



**CONSTRAINTS INFLUENCING THE IMPLEMENTATION OF GREEN  
PROCUREMENT- A SURVEY OF PUBLIC INSTITUTIONS IN KISII, KENYA**

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**Abstract**

The purpose of this study is to assess the constraints that influence the implementation of green procurement in Kenya. The study established that division of procurement tasks influences the implementation of green procurement in their offices to a very great extent. The objectives of the study were; to assess the extent to which internal organization structure, initial cost of green products, information and technology and lastly the extent to which technical management capacity affect the implementation of green procurement in the public institutions. The study established that social implication of production process, cost of green products and limited design and technology influence the implementation of green procurement to a great extent. This study therefore recommends that proper job description be accorded to the various job delegations created. This ensured that workers are aware of their tasks and how to complete them.

*Keywords: Constraints, Green Procurement, Public Institutions*

## **1. Introduction**

In recent years, academics and practitioners have become increasingly interested in how organisations and their suppliers, impact on the environment, society and the economy. Green procurement is the purchase of environmentally friendly products and services; the selection of contractors and the setting of environmental requirements in a contract. According to et al (2008), green procurement compares price, technology, quality and the environmental impact of the product, service or contract. Green products or services utilize fewer resources, are designed to last longer and minimize their impact on the environment from cradle to grave.

There is an increasing pressure from customers, clients, government and the public to put green procurement into practice. The 2002 World Summit on Sustainable Development in Johannesburg, South Africa, stated that relevant authorities at all levels should: "promote green procurement policies that encourage development and diffusion of environmentally sound goods and services".

Studies have been done regionally on green procurement; South Africa has had a very different procurement history than the commonwealth countries such as Kenya and Ghana, which have similarities in the nature of post-colonial procurement organization in the approach to procurement reform (Nagel, 2000).

According to Ongori (2009), the adoption of green procurement would change the way businesses operate in this era of globalization by changing business structures and increasing competition, creating competitive advantage for businesses and by changing organization operations. Hence, for public entities to adopt green procurement and become successful, they must have the ability to compete and dynamically respond to rapidly changing markets.

like many of Kenya's major urban centers, there is an influx of numerous other business ventures such as the hospitality sector with hotels, bars, restaurants, sports pubs, among other commercial activities. The Kisii County Government runs the town. It is headed by Hon. James Ongwae, the elected governor of Kisii County, and serves as the county headquarters. The town hosts a large county government campus office, County Law Courts, Ministry offices, State Law Office branch, among other governmental installations (Kisii County Website, 2015).

Several changes have taken place in Kisii County concerning green procurement though not properly through a legal framework over the last 10 years. However, there is limited literature on green procurement practices in Kisii which has drawn attention of local researchers to explore

procurement practices in Kisii as a County. Matunga et al (2013) conducted a research in public Hospitals with a focus on Kisii level 5 Hospital, Mungai (2013) also noted that most institutions especially the private sector in Kisii county consider green Procurement as a vital tool in improving business performance today, though has not been adequately incorporated in most businesses, the public sector. Mungai established that the value of green procurement affected the use of green procurement in firms, green procurement models affected use of green procurement by firms. There is a literature gap on the constraints influencing the implementation of green procurement in public institutions in Kisii County and Kenya as whole. This study therefore hopes to establish these constraints with a focus on Kisii County.

## **2. Statement of the Problem**

There exist no clear cut criteria, principles or guidelines for sustainable procurement of goods, works and services. In our quest as a nation in attaining sustainable development, and transiting into a full middle income status country, sustainable procurement must be our main focus.

Despite the rise in green procurement among the public institutions, it appears that, these institutions go through a lot of lengthy bureaucratic processes in acquiring goods and services. This according to Adu (2011) leads to low productivity, inefficiency and loss of money and detrimental effect on public institutions. Most of the studies reviewed have only explored aspects of green procurement in private sector organizations. This study therefore seeks to look at the constraints influencing the implementation of green procurement in public institutions in Kenya with a focus on public institutions in Kisii.

## **3. Objectives of the Study**

### **General Objective**

The general objective of this study is to assess the constraints influencing the implementation of green procurement in public institutions in Kenya: a survey study of public institutions in Kisii Kenya

### **Specific Objective**

The specific objectives of this study will be to:

- i. Assess the extent to which internal organizational structure influence the implementation of green procurement in public institutions in Kenya.

