

## ECO SUPPLIER SELECTION AND IMPLEMENTATION OF GREEN PROCUREMENT IN THE MANUFACTURING SECTOR IN NYERI COUNTY.

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### ABSTRACT

Green Public Procurement has become a policy tool for many organizations due to concerns of the environment, sustainability, climate change and its effects. Effective implementation of green procurement plays a significant role towards enhancing sustainability of organizational operations with less negative impact to environmental issues. The purpose of this study was to assess the factors affecting implementation of green procurement in the manufacturing sector in Nyeri County. The objective of the study was to examine how Eco Supplier Selection affects implementation of green procurement. The study was guided by GSCM Life Stages Model and Green Supplier Selection Model. Descriptive research design was used. The questionnaire was pilot tested to improve the instrument reliability. Cronbach Alpha coefficient with a value of 0.70 or above was considered to indicate that the instrument is reliable. The target population comprised 94 employees from five manufacturing organizations. Out of 94 respondents targeted by the study, 87 responded representing a respondent rate of 92.6%. Collected data was analyzed using statistical package for social sciences (SPSS) to generate descriptive which was presented using tables, charts, frequencies and percentages. Inferential statistics was employed to test the degree of relationship among the variables with a statistical confidence level of 95%. The study revealed that eco supplier selection had positive and significant effect on implementation of Green procurement. In addition, management should avail necessary monetary support to the implementation of green procurement practice. Future researcher should focus on challenges of implementing green procurement by manufacturing companies.

**Key Words:** Eco Supplier Selection, Green Procurement, Manufacturing Sector

### INTRODUCTION

Green Procurement” (formerly known as Affirmative Procurement) is the purchase of environmentally preferable products and services in accordance with one or more of the established “green” procurement preference programs. Green procurement is the acquiring of items or administrations, which have a lower sway on the earth over their entire life cycle than the standard comparable. It includes the incorporation of natural issues into buying choices taking into account value, execution and quality. This implies items or administrations that devour less regular assets ought to be given inclination over contending items or administrations applying a more noteworthy natural effect (Kull, T. J., & Talluri, S. 2008). Both public and private sector organizations are implementing purchasing practices that incorporate ecological (and social) contemplations of green procurement (Talluri, 2008). Driving private segment associations have additionally exhibited huge development towards greening procurement

practices. Numerous private firms are attempting to enhance the natural execution of their operations and items and green Procurement has been a coherent augmentation of this work (Chopra, 2012).

Private organizations have in the most recent two decades embraced green Procurement practices for particular items (e.g., reused content office paper, renewable vitality, paints, cleaners, and so on), but at the same time are taking a gander at the materials, substances and chemicals they buy that go into the items and administrations they give. This inventory network approach looks past the organization's "entryways" in an ongoing push to diminish expenses and hazard. Driving organizations are utilizing life-cycle appraisal and material following devices to distinguish materials, substances and chemicals in their items that posture huge ecological, wellbeing and dangers and re-plan their items to lessen or take out such materials. In the private division green procurement is seen as a method towards enhancing their items and operations from natural point of view to lessen hazard, complete expense of possession and enhance inventory network execution, (Chopra, 2012).

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Despite differences in emphasis, green procurement activities in both the public and private sectors take four main approaches: procuring eco-labeled products or services, in-house product/service evaluations, third-party product/service evaluations and supply chain initiatives. These approaches are often initiated within administrative, procurement, environmental or operational departments of private firms (Talluri, 2008). Green procurement activities often rely on established product standards, labels and certifications that declare the environmental attributes or performance of the product. Driven by bottom-line performance, leading private sector firms see green procurement as a logical part of effective purchasing and supply chain management practices. Private companies often use in-house and third party evaluations to make informed green procurement decisions. Private businesses however are reluctant to establish green procurement activities unless there are clearly demonstrated business benefits for themselves and/or their customers (Sarkis, 2012). In 2003, the European Commission (EC) adopted a communication on Integrated Product Policy (IPP). This outlined its strategy for reducing the environmental impact caused by products. In this communication, the commission decided on several actions to stimulate continuous improvement in the environmental performance of products throughout their complete lifecycle. On the Green public procurement (GPP), the commission encouraged member states to come up publicly with available National Actions Plans (NAPs) for greening their public procurement (Zuzana, 2012).

