuthu and Wanyoike (2015) citing Orodho (2003) defines descriptive research as a method of collecting information by interviewing or administering a questionnaire to a sample of individuals so as to obtain information about people’s attitudes, opinions habits or any other social issues. Nevertheless, a case study is appropriate since the study is based on one entity (Aga Khan Hospital). The population considered in this study was Aga Khan Hospital, Kisumu. The target population consisted of procurement staff, operations staff and marketing staff at Aga Khan Hospital. Sample frame for this study consisted of 28 procurement staff, 33 operations staffs and 34 marketing officers. However, this study adopted target staff levels in which it top managerial staff were 8, middle managerial staff were 28 while support staff were 59. Therefore, the total sample frame constituted 95 target respondents. Primary sources were used to obtain data for this study. The primary data was collected through the use of questionnaires. Mean scores, standard deviations, percentages and frequency distribution was used to summarize the responses. Statistical Package for Social Sciences (SPSS 24.0) was used to analyze data. Multiple regressions was tested (assumption of normality, linearity assumptions, homoscedasticity, and assumption of multicollinearity). Multiple Regression Model for this study was;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

Where;

Y= Procurement performance

β_0 = Constant of Regression which is the value of the dependent variable when the independent variable was 0.

X_1 = Eco- Design

X_2 = Green sourcing

X_3 = Reverse Logistics

$\beta_1 \beta_2 \beta_3 \beta_4$ = Regression co-efficient

ϵ =Error term

FINDINGS

Vendor eco-design and procurement performance

This assessed objective one of the study; that is, the perception of vendor eco-designs on procurement performance of private health institutions. The

perceptions were measured using Likert scale with values ranging from 5 to 1; that is; 5=Strongly Agree, 4=Agree, 3= Neutral, 2=Disagree and 1=Strongly Disagree; and the responses are summarized in table 1.

Table 1: Descriptive statistics; Vendor eco-design

Statement	Frequency (%)					mean	Std.dev
	5	4	3	2	1		
1.Green manufacturing enhances our user satisfaction	9(12.7)	41(57.7)	5(7.0)	10(14.1)	6(8.5)	3.52	0.945
2.Green manufacturing improves the cost of our products	4(5.6)	35(49.3)	11(15.5)	12(16.9)	9(12.7)	3.18	0.875
3.Green manufacturing improves our products quality	7(9.9)	49(69.0)	4(5.6)	6(8.5)	5(7.0)	3.66	0.913
4.Green product design enhances our user satisfaction	11(15.5)	48(67.7)	3(4.2)	5(7.0)	4(5.6)	3.80	0.980
5.Green product design improves the cost of our products	3(4.2)	36(50.7)	10(14.1)	14(19.7)	8(11.3)	3.17	0.846
6.Green product design improves our products quality	13(18.3)	44(62.0)	6(8.5)	5(7.0)	3(4.2)	3.83	0.956
7.Green product packaging enhances our user satisfaction	12(16.9)	43(60.6)	4(5.6)	7(9.9)	5(7.0)	3.70	0.888
8.Green product packaging improves the cost of our products	7(9.9)	36(50.6)	5(7.0)	16(22.6)	7(9.9)	3.28	0.909
9.Green product packaging improves our products quality	7(9.9)	46(64.7)	5(7.0)	7(9.9)	6(8.5)	3.58	0.878
Valid listwise 71							
Grand mean = 3.52							

From table 1, most respondents agreed (57.7%) and strongly agreed (12.7%) that green manufacturing enhances our user satisfaction; while 49.3% and 5.6% agreed and strongly agreed respectively that green manufacturing improves the cost of our products; and 69.0% and 9.9% agreed and strongly agreed respectively that green manufacturing improves our products quality. This generally implies that most respondents agreed that green manufacturing improves products quality, cost of products and eventually user satisfaction.

In regard to Green product design, most respondents agreed (67.7%) and strongly agreed (15.5%) that Green product design enhances our user satisfaction; while 50.7% and 4.2% agreed and strongly agreed respectively that Green product design improves the cost of our products; and a

further 62.0% and 18.3% of respondents agreed and strongly agreed respectively that Green product design improves our products quality. This therefore implies that most respondents agreed that green product design improves products quality, cost of products and eventually user satisfaction, which definitely can have a bearing on procurement performance.