- ii. Determine the extent to which initial cost of green products influence the implementation of green procurement in public institutions in Kenya.
- iii. Establish the extent to which information and communication technology influences the implementation of green procurement in public institutions in Kenya.
- iv. Explore the extent to which technical management capacity influences the implementation of green procurement in public institutions in Kenya.

#### **4. Research Methodology**

The study adopted a descriptive research design aimed at investigating the constraints affecting the implementation of green procurement in public institutions in Kenya. Cross-section research design was used because the study is a survey involving collection of data at one point in time. In addition, the cross sectional survey was preferred because it enabled assessing of relationships between variables and it provided opportunity to identify moderators between variables.

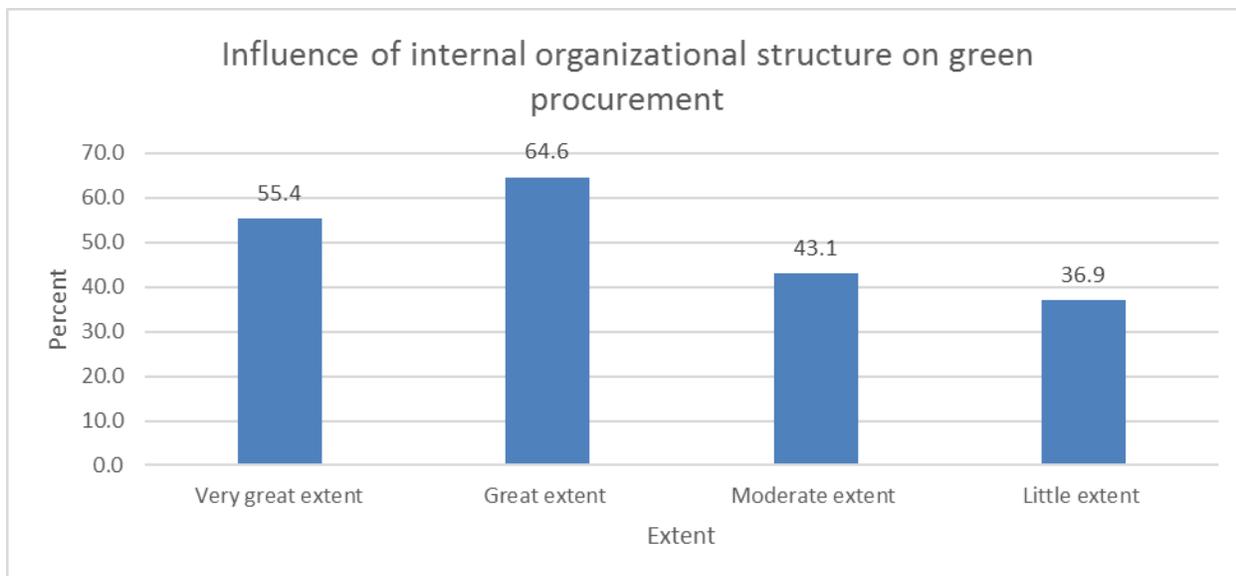
### **RESULTS AND DISCUSSION OF FINDINGS**

#### **5. Internal Organizational Structure**

The study sought to assess the extent to which internal organizational structure influence the implementation of green procurement in public institutions in Kenya. The findings obtained are shown in the subsequent section.

#### **6. Influence of internal organizational structure on green procurement**

The respondents were asked to indicate the extent to which they thought internal organizational structure influence the implementation of green procurement in their office. The results were as seen below.



**Figure 1: Influence of internal organizational structure on green procurement**

From the findings shown above, 64.6% of the respondents indicated that internal organizational structure influences the implementation of green procurement in their office to a great extent, 55.4% indicated to a very great extent, 43.1% indicated to a moderate extent while 36.9% indicated to a little extent.