Japan has pioneered Green Public Procurement to protect forest resources that were nearly extinct. The country began by introducing a government procurement policy for local sustainable forest management, then went on to introduce a global one. In the global policy, wood and wood products for government needs to have to be confirmed to have legality of harvesting on the timber of which they are composed, and the sustainability of the management level of the forest from which they have originated from taken into account positively. Japan after seeing results of the government effort to reduce carbon dioxide emissions under the green public procurement law had paid off (Harad, 2006). In Africa, many manufacturing organization view effective implementation of green procurement practices as an add-on or an approach that is costly. Truly, sustainable solutions can often cost less over the whole life of the purchase. Some key benefits include: value for money, protection and enhancement of the environment, more efficient use of resources, greater social inclusion, air and ethical trade, support for innovation, better risk management, lower whole-life costs improved supplier

relationships, a diverse and flexible supply chain and a competitive edge in your industry (Talluri, 2008). The Kenya Vision 2030, the Kenya Constitution 2010 and the national strategies provide policy measures for a sustainably managed environment as a constitutional right for all. According to the minister, Kenya has created an enabling environment for investment in renewable energy technologies like wind-power, geothermal and hydro-electric power; and promoted programs for energy efficiency. All these will trigger and support investment in clean development including conversion of waste into clean energy like biogas. It is noted that many manufacturing firms are not managing the environment, but are hiding away from the law by functioning at night when they may not be seen by law enforcement officials (Michuki, 2011).

The National Environment Management Authority in Kenya (NEMA) is also a government body that safeguards and enhances the quality of the environment for collective participation towards sustainable development. One of its main roles is to publish and disseminate manual codes or guidelines relating to environmental management and prevention or abatement of environmental degradation. It also ensures that all follow waste management regulations, though their challenge is that some manufacturers operate at night and therefore are not emphasizing on laid down procedures on waste minimization, cleaner production and segregation of waste at source (NEMA, 2013). The execution of GSCM will therefore assist NEMA in its work and safeguard the natural resources that continue to deplete daily.

Green procurement is rooted in the principle of waste management and pollution prevention, which strives to eliminate or to reduce risks to human health and the environment (Bolton, 2010). It means evaluating purchases based on a variety of criteria, ranging from the necessity of the purchase in the first place to the options available for its eventual disposal (Berger & Luckmann, 2007). In spite of the development of encouraging policy frameworks internationally relatively little research has addressed implementation of green procurement in a manufacturing sector context (Walker & Brammer, 2009). According to Odhiambo (2008) many private firms in Kenya are working to improve the environmental performance of their operations and products that are Eco friendly. Lozano (2013) suggested that before a green procurement program can be implemented, current purchasing practices and policies must be reviewed and assessed. A life cycle assessment of the environmental impacts of products or services is required and a set of environmental criteria against which purchase and contract decisions are made has to be developed. The outcome is a regularly reviewed green purchasing policy that is integrated into other organizational plans, programs, and policies. A green purchasing policy includes date-stamped priorities and targets, the assignment of responsibilities and accountability and a communication and promotion plan.

### **Problem Statement**

Given the rising environmental concerns and awareness among various stakeholders in the supply chain as well as interest groups such as consumer groups, private sector organizations may find it appropriate to adopt sustainable or green procurement practices (Wanjiru, 2017). According to Kenya Solid Waste Management (2013), industrial wastes constitute about 23% of the total waste generated in the Nairobi city, only about 25% of the estimated 1,500 tones of solid waste generated daily get collected. Given the above scenario, the government of Kenya has put into place Environmental Management and Coordination Act, it provides for the establishment of an appropriate legal and institutional framework for the management of the environment and related matters (Okidi, Kameri-Mbote & Akech, 2008). Recent research has shown that green procurement is related to a variety of positive benefit for both individuals and organizations; these includes eliminating the cost of waste and or hazardous material management, positive public relations, improved employee health, reduced solid waste, conservation of water and protection of natural resources (Martinsons, 2010). Despite the important role green procurement plays in ensuring environmental performance and public health and safety, most of the studies on this subject had been conducted in developed countries, yet not much research had been conducted in Kenya leading to insufficient empirical literature on green procurement (Eyaa & Oluka, 2011). Organization that successfully manages to effectively implement green procurement rarely experiences operational disruptions and this not only impacts positively on organization productivity but also helps in minimizing procurement expenditure and sustaining organization operations continuously (Oburu, 2007). It is against this background that this study sought to establish the effect

of Eco supplier selection on effective implementation of green procurement in manufacturing sector in Nyeri County, Kenya.

