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**Supply Chain Management Ethical Practices and Sustainable Performance of
Public Procurement in Lake Region Economic Block, Kenya**



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Supply Chain Management Ethical Practices and Sustainable Performance of Public Procurement in Lake Region Economic Block, Kenya

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ABSTRACT

Purpose: The objective of the study was to supply chain management ethical practices on sustainable performance of public procurement in Lake Region Economic Bloc, Kenya. The focus was on the achievement of economic, social and environmental performance metrics across County and National government departments and agencies.

Methodology: Descriptive research design was adopted. The Lake Region Economic Bloc (LREB) that covers 11 counties was used as the focus area of the study. County departments, National government departments and agencies were the targets of the study. A total of 290 officers who are in charge of evaluation of bids, contract administration and users were selected for the sample frame. The researcher therefore distributed 290 questionnaires. Descriptive statistics were developed to facilitate the generation of inferential statistics by use of both univariate and multivariate analysis.

Findings: Based on the findings, the study concluded that supply chain management ethical practices positively and significantly influences sustainable public procurement in Kenya. This study therefore recommends that public procurement in Kenya should establish and enforce clear ethical sourcing guidelines and standards.

Unique Contribution to Theory, Policy and Practice: This study makes a significant contribution to theory, policy, and practice by demonstrating that ethical supply chain management practices are critical drivers of sustainable public procurement performance. Theoretically, it advances existing knowledge by linking ethical practices with economic, social, and environmental outcomes in procurement systems. From a policy perspective, it provides evidence to support the development and enforcement of stronger regulatory frameworks and ethical standards across public institutions. Practically, the study offers actionable insights for procurement professionals, emphasizing the need for clear ethical guidelines, supplier accountability, and continuous capacity building to enhance efficiency, transparency, and long-term sustainability in public procurement.

Keywords: *Supply Chain Management, Ethical Practices, Sustainable Performance, Public Procurement*

Background of the Study

The United Nations 2030 Agenda for Sustainable Development comprising of 17 Goals and 169 targets, sets out an ambitious vision for sustainable development which integrates economic, social and environmental dimensions. In pursuant and operationalization of these ideal, the SDG 12 seeks to achieve sustainable consumption and production by promoting resource and energy efficiency, sustainable infrastructure, and providing access to basic services, green and decent jobs and a better quality of life for all. Notably, under target 12.7, the agenda seeks to promote public procurement practices that are sustainable, in accordance with national policies and priorities. In line with this framework, the EU (2020) policy document on Sustainable Development Strategy calls for the integration of economic, social and environmental considerations into operational procedures to achieve coherence and mutual reinforceability.

The World Bank (2016) has described sustainable procurement as a process which incorporates sustainability considerations throughout the procurement process in order to achieve optimal value for money in delivering development objectives. This concept is based on three pillars, namely economic, environment and social. World Bank (2016) links sustainable procurement and sustainable development. Sustainable procurement incorporates social and environmental factors alongside financial factors in making procurement decisions. SPP therefore is a strategic lever that drives innovation and improve the sustainability of performance of both public and private organizations (UNEP, 2017).

The PPADA (2015) enshrined sustainability standards under section 60 (3) which require procuring entities (PEs) to incorporate sustainability aspects in the development of specifications. Oginda & Oteki (2016) noted that the integration of SPP in public procurement operations imperatively require environmental issues to be incorporated in specification design of products and services in addition to ensuring that all tender documents have specified environmental components in a bid to enhance environmental sustainability of public procurement processes. However, as Ngunjiri (2019) observed, inadequate understanding of sustainability aspects by procurement practitioners negatively affect integration of such policies in procurement processes.

Statement of the Problem

Sustainable Public Procurement (SPP) is about governments using their purchasing power to provide leadership for sustainable development (IISD, 2014). This calls for integration of sustainability aspects in public sector supply chain management practices. In the public sector organizations, supply chain is built around the need for accountability, transparency and value for money (Institute of Economic Affairs, 2020). The need to improve public sector organizational efficiency, reduce waste, empower local communities, overcome supply chain risk, and achieve high level of responsiveness to the ever changing public needs, presupposes that sustainability aspects are integrated in supply chain management practices (Montalbán, Pérez, Amalia, Sanz, & Pellice, 2017).SCM practices provide the framework for integrating best practices and effective

coordination of sources of supplies and enabling value enhancing relationships that satisfy end customers and other stakeholders (Manokaran, 2019). SCMPs enable organizations to work with the suppliers to bring about holistic value (Gudda & Deya 2019). Sustainability requirements impose a set of infrastructural and system imperatives that must be contextualized in the supply chain management practices.

