

## Analysis of Effects of Green Practices on Sustainability in Urban Hotels in Kenya

### Abstract

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Adoption of green practices has been touted as the panacea for sustainability in many economic sectors. With urban hotels constrained in their adoption, this study sought to determine the extent to which urban hotels in Kenya had adopted green practices and to analyse the effects of green practices adoption on sustainability. To conduct the research, primary data were collected from 132 hotel departmental heads using a self-administered questionnaire and from 69 operations managers using an interview schedule. The results indicated that urban hotels in Kenya had only averagely implemented green practices. Nevertheless, the study found a positive significant effect of green practices on sustainability. The implications of these findings are that sustainability in hotels could certainly be achieved through adoption of green practices. As such effective incentives should be provided to encourage hoteliers to continue to adopt green practices. However, hotels need to recognize that adoption of green practices accounts for only a small change in sustainability in hotels. This suggests that other approaches could be sought to achieve sustainability more fully. The value of this study is that it clarifies effectiveness and relationship between green practices and sustainability in urban hotels which has hitherto been inconclusive.

**Keywords:** Adoption and effectiveness of green practices, sustainability, urban hotels, Kenya

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### Introduction

The term sustainability originates from the idea of sustainable development, which is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (The World Commission on Environment and Development [WCED], 1987: 8). Sustainable development is a process which culminates to a state of sustainability (Jones et al., 2016). As an established business trend, sustainability encompasses aligning a firm’s operations with the dimensions of sustainable development to simultaneously improve its performance (Chiwawa, & Wissink, 2023; Sajjad et al., 2018). A sustainable hospitality sector should therefore “take full account of its current and future economic, social, and environmental impacts, addressing, in a befitting manner, the needs of visitors, the industry, and the environment and host communities” (World Tourism Organization [WTO], 2013: 12). However, hotels use large amounts of resources, incurring high operating costs and produce harmful grey water and solid waste, which ultimately affect sustainability (Gitobu & Njoroge, 2015; Mungai & Irungu, 2013). Hotels therefore adopt green practices to reduce their adverse impacts in an effort to be sustainable (Hsieh, 2012; Kasim et al., 2014; Mensah, 2014). Hotels in the developed world adopt green practices that involve high initial cost and innovation and may include recycling of waste, use of motion sensors, dual-flush toilets, double-glazed windows among other practices (Choy et al., 2021; Kapiki, 2012). These hotels even go further to streamline and formalize their adoption by earning eco-certifications (Chong & Verma, 2013). On the other hand, hotels in developing countries encounter many challenges such as associated expenditures and inadequate knowledge about green practices in their pursuit of sustainability (Murimi, 2020; Sajjad et al., 2018). Urban hotels specifically, and in addition to these challenges experience contextualized barriers to sustainable practices adoption due to space constraints that limit recycling and composting practices (Prud’homme & Raymond, 2016). As such, research shows that the number of hotels adopting green practices and acquiring eco-certifications in developing countries is still low (Kasim, 2015; Mbasera et al., 2016; Myung et al., 2012). Yet, there is growing importance of greening the business and pressure from various stakeholders such as customers and governments. An assessment of Kenya’s hotel industry shows that there is low uptake of green practices by urban hotels in spite of their general subscription to the sustainability agenda (Kenya Association of Hotelkeepers and Caterers [KAHC], 2016). The foregoing issues pose many questions, the pertinent one being the extent to which urban hotels in developing countries have adopted green practices and how it relates to sustainability in the hotel. Research on this phenomenon (e.g. Abdou et al., 2020; Mbasera et al., 2016; Gitobu & Njoroge, 2015; Myung et al., 2012; Mungai & Irungu, 2013) is still inconclusive and focuses specifically on the environmental dimension of sustainability and on hotels in ecologically sensitive areas. This study therefore aimed to establish the extent to which urban hotels in Kenya had adopted green practices and to analyse the effects of this adoption on sustainability in the hotels.

### Literature review

#### *Sustainability in hotels*

Since the 20<sup>th</sup> century, the idea of sustainability has attracted increasing consideration globally due to a growing concern about many challenges facing society (Jones et al., 2016; Martínez García de Leanizet al., 2018). The genesis of sustainability in hotels has been traced back to the 1960s, which saw a realization of the environmental, economic and social impacts of hotel development and operations (Jones et al., 2014). Since then, sustainability in hotels integrates the sustainable development



dimensions. Environmental sustainability involves protecting natural resources through actions such as pollution reduction and enactment of policies to govern their usage (Abdou et al., 2020). In the hotel industry it is a means of dealing with rising resource scarcity and cost and involves engaging in environmentally responsible behaviours such as furnishing rooms with environmental-friendly materials and saving water, energy and materials (Modica et al., 2020; Zhang et al., 2010). Economic sustainability involves creating wealth in society by ensuring that businesses remain profitable for a long time (UNEP-UNWTO, 2005). It pertains to employment generation, revenue increment and building shareholder value through the multiplier effect, rejuvenation of trade and capital development (Jones et al., 2014). As such, economic sustainability is about reducing costs, increasing revenue and growing the customer base (Modica et al., 2020). Social sustainability places an emphasis on local communities, demands fair sharing of profits, centers on poverty alleviation and maintaining and strengthening their life support systems (UNEP-UNWTO, 2005). It includes employee training and development, involvement in the community life, giving donations, excellent customer service and timely payment for local supplies (Modica et al., 2020). It focuses on engaging the public, cooperating with stakeholders and preserving the people's cultural heritage (Abdou et al., 2020). However, within the hotel sector, most sustainability initiatives centre on the environmental dimension with the economic and social dimensions receiving much less coverage (Khatter et al., 2021; Melissen et al., 2016). This failure to recognize the holistic nature of sustainability has resulted in the hotel sector being criticized as seeking a weak as opposed to a strong concept of sustainability, with sustainability in hotels developing around efficiency to secure gains over competitors (Jones et al., 2014). Current conceptualizations of sustainability recognize the symbiotic nature of the sociocultural, environmental and economic dimensions, thus focus should be on integrating them (Sajjad et al., 2018; Gimenez et al., 2012). To this end, this research examined sustainability in hotels holistically by integrating the environmental, economic and social dimensions.