More so, most respondents agreed (60.6%) and strongly agreed (16.9%) that Green product packaging enhances our user satisfaction; while 50.6% and 9.9% of respondents agreed and strongly agreed respectively that Green product packaging improves the cost of our products; and a further 64.7% and 9.9% of respondents agreed and strongly agreed respectively that Green product packaging improves our products quality. This therefore implies that most respondents agreed and strongly

agreed that Green product packaging improves products quality, cost of products and eventually user satisfaction, which definitely can have a bearing on procurement performance.

In summary, most respondents agreed that green product manufacturing, design and packaging improves products quality, cost of products and eventually user satisfaction. This is because the grand mean is 3.52 rounded off to 4 which is agree on the Likert scale of measurement. This is supported by Sisodiya (2017) who argues that Eco-design is an international concept developed by the World Business Council for Sustainable Development (WBCSD) at the Rio summit which

consists designing a product or service in order to minimize its impacts on the environment. Additionally, it is effective at every stage in a product's life that promotes: raw material extraction, production, packaging, distribution, use, recovery, recycling, and incineration. Due to this, eco design impacts on procurement efficiency hence performance.

Green sourcing and procurement performance

This assessed objective two of the study; that is, the perception of green sourcing on procurement performance of private health institutions and the responses are summarized in table 2.

Table 2: Descriptive statistics; Green sourcing

Statement	Frequency (%)					mean	Std.dev
	5	4	3	2	1		
1.Periodic supplier assessment enhances user satisfaction through meeting their needs	9(12.7)	43(60.5)	8(11.3)	7(9.9)	4(5.6)	3.65	0.816
2.Periodic supplier assessment improves the cost of our products	7(9.9)	45(63.3)	6(8.5)	8(11.3)	5(7.0)	3.58	0.851
3.Periodic supplier assessment improves the quality of our products	10(14.1)	47(66.2)	6(8.5)	5(7.0)	3(4.2)	3.69	0.925
4.Green material selection enhances our user satisfaction	6(8.5)	48(67.6)	5(7.0)	8(11.3)	4(5.6)	3.62	0.991
5.Green material selection improves the cost of our products	9(12.7)	39(54.9)	12(16.9)	6(8.5)	5(7.0)	3.53	0.953
6.Green material selection improves the quality of our products	9(12.7)	42(59.1)	7(9.9)	8(11.3)	5(7.0)	3.51	0.877
Valid listwise 71							
Grand mean = 3.59							

From table 2, most respondents agreed (60.5%) and strongly agreed (12.7%) that periodic supplier assessment enhances user satisfaction through meeting their needs; while 63.3% and 9.9% of respondents agreed and strongly agreed respectively that periodic supplier assessment improves the cost of our products; and a further 66.2% and 14.1% agreed and strongly agreed respectively that Periodic supplier assessment improves the quality of our products. This generally implies that most respondents agreed that periodic supplier assessment improves products quality, cost of products and eventually user satisfaction.

In regard to Green material selection, most respondents agreed (67.6%) and strongly agreed (8.5%) that Green material selection enhances our user satisfaction; while 54.9% and 12.7% of respondents agreed and strongly agreed respectively that Green material selection improves the cost of our products; and a further 59.11% and 12.7% of respondents agreed and strongly agreed respectively that Green material selection improves the quality of our products. This therefore implies that most respondents were of the view that Green material selection improves products quality, cost of products and eventually user satisfaction.

In summary therefore most respondents agreed that periodic supplier assessment and green material selection improves products quality, cost of products and eventually user satisfaction. That is the grand mean is 3.59 rounded off to 4 which is agree on the Likert scale of measurement. This is supported by Amemba (2013) who posited that green sourcing is an environmental purchasing which consist of activities that include the reduction, reuse and recycling of materials in the process of purchasing. The researcher indicates that during the purchasing and procurement process,

suppliers and purchasing managers must ensure waste reduction and provide environmentally friendly product. Further findings indicate that firms in the hospitality industry in Kenya implement environmental criteria when sourcing for goods to ensure that they only procure from environmentally certified suppliers through ISO 14000 and 14004.

Reverse logistics and procurement performance

This assessed objective three of the study; that is, the perception of reverse logistics on procurement performance of private health institutions and the responses are summarized in table 3.