In the context of Kenya's public sector procurement, sustainability requirements are embedded in procurement legal framework. This includes frameworks for incorporating diversity, development of SMEs through Access to Government Procurement Opportunities (AGPO) and other affirmative programmes in National and County governments' procurement. However, enforcement of affirmative policies by MDAs has always been a challenge. For instance, PPRA report 2020/2021 indicated that Government agencies reserved an average of 18.8% of tenders for the special groups representing an expenditure of Ksh.27.9 billion out of Ksh.148 billion spent on goods, works and services in the FY 2020/2021. This is contrary to the requirement of 30%. This in addition to AGPO groups having capacity challenges in delivering project assignments thus affecting value of goods and project reserved for them. Further, cost escalation is a major problem in public sector supply chain (Institute of Economic Affairs, 2019). For instance, OAG report of 2016/2017 FY documented that Ksh. 2.5 billion of taxpayers' money was paid out for uncompleted works in state departments and Judiciary. This trend continued in the preceding FYs; 2017/2018, 2018/2019, 2020/2021 and 2021/2022 respectively as indicated by incomplete projects occasioned by cost overruns. These challenges have been attributed to ineffective supply chain management practices which failed to integrate sustainability aspects.

Enforcing environmental standards and regulations is one area the government has had challenges especially the ability to monitor the negative impacts of MDAs activities arising from procurement (Muigua, 2019). Transparency international (2020) observed that the local communities should consistently engage their local administration and NEMA to ensure that their comments inform the environmental review and decision making process in selection and engagement of contractors. Evidence from the ground especially on ongoing public projects indicate suppliers and contractors performing inconsistently from these requirements due to ineffective integration of sustainability aspects in SCMPs.

Many studies have been conducted on the concept of supply chain management practices. However, these studies mainly focused on how SCMPs influence organizational performance. For instance, Apopa (2018) conducted a study to establish effect of SCMPs on performance in Government ministries with product quality, service delivery, and compliance with statutory obligation and cost efficiency as performance metrics. The perspective was narrow, for it excluded sustainability metrics of performance. Gudda & Deya (2019) though focusing on SCMPs and how they affect growth in SMEs, focused on private businesses where PPADA, 2015 and regulations 2020 do not apply. Other studies conducted in other countries seem to have follow the same pattern though with different SCMPs (Manokaran, 2019, Malaysia; Kumar & Kushwaha, 2018, India).

Therefore, there exist a gap that this study intends to fill. This study therefore sought to assess the influence of supply chain management ethical practices on sustainability of public procurement.

General Objective

The general objective of the study was to assess the influence of supply chain management ethical practices on sustainable performance of public procurement in Lake Region Economic Bloc, Kenya

Theoretical Framework

Stakeholder Theory

Stakeholder theory has its origins in management literature. Preston (1999) traces the notion of stakeholders back to the great depression in the United States (1929-1941), when the General Electric Company defined four major stakeholder groups; shareholders, employees, customers, and the general public. Stakeholder management has become an important tool to transfer ethics to management practice and strategy (Freeman, 1984). Stakeholder management has since become an important tool to transfer ethics to management practice and strategy (Mishra & Mishra, 2014).

Stakeholder theory provides the framework for determining who is important in a project, and how such entities can be mainstreamed in the project works (Mishra & Mishra, 2014). However as Bailur (2006) observed, stakeholders analysis can involve processes and categorization that can be quite subjective as the choices depend on who make the decisions. This subjectivity has tended to be constrained in management practice. Nonetheless, stakeholder theory has emerged as a new paradigm in management that brings forth critical thinking about interconnected business problems; how value is created and traded, connection between ethics and managerial decisions (Freeman et al, 2014).

Stakeholder theory promotes a practical, efficient, effective, and ethical way to manage organizations in a highly complex and turbulent environment (Freeman, 1984; Freeman, Harrison and Wicks, 2007). It promotes a framework for integrating the needs of different actors in decision making. Stakeholder theory touch on many disciplines in social science. Freeman, et al (2010) observed that the theory has influence in strategic management, business ethics and corporate social responsibility amongst other areas of social sciences. Stakeholder theory advocates for treating all stakeholders with fairness, honesty, and even generosity (Harrison, Freeman & Abreu, 2015). Relationship management and stakeholder involvement presume an open eye for and views on all kinds of signals, developments and problems, trying to balance all different interests and answer the questions (Ramakrishnan, 2019).

Stakeholder theory is a theory of organizational management and ethics (Phillips, 2003). The theory involves the consideration of stakeholders and their relationships with the firm as a series of activities leading to end results that are implicitly value and moral-laden (Phillips, 2003). Organizational ethics arise from the interfaces with different stakeholders which may include

suppliers, employees and the community players and therefore social and environmental concerns should be taken care of through deliberate manipulation of business practices, policies and resources (Lankoski, Smith & Wassenhove, 2017). Stakeholders are participants in the process of ethics implementation. Ethical standards ensure that internal as well as external stakeholders are included in the accounting, auditing, and reporting processes that organizations perform with regard to social and/or environmental issues (Gilbert & Rasche, 2007). This study posits that stakeholder theory is critical in the study of ethical issues that emanate from the interfaces between public organizations, their suppliers, social groups and the environment.

Conceptual Framework

Adom, Hussein & Agyem, (2018) quoting Camp, (2001) define a conceptual framework as a structure which the researcher believes can best explain the natural progression of the phenomenon to be studied. It is arranged in a logical structure to provide a picture or visual display of how ideas in a study relate to one another (Grant & Osanloo, 2015). It creates linkages with theories, concepts and empirical research in postulating a researcher's view of what kind of relationships the study needs to pursue. It also demonstrates the various actions the researcher needs to pursue with respect to each variable (Adom, Hussein & Agyem, 2018). Figure 1 illustrates the conceptual framework that was pursued by this study.

