

AN EVALUATION ON THE FACTORS AFFECTING THE IMPLEMENTATION OF GREEN PROCUREMENT PRACTICES IN KENYA; A CASE OF NATIONAL OIL CORPORATION

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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 overall objective of this study was to evaluate the factors affecting the implementation of green procurement practices in Kenya. A case of National Oil Corporation. A descriptive research design was used in this study. The study targeted employees of National Oil Corporation. Primary data was collected using a questionnaire from the employees. A samples size of this study was 40 respondents. Descriptive statistics was used in this study aided by Statistical Package for Social Sciences (SPSS) to analyze the data collected. Inferential statistics using multiple regression and correlation analysis also were applied. From the findings of this study, consumer awareness was found to be fundermental aspect that shapes the activities of the organization in a sense that organisations will mainly gain a competitive advantage if they meet customer needs adequately. The study found out that information technology provides tools that enable organizations to consistently procure the best value materials and services in an efficient, cost friendly and environmentally friendly manner. The study found out that top management supports the benefit and realization of strategic green procurement implementation and that that financial availability positively impacts on the implantation of green procurement at National Oil Corporation. As the study suggested, it is recommended that National Oil Corporation should invest more on new technologies that foster green procurement, allocate more resources for green procurement initiatives and have a capacity training programme for green procurement practitioners.

Key Words: *competitive business environment, green procurement, consumer awareness, financial availability and Information Technology*

Introduction

Green Procurement is defined as “the approach by which buying organizations integrate environmental criteria into all stages of their procurement process, thus encouraging the spread of environmental technologies and the development of environmentally sound products, by seeking and choosing outcomes and solutions that have the least possible impact on the environment throughout their whole life-cycle” (Bouwer, et al., 2006).

The uptake of green purchasing by business and industry has shown to be rather limited. A decade ago, green purchasing practices mainly occurred in some high-profile organizations and were mainly confined to chemical firms and/or to those firms in the consumer goods sectors that have experienced green consumer pressure directly (Flanagan, 2010). Compared with other environmental initiatives, few companies had implemented extensive programmes for green purchasing and social ethics in their procurement structures and supply chain. Environmental concerns are finally finding its way from strategy and board room meetings to operations and to Supply Chain Management (Ho et al, 2009).

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).

The Problem Statement

The oil industry plays a major role in the country’s economy. In fact, the oil industry contributes over 20% of the GNP of most countries in the world (World Bank 2010); the transport sector is the largest consumer of petroleum products at approximately 60% of the total volume followed by manufacturing 16% commercial establishment (11%) household use (9%) and agriculture (4%) (GoK, 2011). Prior to liberalization in October 1994, a significant feature of Kenya’s oil industry was a relatively high level of Government’s direct participation, and a correspondingly low level of private sector involvement.

Public procurement in Kenya has been fairly streamlined in the recent past following the creation and enactment of the Public Procurement and Disposal Act (2005). The emergence of climatic changes has led to enormous effects on today’s world economies and it has inevitably called for measures that are aimed at conserving the environment and at the same time ensuring the attainment of customer requirements in the procurement processes.

The introduction of environmental concerns in the purchasing activities contribute not only to the improvement of the overall company performance (Green et al, 2006) but also have a positive effect on greening the supply chain through suppliers' involvement and cooperation. (Theyel 2001). It is has also enabled organizations to gain international recognition and acceptance (Rusinko, 2007)

Most studies on green procurement have focused on supplier involvement, corporate responsibility in supply chains, green manufacturing, and role of third party logistics service providers in green procurement. (Jungman, 2007) These past studies have not focused on how other variables like consumer awareness, information technology, funding availability and management support play a role in the implementation of green procurement practices. This study therefore comes in to bridge this gap in knowledge by evaluating the factors affecting the implementation of green procurement practices in Kenya. A Case of National Oil Corporation.

Literature Review

Due to the growing number of environmental regulations as well as increased legitimacy pressure from several different stakeholders, an increasing number of firms are engaging in green practices (Rusinko, 2007). Manufacturing and service firms can reduce the total environmental impact in mainly two ways (Klassen and Vachon, 2003): By increasing the level of investment in environmental technologies, and by shifting that investment from pollution control to pollution prevention. Interestingly, many firms predominantly focus on their own manufacturing processes and distribution networks.