## LITERATURE REVIEW

### Theoretical Framework

The study was guided by GreenScor Framework. The framework aimed to govern and steer green initiatives in the industries (Cheng, J. C., & Law, K. H. (2011)). It integrates environmental best practices and metrics into the entire supply chain planning process which enables the execution of Green procurement. It incorporates all the partners in the supply chain thereby minimizing waste and pollution. The metrics measure the effects of greening including cost saving measured in different levels: energy costs as a percentage of production cost, emission costs, and waste produced as percentage of production, and remanufactured goods. The Supply Chain Operations Reference Model (known as SCOR Model), provides a unique framework that links business process, metrics, best practices and technology features into a unified structure. The aim is to support standard communication among supply chain partners thus improving the effectiveness of the whole supply chain(Laforet, 2010).

GSCM Life Stages Model.GSCM is implemented by choice of the top management and resources available making it a sequence rather than a one off process. Chanchaichujit, J., Saavedra-Rosas, J., Quaddus, M., & West, M. (2016) identified five stages of GSCM implementation in the manufacturing industry. The stages identified are: not started and/or defensive stage - where a firm is wholly ignoring or at best taking actions solely to suite the stakeholders by disclosing to them their exposure to environmental and social risks; Problem solving stage - where information gathering process takes place to understand GSCM based on the resources of the firm but they do not have a corporate sustainability statement or report, but have initiatives in progress; Compliant stage - where a firm is adhering to current and emerging regulations to save its image and avoid regulatory fines and the related damage to their reputation that such fines could cause; Eco-efficient stage - where a firm sees Green procurement as an opportunity for growth and captures it. These companies see sustainability as an opportunity for growth; to capture this growth, these companies are reframing existing products and introducing new products to appeal to the sustainability conscious consumer; and Sustainable stage - where a firm re-designs its corporate vision in line with Green procurement therefore re-engineering its processes and include technology in order to eliminate wastes of energy, water and waste inefficiencies while adhering to strict ethics and moral standards.

Green Supplier Selection Model (GSS-model). Most organizations are the two providers and clients in the inventory network and in this manner assume a part in going through ecological prerequisites all through the production network. Research proposes that this procedure isn't without challenges (Nawrocka, 2008; Preuss, 2002). Viable GSS must incorporate an evaluation of the more extensive hierarchical and between authoritative setting. In that way, the central association can end up noticeably mindful of its impediments and conceivable outcomes with regards to greening the provider choice process. Igarashi, De Boer and Fet (2013) raise several questions. Is the purchasing organization aware of the power balance in the supply chain? Do suppliers understand and accept the green criteria put forward by the purchasing organization, and just as important, do the suppliers understand why the purchasing organization uses these criteria, i.e., do they understand the connection (alignment) between the green selection criteria and the overall green strategy of the purchasing organization? How much pressure can or should the purchasing organization exert on different suppliers to adapt to demands for more sustainability?. The central dimension of the model, 'the alignment of supplier selection with the overall green strategy of the organization' (Igarashi et al., 2013), by definition has important implications for all three other dimensions.

### Empirical LiteratureReview

One method of including environmental criteria in green procurement is via the supplier selection. Supplier selection is the process by which firms identify, evaluate, and contract with suppliers. The

supplier selection process deploys a tremendous amount of a firm's financial resources. According to Lunsford and Glader (2007) To avoid the dire outcomes of supplier non-performance, buyers typically take proactive steps to verify a supplier's qualifications prior to awarding them a contract. The primary goal of "supplier qualification screening" is to reduce the likelihood of supplier non-performance, such as late delivery, non-delivery, or delivery of non-conforming (faulty) goods. A secondary goal is simply to ensure that the supplier will be a responsible and responsive partner in the day-to-day business relationship with the buyer. Supplier qualification screening involves many aspects, The buyer may contact previous customers and ask about the supplier's delivery performance, adherence to contract terms, what (if any) problems arose and how they were resolved. The buyer might require that suppliers have ISO 9000 certification (or similar), indicating that the supplier has policies, procedures, documentation, and training in place to ensure continuous adherence to quality standards. However, in some cases the certification documents can be misleading and/or easily forged .To actually see if an adequate level of quality is achievable, the buyer may have to look deeply into the supplier's organization to ensure the supplier is capable and competent to meet the buyer's specifications.