Table 3: Descriptive statistics; Reverse logistics

Statement	Frequency (%)					mean	Std.dev
	5	4	3	2	1		
1.Re use of waste products enhances user satisfaction through ease of waste management	10(14.1)	47(66.2)	3(4.2)	7(9.9)	4(5.6)	3.73	0.914
2. Re use of waste products improves the cost of our products	6(8.5)	41(57.7)	4(5.6)	11(15.5)	9(12.7)	3.34	0.818
3.Re use of waste products improves our products quality	8(11.3)	42(59.2)	5(7.0)	10(14.0)	6(8.5)	3.51	0.832
4.Recycling of waste products enhances user satisfaction through waste reduction	9(12.7)	44(62.0)	4(5.6)	9(12.7)	5(7.0)	3.61	0.989
5.Recycling of waste products improves the cost of our products	5(7.0)	39(54.9)	9(12.7)	11(15.5)	7(9.9)	3.34	0.837
6.Recycling of waste products improves our product quality hence recouping maximum value	11(15.5)	48(67.7)	3(4.2)	4(5.6)	5(7.0)	3.79	0.916
7.Disposal of waste products enhances user satisfaction through safe disposal	8(11.3)	47(66.2)	5(7.0)	6(8.5)	5(7.0)	3.66	0.827
8.Disposal of waste products enhances reduced costs through safe disposal and compliance	7(9.9)	46(64.7)	4(5.6)	8(11.3)	6(8.5)	3.56	0.892
Valid listwise 71							
Grand mean = 3.57							

From table 3, most respondents agreed (66.2%) and strongly agreed (11.4%) that re-use of waste products enhances user satisfaction through ease of waste management; while 57.7% and 8.5% of respondents agreed and strongly agreed respectively that re use of waste products improves the cost of our products; and a further 59.2% and 11.3% of respondents agreed and strongly agreed

respectively that re use of waste products improves our products quality. This therefore implies that most respondents agreed that re use of waste products improves products quality, cost of products and eventually enhances user satisfaction which definitely can positively impact on procurement performance.

In regard to recycling of waste products, most respondents agreed (62.0) and strongly agreed (12.7%) that recycling of waste products enhances user satisfaction through waste reduction; while 54.9% and 7.0% of respondents agreed and strongly agreed respectively that recycling of waste products improves the cost of our products; and 67.7% and 15.5% agreed and strongly agreed respectively that recycling of waste products improves our product quality hence recouping maximum value. This implies that most respondents perceived recycling of waste products as an effective way of improving products quality, cost of products and eventually enhancing user satisfaction which definitely can positively affect procurement performance.

Lastly, in regard to disposal of waste products, most respondents agreed (66.2%) and strongly agreed (11.3%) that disposal of waste products enhances user satisfaction through safe disposal while 64.7% and 9.9% of respondents agreed and strongly agreed respectively that disposal of waste products enhances reduced costs through safe disposal and compliance. This generally means that most respondents perceive disposal of waste products as a way of reducing costs through safe disposal which

too enhances user satisfaction through safe disposal.

In summary, most respondents agree that re use of waste products, recycling of waste products and disposal of waste products reduces costs and enhances user satisfaction through safe disposal. The grand mean is 3.57 rounded off to 4 which correspond to agree on the Likert scale of measurement. This is supported by Hassan et al. (2016), who asserted that the concept of reverse logistics deals with the return of products and materials from the viewpoint of supply chain consumption for recycling, reusing, remanufacturing, repairing, or disposing. Mogeni and Kiarie (2016) also studied on the effect of green logistics practices on performance of supply chains in multinational organizations in Kenya; and found that reverse logistics has a significant positively effect on performance of supply chains in multinational organizations. This is achievable due to coordinated backward distribution, shorter lead time, and timely disposal of scrap/material.

Inferential statistics

Table 4: Correlations

		Vendor Eco Design	Green Sourcing	Reverse Logistics	Procurement Performance
Vendor Eco Design	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	71			
Green Sourcing	Pearson Correlation	.607**	1		
	Sig. (2-tailed)	.000			
	N	71	71		
Reverse Logistics	Pearson Correlation	.554**	.685**	1	
	Sig. (2-tailed)	.000	.000		
	N	71	71	71	
Procurement Performance	Pearson Correlation	.726**	.744**	.782**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	71	71	71	71

