EFFECTS OF GREEN PROCUREMENT PRACTICES ON AN ORGANIZATION PERFORMANCE IN MANUFACTURING INDUSTRY: CASE STUDY OF EAST AFRICAN BREWERIES LIMITED

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ABSTRACT

Green Procurement also known as sustainable procurement (SP) is one of the emerging issues in procurement. It entails taking social and environmental factors into consideration alongside financial factors in making procurement decisions. Green procurement involves looking beyond the traditional economic parameters and making decisions based on the whole life cost, the associated risks, measures of success and implications on society and the environment. This study seeks to establish the contribution of green procurement concepts to performance of the East African Breweries Limited (EABL). The variables studied are staff competence on green procurement concepts, role of ICT infrastructure, supplier participation in green procurement and capital expenditure on green procurement contribution to performance. The study adopted Descriptive Research Design. The target population was 122 employees of the EABL while the sample size considered was 37 which represented 30% of the target population. The researcher utilized both primary and secondary data. Data was analysed using both descriptive and inferential statistics where regression analysis was used to establish the effect of independent variables on the dependent variable. The findings revealed that Performance of manufacturing industry is a contribution of more than one factor. Green procurement attributes contributes to performance excellence. Competence of the staff members on green procurement concepts was essential contributor to the effects of green procurement to performance. EABL as an organization with already laid down ICT infrastructure and with a system that allows Supplier

participation had increased contribution of green procurement to 29% of organizational performance. However due to high costs it was noted that the capital expenditure on green procurement was yet to make a high impact to EABL. The study recommends that organizations should have competent professional workforce, extensive investment in Information and Communication Technology (ICT) infrastructure, systems of supplier management and strategic investment approach to Green Procurement in order to realize the positive effects of green procurement.

Keywords: *Green Procurement Practices on an Organization Performance In Manufacturing Industry.*

Introduction

Over the years there has been a repeat of events such as the energy crisis and prevailing consumerist behaviour which encourages high demand especially for raw materials by individuals and organizations alike. This has led to diminishing sources of raw materials and hence the focus has been on conservation and use of recycled materials. Green procurement is a holistic approach on that it encompasses organization, people, processes and technology. It is also known as the sustainable procurement, and some companies realized a long time efficiency in energy usage, waste generation and water consumption along with use of recycled materials resulted in reducing costs (Victor & John, 2009).

Green procurement is based on the belief that companies can simultaneously benefit from elements of economics, environment and society according to IBM Global Business Services (2009).Chartered Institute of Purchasing and Supplies, CIPS (2007), on the other hand defines green procurement as a consideration to the environmental, social and economic consequences of design, materials used (renewable and non-renewable) manufacturing methods, logistics and disposal. Jerry (2000) says, utilization of green procurement has been quite limited such that a decade ago, only some high-profile organizations mainly chemical firms and/or those firms in the consumer goods sectors that have experienced green consumer pressures directly in order to practice it.

Organizational Performance over time has been limited to economic outcomes with dimensions ranging from profitability, liquidity, growth and stock market performance. Growth has been broken into three aspects of size in terms of sales, employees and assets. Higgins (1977) noted

that the concept of sustainable growth rate that must be in alignment with overall organization performance, financial policy and dividend payout ratio must be put in place. If an organizational grows at a rate above its sustainable growth rate will eventually decrease. The theory of Organizational Performance Management (OPM) applies the approach of systems evaluation, employees' performance and management of departments of the organization as a whole in assessing progress toward goals and identifying and adjusting factors which hinder progress.

Organizational Performance Management in a bid to promote progress towards goals in a business environment, it responds to crisis as they arrive, fixing broken systems, replaces failing management and redefining un-meet able goals. This is done through techniques for monitoring progress, including the performance of systems, subsystems, departments and employees. It analyzes aggregates of performance data in order to measure progress toward defined goals. However OPM has been criticized for being able to consider the un-tangible goals and how to measure them.

