

## **The role of procurement procedures in environmental management: A case study of classified hotels in Mombasa County, Kenya**

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**Abstract:** This paper sought to examine the role of procurement procedures on environmental management. It adopted a cross-sectional descriptive research design that involved collecting and analyzing data of observations about the role of procurement practices on environmental management from a representative sample of managerial staff of classified hotels in Mombasa County, Kenya. The data collected was primary data. It was collected from staff in 69 hotels in Mombasa County, Kenya. The research used stratified random sampling technique where the employees were categorised into seven strata of general/assistant managers, food and beverage managers, executive chef, procurement officers, maintenance managers, receiving managers and housekeepers. From each of the stratum, a random sample was identified. The study employed Yamane's formula to determine the sample size. The study determined that procurement procedures influenced environmental management. The study also determined that some of the procurement procedures were perceived to have a greater influence than others. The most influential procurement procedure on environmental management is tendering adverts that attract suppliers offering environmentally friendly products, while the least influential is assessing the impact of suppliers on the environment prior to purchasing.

**Keywords:** procurement procedures, environmental management, classified hotels

**JEL classification:** Z32, Q56

## **Uloga postupaka nabavke u upravljanju životnom sredinom: Studija slučaja kategorisanih hotela u okrugu Mombasa, Kenija**

**Sažetak:** Rad ima za cilj da ispita ulogu procedura nabavke u upravljanju životnom sredinom. Korišćen je deskriptivni istraživački pristup koji je uključio prikupljanje i analizu podataka o zapažanjima reprezentativnog uzorka rukovodećeg osoblja kategorisanih hotela u okrugu Mombasa u Keniji o ulozi nabavke u upravljanju životnom sredinom. Prikupljeni podaci su primarnog karaktera. Podaci su prikupljeni ispitivanjem osoblja u 69 hotela u okrugu Mombasa u Keniji. U istraživanju se koristila stratifikovana tehnika slučajnog uzorkovanja gde su zaposleni kategorisani u sedam nivoa generalnih menadžera i pomoćnika

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direktora, menadžera hrane i pića, šefa kuhinje, službenika nabavke, menadžera održavanja, menadžera za prijem i upravitelja domaćinstva. Iz svakog nivoa je identifikovan nasumični uzorak. U studiji se koristila Yamane-ova formula za određivanje veličine uzorka. Istraživanje je potvrdilo da procedure nabavke utiču na upravljanje životnom sredinom. Istraživanje je, takođe, potvrdilo da neki od postupaka nabavke imaju veći uticaj od drugih. Postupak nabavke sa najvećim uticajem na upravljanje životnom sredinom je raspisivanje tendera koji privlače dobavljače koji nude ekološke proizvode, dok procena uticaja dobavljača na okruženje pre kupovine ima najmanji uticaj.

**Ključne reči:** procedure nabavke, upravljanje životnom sredinom, kategorisani hoteli  
**JEL klasifikacija:** Z32, Q56

## 1. Introduction

The Hospitality and Tourism industry is very important to the Kenyan economy. Kenya earned 96 billion shillings from foreign exchange, contributed 8.3 per cent in employment countrywide in 2012 (KNBS, 2016, p. 38). Kenya Tourism Federation (2014), explains that hospitality sector is one of the biggest producers of waste food. However, the report observed that 40-60% of the hotels located on the Coastal region do not have green management supply design. This has led to hips of garbage and litter in the environment, which has resulted to high carbon emissions that are harmful to both fauna and flora. Kenya Tourism Federation (2014) specifies that, Kenya in particular, generates tons of waste each year. The Sustainable Tourism Report (2013), cautions that, “the survival of the Hospitality and Tourism industry depends on environmental conservation” (p. 55).