Procurement, a key boundary-spanning function, and the upstream supply partners together influence the environmental impact of the focal firm in several ways: Inbound logistics' environmental pollution, environmental impact of supplied material, energy consumption and emissions in the production process, and eco-efficiency of the product through its life cycle (Lee and Klassen, 2008; Ross and Jayaraman, 2009).

Coupled with soaring energy prices and increased consumer awareness of the danger to the environment, organizations realize the need to get serious about migrating to green IT and demonstrate a better and more responsible corporate accountability. Corporate social responsibility is of a central concern to executives of almost every corporation (Azzone and Bertel, 1994; Berger et al., 2007; Caldelli and Parmigiani, 2004).

Costs, very often represent a major barrier to the integration of environmental issues in to standard supply practices (F. Bowen, P. Cousins, R. Lamming, & A. Faruk, 2001; Min & Galle, 2001; Sharma & Nguen, 2007; Wycherley, 2000) although the relationship between purchasing social responsibility and firm performance is mixed (Carter, 2005). Managerial interpretations of environmental issues have a significant influence on corporate green supply programmes. If managers perceive environmental issues as a threat to profits or competitive benefits then they

are less likely to engage in environmental friendly initiatives. In contrast, managerial interpretations of environmental issues as opportunities are associated with proactive environmental strategies (Sharma & Nguen, 2007).

Information and communication technology (ICT) is changing the way that companies do business together in supply chains. The scope of e-business includes information exchange, commercial transactions and knowledge sharing between organizations (Croom, 2005), whereas e-commerce focuses only on commercial transactions (Cullen & Webster, 2007). Some of the technologies associated with e-commerce include websites, email, extranets, intranets and electronic data interchange (EDI) (McIvor & Humphreys, 2004). E-procurement has been defined as the use of information technologies to facilitate business-to-business (B2B) purchase transactions for materials and services (Wu, Zsidisin, & Ross, 2007). Use e-procurement, e-sourcing, and other e-systems, run on energy-efficient technology, to buy online rather than using reams upon reams of paper that result in the unnecessary destruction of forests to research, contract, and buy products and services. Furthermore, they help maintain manuals, and policies, in an easy to access e-documents on your indexed, searchable, and easily accessible corporate intranet (Min & Galle, 2003).

In addition to promoting basic initiatives, managerial choice, as espoused by the strategic view of legitimacy, can also encourage proactive as well as norm-breaking initiatives (Beer, 2003). Strategic managerial choice can thus allow for pro-action in addition to re-action; and, enable supply-side environmental development initiatives that are often risky, costly, burdensome, as well as long-term oriented (Child, 2001; Krause and Ellram, 2001). More specifically, top management commitment can not only indicate an organizational mandate to strive for environmental superiority, but can also facilitate “issue legitimating”, whereby the organizational identity is positively altered towards green practices (Sharma et al., 2001). From the strategic perspective of legitimacy, top management commitment could also be envisioned to play a critical role in enabling supply-side green initiatives given their ability to provide access to resources, competencies, and knowledge, ultimately creating new norms of legitimacy.

The Empirical Review

The integration of environmental standards in supply management has become an important strategic issue for many companies. Some experts and scholars have applied different terms in different contexts, such as green procurement (Bowen et al., 2001). Green procurement literature has been developed with the structure of managing the environment in a corporate context, and a strategy for environmentally conscious manufacturing and green procurement management literature was presented by Zhu and Sarkis (2006). In addition, attempts are being made to minimize the unexpected environmental impacts of green procurement processes within the participating organizations and the entire supply chain (Hervani et al., 2005; Linton et al., 2007; Zhu and Sarkis, 2006; Vachon and Klassen (2008). Tseng and Chiu (2010) have indicated that

companies increasingly recognize the concern of suppliers, customers and community to reduce the environmental effects of production processes and to establish objectives to improve the environment. Green procurement focuses not only on the integration of supply chains from green purchasing and from the supplier to the manufacturers used reverse logistics, but also the activities involved in various processes such as the reusing, remanufacturing, recycling of materials or products and ranges from green design, green procurement practices, total quality environmental management or environmentally friendly packaging and transportation to the various product end-of-life practices (Zhu and Sarkis, 2004; Hervani et al., 2005). Research by Tseng et al (2009) shows that there is direct involvement of firms with their suppliers and customers in planning jointly for solutions to reduce the environmental impact of production processes and products and for environmental management and the exchange of technical information.