## 7. Aspects of internal organization structure

The respondents were further asked to indicate the extent that the following aspects of internal organization structure influence the implementation of green procurement in their offices. The results were as tabled below

**Table 1: Aspects of internal organization structure**

	Mean	Std. Deviation
Division of procurement tasks	4.5373	.65893
Nature of procedural practices	3.9552	1.17335
Internal procurement policies	3.9104	1.01102
Accountability	4.0597	.71522

According to findings shown above, the respondents indicated that division of procurement tasks influences the implementation of green procurement in their offices to a very great extent as shown by a mean score of 4.5373. Further, the respondents indicated that accountability, nature of procedural practices and internal procurement policies influence the implementation of green procurement in their offices to a great extent as shown by mean scores of 4.0597, 3.9552 and

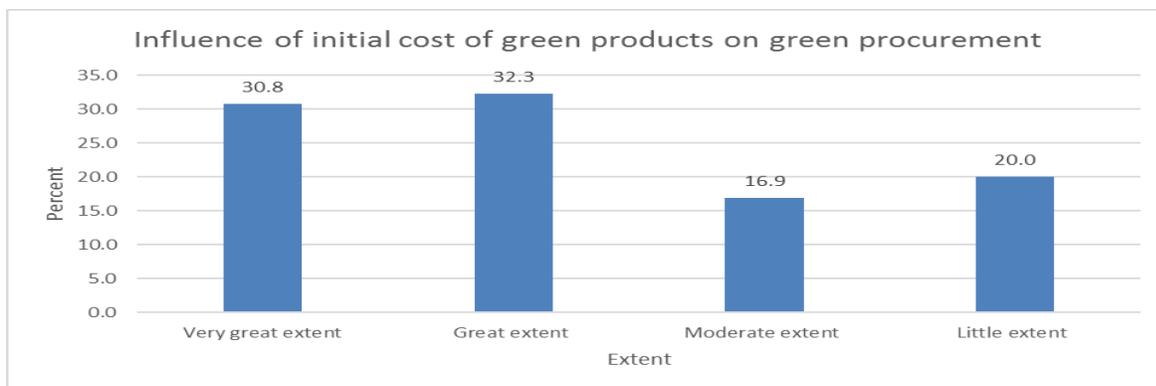
3.9104 respectively. According to Walker and Brammer (2009), organizations act as systems interacting with their environment.

### 8. Initial Cost of Green Products

The study also sought to determine the extent to which initial cost of green products influence the implementation of green procurement in public institutions in Kenya. The results were as shown below.

### 9. Influence of initial cost of green products on green procurement

The respondents were asked to indicate the extent to which they thought initial cost of green products influences the implementation of green procurement in their office. The results were as seen below.



**Figure 2: Influence of initial cost of green products on green procurement**

According to the findings shown above, 32.3% of the respondents indicated that initial cost of green products influences the implementation of green procurement in their office to a great extent, 30.8% indicated very great extent, 20% indicated to a little extent while 16.9% indicated to a moderate extent.

### 10. Aspects on initial cost of green product

The respondents were further requested to indicate the level of agreement with the following aspects on initial cost of green product influence the implementation of green procurement. Their responses were as shown below.

**Table 2: Aspects on initial cost of green product**

<b>Statement</b>	<b>Mean</b>	<b>Std. Deviation</b>
Cost of green products	4.1940	.67955
Social implication of production process	4.4030	.67554
Limited design and technology level	3.5373	1.03468

According to the findings shown above, the respondents indicated that social implication of production process, cost of green products and limited design and technology influence the implementation of green procurement to a great extent as shown by mean scores of 4.4030, 4.1940 and 3.5373 respectively.

### **11. Statements on initial cost of green product**

The respondents were further requested to indicate their level of agreement with how the following statements on initial cost of green product influence the implement of green procurement in their office. The results obtained were as tabled below.

**Table 2: Statements on initial cost of green product**

	<b>Mean</b>	<b>Std. Deviation</b>
Estimating hidden costs and potential savings	4.6716	.56106
Purchasing departments are ill equipped to conduct calculations on cost of green products	4.5373	.63552
Changing behavior with the purchasing departments	4.4925	.68253
Many public sector organizations do not have purchasing practices that factor in total cost of ownership	4.1926	.68253
Potential demand for green products has not been fully explored for people's undeveloped environmental consciousness	4.5866	.49875
They are also limited by design and technology levels	4.4418	.51745