Procurement Procedures are a necessary component of Supply Chain Management (SCM). “It reflects the need to include suppliers as part of the implementation of environmentally sound practices for materials management and purchasing processes and procedures, tantamount to greening the supplier” (Srivastava, 2005, p. 75). Procurement procedures are measured the techniques used in acquiring raw materials, suppliers who are able to source environmentally friendly materials and materials such as organic and natural products applied by the hotels. Knudsen (2013) notes that “supply chain management practices are the integration of improvement of the environment and curbing of natural risks” (p. 18). Wu et al. (2012) explains that supply chain management practices are actions, procedures, processes and activities that are friendly to the environment. Environmental responsibility has lately become a corporate issue as it has drawn special attention especially in the hotel industry (Khisa, 2011).

There are three levels of SCM practices proposed to result from different combinations of drivers and supply chain management practices. When a firm is motivated mainly by internal and external drivers and possesses low supply chain capabilities, we expect internal (mainly manufacturing), reactive or ‘end-of-pipe’ green practices, where a firm tries only to ‘clean’ negative environmental impacts with minimum implementation of proactive practices. The study aimed at investigating the role of supply chain management practices in environmental management in classified hotels in Mombasa County, Kenya. Thus, this study was based on the following hypothesis: there is no significant relationship between the procurement procedures and environmental management in classified hotels in Mombasa County, Kenya.

## 2. Literature review

“A firm’s procurement system is a vital component of a company’s supply chain system” (Janković & Krivačić, 2014, p. 15). “Typically, a company’s procurement function is

subdivided into strategic and operational processes since activities and priorities in these two areas are entirely different” (Amemba, 2013, p. 36). Due to the importance of procurement in an organization, some organizations have enhanced their procurement processes by adopting new systems such as e-procurement that is used in conjunction with the changed technologies of electronic trade such as archive imaging, work process management, announcement boards and email to empower business process reengineering. Organizations acquisition enables purchasers to buy goods and services using various facilities in an assortment of forms. Most importantly, parastatals see acquirement as a decent chance to upgrade and enhance productivity in obtainment procedures among people in general sector bodies. These procedures are exceptionally directed, with specific rules for advertising obtainment needs.

As accurately featured by Siem (2005), government procurement procedures could be guided by three fundamental principles: every single interested gathering in all part states must have an equivalent chance to submit tenders, all enquiries must get equivalent treatment keeping in mind the end goal to wipe out discrimination on the grounds of the nationality of the contractual worker or the starting point of the goods/services and each of the offering and honor procedures must include the utilization of target criteria. “With these combinations, e-procurement can give rise to a number of benefits to an organization and to the strategic position of a firm such that it will consolidate purchasing practices that will prompt more prominent discounts and better service from suppliers, quicken the stream of critical data between the purchaser and supplier, decrease administrative hours, liberating them up to do other work and furthermore helps to respond rapidly to very aggressive new market entrants” (Chiu & Hsieh, 2015, p. 114).

Wu et al. (2012) assert that policy makers are increasingly showing interest in unethical processes that transpire in the procurement front since little progress has been achieved. To a competent supply organization, the award of tender should ensure effective delivery of goods of cost, time and quality standard. It is generally accepted that the main goals in any supply are budget, schedule and quality (Perry & Sohal, 2009). Meeting goals related to cost, schedule, quality and safety is the overall success of a supply. To ensure performance of the supply in relation to the above-mentioned variables is therefore the objective of taking all the required precautions and due processes in the selection of supplier to execute a market tender.

Hoske (2015) proposes prequalifying of suppliers before the process of bidding to ascertain their ability to meet project and client objectives as a method of improving performance on construction. Thus, capable, competent and competitive suppliers’ prequalification is key to determining the awarding of tenders. The tendency of suppliers to be sophisticated is a fact and it is therefore necessary to explore the effect of service delivery by supplier’s prequalification. When procedures and procurement standards are stipulated, the competencies types of procurement operations staff are affected indirectly by the legal framework. However, some cases are different, as in the US procurement legal frameworks according to Illinois Public Higher Education Procurement where quality and type of staff competencies by implication are suggested openly (Manyara & Jones, 2007).