### ***Green practices in hotels***

According to United Nations Environmental Programme (UNEP, 2015) green economy indicator framework, green practices are issue-driven and may thus vary across economic sectors. The major issue in the hotel sector is the consumption in large quantities of resources (water, energy and materials) in operations and the subsequent generation of waste (Mungai & Irungu, 2013; Kasim, 2006). Hotels therefore adopt a myriad of measures that result in saving resources and in managing their waste (Chan, 2009; Mensah, 2014; Murimi, 2020). Towards efficient water management, hotels adopt water conservation measures which include: slow-flow lavatories and showers, motion-triggered taps, linen reuse programs, prompt repairs of leaks, early morning or late night watering of plants, mulching, re-use of water from the kitchen among others (Han et al., 2018; Mensah, 2006; Millar & Baloglu, 2011). Measures aimed at efficient waste management include waste separation at the point of generation, using items made of recycled material, composting, buying in large quantities and so on (Han et al., 2018; Singh, 2014). Hotels energy saving practices include the use of solar and wind as renewable energy sources, energy-efficient tools, movement detectors and depending on daylight more among other measures (Chan, 2009; Maleviti et al., 2012). This research reviewed the green practices of urban hotels in Kenya including energy saving practices, water conservation practices and waste management practices. The study conceptualized these measures as the main indicators of hotel green practices and sought to establish to what extent urban hotels in Kenya had adopted them in their pursuit of sustainability. A study by Chomba et al. (2022) in star rated hotels in Kenya found that the hotels use natural light, Light Emitting Diodes (LED) bulbs and solar energy for lighting and water heating. However, there is minimal use of energy saving technologies such as energy star-qualified tools, motion sensors and renewable energy programs. They suggest that if hotels improve on their energy conservation technology, they would improve their sustainability.

### ***Green practices and sustainability in hotels***

The tourism and hospitality industry could attain sustainability through green practices such as efficient energy, water and waste management technologies (United Nations, 2017). Moreover, green practices and eco-certification are key elements in a sustainable hotel operation (Zhang et al., 2014b). A study by Kapiki (2012) explained that Greek eco-friendly hotels recorded an acceptable decline in their expenses and a substantial rise in the volume of reservations and in the satisfaction rate of the guests from implementing green practices. A case study by Choy et al. (2021) found that the green measures of a global chain of hotels in Hong Kong played a role in the achievement of sustainability in the hotels by decreasing resource use and the generation of waste in addition to saving employees time and effort. Abdou et al. (2020) found that the adoption of environmental measures in the surveyed four and five Green Star certified hotels in Egypt contributed positively to achieving the investigated sustainable development goals (SDGs). On the contrary, results of a study by Baloglu & Jones (2015) showed that some green practices such as refillable soap and shampoo dispensers, low-flow showerheads and linen reuse are unpopular among the guests who, while appreciating the hotels contribution to environmental sustainability are opposed to the inconveniences suffered. This may reduce the occupancy rate of hotels that adopt such green practices. Moreover, Schoeman et al. (2023) notes that questions regarding the effectiveness of green practices in the tourism industry have arisen. Thus, research in this area is still inconclusive hence the need for more research. To this end, this research sought to discover more facts about the relationship between green practices and sustainability in hotels.

### **Methodology**

The study adopted a cross sectional analytical mixed methods design as its inquiry strategy. As a cross-sectional study, observations on phenomenon of interest: green practices and sustainability was done transversely at a single point in time, avoiding variations that could occur over time. Following a mixed methods approach, the study made use of a survey as well



as an interview schedule. A survey design was ideal for collecting structured data about many variables across the study units and was appropriate for empirical study of relationships between explanatory and explained variables without manipulating the latter (Willcock et al., 2017). The interview provided in depth information as it allowed for exploration of the study variables through the sharing of opinions and perspectives as texts rather than numbers (Willig, 2013). The study was analytical as it sought to establish associations between the variables by analysing truths about their features (Kothari, 2004). To guide the mixed methods approach, the researcher adopted a convergent parallel mixed methods design. In this design, quantitative and qualitative data were collected, analysed and then converged to answer the research question (Creswell, 2014). The study population comprised 174 departmental heads and 87 operations managers of 3-5 star rated hotels located in four major cities in Kenya drawn from the target population using a multi-stage cluster sampling technique. Although it is not strictly speaking a random sampling technique, with the right design, multi-stage cluster sampling can approximate a random sample while making data collection convenient (Kanazawa, 2018).