** . Correlation is significant at the 0.01 level (2-tailed).

Table 4: Direct effect of Vendor eco design on procurement performance

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.726 ^a	.528	.521	.71644	.528	77.047	1	69	.000
ANOVA ^a									
Model		Sum of Squares	df	Mean Square	F				Sig.
1	Regression	39.548	1	39.548	77.047				.000 ^b
	Residual	35.417	69	.513					
	Total	74.965	70						
Coefficients ^a									
Model		Unstandardized Coefficients		Standardized Coefficients			t	Sig.	
		B	Std. Error	Beta					
1	(Constant)	1.139	.289			3.943	.000		
	Vendor Eco Design	.733	.084	.726		8.778	.000		

a. Dependent Variable: Procurement Performance

Table 5: Direct effect of green sourcing on procurement performance

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.744 ^a	.553	.547	.69671	.553	85.437	1	69	.000
ANOVA ^a									
Model		Sum of Squares	df	Mean Square	F				Sig.
1	Regression	41.472	1	41.472	85.437				.000 ^b
	Residual	33.493	69	.485					
	Total	74.965	70						
Coefficients ^a									
Model		Unstandardized Coefficients		Standardized Coefficients			t	Sig.	
		B	Std. Error	Beta					
1	(Constant)	1.163	.273			4.265	.000		
	Green Sourcing	.699	.076	.744		9.243	.000		

a. Dependent Variable: Procurement Performance

Table 6: Direct effect of reverse logistics on procurement performance

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.782 ^a	.611	.605	.65015	.611	108.349	1	69	.000
ANOVA ^a									
Model		Sum of Squares	df	Mean Square	F				Sig.
1	Regression	45.799	1	45.799	108.349				.000 ^b
	Residual	29.166	69	.423					
	Total	74.965	70						
Coefficients ^a									

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.234	.237		5.212	.000
	Reverse Logistics	.706	.068	.782	10.409	.000

a. Dependent Variable: Procurement Performance

Table 7: Multiple regression results

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.858 ^a	.735	.724	.54415	.735	62.057	3	67	.000

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	55.126	3	18.375	62.057	.000 ^b
	Residual	19.839	67	.296		
	Total	74.965	70			

a. Dependent Variable: Procurement Performance

b. Predictors: (Constant), Reverse Logistics, Vendor Eco Design, Green Sourcing

Table 8: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.515	.237		2.179	.033
	Vendor Eco Design	.417	.093	.413	4.510	.000
	Green Sourcing	.430	.102	.458	4.234	.000
	Reverse Logistics	.483	.092	.534	5.259	.000

a. Dependent Variable: Procurement Performance

Hypothesis testing

Hypothesis one stated that there is no significant influence of Vendor eco-design on procurement performance of private health institutions. The results show that there exists a significant influence of vendor eco-design on procurement performance of private health institutions ($\beta = 0.417$ (0.093); *at* $p < .01$). **Hypothesis one was therefore rejected.** The results implied that a single increase in preferred vendor eco designing will yield 0.417 unit increase in procurement performance of private health institutions. The results are supported by Touzi, Mabrouki and Farchi (2015) who conducted a study on green supply chain management practices in textile and clothing sector and found out that eco design improves the ecological quality of a product by reducing its negative impacts on the environment throughout its life cycle. The

researchers further indicate that green manufacturing is divided into three approaches. The first approach is the product improvement which aims at minimizing their impact on the environment at all stages of their life cycle. Second approach entails optimization which seeks to satisfy the expectations of the market, to reduce the impacts on the environment and to reduce the costs of production. Lastly, is the agency approach that is used in the production sites as a tool for internal management to enable the company to identify all of the actions that could have a negative impact on the environment.

Hypothesis two stated that there is no significant influence of green sourcing on procurement performance of private health institutions. The results show that there exists a significant influence of green sourcing on procurement performance of

private health institutions ($\beta = 0.430$ (0.102); *at* $p < .01$). **Hypothesis two was therefore rejected.** The results imply that a single increase in green sourcing will yield 0.430 unit increase in procurement performance of private health institutions. The results were supported by Mwacharo (2015) who posited that green procurement can be applied during supplier appraisal where a supplier is chosen due to its environmental accreditation. Additionally, having green qualifications can be used as a prequalification amongst other criteria during the procurement process. Therefore greenness is the criteria used to select a supplier or product. The study further revealed that health care institutions should implement an Environmentally Preferable Purchasing (EPP) program to support its commitment to sustainability. The study concluded that hospitals in Kenya have the opportunities to purchase green products though it may be difficult for them to procure green medical products as many of them are often too unique to have alternatives.