Kennard (2006) said that sustainable procurement is the process whereby economic development, social development and environmental protection are balanced against business needs. He outlines the benefits of adopting a sustainable procurement policy as a cost control, improved internal and external standards through performance assessment and compliance with environmental and social legislation. Green Procurement as it is, according to Bobis and Staniszewski (2009) is not a new phenomenon but rather a concept that has been ongoing.

It is observed that Sustainable procurement has emerged as a major paradigm for planning (Campbell 1996; Jepson 2001; Berke 2002). Significant research has been undertaken on performance measurement and management on internal organizational operations; however on supply chain performance measurement especially in the inter-organizational focus, where organizations deal with other organizations in another tier, has been relatively limited (Gunasekaran *et al.* 2004).

Statement of the Problem

The concept of green procurement is gaining prominence in empirical literature, with scholars pointing at a possible relationship between green procurement and organizational performance. It is increasing being used as an effective tool to reduce the impacts of consumption on the environment and also to promote development of clean production technology (Prospect, 1992). Qinghu (2005) observed that Green

procurement in the developed nations such as China has become a key approach for enterprises seeking to become environmental sustainable and increase performance in instances where there is increased competition, a lot of regulations and market pressure and drivers. According to Otokiti & Awodun (2003) organizations are paying more attention to their environment due to the complexity, turbulence and rapid changes and hence formulating and implementing policies and strategies that will enhance their survival and growth.

However in developing countries like Kenya, the green procurement concept is yet to be adopted by many organizations. The East African Breweries Limited faces challenges in maintaining competitiveness, through quality, increased operating costs especially energy related costs and sustainable end to end supply of raw materials in order to ensure continued regional leadership in growth and most profitable share (Kiereini, 2011). According to the 2011 detailed financial statements of the East African Breweries Limited there has been an increase in growth after strategic acquisitions, implementation of the Enterprise Resource Planner (ERP) in 2001 and launching of the green goal 2010 initiative and change of raw materials from barley to sorghum, in which the net profits have increased at a rate of 16% to Kes. 44.4 Billion in 2013.

This increase in growth of sales and volume has been against a controlled environment that was curtailed with coming into effect of the Alcoholic Drinks and Control Act, popularly known as 'Mututho law' that was introduced in November 2010 in Kenya, increased excise taxes and severe competition within the East African Region according to Adetu (2012). In mid 2013, the East African Breweries Limited announced its full year results, posting a growth rate volume of 3% and net sales growth of 6%. Its net capital expenditure was Kshs. 6 billion, covering new projects across the region, including efficiency and expansion projects in Kenya, increased packaging in Uganda and environmental efficiency in Tanzania. The increase in performance by the year 2013 might be attributed to many factors. Yet there is little or no empirical evidence available to evaluate the contribution of green procurement to the performance of EABL. This study sought to examine if one of the contributors to increased performance is green procurement.

Objectives of the Study

General Objective

The general objective of the study is to establish the effects of green procurement on performance of manufacturing industry in Kenya.

Specific Objectives

The study was based on the following research objectives:

i. To establish the effect of staff competence in green procurement on performance of manufacturing industry in Kenya.
ii. To find out the effect of green procurement ICT infrastructure on performance of manufacturing industry in Kenya.
iii. To assess the role of supplier participation in green procurement on performance of manufacturing industry in Kenya.
iv. To determine the effect capital expenditure on green procurement on performance of manufacturing industry in Kenya.

Literature Review

Globalization Theory

According to Medu, (2002), increase in environmental concern by organizations has gradually become part of the overall corporate culture and in turn, has helped to re-engineer the strategies of corporations. Sarki and Tamarkin (2005) observed that environmental performance comes from globalization rather than localization. Due to Globalization there has been an avenue for more opportunities and so are the threats. Multinational companies are crossing borders and setting up subsidiaries hence threatening local companies through huge capital investments, modern technologies, and the capacity to produce goods at competitive rates. This had put pressure on most enterprises to improve their environmental performance (Zhu &Sarki, 2006).