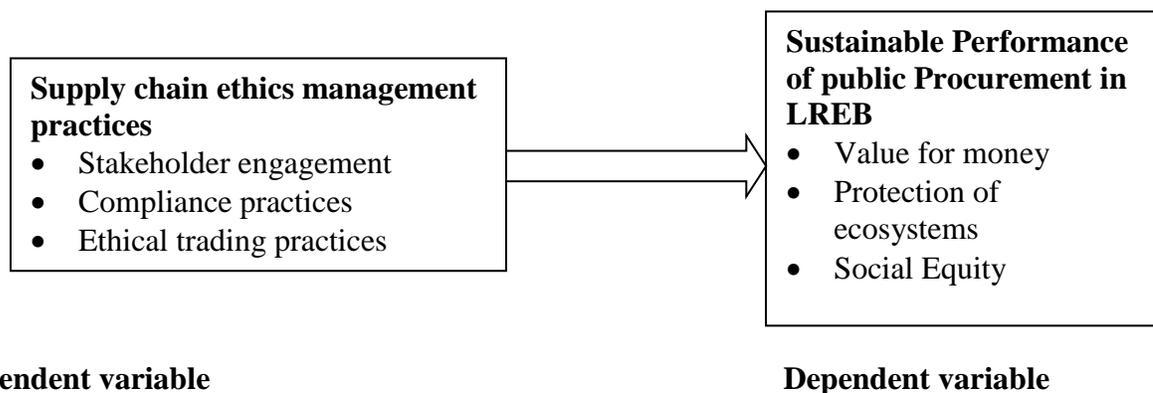


Figure 1: Conceptual framework

Ethical Practice in Supply Chain

Ethics is a collection of values, obligations, moral principles, attitudes and norms that serve as conduct and behavioral rules to be observed in the conduct of public affairs (Elia & Erasmus, 2015). Ethical behavior involves the concepts of honesty, integrity, probity, diligence, fairness, trust and respect of humanity (Onyango & Kongere, 2012). Ethics, sustainability, and corporate social responsibility are the trend words of modern conscious customer (Mäki & Grinsted, 2018). Ethical standards in all aspects of products have a lot of bearing on the lives of communities (Lysons and Farrington, 2016). Consequently, communities are increasingly seeking answers on

the creation and background of the products they use. Ethicality and sustainability are thus relevant concerns for every company and organization in supply chain configuration.

Ayoyi & Mukoswa (2015) in a study on how ethical issues are incorporated in public procurement and the role of procurement standards, policies and regulations on procurement functions of public institutions in Kenya noted that the more ethical practices are adhered to in public organization, the better the effectiveness of the procurement process and hence more customers will be satisfied. Furthermore a strong adherence to ethics policy may ultimately lead to a long-term competitive advantage as measured by operational efficiency. However, implementation of ethical policies in public procurement is still a challenge in public organizations due to inherently weak systems and procedure.

The relationship between various stakeholders and a firm exists because of mutual expectations built on trust, good faith, and fair dealing in their interaction (Ferrell, 2004). In fact, there is an implied covenant of good faith and fair dealing, and performance cannot simply be a matter of the firm's own discretion. Such engagements especially with supply chain partners raise ethical issues in a manner consistent with the parties' reasonable expectation. Meskens (2020) in a study of ethical considerations on stakeholder engagement with respect to radiological risk governance in Belgium, established that ethics arising from stakeholder engagement are well incorporated through effective interpersonal relationships between all concerned that include the societal vulnerable. This inclusive framework ensure that all concerned share knowledge and insights to build synergistic approach to deal with the ethical concerns. Harrison, Freeman & Abreu (2015) while agreeing with this view holds that stakeholder engagement practice lay the foundation on ethics and morality in inter-organizational relationships. There are indications that businesses which are perceived as ethical corporations create a certain level of trust with their stakeholders (Greenwood & Van Buren, 2010).

CIPS (2007) in its observation of business inter-relationships noted that the most successful organizations recognise that they will only prosper in the long term if they satisfy the aspirations of their stakeholders; including customers, suppliers, employees, local communities, investors, governments, public interest and environment groups. Stakeholder engagement aims to give a cooperative advantage that mutually benefit all players (Strand & Freeman, 2013). With regard to ensuring sustainability in project management that includes public works, stakeholder involvement is critical in all aspects of project life cycle; planning, monitoring and evaluation of project delivery and support processes such as the environmental, economic and social aspects of the life-cycle of the project's resources (Silvius & Schipper, 2014). Supplier engagement practices espouse ethical trade relationships. These refer to business practices such as treating customers and vendors fairly, providing transparency of financial practices, environmental and more social responsibility (Golodner, 2007). The ethical issues and supply chains are complicated by the very nature of modern supply chain and thus ethical challenges cannot be addressed by individual companies single handedly (Ndou & Obi, 2013).