Primary data were gathered using a self-administered questionnaire arranged according to the study variables for the departmental heads as well as through an interview schedule for operations managers. Data were collected in line with ethical research practice which involved obtaining informed consent from the participants and ensuring data privacy. The researcher initiated contact with the selected hotels to establish a rapport after which the questionnaire was distributed to the departmental head in the hotel’s kitchen and housekeeping departments. The researcher interviewed the operations manager after booking a date for the interview. The researcher also asked follow up questions during the interviews. Efforts were made to ensure careful and thorough note taking during the interview. The researcher analysed both the qualitative and quantitative data collected. Qualitative data analysis was conducted through thematic analysis where the researcher assembled the field notes and grouped the responses according to the study variables which were the major themes. Responses in the major themes developed into emerging patterns. From the emerging patterns, relationships were identified and ultimately these were linked to the study objectives and hypothesis. The researcher also highlighted noteworthy quotations from the respondents in the discussion of the results. For quantitative data analysis, the researcher utilized descriptive as well as inferential statistics using the Statistical Package for Social Sciences (SPSS). Descriptive statistics of mean of the ratings (M), standard deviation (SD) and coefficient of standard deviation (CSD) were computed for data on the study variables. Inferential statistics were computed for the study hypotheses. The hypothesis was tested through linear regression in which sustainability in hotels acting as the outcome variable could be predicted by green practices, which was the predictor variable. The degree of disparity in the outcome variable explained by the predictor variable was measured using the coefficient of determination (R<sup>2</sup>). Statistical significance was measured at 0.05 significance level such that the null hypothesis was rejected whenever P had a value of less than 0.05. That is, a significant relationship was shown by a P-value of less than 0.05.

## Results and discussion

### Response rate

The study intended to use a sample of 261 respondents, comprising of 174 departmental heads and 87 operations managers. From Table 1, it can be observed that in both categories of respondents, the response rate was above 70%. Cumulatively, the response rate was 77% (201 of 261) comprising 132 departmental heads and 69 operations managers. Mugenda and Mugenda (2012) assert that a sufficient response rate should surpass a 70% threshold.

**Table 1: Response rate**

	Departmental Heads			Operations Managers		
	Targeted	Actual	Response Rate	Targeted	Actual	Response Rate
Nairobi	66	54	82%	33	25	76%
Mombasa	46	33	72%	23	17	74%
Kisumu	38	27	71%	19	16	84%
Nakuru	24	18	82%	12	11	92%
<b>Total</b>	<b>174</b>	<b>132</b>	<b>76%</b>	<b>87</b>	<b>69</b>	<b>79%</b>

Source: Survey Data (2024)

### Extent of green practices implementation in urban hotels in Kenya

It was the objective of this research to establish the extent to which urban hotels in Kenya had adopted green practices. The extent of green practices implementation in hotels was examined using three main indicators namely water conservation practices, waste management practices and energy conservation practices. In each case, green practices were identified and respondents were asked to rate the extent to which the practices had been implemented. Using a five points scale of *1 = Not Implemented at All*, *2 = Implemented to a limited Extent*, *3 = Averagely Implemented*, *4 = Implemented to a Great Extent* and *5 = Implemented to a Very Great Extent*, the heads of departments were asked to indicate with a tick [√] their respective ratings.

#### Water conservation practices

In water conservation practices, focus was on linen reuse program, adoption of low-flow showers and use of dual flush toilets among others. Responses on water conservation practices were as shown in Table 2.

**Table 2: Water conservation practices**

Water Conservation	M	SD	CSD
Linen re-use programs	3.08	1.467	0.48



Installation of low-flow showers in the bathrooms	3.20	1.352	0.42
Installation of dual-flush toilets with full-flush and half-flush buttons	3.55	1.443	0.41
Regular water leakage checks and prompt repairs	4.64	.680	0.15
Specified that sidewalks and drivers and parking lots be swept and not watered	3.94	1.253	0.32
Discouraging use of running water while washing	3.92	1.202	0.31
Adopts mulching and organic manuring for plants as they hold water better	2.87	1.570	0.55
<b>Average</b>	<b>3.70</b>	<b>1.281</b>	<b>0.38</b>

Results in Table 2 show an overall mean rating of 3.70. This average score indicates that, in general, respondents agreed that the identified water conservation practices had been implemented. In particular, a high mean rating was observed on regular checks of water leakage and prompt repairs (Mean = 4.64). Coincidentally, responses on this practice had the least standard deviation and corresponding coefficient of standard deviation (SD = 0.68, CSD = 0.15). A low coefficient of variation (CV = 15%) than the rest implies that the respondents were highly in agreement that regular checks of water leakage and prompt repairs is one water conservation practice that has been highly implemented in the hotels compared to other water conservation practices. On the other hand, adoption of mulching and use of organic manure for plants had the least rating (Mean = 2.87), an indication that most hotels have not embraced this practice compared to other water conservation practices. The fact that this practice scored the highest measure of non-uniformity in the responses (CV = 55%) is a probable indication that there are varied feelings and perceptions towards use of mulching and organic manure as a water conservation practice. This observation could be a further indication of the level of ignorance when it comes to adoption of organic practices. This calls for some awareness creation. The fact that the overall mean rating is not close to 5 (*Implemented to a Very Great Extent*) shows that there is still need for training and awareness creation regarding adoption of various water conservation practices.