Buck, R. (2014) believes that purchasing should focus on the selection of quality suppliers and thus, successful green supplier appraisal should assess the supplier rather than the product. According to Kuo, R. J., & Lin, Y. J. (2012), Extensive research has been done regarding the methods and processes of selecting suppliers during the procurement process and several frameworks have been developed. For example, pinpointed performance criteria that organizations could consider during the green supplier selection process and also suggested methods for effectively selecting suppliers from an environmental viewpoint; while Shen, Olfat, Govindan, Khodaverdi & Diabat (2013), suggested a fuzzy approach for appraising green suppliers (the fuzzy approach uses mathematical strengths to resolve uncertainties of human cognition during the appraisal process). The most popular individual approach in supplier selection, based on Calabrese, A., Costa, R., Levaldi, N., & Menichini, T. (2016)) research, was Analytical Hierarchy Process (AHP). According to Handfield, Walton, Sroufe and Melnyk (2002), AHP, originally created by Saaty (1980), provides a framework in which different types of multi-criterion decision problems are solved based on the relative priorities of each criterion in achieving a stated goal. It is a benefit measurement (scoring) model in which subjective managerial inputs on multiple criteria are converted into scores that are then used to assess each possible alternative. The significance of using AHP is that it treats a decision like it is a system. Therefore complex decision processes are made more rational by incorporating all available information (both quantitative and qualitative) about a decision (such as the decision to include environmental criteria during the supplier selection process) in a systematic manner. Also, the process of executing the analysis helps the manager to prioritize the criteria in a way that may otherwise not be possible (Kannan, D., Khodaverdi, R., Olfat, L., Jafarian, A., & Diabat, A. (2013).

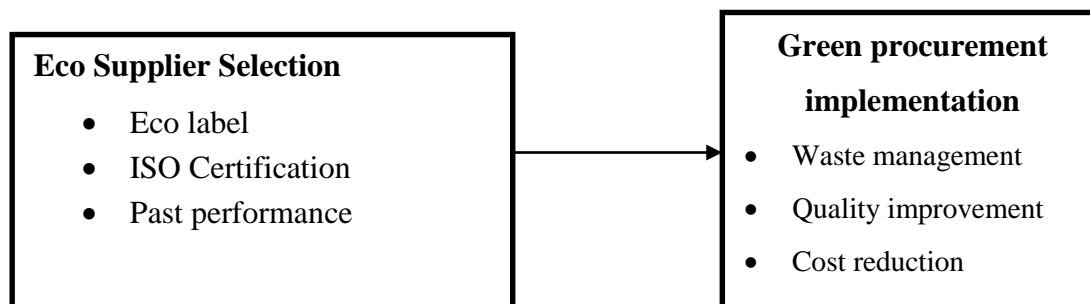
Environmental standards should not make the system more bureaucratic. The company must be able to focus primarily on its core business in order to maintain their effectiveness. Green Markets Strategy will be supported in obtaining a green procurement, and a more integrated and complex production system. Also there are companies with substantial amounts of outsourcing, which operate in the international market and meet the requirements of the environmental standards without having any official environmental standard systems. Procurements are obtained thanks to the production capacity and technical capabilities. Cooperative and captive relations play a role in the production of small vessels. The selection of subcontractors requires more than just an ISO 14001 environmental management standard. The role played by technical standards and modular relationships, as well as collaborative and cooperative relations is based on interactions. In international commodity chains the green criteria are used. The operating Estonian engineering companies offer high quality services with a competitive advantage, exact delivery, flexible pricing, and the modern type of production. The modular relations play an important role for subcontractors too (Lindroos, 2012).

The aim is to ensure that the customer purchase process and standards meet the requirements of high-quality materials and subcontracting services. It is therefore important to cooperate with suppliers to find the best solutions. Procurer is assessed regularly based on visits, audits, or other process parameters.