According to Mensah (2016), the Kenyan procurement management heavily suffers from unethical practices and it is thus necessary to make ethical considerations in order to re-establish public trust. Green et al. (2012) asserts that the most common challenge undermining the battle against corruption is the maintenance of secretive relationships in procurement. Corruption and conflict of interest, among other deceptive practices in procurement pose issues that are damaging to the purchasing department itself, relations with other departments, and suppliers.

### 3. Materials and methods

This study adopted a cross-sectional descriptive research design that involved collecting and analyzing data of observations about the role of procurement practices in environmental management from a representative sample of managerial staff of classified hotels in Mombasa County, Kenya. Kothari (2004) asserts that “cross-sectional descriptive surveys are useful in establishing practices, attitudes, knowledge and beliefs of either an entire population or a subset” (p. 18). Data was collected from individuals selected.

The collected data was primary ones, collected from staff in 69 hotels in Mombasa County, Kenya. These hotels were identified using a list developed by the Tourism Regulatory Authority in Kenya.

The unit of analysis was the managerial staff, supervisors and housekeepers. The management was targeted as they are well informed of the procurement practices at the policy implementation level while the housekeepers ensure the daily operations of the hotel in relation to environmental management in their hotels. Table 1 shows the strata distribution in the hotels.

Table 1: Target population distribution

Section Managers	Classified hotels					Population
	*	**	***	****	*****	
General or Assistant Managers	15	20	17	15	2	69
Food and Beverage Managers	0	0	17	15	2	34
Executive Chef	0	0	17	15	2	34
Procurement Managers	0	0	17	15	2	34
Maintenance Managers	0	0	0	15	2	17
Receiving Managers	0	0	0	15	2	17
Housekeepers	0	0	2	15	2	19
<b>Total (N)</b>	<b>15</b>	<b>20</b>	<b>70</b>	<b>105</b>	<b>14</b>	<b>224</b>

Key (Hotel rating): \* One-star, \*\* Two-star, \*\*\* Three-star, \*\*\*\* Four-star, \*\*\*\*\* Five-star

Source: Author’s research, 2017

The research used stratified random sampling. This technique fits the study as it gives each element within each stratum an equal probability of being selected (Denscombe, 2008). From each stratum (Table 1), a random sample was identified. Collecting data from each stratum ensured representativeness of the sample, while random selection within the strata reduced biasness in selecting the respondents. The study adopted Yamane’s formulae (equation 1) to determine an adequate sample size,  $n$ , of the survey (Yamane, 1967):

$$n = \frac{N}{1+N(e)^2} \quad (1)$$

Where:

$n$  is the optimum sample size,

$N$  - the number of managerial staff in the classified hotels in Mombasa County (224),

$e$  - the probability of error (i.e. the desired precision, i.e. 0.05 for 95% confidence level).

Sample size,  $n$ :

$$172 = \frac{224}{1+224(0.05)^2} \quad (2)$$

To minimize bias so as to ensure the reliability and validity of the findings, a proportionate sample for each segment of the stratum was identified as shown in Table 2.

Table 2: Sampling frame

Sections	Population	Sample size	Percentage
General/ Assistant managers	69	53	31
Food and beverage managers	34	26	15
Executive Chef	34	26	15
Procurement managers	34	26	15
Maintenance managers	17	13	8
Receiving managers	17	13	8
Housekeepers	19	15	8
<b>Total</b>	<b>224</b>	<b>172</b>	<b>100</b>

Source: Author's research, 2017

A non-structured questionnaire is a questionnaire where the listing of questions is in a prearranged order and where the purpose of the data is revealed to the respondents. The choice of three instruments was to ensure triangulation was achieved. Most of the questions were close-ended to allow easy coding, faster responses and direct research to relevant and desirable variables hypothesized as possible challenges. The 5-point Likert type scale was adopted for the study. "The Likert scale used was 1=strongly disagree, 2=disagree, 3=indifferent (neutral), 4= agree and 5=strongly agree" (Denscombe, 2008, p. 34). The rationale for choosing the questionnaire as the research instrument was primarily due to its practicability, applicability to the research problem and the size of the population. It is also cost effective (Denscombe, 2008). The questionnaire was organised into two parts; the first part sought information on the respondent's demography, which included their job category, length of time in the hotel, the operational time of the hotel as well as its rating. The second section, i.e. part B, contained the questions related to supply procurement practices.