From the managers' perspective, some hotels had not adopted some water conservation practices like linen re-use. One manager explained that "This is a transit hotel with many guests staying one night only hence no linen re-use program". Another added "Guests resist linen re-use equating it to a decline in quality". Despite this objection towards re-use and recycling programs, one respondent clarified that: "Any effort to reduce water consumption is always welcome provided it does not compromise guest satisfaction". These opinions are consistent with those of a study by Baloglu and Jones (2015) that showed that some green practices such as refillable soap and shampoo dispensers, low-flow showerheads and linen reuse are unpopular among the guests who, while appreciating the hotels contribution to environmental sustainability are opposed to the inconveniences suffered.

### Waste management practices

Statements under waste management practices focused on reduction of waste generation, proper waste separation, recycling and reuse and proper waste disposal among others. The responses on various statements about waste management practices were summarized as shown in Table 3.

**Table 3: Waste management practices**

Waste Management	M	SD	CSD
Proper waste separation at the generation point	3.69	1.308	0.35
Use of electronic files instead of manual paper files to store documents	3.20	1.226	0.38
Elimination of meal order coupon	3.16	1.397	0.44
Bulk purchase of amenities such as food items and detergents	4.21	.847	0.20
Donation of used amenity bottles and containers to recycling companies	2.98	1.558	0.52
Use of refillable soap or shampoo dispensers instead of bar soaps and individual shampoo bottles	3.20	1.600	0.50
Packing food in reusable containers instead of paper bags and foils	3.51	1.390	0.40
Proper waste handling at the waste holding area	4.27	.958	0.22
<b>Average</b>	<b>3.53</b>	<b>1.29</b>	<b>0.38</b>

In waste management practices, proper handling of waste at the waste holding area had the highest mean score (= 4.27) with a standard deviation of 0.958 and coefficient of variation of 22%. This practice was closely followed by bulk purchase of amenities as another waste management practice with mean score of 4.21, standard deviation of 0.847 and a coefficient of variation of 20%. On the other hand, the least score was observed in the practice of donating used amenity containers to recycling companies (Mean = 2.98, SD = 1.558), which coincidentally had the highest coefficient of variation (CV = 52%). A low mean rating is an indication of poor implementation rate of the practice, while a high coefficient of variation is an evidence of varied opinions regarding usefulness of donating used amenity containers to recycling companies as a waste management practice. This calls for more creation of awareness about recycling strategies that hotels can pursue.

In explaining their waste management efforts, one manager reported that: "In an effort to be a plastic free hotel, we do not use plastic bottles in the rooms; instead we use refillable glass bottles and have partnered with Coca Cola Company to supply glass-bottled water." However, it is worth noting that some managers revealed that they had to purchase individually packaged soaps and shampoos/shower gel for daily use in order to meet the standard of luxury expected by their guests. Others said they used individually wrapped small soaps and not dispensers because liquid soap used in dispensers got used up very fast. Other managers lamented that they were no longer able to buy in bulk due to the hard economic times they found themselves in. These managers were cognizant that this generated a lot of waste and wished that something could be done. Adoption of waste management practices, as reported by operations managers, was beneficial to the hotels. For example, for bulk purchase, one manager commented that: "Bulk purchase not only saves time, but also reduces purchasing costs due to discounts and purchasing at wholesale prices". Another manager strongly pointed out that: "Proper waste management results to a clean environment which is free from litter and infestation by cockroaches, pests and rodents, for the benefit of all – guests,





staff and the community around”. Further, a manager explained that proper waste separation helped the hotel to get clean food remains which they fed to their pigs thus saving on food purchases for the pigs.

*Energy conservation practices*

In energy conservation, attention was given to practices that lead to reduction in energy consumption within the hotel. In this indicator, therefore, the statements focused on the use of renewable energy, use of energy saving bulbs, use of motion sensors and use of energy efficient equipment among others. Summary of the ratings of the statements were as shown in Table 4.

**Table 4: Energy conservation practices**

Energy Conservation	M	SD	CSD
Using renewable energy such as solar, wind and geothermal power when possible	2.83	1.534	0.54
Fully embraced usage of energy-efficient (LED) light bulbs	4.27	.956	0.22
Use of occupancy or motion sensors to control lighting and air conditioners	3.67	1.580	0.43
Fully embraced usage of Energy Star-Qualified electrical equipment eg refrigerators, cookers etc.	4.05	1.219	0.30
Use of natural light from the sun during the day to reduce energy consumption	3.74	1.305	0.35
Practicing house maintenance practices that can assist in energy saving	3.67	1.103	0.30
Use of thermostat technology in electronic appliances	3.68	1.298	0.35
Adoption of energy saving practices in the kitchen and laundry eg. filling washers to capacity, avoiding unnecessary opening of oven and refrigerators	4.07	.918	0.23
<b>Average</b>	<b>3.75</b>	<b>1.24</b>	<b>0.34</b>