Hypothesis three stated that there is no significant influence of reverse logistics on procurement performance of private health institutions. The results show that there exists a significant influence of reverse logistics on procurement performance of private health institutions ($\beta = 0.483$ (0.092); *at* $p < .01$). **Hypothesis three was therefore rejected.** The results imply that a single increase in reverse logistics will yield 0.483 unit increase in procurement performance of private health institutions. The results are supported by Osoro and Atambo (2016) who conducted a study on relationship between reverse logistics activities and performance of Kisii Bottlers Ltd. The study adopted cross sectional survey design with population drawn from top management, procurement department, and sales/marketing departments totaling to 152 respondents. The study established that the application of reverse logistics practices has a

significant effect on organizational performance as it has enabled the firm to reduce the costs it incurs in running of various processes, thus enhanced profitability and customer satisfaction.

CONCLUSIONS

First the study concluded that vendor eco design significantly influences procurement performance, thus effective eco designing can improve procurement performance of firms that practice it.

Secondly green sourcing is a significant predictor of procurement performance, thus private health institutions that embrace green sourcing can experience a significant boost on their procurement performance.

Thirdly, reverse logistics is an important practice of green supply chain management since it boosts user satisfaction of recycled and disposable products.

RECOMMENDATIONS

First, private health institutions should embrace supply of eco designs of procured products which are environmental friendly.

Secondly, private health institutions should foster green sourcing practices so as to ensure waste reduction and provide environmentally friendly products.

Thirdly, private health institutions should effectively engage in reverse logistic aspect of green supply chain management so as to enhance user satisfaction of recycled and disposable products.

Areas for further research

First a similar study can be done but targeting consumers of the purported green products so as to assess procurement performance in the lens of consumers of green products.

Secondly, another study can done to assess if green supply chain management practices significantly influences private institutions' financial performance.

REFERENCES

- Afande, O. F. (2015). Influence of green marketing strategies on performance of the Kenyan Tea Sector. *Journal of Marketing and Consumer Research*, 10, 60-91
- Al Khattab, S. A., Abu-Rumman, A. H., & Massad, M. M. (2015). The impact of the green supply chain management on environmental-based marketing performance. *Journal of Service Science and Management*, 8, 588-597. doi.org/10.42361/jssm.2015.84059
- Almarria, K., & Gardiner, P. (2014). Application of resource-based view to project management research: supporters and opponents. *Social and Behavioral Sciences* 119, 437 – 445. doi: 10.1016/j.sbspro.2014.03.049
- Amemba, C. S. (2013). Green supply chain best practices in hospitality industry in Kenya. *Global Journal of Commerce and Management Perspective*, 2(3), 7-18.
- Amemba, S. C., Getuno, P. N., Osoro, A., & Mburu, N. (2013). Elements of Green Supply Chain Management. *European Journal of Business and Management* 5(12), 51-61.
- Ariyanti, F. D. (2018). *Green supply chain practices in Indonesia's industries*. The 2nd International Conference on Eco Engineering Development, IOP Conf. Series: Earth and Environmental Science. IOP Publishing. doi:10.1088/1755-1315/195/1/012028
- Aruna, M., & Gunasilan, U. (2017). Inhibitions in implementing green supply chain management at hospitals. *International Journal of Industrial and Manufacturing Engineering* 2(5).
- Babu, A. A. (2013). *Green supply chain practices and operational performance of personal care manufacturing firms in Nairobi, Kenya*. Unpublished MBA Project, University of Nairobi.
- Balashova, E. S., & Gromova, E. A. (2016). Resource-based view as a perspective management model in Russian reality. *Problems and Perspectives in Management*, 14(2), 325-330. doi:10.21511/ppm.14(2).2016.08
- Bromiley, P., & Rau, D. (2016). Operations management and the resource based view: Another view. *Journal of Operations Management*, 41, 95-106. doi.41 10.1016/j.jom.2015.11.003
- Carayannis, E. G., Campbell, D. F. J., & Scheherazade R. S. (2016). Mode 3 knowledge production: Systems and systems theory, clusters and networks. *Journal of Innovation and Entrepreneurship*, 5(17), 1-24. doi.org/10.1186/s13731-016-0045-9
- Chege, E. N. (2012). *Green supply chain management practices and supply chain performance of private hospitals in Nairobi, Kenya*. Unpublished Research Project, University of Nairobi.
- Cooper, D.R., & Schindler, P.S. (2003). *Business Research Methods*. (8th ed.). Boston: McGraw-Hill Irwin.
- Cornell, C.C., & Jude, N. (2015). The systems theory of management in modern day organizations: A study of Aldgate Congress Resort Limited Port Harcourt. *International Journal of Scientific and Research Publications*, 5(9), 1-7.
- Cox, B. K. (2010). *Public Research Institutes in Europe: Changing Environments and Strategic Responses*. London: Ivy press
- David K. Mbaabu, D. K. (2016). A concept paper of green Supply chain management practices in Kenya. *DBA Africa Management Review*, 6(3), 74-84.