According to Mohan and Sahay, (2000) the preparedness and the deliverables for the competitiveness of host industries translate to strategic and operation requirements which include Cost-Quality improvement which employ some aspects of manufacturing process such as Just-In-Time (JIT), Enterprise Resource Planning (ERP), Total Quality Management (TQM). Other requirements are such as Shortening Time-to-Order and Faster Speed-to-Market, which entails employs strategies such as Stock keeping Unit (SKU) rationalization , mass customization, process integration and globally coordinated research and development. To investigate the influence of the ICT infrastructure and the supplier participation as independent variables, and their influence on the organizational performance, there is need to understand the globalization theory.

Organizational Theory

Organizational theory within business and management is influenced by a variety of other fields and disciplines including psychology, sociology, political science, engineering and economics (Hatch 2006; Pfeffer, 1997). There is need to understand the organizational theory, arising from the management insight to explain of the organizational behavior, design and structures. The supply chain relationships amongst enterprises have led to a fundamental study of the organization theory at the inter-organizational level.

Organizational theory has led to a broad application of various management practices and studies. The application of the organizational theory to supply chain management (Ketchen & Hult, 2007) separately is becoming more established. However, its influence and relationship to environmental management or green procurement has not been reviewed extensively. To further develop this field, there is need to review the literature of green procurement in the context of various organizational theories. The organizational theory will guide the study in investigating how the various levels of leadership and management influence the relationship between the independent variables and the dependent variable.

Empirical Review

The number of experience in years of an employee in a green procurement environment and any additional training levels are also used to evaluate their contribution to performance. According to Scans (2000), competency is the cluster of skills and attitude that, affects a major part one's job; that correlates with performance on the job, that can be measure against well-accepted standard; and that can be improved through training and development. Through the competence levels, the researcher identifies the employee's knowledge level, skills in handling the green procurement tools and systems, information management and resource allocation in green procurement.

ICT software that supports green procurement should be able to ensure processes are conducive to the environment and its inputs and outputs are not harmful to the environment such are use of e-procurement. This reduces use of paper hence less destruction of the forests for papers. The hardware component should have the capacity to support the software and emerging technologies and when it has exhausted its life cycle, it should be recyclable to something usable. Philipson (2011) noted that many organizations dispose of their equipments too early and contribute to unnecessary waste, even when a system upgrade required does not have to be implemented within the whole enterprise.

According to Buchalcevova and Gala (2012), the world is undergoing turbulent rapid changes with adoption of the internet communication and media as well as computerization of the business processes and applications and thus increasing the role of ICT within the society. This has contributed significantly to the growth of the size and number of data centers and other ICTs. Gartner (2004) observed that ICT

generates approximately two percent of global Carbon emissions which is equal to what is generated in the aviation industry. Due to rapid change in technology, there is also an increase in disposal of old computers, monitors and other electronic components with a few years of acquiring them and hence contribute to e-waste. According to National Environmental Management Authority, (NEMA) Kenya has also become a destination for this kind of waste. They are contributing to landfills instead of being recycled and hence earth and water pollution is eminent considering that computer components contain toxic materials.

Over time there has been a keen interest for research on the importance of understanding the supplier participation due to the pivotal role they play in ensuring availability of raw materials. It's important to note that the procurement activities start with the user identifying a need then comes up with the specification and requests the supplier to satisfy the need in which the supplier promises to fulfil. However according to Nyiri, Osimo, Özcivelek, Centeno & Cabrera, (2007) those promises and expectations are generally vague and uncertain in nature especially for technology-intensive procurement projects. Poor environmental performance by a supplier can affect badly the performance and image of the buying companies (Christmann & Taylor. 2001; Cousin et al., 2004; Faruk et al., 2002; Darnall et al., 2006; Hall, 2001).