From Table 4, it can be observed that the energy conservation practices with the top three mean ratings were usage of energy efficient light bulbs (Mean = 4.27), adoption of energy saving practices in the kitchen and laundry (Mean = 4.07) and usage of Energy Star-Qualified equipment (Mean = 4.05). It is worth noting that out of the eight identified practices (or equivalently statements), seven practices had mean scores above 3, an indication that, generally, the hotels have embraced and adopted various energy conservation practices. However, this finding contradicts the results of Chomba et al. (2022), who observed a minimal use of energy saving technologies such as energy star-qualified tools, motion sensors and renewable energy programs in star rated hotels in Kenya. A possible explanation could be that there is more uptake of these technologies with their improved availability and enforcement by the relevant authorities. Conversely, a low mean rating was observed in the practice of adoption of renewable energy (Mean = 2.83). That is, majority of the hotels have not embraced the use of renewable energy, which includes solar energy, wind energy and/or geothermal energy where possible. This low rating is a possible indication of poor accessibility of the alternative energy sources by the hotels. This could be attributed to inadequate infrastructural capacity to access such alternative energy sources. Most managers reported to have adopted a number of energy conservation practices that were beneficial to the hotels. One manager reported that: “In addition to reminding our staff about the use of natural light during the day, there is always a ‘switch off when not in use’ campaign through wall stickers, motion sensors, close monitoring, ... This move has seen us reduce the cumulative energy consumption. This is revealed through reduced electricity bills”. On the use of LED and fluorescent bulbs, a respondent added “We have fully migrated from incandescent bulbs since LED bulbs and fluorescent tubes tend to have longer life span than the former. This has significantly reduced our budget for replacing bulbs. The saved money can then be diverted into other production processes.”

On comparing the three categories of green practices adopted, energy conservation measures were the most adopted with a mean of 3.75. This could be because they are easy to adopt and many are technology assisted. The law is also quite explicit on what is expected and licensing is tied to their adoption e.g. LED bulbs and Energy Star-qualified electrical equipment as stipulated in the Energy Management Regulations 2012 and the Energy (Appliances Energy Performance & Labelling) Regulations 2016. This could also be a pointer on how to enhance adoption of water conservation and waste management practices in order to improve the overall adoption of green practices among urban hotels in Kenya (M = 3.66) which indicates average adoption.

*Effects of green practices on sustainability in hotels*

This study also sought to analyse the effects of green practices on sustainability in urban hotels in Kenya. The corresponding regression model took the general form:  $SH = \beta_0 + \beta_1 GP + \varepsilon$  ..... (Model 1) where SH was Sustainability in Hotels (Dependent variable) and GP was Green Practices (Independent variable), while  $\beta_0$  and  $\beta_1$  are regression coefficients for the constant term and the independent variable respectively and  $\varepsilon$  is the error term. The regression analysis outputs were summarized in Table 5. From the model summary, the value of  $R^2$  implies that the explained variation was 11%. That is, of the total variations in sustainability in hotels, green practices account for up to 11%. This is an indication that there are other predicting factors that influence sustainability in hotels but are not included in the model. This explained variation is significant at 5% level of significance since the corresponding p-value is less than 0.05. From the ANOVA output, it can be observed that the regression model explaining the influence of green practices on sustainability of hotels is a significant fit. This is indicated by the F-statistic of 16.131 and a p-value = 0.0001, which is less than 0.05. This observation shows that the model correctly fit the collected data and describe the relationship between green practices and sustainability of hotels. The regression coefficients output shows that green practices, as an independent variable, positively influences sustainability in hotels. This is shown by a positive regression coefficient value corresponding to green practices ( $\beta = 0.123$ , SE = .031). The corresponding t-statistics and p-value for the independent variable was  $t = 4.016$  and  $p\text{-value} = 0.0001$ . That is, adoption of green practices improves sustainability in hotels by a magnitude of 0.123. Based on the values of the regression coefficients, Model 1 was, therefore, expressed as follows:  $SH = 22.92 + 0.123 GP$ ..... (Model 2).

**Table 5: Effects of green practices on sustainability in hotels**



Model summary						
R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error	F Change	Sig.	
.332	.110	.104	5.73974	16.131	.0001	
Dependent variable: Sustainability in Hotels Predictors: (Constant), Green Practices						
ANOVA						
	Sum of squares	df	Mean squares	F-statistics	Sig.	
Regression	531.445	1	531.445	16.131	.0001	
Residual	4282.798	130	32.945			
Total	4814.242	131				
Dependent variable: Sustainability in Hotels Predictors: (Constant), Green Practices						
Regression coefficients						
	Beta	Std. Error	t-statistics	Sig.		
(Constant)	22.920	2.989	7.667	.0001		
Green Practices	.123	.031	4.016	.0001		
Dependent variable: Sustainability in Hotels Predictors: (Constant), Green Practices						

## Discussion

This study revealed that urban hotels in Kenya had only averagely implemented green practices. The various reasons cited for this average performance corroborated other studies and included resentment of the practices by some hotel guests (Baloglu & Jones, 2015), lack of awareness (Murimi, 2020; Gitobu & Njoroge, 2015) and laxity in enforcement to ensure compliance. These reasons imply that not all hotel guests as well as managers have embraced green practices even while advocating for environmental conservation. While Gitobu & Njoroge (2015) found that government regulations did not influence adoption of green marketing in hotels in Mombasa county, this study found that energy conservation practices were the most implemented among urban hotels as their adoption was linked to licencing implying that government enforcement was necessary for compliance. This calls for further research to resolve this inconclusivity. With regard to the effects of green practices on sustainability in hotels, this study confirms the position taken by United Nations (2017) that the tourism and hospitality industry could attain sustainability through green practices such as efficient energy, water and waste management technologies. Further, it concurs with the findings of a case study by Choy et al. (2021) that found that the green measures of a global chain of hotels in Hong Kong played a role in the achievement of sustainability in the hotels by decreasing both resource use and generation of waste. However, this study reveals that adoption of green practices has not achieved much sustainability in hotels. This was succinctly expressed by one manager who said: “A lot still needs to be done to realize all the benefits”. The study indicates that there are other factors that need to be combined with green practices in order for hotels to achieve better sustainability. This could include how the green practices are implemented as suggested by Zhang et al. (2014b) who posit that green practices and how their adoption is implemented (for example, the acquisition of eco-certification) are key elements in a sustainable hotel operation. Findings from this study suggest that achieving comprehensive sustainability requires more than just adoption of green practices. There are other factors that need to be considered including the way the adoption of the green practices is implemented, awareness creation, sustainable infrastructure development (e.g. for renewable energy, for waste management), enforcement strategies as well as collaboration and partnerships among the stakeholders. These strategies could ensure an all-inclusive approach to the achievement of sustainability goals in the hotel industry.