- Economic Survey. (2018). *Kenya National Bureau of Statistics*. Nairobi, Kenya.
- Eneizan, B. M., & Wahab, K. A. (2016). Effects of green marketing strategy on the financial and non-financial performance of firms: A conceptual paper. *Arabian Journal of Business Management Review*, 6(5), doi: 10.4172/2223-5833.1000254
- Freeman, R. E. (1984). *Strategic Management: a Stakeholder Approach*. Marshall, MA: Pitman.
- Geng, R., Mansouri, S. A., & Aktas, E. (2017). The relationship between green supply chain management and performance: A meta-analysis of empirical evidences in Asian emerging economies. *International Journal of Production Economics*, 183, 245-258. doi.org/10.1016/j.ijpe.2016.10.008
- Gimoi, E. N. (2011). Factors influencing competitiveness of the Aga Khan university hospital, Nairobi. Unpublished MBA Project, University of Nairobi.
- Govender, J. P. & Govender, T. L. (2016). The influence of green marketing on consumer purchase behavior. *Environmental Economics*, 7(2), 77-85. doi:10.21511/ee.07(2).2016.8
- Halim, N. A., Abdullah, N., & Yaakub, S. (2014). Reverse logistics: pressure for adoption and the impact on firm's performance. *International Journal of Business and Society*, 15(1), 151 - 170
- Hassan, M. G., Abidin, R. Nordin, N., & Yusoff, R. Z. (2016). GSCM practices and sustainable performance: A preliminary insight. *Journal of Advanced Management Science*, 4(5), 430-434. doi: 10.12720/joams.4.5
- Islam, S., Karia, N., Fauzi, F. B. A., & Soliman, M. S. M. (2017). A review on green supply chain aspects and practices. *Management and Marketing: challenges for the Knowledge Society*, 12(1), 12-36. doi: 10.1515/mmcks-2017-0002.
- Jang, S. H. (2013). The offensive framework of Resource Based View (RBV): inhibiting others from pursuing their own values. *Journal of Management and Strategy*, 4(1), 62-69. doi:10.5430/jms.v4n1p62
- Jayarathna, B. C. P., & Lasantha, S. A. R. (2018). Impact of GSCM practices on financial performance: Special reference to manufacturing companies in Sri Lanka. *Kelaniya Journal of Management*, 7(1), 40-52.
- Kaberger, M., & Richu, S. (2015). Effect of reverse logistics on operational performance of sisal processing firms in Nakuru County, Kenya. *International Journal of Economics, Finance and Management Sciences*, 3(5), 556-565. doi: 10.11648/j.ijefm.20150305.27
- Kasisi, R., Mumo, M. B., & Mwangi, G. H. (2015). Factors affecting the performance of the procurement function in government organisations: A case study of National Oil Corporation of Kenya. *International Journal of Scientific Engineering and Research*. 3(10), 30-35.
- Kipruto, J., & Shale, N. I. (2018). Effect of green supply chain practices on performance of manufacturing firms in Kenya: A case of East Africa Portland Cement. *International Journal of Social Sciences and Information Technology*, 4(5), 414-424.
- Kariuki, J. N. (2018). *Influence of supply chain ambidexterity on performance of accredited hospitals in Kenya*. Unpublished PhD Thesis, Jomo Kenyatta University of Agriculture and Technology.
- Kaumbuthu, P., & Wanyoike, D. (2015). Effects of green public procurement adoption in public sector: a case study of pyrethrum and other industrial crops directorate in Kenya. *International Journal of Economics, Commerce and Management*, 3(10), 619-633.