A pretest was done to eliminate possible flaws in data collection procedures. Some questionnaires were distributed to managerial and support staff in hotels of similar caliber in Nairobi County. Eleven questionnaires were collected for scrutiny before the data in them was analyzed (Table 3). Mugenda and Mugenda (2003) state that a "relatively small sample of 10 to 20 respondents can be chosen from the population during piloting which is not included in the sample chosen for the main study" (p. 55).

Table 3: Hotels sampled and response rate

Classification (Hotel rating)	Questionnaires issued per hotel	Questionnaires received
*	4	3
**	4	2
***	4	2
****	4	2
*****	4	2
<b>Total</b>	<b>20</b>	<b>11</b>

Source: Author's research, 2017

Reliability was estimated using Cronbach's Alpha Coefficient. A reliability of at least 0.70 at  $\alpha=0.05$  significance level of confidence is acceptable (Cooper & Schidlers, 2003). Table 4 shows the reliability analysis table. The universally acceptable Likert scale items were used in gathering data to enhance criterion validity. The help of an expert was sought in their preparation to ensure content validity.

Table 4: Reliability analysis

Dimension	Cronbach's Alpha Reliability Coefficients	Evaluation based on Sekaran (2000)
Procurement procedures	0.962	Acceptable

Source: Author's research, 2017

In total 172 questionnaires were administered through direct interaction with the respondents. However, in a case where the collection of data through face to face proved difficult, the researcher used the drop and pick method.

Statistical Package for Social Sciences (SPSS) was used to analyze the data. Most of the data was analyzed by use of descriptive statistics. Chi-square was employed to establish a relationship between variables. A repeated measure ANOVA was conducted to examine the influence of seven procurement procedures on environmental management in classified hotels using Likert scale values where 1 = not at all influential, 2 = slightly influential, 3 = somewhat influential, 4 = very influential and 5 = extremely influential. Table 5 shows Measurement of Constructs.

Table 5: Measurement of constructs

Objective	Scaling
To examine the influence of procurement procedures on environmental management in classified hotels within Mombasa County, Kenya.	<ul style="list-style-type: none"> <li>• Ordinal</li> <li>• Nominal</li> </ul>

Source: Author's research, 2017

The hypothesis was tested using Chi-square analysis. This analysis was used in order to establish the existence of an association between variables:  $\Phi=0.000$  an association exists.

#### 4. Results and discussion

This section presents the findings and discussions on the roles of procurement procedures in environmental management of classified hotels in Mombasa County in Kenya.

Table 6 shows data on the number of hotels sampled and the response rate. According to Chege (2012, p. 25) and Chan et al. (2015, p. 51), "a survey with an overall response rate of more than 59 percent shows the success of the survey". The response rate was 61%.

Table 6: Hotels sampled and response rate

Classified hotels	Number	Questionnaires issued per hotel	Total questionnaires issued	Questionnaires received
*	15	2	30	27
**	20	2	40	30
***	17	3	51	24
****	15	3	45	18
*****	2	3	6	6
<b>Total</b>	<b>69</b>		<b>172</b>	<b>105</b>

Source: Author's research, 2017

Data on the management positions held by the participants indicated that they worked in

eight management positions in the classified hotels. The findings showed that the number of respondents in the various positions varied as presented in Table 7.