The materials handling process is intended to ensure compliance with the requirements established for purchased materials, material traceability throughout the treatment process and the quality of the materials is maintained throughout the course of treatment. The treatment goal is to ensure the identity of the products and avoiding damage to the entire processing cycle, from reception to product delivery. Supplier optimization is required to help in developing policies that necessary towards the realization of green procurement (Igarashi, de Boer, & Michelsen, 2015). Charles (2008) found that over 46% of firms in Canada had succeeded in implementing effective green procurement through application of strategic sourcing strategies such as global sourcing, multiple sourcing and supplier development. However, the author failed to explain how each of the sourcing strategies can support implementation of effective green procurement in manufacturing firms. This indicates that, there lacks a specific study that clearly recommends the best sourcing strategies for supporting implementation of effective green procurement

### Independent Variables

### Dependent Variable



**Figure 1: Conceptual Framework**

## RESEARCH METHODOLOGY

### Research Design

This study adopted a descriptive research design. Descriptive survey Research design is the blue print for the collection, measurement and analysis of the data. It is a plan and structure of investment so conceived as to obtain answers to research questions (Creswell, J. W., & Creswell, J. D. (2017). According to Lavrakas (2008), a research design is a general plan or strategy for conducting a research study to examine specific testable research questions of interest. Designs are used in preliminary and exploratory studies, to allow researchers to gather information, summarize, present data and interpret it for the purpose of clarification (Zikmund *et al.*, 2010; Creswell, 2003). Cooper and Schindler (2011) state that a descriptive study that assesses the bivariate relationship between variables, determines if the variables are independent and if they are not, then determine the strength or magnitude of the relationships is more valuable than one that does not. Orodho (2003) indicated that the descriptive research answers research questions who, what, where, when and how. The purpose of employing this method is to describe the nature of a situation, as it exists at the time of the study and to explore the causes of particular phenomena.

### Target Population

Agarwal (2009) describes population as a large collection of individuals or objects that is the main focus of a scientific query and have similar characteristics. Bordens, K. S., & Abbott, B. B. (2002) view population as the large collection of all subjects from where a stratified sampling is drawn. According to Kothari (2009), a population refers to all items in any field of inquiry and is also known as the 'universe'. According to Muturi, P. (2015), there are 5 manufacturing companies in Nyeri that have already incorporated green procurement policy in their strategic plan and the researcher selected all of them for study. A total of 5 companies formed the target population for the study where ninety four employees in senior, middle level and lower level management were selected from five companies. This population was chosen because of their activities in green procurement implementation.

### Data Collection Instrument

A self-administered questionnaire was the main tool of data collection. Questionnaire is a technique of data collection in which each person is asked to respond to the same set of questions in a predetermined order (Stanton, J. M. 1998). According to Kothari (2009), the information obtained from questionnaires is free from bias and researchers' influence and thus accurate and valid data were gathered. According to Krishnaswamy, Sivakumar and Mathirajan (2006), questionnaire as an instrument of data collection is good because anonymity and confidentiality of the respondents is assured and they are able to complete them when it is convenient for them. Drop and pick method was used, follow ups through email, phone calls, short messages and visits was done to encourage timely and higher response rate.

### Reliability of Research Instruments

The reliability and validity of the research instruments should be confirmed prior to actual data collection (Drost, 2011). To maintain accuracy, data reliability and validation was carried out. Data reliability is the degree to which a research instrument yields consistent results or data after repeated trials. (Ng'ang'a, Kosgei, & Gathuthi, 2008). A pilot study was done by administering the research instruments to 40 respondents who were not to take part in the main study to ascertain the appropriateness of the questionnaire wording and the clarity of the instructions a pilot study aimed at refining the research instrument to minimize the chances of the respondents experiencing difficulties in answering the questions and also problems in data recording (Saunders, 2009). Cronbach's alpha is the most commonly used measure of reliability dependability or stability of a test (Kubiszyn, T., & Borich, G. (2015). Pilot test of this study gave the alpha values of all variables which were above 0.70. This implies that the data collection instrument was therefore reliable and acceptable for the purposes of the study.

