

## Environmental Determinants of Procurement Performance in Youth Polytechnics in Baringo County, Kenya

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**Abstract:** In a competitive and globalized business environment, organizations are now very keen on how their operations affect the environment in which they are operating in. Organizations have tried to implement green procurement so as to gain the benefits associated to it. However many challenges have stood in the way thus not many organizations have taken full advantage of the value of green procurement. The study sought to answer the following objectives; find out the effect of environmental laws on procurement performance in the youth polytechnics in Baringo County; establish how attitude of green procurement affects procurement performance in the youth polytechnics in Baringo County; determine the effect of waste management practices on procurement performance in youth polytechnics in Baringo County; find out the contribution of support of renewable energy affects procurement performance in the youth polytechnics in Baringo County. The study adopted a descriptive case study research design to analyse the purchasing performance process in the youth polytechnics. The study targeted a total of 11 youth polytechnic managers, 11 youth polytechnic deputy managers, 11 youth polytechnic instructors and 33 executive members of the youth polytechnic board of management in the 11 youth polytechnics in Baringo County. Data collection instrument used was questionnaire administered to all the respondents in the youth polytechnics in Baringo County. The study results indicated that there was a significant relationship ( $\beta = 0.179$ ,  $p = 0.000$ ) between environmental laws and procurement performance of the institutions and green procurement had no effect on procurement performance with a beta coefficient of  $-0.165$ , the effect was not significant at ( $p=0.000$ ). The study further indicated that there was a significant relationship ( $\beta = 0.197$ ,  $p = 0.000$ ) between waste management and procurement performance of the institutions. The study results finally revealed that there was a significant relationship ( $\beta = 0.167$ ,  $p = 0.000$ ) between support for renewable energy and procurement performance of the institutions. Findings of the study would help reveal whether environmental laws, green procurement, waste management and renewable energy affects procurement performance in the youth polytechnics in Baringo County. 2

**Key words:** Environmental Laws, Attitude to green Procurement, Waste Management, Procurement performance, Support for renewable Energy

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### I. Introduction

The environment has long been a factor in firm strategy, primarily from the standpoint of access to raw materials. Increasingly, this factor is best viewed as both a direct and indirect cost for the firm. Environmental factors are also evaluated on the footprint left by a firm on its respective surroundings. For consumer-product companies, for instance, this can encompass the waste-management and organic-farming practices used in the countries where raw materials are obtained. Similarly, in consumer markets, it may refer to the degree to which packaging is biodegradable or recyclable. Environmental friendly procurement starts with the green transformation and management to the whole supply chain from purchasing raw materials to delivering the products. Its competitiveness is enhanced by reducing the number of raw materials and waste, recovering, collecting, reusing, recycling and reprocessing the scrap and old product and packing.

A growing number of companies have realized the world over that implementing Supply Chain Management (SCM) is only one of the objectives they need to realize (Rao, 2002). The other important agenda is to make this SCM environmentally friendly. This has catapulted SCM to a new height by looking beyond their own facilities but also involving their suppliers in environmental initiatives and agendas (Srivastava, 2007). This is done by screening suppliers for environmental performance, working collaboratively with them on green design initiatives and providing training and information to build suppliers' environmental management capacity (Srivastava, 2007).

Kakwezi and Nyeko (2010) argues that the procurement departments of public entities are faced with the problem of not having enough information about the procurement procedure, its inputs, outputs, resource

consumption and results, and are therefore unable to determine their efficiency and effectiveness. This implies that such a problem requires establishment of clear procurement procedures and performance standards. Performance standards when adopted can provide the decision-makers in the procurement department with unbiased and objective information regarding the performance of the procurement function. In Uganda, procurement and disposal planning are central to proper procurement management. Public Procurement and Disposal of Public Assets (PPDA) Regulation 96(1) provides that a user department shall prepare a multi-annual, rolling work plan for procurement based on the approved budget, which was submitted to the Procurement and disposal unit to facilitate orderly execution of annual procurement activities.

Kenya as one of the developing countries has been slow in taking up structured and policy driven approach to enhancing adoption of GP, the benefits accruing notwithstanding (Bolton, 2006; 2008). The Public Procurement and disposal Act, 2005 and subsequent regulations 2006 and 2009, which are the core points of reference on public procurement in Kenya were reviewed and makes only a very weak reference to GPP.