- Kurien, G. P., & Qureshi, M. N. (2012). Performance measurement systems for green supply chains using modified balanced score card and analytical hierarchical process. *Scientific Research and Essays*, 7(36), 3149-3161. doi: 10.5897/SRE11.1655
- Lakshmimeera, B. L., & Palanisamy, C. (2013). A conceptual framework on green supply chain management practices. *Industrial Engineering Letters*, 3(10), 42-51.
- Masudin, I., Wastono, T., & Zulfikarijah, F. (2018). The effect of managerial intention and initiative on green supply chain management adoption in Indonesian manufacturing performance. *Cogent Business & Management*. doi.org/10.1080/23311975.2018.1485212
- Marege, L. M. (2014). *Determinants of eco-friendly practices in level five private hospitals in Nairobi, Kenya*. Unpublished MBA Project, University of Nairobi.
- Mbovu, D. K., & Mburu, D. K. (2018). Influence of reverse logistics practices on enhancing competitiveness in manufacturing firms in Kenya: A case of East African Breweries Ltd. *International Journal of Supply Chain Management* 3(1), 1 – 16.
- Mele, C., Pels, J., & Polese, F. (2010). A brief review of systems theories and their managerial applications. *Service Science*, 2(2), 126-135. doi.org/10.1287/serv.2.1.2.126
- Menck, A. C. M., & Filho, J. B. O. (2014). Green marketing and corporate social engagement as strategy tools: A conceptual framework. *International Journal of Humanities and Social Science*, 4(5), 1-11.
- Mogeni, L. M., & Kiarie, D. M. (2016). Effect of green logistics practices on performance of supply chains in multinational organizations in Kenya. *Industrial Engineering Letters*, 6(4), 40-50.
- Mohamed, K. (2012). *Green supply chain management and performance of manufacturing firms in Mombasa, Kenya*. Unpublished MBA Project, University of Nairobi.
- More, R. P. O., Telles, R., Marinho, S. V., & Correa, F. H. C. (2016). Institutional Theory of Strategic Capacity and Competitive Advantage: Theoretical View of the Information Technology Industry in Brazil. *International Journal of Business Management and Economic Research*, 7(3), 671-679
- Mugenda, O. M., & Mugenda, A. G., (2003). *Research Methods; Quantitative and Qualitative Approaches* (2nd ed). Nairobi Acts Press
- Mugo, B. N. (2017). *Effect of green supply chain management practices on performance of tea factories in central region Kenya*. Unpublished Masters Thesis, KCA University.
- Mugo, P., Onsomu, E., Munga, B., Nafula, N., Mbithi, J., & Owino, E. (2018). *An assessment of healthcare delivery in Kenya under the devolved system*. Nairobi, Kenya: KIPPRA.
- Muma, B. O. Nyaoga, R. B., Matwere, R. B., & Nyambega, E. (2014). Green supply chain management and environmental performance among tea processing firms in Kericho County- Kenya. *International Journal of Economics, Finance and Management Sciences* 2(5), 270-276. doi: 10.11648/j.ijefm.20140205.11
- Muthuka, U. M. (2015). *Green supply chain management practices and operational performance of commercial banks in Kisumu*. Unpublished MBA Project, University of Nairobi.
- Mutingi, M., Mapfaira, H., & Monageng, R. (2014). Developing performance management systems for the green supply chain. *Journal of Remanufacturing*, 4(6), 1-20. doi.org/10.1186/s13243-014-0006-z