The operationalisation of the ethical codes is complicated by the complexity of the supply chains (Barrientos & Smith, 2007). The operating maxim, however, is that generally suppliers must provide a safe and healthy working environment for all employees that includes appropriate controls, safety procedures, preventative maintenance, and protective equipment. Further, business practices must comply with all relevant laws, codes and regulations (HollyFrontier, 2019; Airbus, 2017). Sengbeh (2015), in a study on ethical procurement practices and supply chain performance in Kenya's energy sector found out that for effective supply chain performance in the energy sector firms, there has to be an effective transparency practices in procurement and that suppliers should be treated fairly and even-handedly at all stages of the procurement process. Maria, Githii & Thomas, (2018) in a study on ethics and procurement performance of humanitarian organizations in Kenya observed that procuring agencies that practice procurement ethics avoid a litany of unethical issues relating to suppliers. These include: avoidance of conflict of interest, protection of confidential information, maintaining good relationships with suppliers and third parties and avoiding acceptance of gifts, gratuities and hospitality inducements which are likely to compromise procurement and other supply decisions.

Environmental ethics is an issue of concern in supply chain management. Destruction of natural forests and wetlands, pollution, non-disposal of solid waste endanger the ecosystems and hence sustainability of projects occasioned by such destructions (World Bank Group, 2019). The environmental legal framework has been robust with stringent rules governing the various activities with respect to environment. The Environmental Management and Coordination Act (*Amended*) was enacted in 1999 with the aim of providing a legal and institutional framework for environmental management in the country. The Act and its subsequent amendments has been the principal legislation for environmental management in Kenya. It lays the framework for rights to a clean and healthy environment and stipulate individual obligation to safeguard and enhance the environment. Further the law outlines the activities which are deemed to be illegal including waste management and pollution and degradation of rivers, lakes, wetlands, coastal zones, agricultural areas, forests and biodiversity (Funder & Marani, 2013).

Transparency international Kenya in its 2020 report observed that Environmental Impact Assessment is required for all projects that are likely to have a negative effect on the environment. This requirement obligates all public projects to undergo such assessment before public project could commence. However, as Barczewski (2013) observed, the weakest points of the current regulations in Kenya is the relationship between the lead expert conducting the EIA study and the proponent of the project being studied. This relationship is economic driven and could easily be compromised giving rise to more unethical practices that could even include wet lands destruction, air pollution and water pollution. Elena & Jan (2011) in a study on enhancing compliance with environmental laws in developing countries noted that authorities often encounter difficulties in the practical application of legislation. The study further observed that the implementation of environmental policies is constrained by local traditions, culture, institutions, and infrastructure.

Empirical Literature Review

Supply Chain Ethical Management Practice

Yusuf et al. (2014) citing Eltantawy describe supply chains ethics as the act of managing the optimal flow of high quality, value-for-money materials, components or services from a suitable set of innovative suppliers in a fair, consistent, and reasonable manner that meets or exceeds societal norms. PPRA (2019) in its code ethics for persons participating in procurement proceedings stated that ethical conduct relate to taxation, labour, health and safety standards as well environmental protection. A number of studies have carried to establish the intricate relationship with the concept.

Jermstiparsert & Srihirun, (2019) conducted a study which focused on the role of ethics in the supply chain management with culture as moderating effect in Vietnam. The study aimed to examine the empirical relationship between practices of ethics and performance of organization in a given cultural environment. The study adopted the Structural Equation Modelling (SEM) for analysis. For sample collection, cluster sampling technique was employed. Using SEM framework, the population was 310. Structural Equation Model is a tool that is used to test a number of relationships as cited by Jermstiparsert & Srihirun, (2019) in (Hair *et al.*, 2016). Based on the analysed data, the study developed empirical evidence that the concept of ethical supply chain covers all ethical standards in both upstream and downstream activities of the chain. Further, value can be created for customers and other stakeholders through effective supply management chain practices. This can help an organization to differentiate its offer and better serve its customers' needs.

Baiden (2020) carried out a study focusing on determinants of ethical procurement practices in public entities in Tanzania. The study sought to determine factors influencing ethical procurement practices in the Tanzanian public entities. To develop an empirical construct, the study analysed principles of procurement underpinning best practices in public sector supply chain. These principles included; value for money, transparency, accountability, ethics and fair dealings, professionalism and integrity. Case study design was adopted by the study to generate a clear understanding of the real phenomenon under investigation. The design allows contextualized conditions to be studied. This is essential for clear understanding of procurement ethical practices in the public sector supply chain. The study contacted all the employees at National Audit Office, Dares salaam. The collected data was analysed using the latest version of SPSS. From the analysis, the study was able to conclude that constrained transparency and accountability processes in public sector chain management practices greatly affected value for money in procured goods, works and services. The study also noted that dealings with suppliers were largely unfair. The study recommended that information on ethical procurement practices should be made available to all the procurement officials as well as all officials who are directly involved in procurement activities to ensure compliance with ethical standards.