## Conclusion and recommendation

From the study finding that urban hotels in Kenya have only averagely adopted green practices in their operations, one may conclude that there may be challenges besetting the adoption of green practices in urban hotels in Kenya. This was alluded to by the operations managers who pointed a lack of awareness creation, lack of clear adoption guidelines and lack of serious enforcement strategies from the relevant authorities. When hotels lack clear guidelines about green practices and see laxity in the enforcement of green practices adoption, they may become sceptical about the benefits of green practices and relent on their adoption. As such, government through the relevant agencies could assist hotels to better implement green practices by developing the necessary implementation and enforcement guidelines and creating awareness. Further, the relationship between green practices and sustainability in urban hotels in Kenya is positive and significant. Therefore, it can be concluded that hotels could actually achieve sustainability through adoption of green practices. This could be an encouragement to hoteliers to improve their adoption of green practices from average to larger extents in their pursuit of sustainability. This finding also points to the need for governments to step up their enforcement of adoption of green practices as a strategy for sustainability. This notwithstanding, adoption of green practices leads to only a small improvement in sustainability. This points to the possibility of the existence of other factors other than green practices in the achievement of sustainability in urban hotels that could be investigated through further research. Therefore, all stakeholders in the hospitality industry could relent their obsession with green practices in the pursuit of sustainability and explore the possibility of other drivers of sustainability.

The study recommends that the government through the relevant bodies and agencies could assist hotels to adopt green practices to a great extent. This could be through the development of the relevant policy and regulatory frameworks as well as through the development of the requisite sustainable infrastructure. This could encourage hotels to continue pursuing sustainability through the adoption of green practices. In addition, the study recommends further research to establish the other potential drivers of sustainability in hotels as adoption of green practices accounts for only a small change in sustainability. Further on, future research could incorporate the views of a wider range of stakeholders and endeavour to investigate how the variables interact over time by utilizing a longitudinal rather than a cross-sectional design.