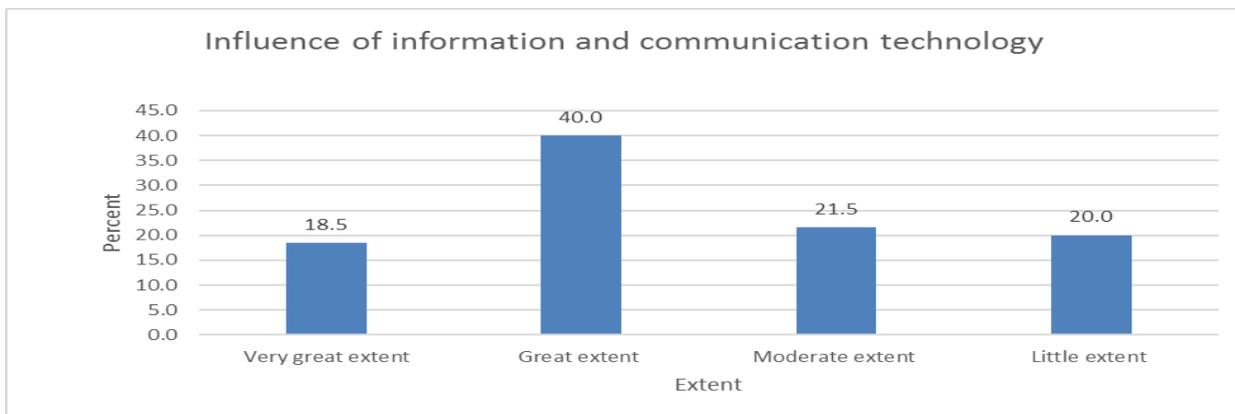
From the findings tabled above, the respondents indicated that estimating hidden costs and potential savings, potential demand for green products has not been fully explored for people’s undeveloped environmental consciousness and that purchasing departments are ill equipped to conduct calculations on cost of green products to a very great extent as shown by mean scores of 4.6716, 4.5866 and 4.5373 respectively. Further, the respondents indicated that changing behavior with the purchasing departments, they are also limited by design and technology levels and that many public sector organizations do not have purchasing practices that factor in total cost of ownership to a great extent as shown by mean scores of 4.4925, 4.4418 and 4.1926 respectively. In this light, a key challenge identified by many public and private sector organizations is changing behavior with the purchasing departments. In many instances, procurement is based on established supplier relationships, personal or brand preferences, first cost as the prime decision factor in purchasing.

**12.Information and Comunication Technology**

The study further sought to establish the extent to which information and communication technology influences the implementation of green procurement in public institutions in Kenya. The results were as shown below.

**13. Influence of information and communication technology**

The respondents were additionally asked to indicate the extent that information and communication technology influences the implementation of green procurement in their office. The results were as shown below.



**Figure 3: Influence of information and communication technology**

According to the findings shown above, 40% of the respondents indicated that information and communication technology influences the implementation of green procurement in their office to a great extent, 21.5% indicated to a moderate extent, 20% indicated to a little extent while 18.5 indicated to a very great extent.

#### 14. Aspects on information and communication technology

Additionally, the respondents were asked to indicate the level of agreement with how the following aspects on information and communication technology influence the implementation of green procurement in their office. Their responses were as shown below.

**Table 4: Aspects on information and communication technology**

	Mean	Std. Deviation
information exchange	4.4908	.86225
staff competence in use of information and communication technology	3.8718	.79898
knowledge sharing between institutions	4.1941	.96770
Impact on labor	3.7363	.96827