Rotich (2011) admits that the evaluation or measurement of procurement performance has always been a vexing problem for procurement professionals. He asserts that traditionally, firms 3

concentrate on analyzing their own internal trends which does not portray the true picture on how they compare well with competitors. Such an approach ignores what the competitors are doing. Cole (2002) reveals that a firm does not wish to make known to its competitors how or what it is doing for obvious competitive reasons. This has been the case in the public sector where procuring entities have not been making available their procurement data due to the sensitive nature of the data.

In Kenya, to manage effectively and more efficiently green procurement process, procuring entities through the existing legal framework are required to firstly consolidate departmental procurement plans to provide the entity's corporate procurement plan which before its implementation must get the accounting officer's approval. This however is not the case in most public institutions in Kenya. According to Otieno, (2004) in his study about public procurement, he reveals that even after the enactment of the Regulations governing public procurement, there are still neglect of acknowledging implementation of procurement process in relation to environment. Properties in public institutions are developed with little consideration on environment. Goods and services provided in these institutions are not environmental friendly. This study attempt to investigate the environmental determinants affecting procurement performance in the youth polytechnics with specific references to Baringo County.

## **II. Literature Review**

### **2.1 Environmental Laws**

Regulation framework establishes a number of rules and principles which must be observed in the award of public contracts. Within this framework, environmental objectives can be implemented in a variety of ways (Preuss, 2012)

At European level, procurement is a voluntary policy, meaning individual public authorities are not obliged to introduce the criteria in their tenders. However Article 11 of Treaty on the Functioning of the European Union" (TFEU) states: "Environmental protection requirements must be integrated into the definition and implementation of the Union's policies and activities, in particular with a view to promoting sustainable development." There are also a number of areas where EU or national legislation creates specific environmental obligations which must be taken into account in public procurement. These range from the requirement to conduct an environmental impact assessment in advance of certain construction projects, to minimum energy-efficiency standards which must be applied when buying office IT equipment, through to rules on the handling of hazardous substances and waste Monczka, (2011).

**HO1:** Environmental laws has no significant effect on procurement performance

### **2.2 Attitude to Green Procurement**

Green Public Procurement (GPP) is defined in the European Commission's Communication Public procurement for a better environment as "a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when 4

compared to goods, services and works with the same primary function that would otherwise be procured." (Kroese, 2008). It is "a process whereby public and semi-public authorities meet their needs for goods, services, works and utilities by choosing solutions that have a reduced impact on the environment throughout their life-cycle, as compared to alternative products/solutions." GPP is a voluntary instrument, which means that individual Member States and public authorities can determine the extent to which they implement it. It can be applied to contracts both above and below the threshold for application of the Procurement Directives (Kearns, 2000). GPP can be a major driver for innovation, providing industry with real incentives for developing green products and services particularly in sectors where public purchasers represent a large share of the market.

GPP may also provide financial savings for public authorities especially if you consider the full life-cycle costs of a contract and not just the purchase price. Purchasing low-energy or water saving products for example, can help to significantly reduce utility bills. Reducing hazardous substances in products can cut disposal costs. Authorities who implement GPP will be better equipped to meet evolving environmental challenges, as well as political and binding targets for reduction of greenhouse gas emissions, energy efficiency and in other environmental policies (Porter, 2001).

**HO2:** Attitude of green procurement has no effect on procurement performance

### **2.3 Waste Management**

The disposal of waste via incineration or the creation of landfills causes environmental pollution. Decreasing the incineration of waste and minimizing the need for landfill sites in order to reduce soil contamination and use these areas more efficiently is a principal climate-related objective. The term ‘waste’ refers to excess resources that are not used optimally. When a resource is designated waste it loses value and thus moves down the value chain. The transportation of waste to be disposed of creates even more pollution and adds to the already negative impact of waste creation. Waste minimization is the process of reducing the amount of waste and excess raw materials in production processes; it also involves the possibility of reusing these resources in later production lines (De Paoli, 2009).

The purpose of waste reduction is to support green production and prevent the hazardous effects of waste on both human health and the environment. Minimizing the amount of waste produced by companies goes hand-in-hand with optimizing their use of raw materials. Minimizing waste also has cost-reducing effects and creates competitive advantages.