### Data Analysis and Presentation

Spencer, L., & Ritchie, J. (2002) defines data presentation as the process of organizing the collected data in a way that meaningful conclusion can be drawn. Primary data from the questionnaire were coded for computation of descriptive statistics which was analyzed with the support of Statistical Package for Social Sciences (SPSS) version 22.0 and presented in form of frequencies, mean, percentages and standard deviation using tables with explanatory discussion. Inferential statistics, in form of Pearson correlation coefficient, bivariate regression analysis and ANOVA was used to measure the relationship between variables. The study used a 95% level of significance. Draper, N. R., & Smith, H. (2014) posits that, regression analysis is the suitable statistical tool for investigating relationships between variables and to ascertain the causal effect of one variable upon another by measure the association between the dependent and independent variable. The study adopted the following multi linear regression equation

The study adopted the following bivariate linear regression equation:  $Y = \beta_0 + \beta_1 X_1 + e$  Where  $Y$  = Effective Green Procurement Implementation,  $\beta_0$  = Constant while  $X_1$  = Eco supplier selection

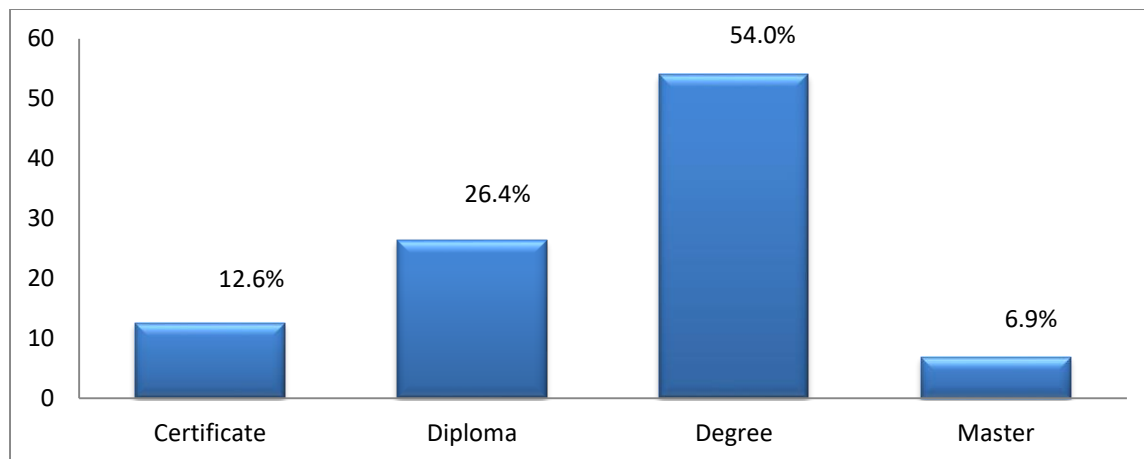
## FINDINGS

### Response Rate

The study was conducted in a total sample of 94 respondents. According to Mugenda and Mugenda (2003) a response rate of 50% is adequate, 60% is good and 70% and above is very good. 87 respondents filled and returned the questionnaire out of 94 giving 92.6% response rate which is very good and adequate for analysis.

### Education Level of Respondents

The study sought to establish the level of education of the respondents. As shown in Figure 1.2 below 12.6% of the respondents had certificate, about a quarter of the respondents 26.4% had diploma qualification while slightly above half of the respondents 54.0% had bachelor degree qualification while 6.9% had master degree. This indicates that the respondents had necessary knowledge and skills to rate the factors affecting implementation of Green procurement in the manufacturing sector in Nyeri County.



**Figure 2: Education level of Respondents**

### Descriptive Analysis of Study Variables

The objective of the study sought to evaluate how eco supplier selection affects the implementation of green procurement in the manufacturing sector in Nyeri County. Descriptive statistics was done to determine the effect of various factors of eco supplier selection