## References

- Abdou, A. H., Hassan, T. H. & El Dief, M. M. (2020). A Description of Green Hotel Practices and Their Role in Achieving Sustainable Development. *Sustainability* 12, 9624. <https://doi.org/10.3390/su12229624>
- Baloglu, S. & Jones, T. (2015). Energy Efficiency Initiatives at Upscale and Luxury US Lodging Properties: Utilization, Awareness, and Concerns. *Cornell Hospitality Quarterly*, 56(3), 237-247. <https://doi.org/10.1177/1938965514525680>
- Chan, W. W. (2009). Environmental Measures for Hotels' Environmental Management Systems: ISO 14001. *International Journal of Contemporary Hospitality Management*, 21(5), 542-560. <https://doi.org/10.1108/09596110910967791>
- Chiwawa, N. & Wissink, H. (2023). Sustainable Tourism for Local and Regional Development in South Africa: Unlocking Economic Potential Through Responsible Tourism Strategies. *African Journal of Hospitality, Tourism and Leisure*, 12(3), 1163-1175. <https://doi.org/10.46222/ajhtl.19770720.423>
- Chomba, G. W., Bichage, G. & Kariuki, A. (2022). Influence of Energy Conservation Practices on Customer Satisfaction in Star Rated Hotels in Mt. Kenya Region, Kenya. *International Journal of Economics, Commerce and Management United Kingdom*, 10 (10).
- Chong, H. G. & Verma, R. (2013). Hotel Sustainability: Financial Analysis Shines a Cautious Green Light. *Cornell Hospitality Report*, 13(12).
- Choy, M., Cheng, J. & Yu, K. (2021). Evaluating the Environmental Sustainability Strategies of the Housekeeping Department: The Case of an International Hotel Chain in Hong Kong. *Tourism Critiques: Practice and Theory*. <https://doi.org/10.1108/TRC-01-2021-0001>
- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (4th ed.)*. United States of America. SAGE Publications, Inc.
- Eco-tourism Kenya. (2022). Eco-Rated Facilities. Available at <http://www.ecotourismkenya.org/> [Retrieved November 16, 2022]
- Gimenez, C., Sierra, V. & Rodon, J. (2012). "Sustainable Operations: Their impact on the Triple Bottom line". *International Journal of Production Economics*, 140(1), 149-159. <https://doi.org/10.1016/j.ijpe.2012.01.035>
- Gitobu, J. K. & Njoroge, J. M. (2015). Adoption of Green Marketing Practices by hotels in Mombasa County, Kenya. *African Journal of Tourism, Hospitality and Leisure Studies*, 1 (1), 1-19.
- Government of Kenya. (2016). *Kenya Tourism Strategy 2030 Draft Diagnostics Report*. Grant Thornton.
- Government of Kenya. (2019). *Economic Survey 2019*. Nairobi: Kenya National Bureau of Statistics.
- Han, H., Lee, J., Trang, H.L.T. & Kim, W. (2018). Water Conservation and Waste Reduction Management for Increasing Guest Loyalty and Green Hotel Practices. *International Journal of Hospitality Management*, 75, 58–66. <https://doi.org/10.1016/j.ijhm.2018.03.012>
- Hsieh, Yu Chin (Jerrie) (2012). "Hotel Companies' Environmental Policies and Practices: A Content Analysis of their Web Pages". *International Journal of Contemporary Hospitality Management*, 24(1), 97-121. <https://doi.org/10.1108/095961112>
- Jones, P., Hillier, D. & Comfort, D. (2014). "Sustainability in the Global Hotel Industry". *International Journal of Contemporary Hospitality Management*, 26(1), 5-17. <https://doi.org/10.1108/IJCHM-10-2012-0180>
- Jones, P., Hillier, D. & Comfort, D. (2016). "Sustainability in the Hospitality Industry: Some Personal Reflections on Corporate Challenges and Research Agendas". *International Journal of Contemporary Hospitality Management*, 28 (1), 36-67. <https://doi.org/10.1108/>
- Kanazawa, M. (2018). *Research Methods for Environmental Studies- A Social Science Approach*. New York: Routledge.
- Kapiki, S. (2012). Implementing Sustainable Practices in Greek Eco-friendly Hotels. *Journal of Environmental Protection and Ecology*, 13(2A), 1117–1123.
- Kasim, A. (2006). "The Need for Environmental and Social Responsibility in the Tourism Industry". *International Journal of Hospitality & Tourism Administration*, 7(1), 1-22.
- Kasim, A. (2015). "Environmental Management System (EMS): Postulating the Value of its Adoption to Organizational Learning in Hotels". *International Journal of Contemporary Hospitality Management*, 27(6), 1233-1253. <https://doi.org/10.1108/IJCHM-01-2014-0045>
- Kasim, A., Gursoy, D., Okumus F. & Wong, A. (2014). The Importance of Water Management in Hotels: A Framework for Sustainability Through Innovation. *Journal of Sustainable Tourism*, 22(7), 1090-1107. <https://doi.org/10.1080/09669582.2013.873444>
- Kenya Association of Hotelkeepers & Caterers. (2016). Even Better Choice of Hotels in the Buzzing Capital. *Hotel & Restaurant Guide 2016*, p.8
- Khatter, A., White, L., Pyke, J. & McGrath, M. (2021). Barriers and Drivers of Environmental Sustainability: Australian hotels. *International Journal of Contemporary Hospitality Management*, 33(5), 1830-1849. <https://doi.org/10.1108/IJCHM-08-2020-0929>
- Kothari, C. R. (2004). *Research methodology. Methods and Techniques (Second revised edition)*. New Delhi: New Age International Publishers.
- Krejcie, R. V. & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, 30, 607-610.
- Lester, J. N., Cho, Y. & Lochmiller, C. R. (2020). Learning to do Qualitative Data Analysis: A Starting Point. *Human Resource Development Review*, 19(1), 94-106.
- Maleviti, E., Mulugetta, Y. & Wehrmeyer, W. (2012). "Energy Consumption and Attitudes for the Promotion of Sustainability in Buildings: The Case of Hotels". *International Journal of Energy Sector Management*, 6(2), 213-227. <https://doi.org/10.1108/17506221211242077>
- Martínez García de Leaniz, P., Herrero Crespo, A. & Gómez-López, R. (2018). The Role of Environmental CSR Practices on the Formation of Behavioral Intentions in a Certified Hotel Context. Exploring the Moderating Effect of Customer Involvement in the Buying Process. *Spanish Journal of Marketing– ESIC*, 23(2), 205-226. <https://doi.org/10.1108/SJME-10-2018-0044>
- Mbasera, M., Du Plessis, E., Saayman, M. & Kruger, M. (2016). 'Environmentally-Friendly Practices in Hotels'. *Acta Commercii*, 16(1), Article a362. <http://dx.doi.org/10.4102/ac.v16i1.362>
- Melissen, F., Cavagnaro, E., Damen, M. & Du'weke, A. (2016). "Is the Hotel Industry Prepared to Face the Challenge of Sustainable Development?". *Journal of Vacation Marketing*, 22(3), 227-238. <https://doi.org/10.1177/1356766715618997>
- Mensah, I. (2006). Environmental Management Practices among Hotels in the Greater Accra Region. *International Journal of Hospitality Management*, 25, 414–431. <https://doi.org/10.1016/j.ijhm.2005.02.003>
- Mensah, I. (2014). "Stakeholder Pressure and Hotel Environmental Performance in Accra, Ghana". *Management of Environmental Quality: An International Journal*, 25(2), 227-243. <https://doi.org/10.1108/MEQ-01-2013-0009>
- Millar, M. and Baloglu, S. (2011). "Hotel Guests' Preferences for Green Guest Room Attributes". *Cornell Hospitality Quarterly*, 52(3), 302-311. <https://doi.org/10.1177/1938965511409031>
- Modica, P. D., Altinay, L., Farmaki, A., Gursoy, D. & Zenga, M. (2020). Consumer Perceptions Towards Sustainable Supply Chain Practices in the Hospitality Industry. *Current Issues in Tourism*, 23, 358–375. <https://doi.org/10.1080/13683500.2018.1526258>
- Mugenda, O. M. & Mugenda, A. G. (2012). *Research Methods: Quantitative and qualitative Approaches*. Nairobi: Acts Press.
- Mungai, M. & Irungu, R. (2013). An Assessment of Management Commitment to Application of Green Practices in 4 – 5 Star Hotels in Mombasa, Kenya. *Information and Knowledge Management*, 3(6).
- Murimi, M. (2020). Determinants of Green Management Practices in Hotels in Kisumu city, Kenya - A Theoretical Framework. *Journal of Strategic Management*, 5(5), 47-63. <https://doi.org/10.47672/jsm.531>
- Myung, E., McClaren, A. & Li, L. (2012). "Environmentally Related Research in Scholarly Hospitality Journals: Current Status and Future Opportunities". *International Journal of Hospitality Management*, 31(4), 1264-1275.
- Prud'homme, B. & Raymond, L. (2016). "Implementation of Sustainable Development Practices in the Hospitality Industry: A Case Study of Five Canadian Hotels". *International Journal of Contemporary Hospitality Management*, 28(3), 609-639. <https://doi.org/10.1108/IJCHM-12-2014-0629>
- Sajjad, A., Jillani, A & Raziq, M. M. (2018). Sustainability in the Pakistani Hotel Industry: An Empirical Study. *Corporate Governance*, 18(4), 714-727. <https://doi.org/10.1108/CG-12-2017-0292>
- Schoeman, Y., Van der Merwe, P., Van der Walt, I.J., Huysen, M. & Oberholster, P.J. (2023). Charting a New Sustainability Course for Luxury Game