Syengo (2015) in a study on ethical practices and supply chain performance. the study adopted a case study approach because one organization form the point of reference for the study. The target population for the study was 171 employees of the organization. The ethical constructs that were of concern to the study included: stewardship; transparency; confidentiality; fairness; corporate social responsibility and intellectual property protection. A semi structured questionnaire was used to collect data in this study. Pilot studies on data collection instruments produced Cronbach's alpha mean value of more than 0.7 which showed a high degree of reliability of the test items. SPSS version 21 was used to analyse the collected data. The study established that ethical practices had influence performance in such dimensions as; Improved the competitiveness among suppliers, improved the quality of goods and services supplied, enhanced value for money spent, improved level of efficiency, reduced incidences of corruption and timely delivery from suppliers. The study further provided that establishment of rules that govern accepting gifts from suppliers and other associates and clear rules that discourage discrimination in all aspects promote ethical standard in supply chain.

In another related study, Maria, Githii & Thomas (2018) focused on how ethics influence procurement performance of humanitarian organizations in Kenya. Data was collected from all the 70 humanitarian organizations in Kenya, registered with the NGO Coordination Board. The study did not require sampling because the total population of registered humanitarian organizations in Kenya in 2016 were about 70 (NGO Coordination Board, 2016), so a survey was used. The ethical constructs that were of interest to the study were issues arising from; competitive bidding, gifts, conflict of interest, negotiation, reciprocity and confidentiality. Regression model was developed with these ethical constructs as predictor variables and response time as a measure of procurement performance. The analysed data indicated that when procurement personnel implement ethical policies in their organizations, then procurement performance will also improve. The evidence produced by the research indicated: avoidance of conflict of interest, protection of confidential information, maintaining good relationships with suppliers and third parties and avoiding acceptance of gifts, gratuities and hospitality inducements are likely to compromise procurement decisions. These agree with the findings by Ayoyi & Mukoswa (2015) that observed that the more ethical practices are adhered to in public organization, the better the effectiveness of the procurement process and hence the more customers will be satisfied.

RESEARCH METHODOLOGY

Research Design

The research design is a chosen approach that integrates the strategies of development of data collection instruments, data collection procedure, analysis of data and presentation of findings. This study adopted descriptive design. Sekaran (2003) observed that descriptive study is undertaken in order to ascertain and be able to describe the characteristics of the variables of interest in a situation.

Research Philosophy

The term research philosophy refers to a system of beliefs and assumptions about the development of knowledge (Saunders, Lewis, & Thornhill, 2009). This study is based on positivistic philosophy. Positivistic approaches are founded on a belief that the study of human behavior should be conducted in the same way as studies conducted in the natural sciences (Collis & Hussey, 2003).

Target Population

Kothari, (2004) stated that a study population represents the entire set of units in a sampling frame and have common study characteristics as predetermined by the sampling criteria established for the study (Ngechu,2004)). The population that was of concern for the study was drawn from the Fourteen Counties that constitute the Lake Region Economic Bloc (LREB) in Kenya. This was both County and National Government agencies. The target population which constitutes a section of the population as stipulated by Mugenda and Mugenda (2003) were officers who are responsible for procurement initiation, specification development, procurement processing, and evaluation of bids, disposal and contract administration. These are officers who were deemed to be knowledgeable in public supply chain management processes. The table below illustrates the target population in the fourteen counties.

Table 1: Target Population

County	County and National Government and Agencies	Target Population	Percentage
Kisumu	National Government and Agencies	51	4.5
	County Executive and Assembly	46	4.1
Bomet	National Government and Agencies	31	2.8
	County Executive and Assembly	46	4.1
Kericho	National Government and Agencies	31	2.8
	County Executive and Assembly	46	4.1
Bungoma	National Government and Agencies	31	2.8
	County Executive and Assembly	46	4.1
Kakamega	National Government and Agencies	51	4.5
	County Executive and Assembly	46	4.1
Nyamira	National Government and Agencies	31	2.8
	County Executive and Assembly	46	4.1
Homa Bay	National Government and Agencies	31	2.8
	County Executive and assembly	46	4.1
Kisii	National Government and Agencies	31	2.8
	County Executive and Assembly	46	4.1
Siaya	National Government and Agencies	31	2.8
	County Executive and Assembly	46	4.1
Trans Nzoia	National Government and Agencies	31	2.8
	County Executive and Assembly	46	4.1
Migori	National Government and Agencies	31	2.8
	County Executive and Assembly	46	4.1
Vihiga	National Government and Agencies	31	2.8
	County Executive and Assembly	46	4.1
Nandi	National Government and Agencies	31	2.8
	County Executive and Assembly	46	4.1
Busia	National Government and Agencies	31	2.8
	County Executive and Assembly	46	4.1
Total		1,118	100

Source: County National Government, Agencies, County Executive and Assemblies Human resource departments

Sample Size and Sampling Technique

Sample Size

A sample is a set of observations drawn from a population by a defined procedure (Namusonge, 2018). According to Kasomo (2007), a sample size depends on the purpose of inquiry, number of variable in the study, type of research design, the method of data analysis and size of accessible population. Sample size is governed by the extent of precision and confidence desired (Sekaran, 2003). The confidence level chosen for this study was 95% and hence 5% margin of error. The population for this study is finite and hence the study adopted the formulae by Kothari (2004).

$$n = \frac{z^2 \cdot N \cdot \sigma_p^2}{(N - 1)e^2 + z^2 \sigma_p^2}$$

Where; n = Size of the sample,

N = Size of the population and given as 1118

e = Acceptable error and given as 0.05,

$\hat{\sigma}_p$ = The standard deviation of the population and given as 0.5 where not known,

Z = Standard variation at a confidence level given as 1.96 at 95% confidence level.