Table 7: Data on the management positions held by the participants

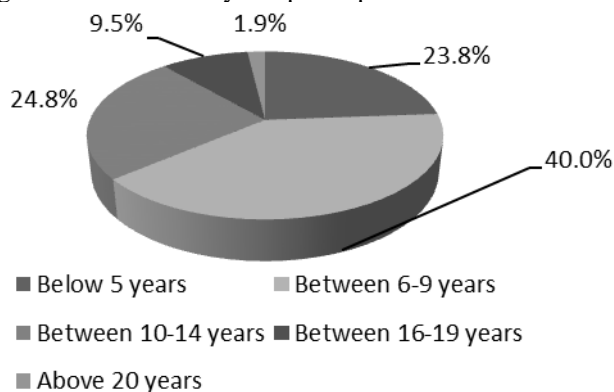
Management position	Frequency	Percent
General/assistant general manager	21	20.0
Food and beverage manager	15	14.2
Executive chef	13	12.3
Procurement/supplies manager	15	14.2
Maintenance manager	11	10.4
House-keeping manager	12	11.6
Front office manager	8	7.8
Marketing manager	10	9.5
<b>Total</b>	<b>105</b>	<b>100.0</b>

Source: Author's research, 2017

This is in line with Carter's (2014) view that support from middle level managers in organizations is key to successful implementations of GSCM practices.

Figure 1 shows the length of time served by the participants in the classified hotels. According to Murutu (2016) the working experience of the workforce positively correlates with successful supply chain performance given the fact that the members of an organization have significant information on a firm's overall procurement strategy. Consequently, they could be assumed to understand well the hotels procurement practices and the environment.

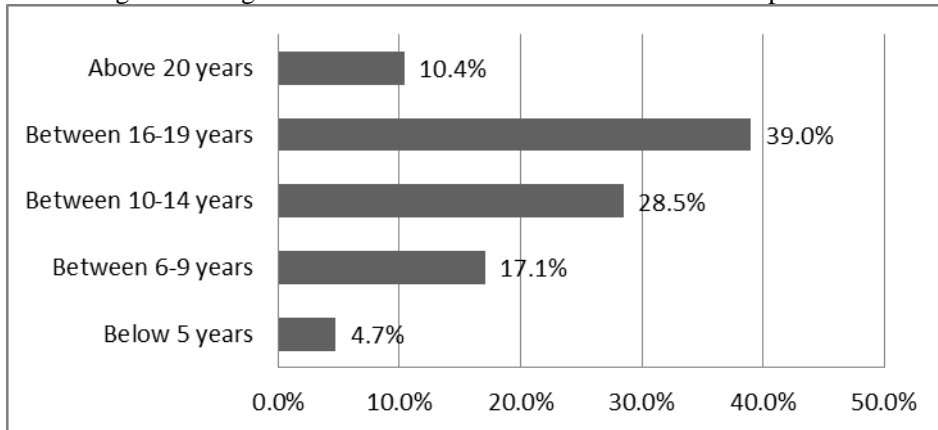
Figure 1: Length of time served by the participants in the classified hotels



Source: Author's research, 2017

Figure 2 shows that most of the classified hotels (39%) had been in operation for a period of between 16 to 19 years, while 2% had been in operation for a period of above 20 years. This shows that the classified hotels had been long in existence and this made the hotels conducive for the study.

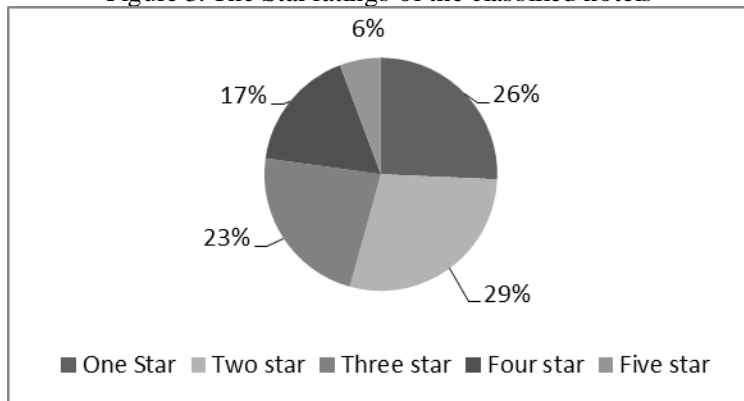
Figure 2: Length of time the classified hotels have been in operation



Source: Author's research, 2017

Figure 3 shows the star rating of the hotels under study. A majority of the hotels are 2-star hotels.