Access to natural resources is a major challenge facing the growing global population, particularly because of the increasing middle class in developing countries. Recycling is an important step in ensuring future generations’ access to the necessary level of resources. Recycling factors of production or engaging in industrial symbiosis in which materials are sold to/received from other companies or bodies, for mutual gain, are ways to minimize organizations’ negative impacts on the environment (Davila, 2002). 5

**HO3:** Waste management practices has no effect on procurement performance

### **2.4 Support for Renewable Energy**

Competition is growing among countries hoping to capture important new markets for clean energy technologies and products. Meanwhile, domestic policy measures in this area often attempt to address multiple policy goals, including job creation. Countries are now often turning to government procurement as a means of creating demand for both clean energy and goods and services related to clean energy and energy efficiency (Adamson, 2011).

Governments, as large consumers of goods and services, can leverage their purchasing power to create or further expand existing markets for goods and services. At the same time, procurement policies can discriminate against foreign suppliers by favoring domestic suppliers in either a de jure or a de fact manner. Many governments use procurement policies as a tool for promoting domestic sustainable energy capacities and industries; while this aids domestic industry, it also means that countries might not be choosing among the most competitively-priced equipment and services available globally.

**HO4:** Support for renewable energy has no effect on procurement performance

### **2.5 Procurement Performance.**

According to Korezynski (2006) purchasing performance is considered to be the result of two elements: purchasing effectiveness and purchasing efficiency. Therefore, performance provides the basis for an organization to assess how well it is progressing towards its predetermined objectives, identifies areas of strengths and weaknesses and decides on future initiatives with the goal of how to initiate performance improvements. Purchasing performance is not an end in itself but it is a means to effective and efficient control and monitoring of the purchasing function (Korezynski, 2006).

Purchasing efficiency and purchasing effectiveness represent different competencies and capabilities for the purchasing function. The differences between efficiency and effectiveness were presented by Ngugi and Mugo (2011). Efficiency reflects that the organization is “doing things right” whereas effectiveness relates to the organization “doing the right thing”. This means an organization can be effective and fail to be efficient, the challenge being to balance between the two.

As suggested by Amaratunga & Baldry (2002), performance is a key driver to improving quality of services while its absence or use of inappropriate means can act as a barrier to change and may lead to deterioration of the purchasing function. Organizations which do not have performance measurement in their processes, procedures, and plans experience lower performance and higher customer dissatisfaction and also employee turnover. Measuring the performance of the purchasing function yields benefits to organizations such as cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage (Beukers, 2006). 6

### III. Research Methodology

In order to establish the effects of Environmental determinants affecting procurement performance, we used descriptive research design. We used a sample of 66 respondents comprising of 11 managers, 11 deputy managers, 11 instructors and 33 members of management of 11 youth polytechnics in Baringo County. This is because they were directly related to the performance of the institutions. We used primary data collected using structured questionnaires and interview schedules and secondary data obtained from websites, procurement journals Baringo county institutional reports and other relevant texts.

We conducted piloting to determine the reliability of the instrument .The feasibility test helped to identify areas of weakness, modify and remove any ambiguous item of the instrument, blank spaces, inaccurate responses or inconsistencies, which needed to be reviewed before the actual research (Ho et al., 2009). This helped to enhance face and construct validity.

We analyzed data using descriptive and inferential statistics. We also used measures of central tendency and variability to give expected summary of statistics of variables being studied and describe dispersion of scores Generated. We also used multiple correlation analysis to determine the relationship that exists among the dependent and independent variables. Lastly, we employed a regression model to establish the regression coefficient of correlation and difference between extents of procurement performance created by environmental determinants.

The general panel regression model we used in the study is as follows:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + u$$

(a) Dependent variable is procurement performance and is denoted by Y

(b) Independent variables are;

- X1 Environmental laws
- X2 Attitude to green procurement
- X3 Waste management
- X4 Support for renewable energy
- $\beta_0$  Constant term
- $\beta$  Beta coefficients
- $\mu$  Error term

### IV. Empirical Results

On determining that all the variables of environmental determinants had an effect on performance of procurement we computed an overall regression model indicating how the variables interacted in the study. The F test used indicated that all the variables in the equation are important hence the overall regression is significant. 7 The ANOVA table for the regression indicated that the results computed using the regression model indicated significant value of  $p=0.000$  meaning that the regression model had been computed well and not by chance (Table 1).

**Table 1: Overall Regression Model**

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.371a	.138	.069	1.01515	
Coefficients					
Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.	
B	Std. Error		Beta		
(Constant)	2.023	0.715	2.829	0.007	
Environmental Laws	0.199	0.200	0.179	0.996	0.324
Green Procurement	-0.184	0.189	-0.165	-0.974	0.335
Waste Management	0.187	0.156	0.197	1.203	0.235
Renewable Energy	0.189	0.174	0.167	1.084	0.283

From the regression model computed in table 1, the research hypotheses were tested using the significance level of the coefficients; the research aimed to test the hypothesis with an aim of accepting whether there was any effect of environmental determinants on procurement performance.