Substituting;

$$\text{Therefore; } n = \frac{1.96^2 \cdot 1,118 \cdot 0.5 \cdot 0.5}{(1,118 - 1)0.05^2 + 1.96^2 \cdot 0.5 \cdot 0.5}$$

$$n = \frac{1073.7272}{2.7925 + 0.9604}, \quad n = \frac{1073.7272}{3.7529}$$

Therefore; n = 290

Sampling Technique

The study used stratified random sampling to select 290 staff from the target population of 1,118. Kothari & Gaurav (2014) stated that this technique is appropriate if the target population does not constitute a homogenous group. Proportionate allocation was applied to identify the number of elements allocated to the various strata. This creates equity and fair representation (Maina, 2012). Thus proportional samples were drawn using a constant ratio from County government executives, County assemblies, Departments of central Government and agencies; KeRRA, KeNHA and KURA. The study targeted officers who are responsible for procurement initiation, project designs, specification development, works inspections, procurement processing, evaluation of bids and contract administration. The sampling method gives chances of selecting each unit within particular strata in a population and hence a representative sample.

Data Collection Instruments

This study used both primary and secondary data. Primary data was from first-hand occurrence which has not been exposed to processing or any other handling. The primary data was collected by means of questionnaire and an interview schedule. A questionnaire was the main means of collecting quantitative primary data. However, the open ended question items generated qualitative data for the study. A questionnaire enabled the study to collect data in a standardized way so that the data are internally consistent and coherent for analysis. The structured questions were therefore used in an effort to conserve time and money as well as to facilitate an easier analysis as they are in immediate usable form. On the other hand, the open- ended questions were used to encourage the respondent to give an in-depth and felt response without feeling held back in revealing of any information. The purpose of the interview schedule was to validate and contextualized the views collected from other employees.

Martins, da Cunha & Serra (2018) observed that secondary data includes data that has been gathered before and can be reused for new research to generate new knowledge. Analysis based on secondary therefore provides many opportunities for further research through replication, re-analysis and re-interpretation of existing research (Johnson, 2014). For the purpose of this study, secondary data was collected from published journals and theses.

Pilot Study

Piloting of the questionnaire was carried out to establish the reliability and validity of the instrument. Reliability is defined as the extent to which questionnaire items are free from measurement error and it is a measure of stability or internal consistency of the instrument in measuring intended objectives (Ghazali, 2016). Reliability refers to the consistency, stability and repeatability of results (Mohajan, 2017). Reliability test was intended to reveal the weaknesses inherent in the questionnaire with regard to ambiguity of questions and the general questionnaire structure. With regard to validity, the study was concerned with whether the questionnaire items adequately represented the questions that should be asked to cover the subject matter. The pilot study was therefore intended to establish the feasibility of the study in terms of the adopted research design, adequacy of the questions and the sample frame. The questionnaire was pre-tested on selected heads of department and sections before commencement of the study. Saunders *et al.* (2016) and Fink (2013) observed that the minimum number of respondents for pilot study is at least 10. This study identified 20 respondents for the pilot as per the recommendations.

Data Analysis and Presentation

The collected data was processed and analyzed as per the study objectives. Both descriptive and inferential statistics were applied. Descriptive statistics such as mean, median, mode and standard deviation were generated. This was to facilitate other analysis in the development of inferential statistics. The hypotheses were tested using F- tests; based on analysis of variance (ANOVA) and

t-test was carried to assess the significance of the relationships between variables. Statistical Package for Social Sciences (SPSS) version 24.0 was the tool of analysis. The collected data was assumed to be normally distributed.

Univariate and multivariate regression models will be used to test the relationship between variables. A univariate model has one dependent and one predictor, whereas a multivariate linear regression model has one outcome and multiple predictors (Apopa, 2018). The regression analysis generated other test statistics like Student t-Tests, adjusted R^2 and F-test.

Regression model

Supply chain management ethical practices

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon \dots\dots\dots (1)$$

Where;

Y = Sustainable performance of public procurement

β_0 = constant

β_1 = Regression coefficient for supply chain management ethical practices

X_1 = Supply chain management ethical practices

ε = Random or Stochastic error term

RESEARCH FINDINGS AND DISCUSSION

Descriptive Analysis

This section presents findings on Likert scale questions where respondents were asked to indicate their level of agreement on various statements that relate with the influence of supply chain management ethical practices on sustainable public procurement and the moderating effect of legal requirements. They used a 5-point Likert scale where 1-strongly disagree, 2-disagree, 3-moderate, 4-agree, 5-strongly agree. The means and standard deviations were used to interpret the findings where a mean value of 1-1.4 was strongly disagree, 1.5-2.4 disagree, 2.5-3.4 neutral, 3.5-4.4 agree and 4.5-5 strongly agree. Standard deviation greater than 2 was considered large meaning responses were widely spread out and not tightly clustered around the mean. In other words, there was a lot of variability in the responses, which may suggest that participants had different interpretations or perceptions of the questions being asked.