**Table 1: Descriptive Analysis of Eco Supplier Selection**

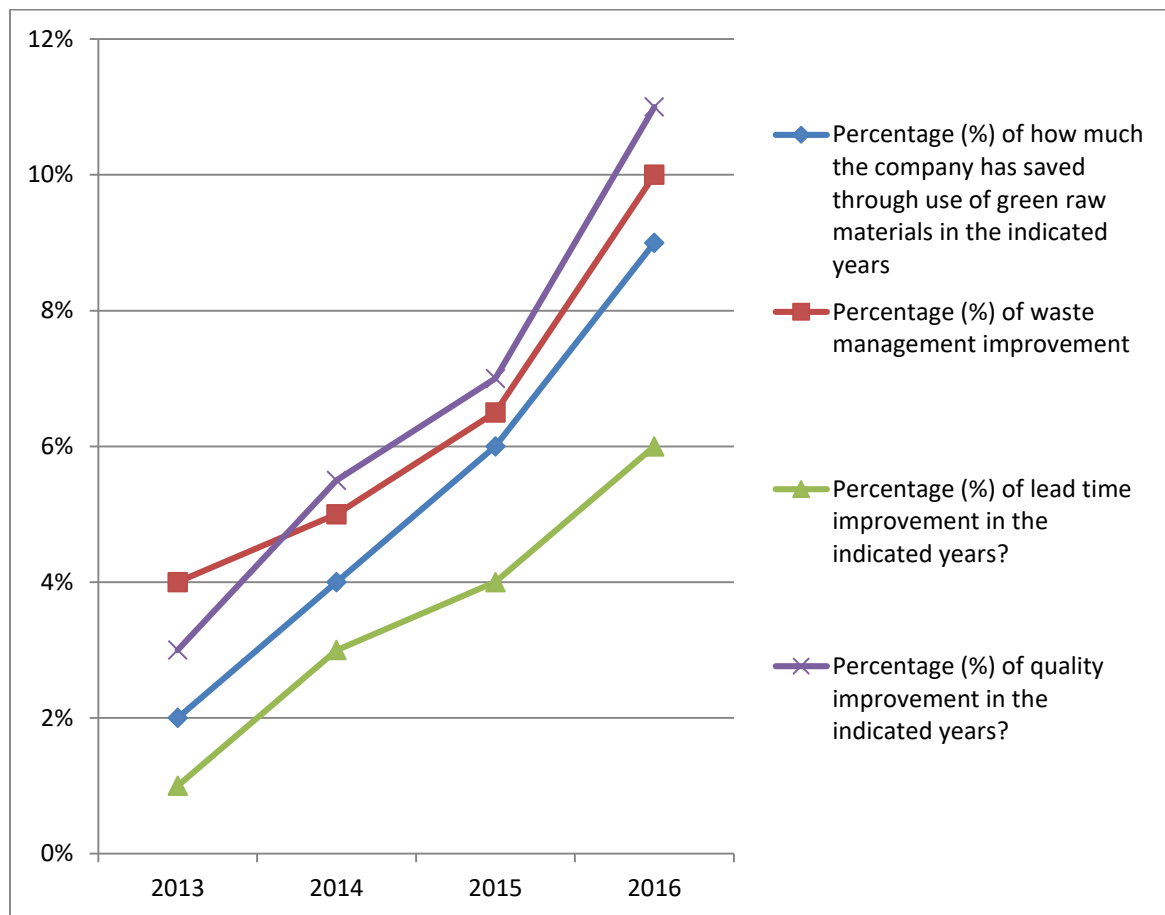
Eco supplier selection factors	N	Mean	Std. Error	Std. Dev
Working with ISO certified suppliers makes green procurement implementation easy	87	4.3793	.08375	.78119
Supplier past performance on green-procurement implementation is an important factor for its successive implementation.	87	4.1494	.13336	1.2438
Absence of competent staff with the right technical skills, experience and lack of training is a major factor to successful implementation of Green procurement	87	3.0805	.08210	.76582
Supplier selection team are adequately trained to support green procurement implementation	87	2.9655	.13125	1.2242

As shown in Table 1, the study revealed that working with ISO certified suppliers makes green procurement implementation easy was highly rated with a mean score of 4.3793 and standard deviation of 0.78119. Supplier past performance on green-procurement implementation is an important factor for its successive implementation had a mean score of 4.1494 and standard deviation of 1.2438. Absence of competent staff with the right technical skills, experience and lack of training is a major factor to successful implementation of Green procurement had a mean score of 3.0805 and standard deviation of 0.76582 while supplier selection team are adequately trained to support green procurement implementation had a mean score of 2.9655. The findings revealed that most company staffs do not have the technical knowledge and experience with regard to green procurement and the supplier selection team are adequately trained to support green procurement implementation. The finding of the study support Price Water House Coopers (2009), who propounded that lack of technical expertise is a barrier to adoption of green procurement. Price Water House Coopers stated that technology keeps on changing and those implementing green procurement have to continuously undergo relevant training in order to keep up with the pace. Armstrong-Stassen, M. (2008) noted that lack of training on application of sustainable procurement strategies hinders implementation of effective green procurement practices in many organizations. Saunders (2007) reckoned that personnel in procurement are, in a sense, information processors. According to Odhiambo (2008), ignorance of use of eco supplier's selection procedure is a major barrier to implementation of Green procurement.