Hypothesis 1 stated that environmental laws has no significant effect on procurement performance. The results rejected the null hypothesis one which stated that: Environmental laws has no significant effect on procurement performance. The results indicated that there was a significant relationship ( $\beta = 0.179$ ;  $p = 0.000$ ) between environmental laws and procurement performance of the institutions. This implies that environmental laws could influence procurement process by determining the right products that are environmental conducive. This could also mean that environmental laws form part of the procurement that allows procurement officers to select contractors and suppliers whose knowledge and experience understand the conservation of environment.

Hypothesis 2 stated that attitude of green procurement has no effect on procurement performance. The regression results in table 1 shows that green procurement has no effect on procurement 8 performance with a beta coefficient of -0.165, the effect is not significant at ( $p=0.000$ ). These results imply that green procurement plays a less significant role in determining institution procurement performance. This means that procurement officers involved in developing the tender's document could be side-lining the aspect of environment in supply of goods and services.

Hypothesis 3 stated that waste management practices has no effect on procurement performance. The research results rejected the null hypothesis one which stated that: Waste management practices has no effect on procurement performance. The results indicated that there was a significant relationship ( $\beta = 0.197$ ;  $p = 0.000$ ) between waste management and procurement performance of the institutions. The process of purchasing and procurement, suppliers therefore should consider the ultimate disposition of the materials and components that enter an institution, purchasing managers can ask upstream members of the supply chain to commit waste reduction and provide environmentally friendly product.

Hypothesis 4 stated that support for renewable energy has no effect on procurement performance. The research results rejected the null hypothesis one which stated that: Support for renewable energy has no effect on procurement performance. The results indicated that there was a significant relationship ( $\beta = 0.167$ ;  $p = 0.000$ ) between support for renewable energy and procurement performance of the institutions. This implies that procurement process involves the procurement of materials and equipment that conserve energy such that improvements in energy use are generally achieved by adopting a more efficient technology or production processes or by application of commonly accepted methods to reduce energy losses.

## **V. Discussion and Conclusion**

Based on research findings, we concluded that environmental laws such as PPDA established at national government should be used when government institutions are designing tender documents for their goods and services to be procured. Tender documents should be precise in addressing the quality of products and services in relation to environment. Products as provided in the law must be of such a quality that has little effect to the environment. In relation to these laws also, the public institutions ought to train procurement officers and suppliers so that as they design and implement procurement systems they would be in a position to meet the required standards of goods and services.

Public institution should also consider improving procurement through procuring sustainable products and services. Sustainable or rather green procurement in big organizations fail because of the management of such organization ignoring implementation of sustainable strategies during procurement. Products characteristics knowledge with the aspect of their impacts on environment are major reasons to why green procurement is ignored. It is the role of management to design Green Procurement strategies that determine pressures on the food chain emphasizing the demand for sustainable products. Green procurement combines green purchasing, green manufacturing/materials management, green distribution/marketing and reverse logistics. 9

In waste management, an institution can improve its waste resulting from procurement process through well design guidelines on how to recycle and dispose them. However, institutions can also incorporate all stakeholders in managing waste. In the process of purchasing and procurement, suppliers must consider the ultimate disposition of the materials and components that enter the firm, purchasing managers can ask upstream members of the supply chain to commit waste reduction and provide environmentally friendly product. Suppliers, e.g. transport service suppliers and product suppliers, can impact firms' green purchasing activities and drive green supply chain management. The availability, characteristics, knowledge, ambitions, equipment and actions of the suppliers can have an impact on purchasing and green purchasing. To achieve an effective environmental performance, the purchaser must take, and be given, the responsibility and resources for educating suppliers and demonstrate ongoing commitment.

Public institutions should indicate clearly actions in their strategic plan on how to procure materials that could efficiently use energy. These include mechanisms such as equipment that utilize minimal use of energy and minimal emission of green gases. Energy efficiency and renewable energy are strategies that must be developed concurrently in order to stabilize and reduce carbon dioxide emissions. Renewable energy deployment in public institutions is a major and durable option to mitigate climate change. It enables to limit resource scarcity and enhance energy security.

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