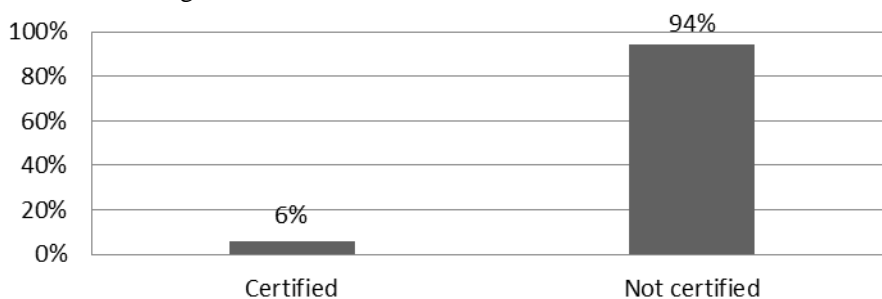
Figure 3: The Star ratings of the classified hotels



Source: Author's research, 2017

Figure 4 shows the ISO 9001 certification status of the classified hotels. ISO certification requires adherence to laid down environmental protection procedures.

Figure 4: ISO 9001 certification status of the classified hotels



Source: Author's research, 2017



Table 8 shows the descriptive statistics of the influence of procurement procedures on the environmental management.

Table 8: Descriptive statistics of the influence of procurement procedures on environmental management

Procurement procedures	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Mean	Std. Deviation
	F	%	F	%	F	%	F	%	F	%		
Tendering adverts that attract suppliers offering environmentally friendly products	1	1	3	3	11	10	53	50	37	35	3.19	0.785
Assessing of suppliers on environmentally friendly practices	-	-	-	-	6	6	81	77	17	16	2.79	0.583
Having suppliers comply with acceptable environmental certification standards	1	1	2	2	9	9	63	60	21	20	2.98	0.693
All bidders meet environmental certification standards	-	-	-	-	-	-	89	85	16	15	3.12	0.804
Assessing the impact of suppliers on the environment prior to purchasing	-	-	-	-	9	9	72	69	24	23	2.84	0.600
Only purchasing from suppliers selling environmentally friendly products	1	1	1	1	19	18	61	58	23	22	2.86	0.501
<b>Total</b>											<b>20.9</b>	<b>4.783</b>
<b>Average</b>											<b>2.99</b>	<b>0.683</b>

Source: Author's research, 2017

The descriptive statistics indicated that overall, respondent perceived all the procurement procedures to influence environmental management in the classified hotels. The survey conducted revealed that majority of the respondents (85%) agreed that all bidders that met environmental certification standards influenced environmental management; 77% agreed that assessing suppliers on environmentally friendly practices influenced environmental management; 69% agreed that assessing the impact of suppliers on the environment prior to purchasing influenced environmental management. Furthermore, 60% agreed that having suppliers comply with acceptable environmental certification standards influenced environmental management; 58% agreed that only purchasing from suppliers selling environmentally friendly products influenced environmental management; 57% agreed that having bidders that met environmental certification standards influenced environmental management and 50% agreed that tendering adverts that attracted suppliers offering environmentally friendly products influenced environmental management.

Housekeepers were asked to explain the importance of sustainable development for the hotel industry in general. According to the responses, given sustainable development has

enhanced purchasing of only environmentally friendly products by the hotels, has enhanced environmentally friendly production processes and has reduced harmful emissions and pollution control in the hotels. One of the interviewees said: “*Sustainable development for the hotel industry is the best thing for this country in the realization of vision 2030 and boosting of local tourism and the economy*”.