In recent years, a more externally-oriented approach has been emerged where a firm extends its environmental responsibility beyond its boundaries and tries to reduce sources of waste and pollution throughout its entire supply chain. This extended responsibility occurs across multiple organizations, upstream and downstream the supply chain, and take different names including product stewardship, closed-loop supply chain, in addition to green supply chain (Canning and Hanmer-Lloyd, 2001; Vachon and Klassen, 2006).

Research Methodology

A descriptive research design was used in this study. The study targeted 400 employees of National Oil Corporation in Nairobi. A proportionate sample size of approximate 40 respondents which is 10% of the population was selected using a simple stratified random sampling technique from the identified sample. The researcher collected both primary and secondary data during the researcher. Primary data was collected using a questionnaire from the employees of National Oil Corporation in Nairobi Kenya. The questionnaire contained both structured and unstructured questions. Quantitative data from the questionnaire was analyzed by employing descriptive statistics and inferential analysis using statistical package for social science (SPSS). Implementation of green procurement practices was be regressed against four variables namely (Consumer awareness, Information Technology Top Management Support, and Funding availability).

Research Findings

The first objective of the study was to establish how consumer awareness affects the implementation of green procurement practices at National Oil Corporation of Kenya. At 5 % level of significance consumer awareness was found to be statistically significant in affecting green procurement implementation. This is in agreement with Hall (2001) who contends that when exploring enablers to green procurement, the factor that stands out above all others in terms of a driving force is customer requirements. Positive association was established between

consumer awareness and green procurement implementation. This implies that increase in consumer awareness positively attributes to green procurement implementation.

The study revealed that information technology is positively related to green procurement practices at National Oil Corporation of Kenya. At 95% confidence level, information technology was found to be statistically significant in improving green procurement practice. From the findings, with a mean of 4.21 and standard deviation of 0.001 the respondent strongly agreed that new technology has been embraced at National Oil Corporation and has facilitated green procurement. ICT equipments are environmentally friendly since they use less energy and easily disposable. The study also revealed that 86% of respondents were in agreement that technology provides tools to enable organizations to consistently procure the best-value materials and services in an efficient, cost friendly and environmentally friendly manner. Technology allows for development of product designs that are environmentally friendly; the adoption of information technology is core in implementation of new strategies in the supply chains (Kauffman, 2006).

The third objective of the study was to find out whether management support affects the implement of green procurement practices at National Oil Corporation of Kenya. The finding indicated that management support positively impacts on the implementation of green procurement practices at National Oil Corporation of Kenya. The study revealed that management supports the benefit of strategic green procurement implementation as indicated. The study revealed that management supports the benefit of strategic green procurement implementation as indicated with a mean of 3.61 and standard deviation of 0.015. This statement is echoed by Dilbert (2005) who emphasized that managers are also required to provide adequate resources to the implementation of green efforts, the resources include time, work force and appropriate funding that should drive competitive and viable decisions geared to make the implementation of green procurement successful.

The fourth objective was to examine the role of funding availability in the implementation of green procurement at National Oil Corporation of Kenya. The finding showed that financial availability positively impacts on the implementation of procurement at National Oil Corporation of Kenya. A unit increase in fund availability will lead to 0.0871 units increase in green procurement implementation as indicated by the regression result. According to the findings, green procurement initiatives should be allocated a budget. The findings also revealed that the high cost of initial investment associated with the required infrastructure and training of personnel, quantifying the return on investment often becomes a barrier to green procurement implementation. This in agreement with Min & Galle, 2001 who argues that costs, is a major barrier to the integration of environmental issues in to standard supply practices

Regression Analysis

In addition, the researcher conducted a linear multiple regression analysis so as to test the relationship among variables (independent) on the green procurement practices. The researcher applied the statistical package for social sciences (SPSS) to code, enter and compute the measurements of the multiple regressions for the study.

Table 1: Model Summary

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
1	.811 ^a	.921	.918		.64185

Analysis in table above shows that the coefficient of determination R^2 is 92.1 % which implies that 92.1% of the variation in green procurement implementation is explained by the changes in the explanatory variables (Consumer awareness, Information technology, Management support, Funding availability).

The Analysis of Variance (ANOVA) was used to check how well the model fits the data. The results are presented in table 2.