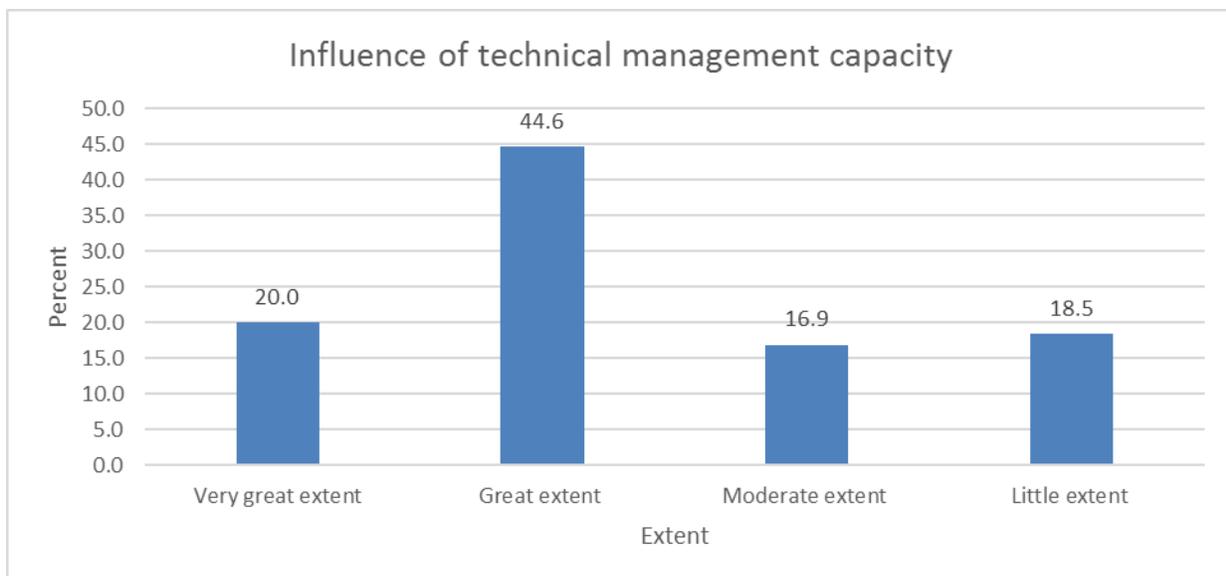
From the results shown in the table above, the respondents indicated that information exchange, knowledge sharing between institutions, staff competence in use of information and communication technology and the impact on labor influences the implementation of green procurement as shown by mean scores of 4.4908, 4.1941, 3.8718 and 3.7363 respectively. Despite major initiatives and claims of reduced cost through wider choice and higher efficiency, e-procurement may have been adopted to a less extent than expected by the public institutions in some countries (Moe, 2004).

### 15. Technical Management Capacity

Lastly, the study sought to explore the extent to which technical management capacity influences the implementation of green procurement in public institutions in Kenya. The results were as shown below.

### 16. Influence of technical management capacity

The respondents were asked to indicate the extent to which technical management capacity influence the implementation of green procurement in their office. The results are as shown below.



**Figure 4: Influence of technical management capacity**

From the findings shown in the figure above, 44.6% of the respondents indicated that technical management capacity influences the implementation of green procurement in their office to a great extent, 20% indicated to a very great extent, 18.5% indicated to a little extent while 16.9% indicated to a moderate extent.

### 17. Aspects on technical management capacity

Further, the respondents were asked to indicate their level of agreement on how the following aspects on technical management capacity influence the implementation of green procurement in their office. Findings were as shown below.

**Table 5: Aspects on technical management capacity**

	<b>Mean</b>	<b>Std. Deviation</b>
Top management support	4.7164	.59813
Green procurement upgrading practices	4.5373	.70342
Management skills	4.5821	.65480
Employee empowerment	4.5522	.65790

According to the findings tabled above, the respondents indicated that management skills, top management support, Green procurement upgrading practices and employee empowerment influence the implementation of green procurement in their office to a great extent as shown by mean scores of 4.4821, 4.4164, 4.3373 and 4.2522 respectively. Whilst the concentration of Lacy et al (2009) was on how leading private firms in developed world can improve upon sustainable procurement practice, the focus of this study is on the constraints influencing the implementation of green procurement in public institutions in Kenya, particularly public institutions in Kisii, Kenya.

### **18.Statements on technical management capacity**

Lastly, the respondents were asked to indicate the extent to which they agree with the following statements on technical management capacity influence the implementation of green procurement in their office. The results were as shown below.

**Table 6: Statements on technical management capacity**

	<b>Mean</b>	<b>Std. Deviation</b>
Standardization procedures are not promoted to improve quality and traceability to enable cutting losses	4.4164	.59813
Inadequate education systems has resulted to shortage of managers who can both manage the green procurement processes and understand the technical aspects of its sustainability	4.6373	.70342
Firms must invest in employees to make them competent in handling green procurement	4.4821	.65480
Top Management support is key to the implementation of green procurement	4.2522	.65790

According to the findings tabled above, the respondents strongly agreed that inadequate education systems has resulted to shortage of managers who can both manage the green procurement processes and understand the technical aspects of its sustainability as shown by a mean score of 4.6373. Further, the respondents agreed that firms must invest in employees to make them competent in handling green procurement as shown by a mean score of 4.4821. Additionally, the respondents agreed that standardization procedures are not promoted to improve quality and traceability to enable cutting losses as shown by a mean score of 4.4164. Lastly, the respondents agreed that top Management support is key to the implementation of green procurement as shown by a mean score 4.2522. Brammer and Walker (2007) researched on the sustainable procurement practice in the public sector in the UK. the study was based on the following variables; Financial constraints, the perception that sustainable products are expensive, lack of senior management support and the none availability of sustainable products were some of the limitations to sustainable procurement. The study used a descriptive research design.