### Implementation of Green Procurement

The study sought to find out the effect implementation status of green procurement of manufacturing companies in Nyeri County.





**Figure 3: Implementation of Green Procurement**

As shown in Figure 3, the result established an upward trend in the average improvement in quality, waste management, lead time and the amount saved through use of green raw materials for a period between 2013 and 2016. This implies that there has been reasonable improvement in terms of waste management, quality management and cost reduction over the years due to implementation of Green procurement.

### Regression Analysis

The bivariate linear regression analysis results of Eco supplier selection on the implementation of green Procurement were as shown in Table 2. The analysis indicates positive and significant relationship between Eco supplier selection on the implementation of green procurement in the manufacturing sector in Nyeri county. the R value was 0.714 while R squared ( $R^2$ ) value of 0.509 shows that 50.9 percent of the implementation of green Procurement is explained by Eco supplier selection. The model was significant with the F ratio = 88.210 at p value  $0.000 < 0.05$ . bivariate regression analysis indicated that Eco Supplier selection had positive and statistically significant effect on implementation of green procurement in the manufacturing sector in Nyeri County with  $\beta = 0.748$  at p value 0.000 which is less than 0.05.

**Table 2: Regression Output**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.650	.319		2.037	.045
1 Eco Supplier Selection	.748	.080	.714	9.392	.000

R= 0.714, R<sup>2</sup>= 0.509, Adjusted R<sup>2</sup>= 0.503, Std Error = 0.319, F =88.210 and Sig =0.000

a. Dependent Variable: Green Procurement Implementation

## DISCUSSION

The study explored the relationship between Eco supplier selection and the implementation of green procurement in the manufacturing sector in Nyeri County. The finding of the study revealed that Eco Supplier selection had positive and significant effect on implementation of green procurement. From Table 1, the bivariate linear regression model equation fitted using unstandardized coefficients is;  $Y = 0.650 + 0.748X_1 + e$  where 0.650 is the constant and  $X_1$  is Eco Supplier selection index. This means that Eco Supplier selection positively and significantly influences implementation of green procurement in manufacturing sector. It also means that an increase of one unit of Eco Supplier selection consideration increases green procurement implementation by 0.748. The indication was that Eco Supplier selection is a major factor that affects implementation of green procurement in the manufacturing sector. According to Armstrong (2008), Supplier selection consists of measuring the performance of a group of suppliers to select the best option improving the effectiveness of the whole supply system. Armstrong noted that supplier Selection is not an easy task, since various potential suppliers may have similar performance characteristics for different attributes. Diabat, A., & Govindan, K. (2011), noted that implementation of green procurement in the manufacturing companies requires specialized skills.

## CONCLUSION

The study accentuates that at 5% level of significance the regression results indicated a positive and statistically significant relationship between eco supplier selection and implementation of green procurement at p value less than 0.000. Based on the results of the descriptive statistic, it was evident that the majority of the respondents believed that working with ISO certified suppliers makes green procurement implementation easy. In addition, most of the respondent indicated that supplier past performance on green-procurement implementation is an important factor for its successive implementation. It was also noted that absence of competent staff with the right technical skills, experience and lack of training is a major factor to successful implementation of green procurement. The study further revealed that most company staffs do not have the technical knowledge and experience with regard to green procurement and the supplier selection team are adequately trained to support green procurement implementation. The study conclude that it is necessary to prioritize who are ISO certified in green supply chain since they can enhance effective implementation of green procurement.

## RECOMMENDATIONS

The study established that working with ISO certified suppliers makes green procurement implementation easy. This study therefore recommends prioritizing eco compliant and screening of suppliers for environmental performance in the procurement processes. The study further established ICT highly influence implementation of green procurement. The study therefore recommends full automated procurement process with the aim of enhancing efficiency and effectiveness.

## AREAS FOR FUTURE RESEARCH

The finding revealed that Eco supplier selection was found to have positive and statistically significant relationship effect on implementation of green procurement. The study recommends future researcher to focus on the benefit of implementation of green procurement of manufacturing companies. This study focused on the effect of green procurement in manufacturing companies in Nyeri County, a study of

manufacturing companies on other countries need to be undertaken to establish whether the findings can be generalized. The study also suggests that future researcher can focus on challenges of implementing green procurement by manufacturing companies.

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