- Lodges in Africa: A Hybrid Analytical Framework For Analysing the Key Coupled Human and Natural System Components. *African Journal of Hospitality, Tourism and Leisure*, 12(5SE), 1854-1875. <https://doi.org/10.46222/ajhtl.19770720.471>
- Singh, N., Cranage, D. & Lee, S. (2014). Green Strategies for Hotels: Estimation of Recycling Benefits. *International Journal of Hospitality Management*, 43, 13–22.
- United Nations Environmental Program. (2015). Indicators for Green Economy Policymaking – A Synthesis Report of Studies in Ghana, Mauritius and Uruguay. Green Policy Platform. Available at [https://www.greenpolicyplatform.org/sites/default/files/downloads/resource/Indicators\\_for\\_Green\\_Economy\\_Policy\\_Making\\_A\\_Synthesis\\_Report\\_of\\_Studies\\_in\\_Ghana\\_Mauritius\\_and\\_Uruguay\\_UNEP.pdf](https://www.greenpolicyplatform.org/sites/default/files/downloads/resource/Indicators_for_Green_Economy_Policy_Making_A_Synthesis_Report_of_Studies_in_Ghana_Mauritius_and_Uruguay_UNEP.pdf) [Retrieved February 07, 2022].
- United Nations Environmental Program –United Nations World Tourism Organization. (2005). Making Tourism More Sustainable - A Guide for Policy Makers. UNWTO. Available at <https://www.e-unwto.org/doi/book/10.18111/9789284408214> [Retrieved October 04, 2021].
- United Nations. (2015). World Urbanization Prospects: 2014 Revision. DESA. Population Division. Available at <https://population.un.org/wup/Publications/Files/WUP2014-Report.pdf> [Retrieved February 14, 2019].
- United Nations. (2017). The sustainable Development Goals Report, (2017). Available at <https://www.undp.org/saudi-arabia/publications/sustainable-development-goals-report-2017> [Retrieved February 14, 2019].
- Willcock, S., Camp, B. J., & Peh, K. S. H. (2017). A Comparison of Cultural Ecosystem Service Survey Methods within South England. *Ecosystem Services*, 26, 445-450.
- Willig, C. (2013). *Introducing qualitative research in psychology (Third edition)*. England: Open University press.
- World Commission on Environment and Development. (1987). Our Common Future. Available [https://digitallibrary.un.org/search?ln=en&as=0&p=subjectheading:\[Report+of+the+World+Commission+on+Environment+and+Development+%281987%29\]](https://digitallibrary.un.org/search?ln=en&as=0&p=subjectheading:[Report+of+the+World+Commission+on+Environment+and+Development+%281987%29]) [Retrieved July 12, 2018].
- World Tourism Organization. (2013). Sustainable Tourism for Development Guidebook – Enhancing Capacities for Sustainable Tourism for Development in Developing Countries. Available at <https://www.e-unwto.org/doi/book/10.18111/9789284415496> [Retrieved June 17, 2022].
- Zhang, J. J., Joglekar, N. & Verma, R. (2010). Developing Measures for Environmental Sustainability in Hotels: An Exploratory Study. *Cornell Hospitality Report*, 10(8).
- Zhang, J. J., Joglekar, N. & Verma, R. (2014b). Signaling Eco-certification - Implications for Service Coproduction and Resource Efficiency. *Journal of Service Management*, 25 (4), 494-511. <https://doi.org/10.1108/JOSM-01-2014-0035>
- Zhang, J. J., Joglekar, N., Verma, R. & Heineke, J. (2014a). Exploring the Relationship Between Eco-Certifications and Resource efficiency in U.S. Hotels. *Cornell Hospitality Report*, 14 (7).