### 19. Regression analysis

In this study, a multiple regression analysis was conducted to test the influence among predictor variables. The research used statistical package for social sciences (SPSS V 21.0) to code, enter and compute the measurements of the multiple regressions

**Table 7: Model Summary**

<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
1	0.772	0.596	0.569	0.115

R-Squared is a commonly used statistic to evaluate model fit. R-square is 1 minus the ratio of residual variability. The adjusted R<sup>2</sup>, also called the coefficient of multiple determinations, is the percent of the variance in the dependent explained uniquely or jointly by the independent variables. 56.9% of the constraints influencing the implementation of green procurement in public institutions in Kenya: a survey study of public institutions in Kisii Kenya could be attributed to the combined effect of the predictor variables.

**Table 8: Summary of One-Way ANOVA results**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.223	4	0.306	22.129	0.000
	Residual	0.829	60	0.014		
	Total	2.052	64			

The probability value of 0.000 indicates that the regression relationship was highly significant in predicting how internal organizational structure, initial cost of green products, information and communication technology and technical management capacity influences the implementation of green procurement in public institutions in Kenya. The F calculated at 5% level of significance was 22.129 since F calculated is greater than the F critical (value = 2.53), this shows that the overall model was significant.

**Table 9: Regression coefficients of the relationship between implementation of green procurement and the four predictive variables**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.169	0.235		4.974	0.013
	Internal organizational structure	0.716	0.161	0.601	4.447	0.015
	Initial cost of green products	0.736	0.149	0.619	4.940	0.021
	Information and communication technology	0.622	0.137	0.434	4.540	0.019
	Technical management capacity	0.787	0.163	0.638	4.828	0.017

As per the SPSS generated table above, the equation ( $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$ ) becomes:

$$Y = 1.169 + 0.716X_1 + 0.736X_2 + 0.622X_3 + 0.787X_4$$

The regression equation above has established that taking all factors into account (Internal organizational structure, Initial cost of green products, Information and communication

technology and Technical management capacity) constant at zero implementation of green procurement will be 1.169. The findings presented also show that taking all other independent variables at zero, a unit increase in the internal organizational structure would lead to a 0.716 increase in the scores of implementation of green procurement and a unit increase in the scores of Initial cost of green products would lead to a 0.736 increase in the scores of implementation of green procurement. Further, the findings shows that a unit increases in the scores of Information and communication technology would lead to a 0.622 increase in the scores of implementation of green procurement. The study also found that a unit increase in the scores of technical management capacity would lead to a 0.787 increase in the scores of implementation of green procurement. Overall, technical management capacity had the greatest effect on the implementation of green procurement, followed by Initial cost of green products, then internal organizational structure while Information and communication technology had the least effect to the implementation of green procurement. All the variables were significant ( $p < 0.05$ ).

## **20. Discussion**

### **Influence of internal organizational structure on green procurement**

From these findings, we can deduce that internal organizational structure influences the implementation of green procurement in their office to a great extent. Lozano and Valles (2013), note that the absence of support from the existing top management in driving procurement organizations towards sustainable procurement is identified as one of the factors militating against green procurement. This is because making decisions on how to go about green procurement becomes challenge because of the varied opinions and ideas from the decision makers.

### **Influence of initial cost on green procurement**

A key challenge identified by many public and private sector organizations is changing behavior with the purchasing departments (Lacroix, 2013). As a result, the study infers that initial cost of green products influences the implementation of green procurement in their office to a great extent. According to Walker and Brammer (2009), organizations act as systems interacting with their environment. Many public sector organizations do not have purchasing practices that factor in total cost of ownership, or full life-cycle costs of the organization (Case, 2002).

### **Influence of information and communication technology**

Information and communication technology (ICT) is changing the way that public institutions and private companies do business together and exchange of information, commercial scope of e-business includes information exchange, commercial transactions and knowledge sharing between organizations (Croom, 2005). From the results show above, we can infer that information and communication technology influences the implementation of green procurement in their office to a great extent. There are low levels of use of Information and Communication Technology in public institutions. This renders a situation where procurement processes are done manually and do not take into as much as it should with regard green environment.