Supply Chain Management Ethical Practices

The first objective of the study was to assess the influence of supply chain management ethical practices on sustainable performance of public procurement in LREB, Kenya. The respondents were requested to indicate their level of agreement on various statements relating to supply chain

management ethical practices and sustainable performance of public procurement in LREB, Kenya. The results were as shown in Table 2

In relation to stakeholder engagement, the respondents agreed that the organization do not encourage acceptance of gifts from potential and existing suppliers ($M= 3.961$, $SD= 0.467$). In addition, the respondents agreed that evaluation of tenders is a confidential exercise and potential suppliers do not conduct evaluators ($M= 3.942$, $SD= 0.332$). Further, the respondents agreed that project values are shared with suppliers upon collection of bid documents ($M= 3.912$, $SD= 0.332$). The findings also show that collusion among contractors and other suppliers is highly discouraged and is punished by the organization ($M= 3.877$, $SD= 0.323$). The respondents agreed that debriefing letters are sent promptly to losers as the winner is notified ($M= 3.864$, $SD= 0.314$). In addition, the respondents agreed that conflicts of interests are documented in stipulated form and all concerned are informed ($M= 3.786$, $SD= 0.345$). The respondents also agreed that community concerns are promptly shared with contractors /suppliers ($M= 3.754$, $SD= 0.343$).

Concerning compliance practice, the respondents agreed that accounting officer insist on having the relevant adhoc committees in place depending on procurement activity ($M= 3.876$, $SD= 0.412$). The respondents also agreed that their organization insist on most economical tender in pursuit of cost effectiveness ($M= 3.865$, $SD= 0.332$). The respondents agreed that their organization insist on ethical compliance by big spend suppliers/contractors, AGPO and disadvantage groups ($M= 3.765$, $SD= 0.365$). In addition, the respondents agreed that their organization require suppliers to in-build environmental compliance in their processes ($M= 3.756$, $SD= 0.354$). Further, the respondents agreed that pollution and waste management practices are encouraged among supply chain partners ($M= 3.743$, $SD= 0.376$). The respondents also agreed that segregation of procurement opportunities based on AGPO is practiced ($M= 3.734$, $SD= 0.376$). Further, the respondents agreed that commitment to uphold environmental standards is made by contractors during contract signing ($M= 3.712$, $SD= 0.376$).

Concerning ethical trading practices, the respondents agreed that their organization protect confidential cost information gained in the course of trade ($M= 3.965$, $SD= 0.365$). The respondents also agreed that their organization protects the intellectual property rights of suppliers ($M= 3.897$, $SD= 0.543$). In addition, the respondents agreed that their organization insist on fair market prices payable to suppliers ($M= 3.786$, $SD= 0.419$). The respondents also agreed that their organization pays suppliers within the credit period ($M= 3.716$, $SD= 0.376$).

From the findings above, it is seen that supply chain management ethical practices influences sustainable performance of public procurement in LREB, Kenya as supported by an aggregate mean of 3.825 ($SD= 0.399$). The findings concur with those of Jermsittiparsert & Srihirun, (2019) that the concept of ethical supply chain covers all ethical standards in both upstream and downstream activities of the chain. Further, value can be created for customers and other stakeholders through effective supply management chain practices. This can help an organization

to differentiate its offer and better serve its customers' needs. Baiden (2020) concluded that constrained transparency and accountability processes in public sector chain management practices greatly affected value for money in procured goods, works and services. From the findings, this study concludes that ethical practices in supply chain greatly influence value for money as reflected in prices and cost of ownership. They also influence implementation of affirmative programs and adherence to environmental requirements.

Table 2: Descriptive Statistics on Supply Chain Management Ethical Practices

Statements	1 %	2 %	3 %	4 %	5 %	Mean	Std. Dev.
Stakeholder engagement practice							
The organization do not encourage acceptance of gifts from potential and existing suppliers	1.2	13.8	16.8	56.9	11.4	3.961	0.467
Evaluation of tenders is a confidential exercise and potential suppliers do not conduct evaluators	4.1	15.8	21.1	42.7	16.4	3.942	0.332
Project values are shared with suppliers upon collection of bid documents	3.7	6.2	13	53.7	23.5	3.912	0.332
Collusion among contractors and other suppliers is highly discouraged and is punished by your organization	2.5	13.2	10.1	50.3	23.9	3.877	0.323
Debriefing letters are sent promptly to losers as the winner is notified	0.6	4.5	22	61	11.9	3.864	0.314
Conflicts of interests are documented in stipulated form and all concerned are informed	2.1	4.2	20	60.5	13.2	3.786	0.345
Community concerns are promptly shared with contractors /suppliers	0.6	12.4	13.5	55.6	18	3.754	0.343
Compliance practice							
Accounting officer insist on having the relevant adhoc committees in place depending on procurement activity	4.7	8.3	15	51.3	20.7	3.876	0.412
Our organization insist on most economical tender in pursuit of cost effectiveness	1	12.8	13.3	55.9	16.9	3.865	0.332
Our organization insist on ethical compliance by big spend suppliers/contractors, AGPO and disadvantage groups	1.9	17.7	13.9	48.1	18.4	3.765	0.365
Our organization require suppliers to in-build environmental compliance in their processes	2.0	5.3	12.0	62.7	18.0	3.756	0.354