The findings agree with various arguments. “Environmental management issues have been important to the hotels” (Knudsen, 2013, p. 36). The availability, characteristics, knowledge, ambitions, equipment and actions of the suppliers can have an impact on purchasing and green purchasing especially by hotels (Knudsen, 2013). The result concurs with Trochim (2001) argument that the main sustainable procurement strategies include supplier capacity development, sustainability criteria in contract, vendor assessment and sustainable supply roles. Sarkis’s (2001) argument that sustainable procurement strategies should be supported by clear lines of accountability, with incentives and penalties for delivery, are intended for the classified hotels having bidders that meet environmental certification standards, having suppliers comply with acceptable environmental certification standards, having all bidders meet environmental certification standards, assessing the impact of suppliers on the environment prior to purchasing and on environmentally friendly practices. The findings about the influence of only purchasing from suppliers selling environmentally friendly products agree with Butler’s (2015) view that “companies need to monitor the environmental impact of suppliers, and develop an environmental purchasing policy that aims to reduce the environmental impact of their own and their suppliers activities, goods and services (otherwise known as ‘green buying’)” (p. 25).

The respondents ranked the procurement policies and regulations as they were applied in their hotels. Table 9 shows that majority of the respondents (42%) ranked training of staff on the procurement policies as the highest procurement policy. Involvement of suppliers in ensuring compliance with procurement policies was ranked lowest at 6%.

Table 9: Application of procurement policies in the classified hotels

Procurement procedures	Frequency	Percentage
Favouring local products that comply with existing regulations where possible	29	28
Purchasing appliances and other equipment that are designed for minimum water and energy consumption	17	16
Training staff on the procurement policies set by the hotel industry	42	40
Involving suppliers in ensuring compliance with procurement policies by the hotel	6	6
Preference of products with recyclable packaging	11	10
<b>Total</b>	<b>105</b>	<b>100</b>

Source: Author’s research, 2017

These results also support Chiu and Hsieh’s (2015) opinion that “procuring organizations are more seriously involved in designing and implementing sustainable procurement policies focusing on how environmental issues and issues relating to other aspects of the sustainable development pillars (society and economy) can be integrated in the procurement with a view to enhance their supply chain performance” (p. 63). The findings also showed that the influence of these procurement procedures was perceived to differ on the environmental management of the classified hotels.

A Chi-Square test was run to determine the relationship between the procurement procedures

and environmental management in classified hotels in Mombasa County, Kenya. The results are shown in Table 10.

Table 10: Chi-test for procurement procedures and environmental management

Independent variable	Hypothesis	Chi-sq. p value	Sig. Value	Result	Decision
Procurement Procedures	H <sub>01</sub>	0.028	0.05	0.028<0.05	H <sub>01</sub> : rejected

Source: Author's research, 2017

Table 10 shows at 95% confidence level, the Null Hypothesis (H<sub>01</sub>:) yielded Pearson's P-value < 0.05, hence, the Null hypothesis (H<sub>01</sub>: There is no significant relationship between the procurement procedures and environmental management in clasified hotels in Mombasa County, Kenya) was not accepted. Consequently, the alternative hypothesis (There is a significant relationship between the procurement procedures and environmental management in classified hotels in Mombasa County), Kenya was accepted.

## 5. Conclusion

The findings indicate that procurement procedures influence environmental management. However, some of the procurement procedures were perceived to have greater influence than others. The most influential procurement procedure on environmental management was tendering adverts that attract suppliers offering environmentally friendly products while the least influential one was assessing the impact of suppliers on the environment prior to purchasing. The overall survey findings revealed that the respondents perceived the following parameters to have an influence on environmental management in the classified hotels: tendering adverts that attract suppliers offering environmentally friendly products, having bidders that meet environmental certification standards, assessing of suppliers on environmentally friendly practices, having suppliers comply with the acceptable environmental certification standards, all bidders meet environmental certification standards, assessing the impact of suppliers on the environment prior to purchasing and only purchasing from suppliers selling environmentally friendly products.

The purpose of this paper was to examine the role of procurement procedures in environmental management. The study concluded that procurement procedures influenced environmental management. The study recommends that hotels should embrace all the procurement procedures that contribute to environmental management so as to enjoy their benefits, in particular, tendering adverts that attract suppliers offering environmentally friendly products. The hotels should also be encouraged to carry out an impact assessment of the suppliers on the environment prior to purchasing.

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