### **Influence of technical management capacity**

From these results we can deduce that technical management capacity influences the implementation of green procurement in their office to a great extent. A good example is that despite major initiatives and claims of reduced cost through wider choice and higher efficiency, e-procurement may have been adopted to a less extent than expected by the public institutions in some countries (Moe, 2004). This is because many of the employees at the senior level who should be making decisions regarding green procurement, have little or no management competence do that.

### **21. Summary of the findings**

The study sought to establish the constraints influencing the implementation of green procurement in public institutions in Kenya: a survey study of public institutions in Kisii Kenya.

### **Internal Organizational Structure**

The study found that that internal organizational structure influences the implementation of green procurement in their office to a great extent. As well, division of procurement tasks influences the implementation of green procurement in their offices to a very great extent. Further, the study established that accountability, nature of procedural practices and internal procurement policies influence the implementation of green procurement in their offices to a great extent.

### **Initial Cost of Green Products**

Additionally, the study established that initial cost of green products influences the implementation of green procurement in their office to a great extent. In addition, the study established that social implication of production process, cost of green products and limited

design and technology influence the implementation of green procurement to a great extent. Also, the study established that estimating hidden costs and potential savings, potential demand for green products has not been fully explored for people's undeveloped environmental consciousness and that purchasing departments are ill equipped to conduct calculations on cost of green products to a very great extent. In addition, changing behavior with the purchasing departments, they are also limited by design and technology levels and that many public sector organizations do not have purchasing practices that factor in total cost of ownership to a great extent.

### **Information and Communication Technology**

The study found that information and communication technology influences the implementation of green procurement in their office to a great extent. As well, the study established that information exchange, knowledge sharing between institutions, staff competence in use of information and communication technology and the impact on labor influences the implementation of green procurement.

### **Technical Management Capacity**

The study revealed that technical management capacity influences the implementation of green procurement in their office to a great extent. Additionally, the study established that management skills, top management support, Green procurement upgrading practices and employee empowerment influence the implementation of green procurement in their office to a great extent. The study further found that that inadequate education systems has resulted to shortage of managers who can both manage the green procurement processes and understand the technical aspects of its sustainability. Additionally, that firms must invest in employees to make them competent in handling green procurement. Further, that standardization procedures are not promoted to improve quality and traceability to enable cutting losses. In addition, the study found that that top Management support is key to the implementation of green procurement.

## **22. Conclusion**

The study concludes that that internal organizational structure influences the implementation of green procurement in their office to a great extent. As well, the study concludes that division of procurement tasks influences the implementation of green procurement in their offices to a very great extent.

Additionally, the study concludes that initial cost of green products influences the implementation of green procurement in their office mainly through social implication of production process, cost of green products and limited design and technology influence the implementation of green procurement. Also, the study concludes that many public sector organizations do not have purchasing practices that factor in total cost of ownership.

The study further concludes that information and communication technology influences the implementation of green procurement in their office through information exchange, knowledge sharing between institutions, staff competence in use of information and communication technology.

The study finally concludes that technical management capacity influences the implementation of green procurement in their office. Additionally, the study concludes that that management skills, top management support, Green procurement upgrading practices and employee empowerment influence the implementation of green procurement in their office. The study further concludes that that inadequate education systems has resulted to shortage of managers who can both manage the green procurement processes and understand the technical aspects of its sustainability.

### **23. Recommendations**

The study established that division of procurement tasks influences the implementation of green procurement in their offices to a very great extent. This study therefore recommends that proper job description be accorded to the various job delegations created. This will ensure that workers are aware of their tasks and how to complete them.

The study established that social implication of production process influences the implementation of green procurement to a great extent. This study therefore recommends that a law be formulated to make all organization be social responsiveness, mandatory. All organizations need to pay their respect to the environment in the way they knew best.

The study established that that information exchange, knowledge sharing between institutions, staff competence in use of information and communication technology influences the implementation of green procurement. Therefore, this study recommends that the government installs reliable and fast means of communication to enable faster methods of sharing information.

The study established that that management skills influence the implementation of green procurement in their office to a great extent. Therefore, the study recommends that if offers training program to managers in Kisii so that they can implementation of green procurement in their office without a hitch.

#### **24. Suggestion for Further Studies**

Following this study, another study should be done to investigate the constraints influencing the implementation of green procurement in public institutions in Kenya: a survey study of public institutions in Kisii Kenya. A similar study should also be done on other counties since their operations are different from that of Kisii County.

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