Table 2: Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.045	3	.123	.691	.000 ^a
	Residual	5.102	34	.177		
	Total	5.628	37			

The F statistic is the regression mean square (MSR) divided by the residual mean square (MSE). Since the significance value of the F statistic is small (0.000 smaller than say 0.05) then the predictors variables Consumer awareness, Information technology, Management support, Funding availability explain the variation in the dependent variable which is green procurement implementation. Consequently, we accept the Hypothesis that all the population values for the regression coefficients are not 0. Contrary, if the significance value of F was larger than 0.05 then the independent variables would not explain the variation in the dependent variable, and the null hypothesis that all the population values for the regression coefficients are 0 should have

been accepted. The regression output of most interest is the following table of coefficients and associated output:

Table 3: Regression Coefficients results

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	25.051	0.123		7.367	0.000
	Consumer awareness	0.048	0.028	0.158	2.021	0.0020
	Information technology	0.061	0.027	0.101	1.157	0.0032
	Management support	2.251	0.030	0.105	1.194	0.0029
	Funding availability	0.0871	0.028	0.147	1.686	0.0023

The researcher conducted a multiple regression analysis so as to determine the relationship between green procurement implementation and the four variables. As per the SPSS generated table above, the equation ($Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon$) finally becomes:

$$Y = 25.051 + 0.048CA + 0.061 IT + 2.251MS + 0.0871FA$$

Where:

Y = Green procurement implementation

ϵ = Constant (Co-efficient of intercept)

X1 = consumer awareness

X2 = information technology

X3 = management support

X4 = funding availability

The multiple linear regression models indicate that all the independent variables have positive coefficient. The regression results above reveal that there is a positive relationship between dependent variable (Green procurement implementation) and independent variables (Consumer awareness, Information technology, Management support, funding availability). From the findings, one unit change in consumer awareness leads to 0.048 units increase in green procurement implementation.

A unit change in information technology will lead to 0.061 units increase in green procurement implementation. One unit change in management support will lead to 2.25 units increase in green procurement technology. A unit increase in fund availability will lead to 0.0871 units increase in green procurement implementation. As a guide regarding useful predictors, we look for t values well below -0.5 or above +0.5. At a 5% level of significance and 95% level of confidence, consumer awareness had a 0.002 level of significance; funding availability showed a 0.0023 level of significance, management support showed a 0.0029 level of significance and information technology showed a significance level of 0.0032. In this case, the most important variable was Consumer awareness followed by Funding availability, Management support and Information technology respectively.

Conclusions

From the findings the study concludes that consumer awareness is very crucial in implementing green procurement at National Oil Corporation. Top management is also important because it acts as the driving behind the whole implementation process. IT has also resulted to increased efficiency in the implementation of green procurement. Based on the findings on funding availability, the study concludes that funding affects the effective implementation of green procurement at National Oil Corporation. The study also concludes that management support affects the effective implementation of green procurement at National Oil Corporation. Further, the study concludes that information technology infrastructure has a direct influence on the effective implementation of green procurement at National Oil Corporation. The study further concludes that the current information technology infrastructure is not effective enough to support the implementation of green procurement in Kenya. Finally, the study concludes that government policy affects the effective implementation of green procurement and that there is lack of adequate legal framework to govern green procurement.

Recommendations

From the summary and conclusions, the study recommends the top management should remain committed to the implementation of green procurement major corporations in kenya. This will help to give guidelines on critical stages of implementation process. The study also recommends that National Oil Corporation and the Kenyan governments needs to allocate adequate funds for the implementation of the green procurement system. This will help the government save on costs and time by ensuring by ensuring adherence to the timelines of implementation process and timely commissioning and completion of implementation phases. The study further recommends that the governments should consider offering additional training to the staff as this will help to equip end users with competence thus streamlining the implementation of green procurement process. The study also recommends that National Oil Corporations should consider partnering with other stake holders in ICT in setting of the IT infrastructure. This has the benefit of cost sharing and ensures active involvement and sharing by both public and private sectors in the

implementation process thereby reducing chances of sabotage and resistance to change. This is likely to lead to the overall success of the green procurement system, government policies and regulation, the study recommends the review of the current legislative framework on digital transactions and green procurement. Consequently the drafting of new policies should involve the active participation and involvement of the national and the county governments in the implementation of green procurement.

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