The capital expenditure has resulted in a revolution of 'Green investment'. It is a broad term and in some sectors or areas it is regarded as socially responsible investing (SRI), ESG (environmental, social and governance investing), sustainable, long term investing or similar concepts (George, Christopher & Fiona, 2012).Green investments are invariably conflated with climate change mitigation or adaption. Eyraud et al. (2011) noted green investment as a necessary investment to enable reduce greenhouse gas and air pollutant emissions, without significantly reducing the production and consumption of non-energy goods. This kind of investment covers both public and private investments.

Data Analysis/Findings

Regression analysis

Multiple linear regression analysis was used to determine the effect of green procurement on performance in manufacturing industry. In this section the study represents the regression results. Regression was used to determine the relationship between the Employees Competence in Green Procurement, The ICT Infrastructure Supporting Green Procurement, Supplier Participation on Green Procurement and Capital Expenditure on Green procurement concepts with Performance of East African Breweries Limited. The model is represented by

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \ldots + \varepsilon$

Where Y = Organizational Performance, X_i are the variables, for $i = 1,2,3,\ldots..,n$, β_i are the slope coefficients, for $i = 1,2,3,\ldots..,n$, β_0 is the intercept and ε is the random error

Table 4.1.1 Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.101	1.418		1.481	.148
Staff competence in green procurement	.477	.243	.353	1.961	.049
ICT infrastructure on green procurement	.312	.291	.203	1.072	.292
Supplier participation on Green procurement	.901	.334	.492	2.697	.011
Capital expenditure on Green procurement	.409	.154	.427	2.650	.012

Dependent Variable: There is significant contribution of employees , ICT infrastructure on Green Procurement, Supplier Participation and Capital Expenditure on the overall performance of East African Breweries Limited

Table 4.12 Model Summary

				Std.	Change Statistics				
Model	R	R Square	Adjusted R Square	Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.547[a]	.299	.211	1.049	.299	3.413	4	32	.020

a. Predictors: (Constant): Staff competence, ICT infrastructure, Supplier Participation and Capital Expenditure

The R Squared indicate that Staff competence on green Procurement, the ICT infrastructure, Supplier participation and capital expenditure on green procurement concepts explain 29.9% of the changes in organization performance.

4.2 ANOVA

Table 4.2.1 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.032	4	3.758	3.413	.020[b]
	Residual	35.239	32	1.101		
	Total	50.270	36			

a. Dependent Variable: Organization Performance of EABL

b. Predictors: (Constant): Staff Competence on Green Procurement, ICT infrastructure, Supplier Participation and Capital Expenditure

The regression analysis indicates that the significant P-value of F statistics is less than 0.05 at 0.02. This implies that the independent variables (Staff competence on green procurement, ICT infrastructure on green procurement, Supplier participation and capital expenditure on green procurement) do explain the variation in the dependent variable (organizational Performance). Therefore the model is significant.

Using the value of the coefficients β from the regression coefficient table 4.7.1 above, the established regression equation takes the form of:

Organizational Performance = $2.101+0.477X_1+0.312X_2+0.901X_3+0.409X_4$

The study shows that all the independent variables have a positive relationship with the dependent variable. The results indicate that with a unit change in staff competent on green procurement will lead to 0.477 changes in organizational performance while with a unit change of ICT infrastructure on green procurement in place there is a 0.312 increase in performance. The findings further indicate that for every unit change in supplier participation in green procurement and unit increase in capital expenditure in green procurement, there is a 0.901 and 0.409 increase in organizational performance hence directly proportional. However, it's important to note that not all the variables are statistically significantly as ICT infrastructure on green procurement indicates a P-value of more than 0.05 at 0.292. A figure that is more than 0.05 implies that we should reject the parameter according to Elinor and Kit (2005). However, based on the various factors and outcome of the rest of the data, this figure is negligible considering that the

other variables have a P-value less than 0.05 hence highly statistically significant to deduce significance of the relationship.

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