- Mwacharo, F. K. (2015). *Green procurement in Kenyan hospitals; exploring the awareness and opportunities for Kenyan hospitals to implement green procurement*. Unpublished Master's Thesis, University of Jyväskylä, School of Business and Economics.
- Nasiche, F. & Ngugi, G. K. (2014). Determinants of adoption of green procurement in the public sector: A case study of Kenya Pipeline Company. *International Journal of Social Sciences and Entrepreneurship*, 1 (11), 351-372.
- Ndemaki, L. N. (2014). *Factors influencing turnover among doctors at the Aga Khan hospital, Kisumu*. Unpublished MBA Project, University of Nairobi.
- Nderitu, K. M & Ngugi, K. (2014). Effects of green procurement practices on an organization performance in manufacturing industry: case study of East African Breweries Limited. *European Journal of Business Management*, 2 (1), 341-352.
- Ndua, S. T., & Were, S (2018). effect of green supply chain management practices on performance of Kenyan universities. A case of university of Nairobi. *The Strategic Journal of Business and Change Management*, 5(2), 553 – 574.
- Ngatara, W. I., & Ayuma, C. (2016). Factors affecting the implementation of procurement best practices in Kenya: a survey of public secondary schools in Kilifi County. *The International Journal of Business and Management*, 4(4), 233-258.
- Ngiatedema, T., & Li, S. (2014). Green operations and organizational performance. *International Journal of Business and Social Science*, 5(3), 50-58.
- Njuguna, E. K., & Kagiri, A. (2017). Effect of reverse logistics on operational performance of Bata Shoe Company. *International Journal of Social Science and Humanities Research*, 5(2), 564-578.
- Ochieng, O. S., Awino, Z. B., Njihia, M. J., & Iraki, W. N. (2016). Green supply chain management practices and performance of ISO 14001 certified manufacturing firms in East Africa. *DBA Africa Management Review*, 6(3), 103-128.
- Omolo, D. (2017). *Cost of quality and organizational performance in Sugar manufacturing firms in Kenya*. Unpublished MBA Project, University of Nairobi.
- Oso, W. K. & Onen, D. (2011): *A General guide to writing research proposals and report*. (2nd ed.). Kampala: Makerere University.
- Osoro, M. P. & Atambo, W. (2016). Relationship between reverse logistics activities and performance of Kisii Bottlers Ltd. *Imperial Journal of Interdisciplinary Research*, 2(11), 1699-1710
- Patel, R. P. (2016). Green marketing: As tool for sustainable development. *Journal of Business and Management* 18(8), 139-142.
- Patil, G. B., & Dolas, D. R. (2015). Green supply chain management: A Review. *International Research Journal of Engineering and Technology*, 2(8), 1095-1099.
- Republic of Kenya, (2013). *Kisumu County First County Integrated Development Plan 2013 – 2017*. Kisumu, Kenya.
- Republic of Kenya, (2014). *Health sector human resource strategy, 2014-2018*, Afya House Cathedral Road, Nairobi: Ministry of Health.

- Rozar, N. M., Mahmood, W. H. W., Ibrahim, A., & Razik, M. A. (2015). A study of success factors in green supply chain management in manufacturing industries in Malaysia. *Journal of Economics, Business and Management*, 3(2), 287-291.
- Sambu, F. K. (2016). Effect of green packaging on business performance in the manufacturing in Nairobi County, Kenya. *International Journal of Economics, Commerce and Management*, 5(2), 741-753.
- Samson, D. K. (2018). *Effects of reverse supply chain logistics on performance of imported furniture distributing firms in Nairobi County*. Unpublished Masters Project, Jomo Kenyatta University of Agriculture and Technology.
- Sarhaye, S. A., & Marendirole, N. P. (2017). Role of green procurement on organizational performance of manufacturing firms in Kenya: A case of Coca-Cola Company. *The Strategic Journal of Business and Change Management*, 4(3), 85 – 102.
- Sarkar, A. (2012). Green marketing and sustainable development challenges and opportunities. *International Journal of Marketing, Financial Services and Management Research*, 1(9), 120-134.
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research Methods for Business student* (5th ed.). Harlow: Pearson Education.
- Seman, N. A. A., Zakuan, N., Jusoh, A., & Arif, M. S. M. (2012). Green supply chain management: A review and research direction. *International Journal of Managing Value and Supply Chains*, 3(1), 1-18.
- Shahriarpour, M., & Tabriz, A. A. (2017). The importance of green supply chain management and its role in marketing management. *International Journal of Economics and Financial Issues*, 7(3), 265-269.
- Shan, W., & Wang, J. (2018). Mapping the Landscape and Evolutions of Green Supply Chain Management. *Sustainability*, 10(597). doi: 10.3390/su10030597
- Sharma, S., & Jain, V. K. (2017). Impact of green supply chain management practices on organizational performance: A review. *Asia Pacific Journal of Research*, 1, 104-109.
- Sisodiya, M. S. (2017). Assessment and design for sustainable green supply chain management. *International Journal of Advances in Scientific Research and Engineering*, 3(5), 13-22.
- Tundys, B., & ID Wisniewski, T. (2018). The selected method and tools for performance measurement in the green supply chain, survey analysis in Poland. *Sustainability*, 10(549). doi: 10.3390/su10020549
- Touzi, B., Mabrouki, C., & Farchi, A. (2015). Green supply chain management practices in textile and clothing sector: Literature review. *International Journal of Commerce, Business and Management*, 4(4), 1229-1238.
- Wibowo, M. A., Handayani, N. U., & Mustikasari, A. (2018). Factors for implementing green supply chain management in the construction industry. *Journal of Industrial Engineering and Management*, 11(4), 651-679. doi.org/10.3926/jiem.2637
- Yeng, W. F., & Yazdanifard, R. (2015). Green marketing: A study of consumers' buying behavior in relation to green products. *Global Journal of Management and Business Research*, 15(5)