Pollution and waste management practices are encouraged among supply chain partners	2.5	8.3	10.8	55.4	22.9	3.743	0.376
Segregation of procurement opportunities based on AGPO is practiced	1.7	8.4	15.6	52.0	22.3	3.734	0.376
Commitment to uphold environmental standards is made by contractors during contract signing	0.6	6.9	23.6	53.4	15.5	3.712	0.376
Ethical Trading Practices							
Our organization protect confidential cost information gained in the course of trade	0.6	11.4	14.8	59.7	13.6	3.965	0.365
Our organization protects the intellectual property rights of suppliers	4.3	4.3	20.9	54.0	16.6	3.897	0.543
Our organization insist on fair market prices payable to suppliers	1.5	7.4	22.7	57.6	10.8	3.786	0.419
Our organization pays suppliers within the credit period	1.8	14.2	16.0	51.5	16.6	3.716	0.376
Aggregate Score						3.825	0.358

Test for Hypothesis One

The first objective of the study was to assess the influence of supply chain management ethical practices on sustainable performance of public procurement in LREB, Kenya. The corresponding hypothesis was:

Ho₁: Supply chain management ethical practices have no significant influence on sustainable performance of public procurement in LREB, Kenya.

A univariate analysis was therefore conducted to test the null hypothesis. From the model summary findings in Table 3, the r-squared for the relationship between supply chain management ethical practices and sustainable public procurement performance was 0.223; this is an indication that at 95% confidence interval, 22.3% variation in sustainable performance of public procurement can be attributed to changes in supply chain management ethical practices. Therefore, supply chain management ethical practices can be used to explain 22.3% change in sustainable public procurement performance. However, the remaining 77.7% variation in sustainable public procurement performance suggests that there are other factors other than supply chain management ethical practices that explain sustainable performance of public procurement in LREB, Kenya.

Table 3: Model Summary for Supply Chain Management Ethical Practices

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.472 ^a	.223	.225	.75632

a. Predictors: (Constant), supply chain management ethical practices

The analysis of variance was used to determine whether the regression model is a good fit for the data. From the analysis of variance (ANOVA) findings in Table 4, the study found out that that $\text{Prob} > F_{1, 131} = 0.000$ was less than the selected 0.05 level of significance. This suggests that the model as constituted was fit to predict sustainable public procurement performance. Further, the F-calculated, from the table (441.09) was greater than the F-critical, from f-distribution tables (3.913) supporting the findings that supply chain management ethical practices can be used to predict to sustainable performance of public procurement in LREB, Kenya.

Table 4: ANOVA for Supply Chain Management Ethical Practices

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	40.933	1	40.933	441.09	.000 ^b
1 Residual	25.602	276	0.0928		
Total	66.535	277			

a. Dependent Variable: sustainable performance of public procurement in LREB, Kenya

b. Predictors: (Constant), supply chain management ethical practices

From the results in table 5, the following regression model was fitted.

$$Y = 0.208 + 0.469 X_3$$

(X_3 is supply chain management ethical practices)

The coefficient results showed that the constant had a coefficient of 0.208 suggesting that if supply chain management ethical was held constant at zero, sustainable public procurement performance would be at 0.208 units. In addition, results showed that supply chain management ethical coefficient was 0.469 indicating that a unit increase in supply chain management ethical would result in a 0.469 unit improvement in sustainable public procurement performance. It was also noted that the P-value for order batching was 0.000 which is less than the set 0.05 significance level indicating that supply chain management ethical was significant. Based on these results, the study rejected the null hypothesis and accepted the alternative that supply chain management ethical has positive significant influence on sustainable performance of public procurement in LREB, Kenya.

Table 5: Beta Coefficients for Supply Chain Management Ethical

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.208	.046		4.522	.000
¹ supply chain management ethical	.469	.094	.471	4.989	.000

a. Dependent Variable: supply chain management ethical

CONCLUSION AND RECOMMENDATIONS

Conclusions

Supply Chain Management Ethical Practices

The first null hypothesis test was ‘supply chain management ethical practices have no significant influence on sustainable public procurement performance in LREB, Kenya’. The study found that supply chain management ethical is statistically significant in explaining sustainable performance of public procurement in LREB, Kenya. The influence was found to be positive. This means that unit improvement in supply chain management ethical practices would lead to an increase in sustainable public procurement performance. Based on the findings, the study concluded that supply chain management ethical practices positively and significantly influences sustainable public procurement performance in LREB, Kenya.

Recommendations

Supply Chain Management Ethical Practices

To promote ethical supply chain management, it is essential for public procurement authorities in Kenya to establish and enforce clear ethical sourcing guidelines and standards. These guidelines should outline the ethical principles and criteria that suppliers are expected to adhere to, including fair labour practices, environmental responsibility, and adherence to local laws and regulations. Procurement agencies should assess and monitor suppliers' compliance with these standards. Additionally, they can encourage suppliers to obtain ethical certifications or labels, which can serve as a tangible demonstration of their commitment to ethical practices.

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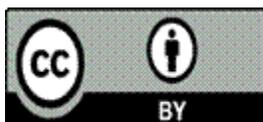
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