EFFECT OF WASTE MANAGEMENT PRACTICES ON THE OPERATIONAL PERFORMANCE OF HOTELS IN MOMBASA COUNTY, KENYA

BY

DAVID MUTUA KIMEU

A RESEARCH PROJECT REPORT SUBMITTED IN PARTIAL FULFIMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI

OCTOBER, 2015

DECLARATION

Declaration by the Student

This proposal is my original work and has not been submitted for examination in any other University.

Signature: ……………………………. Date: ………………………

KIMEU DAVID MUTUA

REG NO: D61/65562/2013

Declaration by the Supervisor

This proposal has been submitted for examination with my approval as the University supervisor.

Signature _____   Date _____

MR. ODOCK STEPHEN

Lecturer,

Department of Management Science,

School of Business,

University of Nairobi

ACKNOWLEDGEMENT

I wish to thank my supervisor, Mr. Odock for all his support, guidance and assistance that went into the final production of this research project report. He has been inspirational during our learning experience on this subject matter.

My sincere gratitude also go to my course mate and proposal defense panel for their positive criticisms and their guidance during the time of developing and presentation of this paper.

Lastly, special thanks go anyone else whose effort led to the success of this work.

DEDICATION

I dedicate this project to my family, for the hard work, their understanding and effort they made for the completion of this course.

ABSTRACT

Waste management practices have emerged due to environment degradation and are adopted mainly to reduce negative impacts on environment. The focus of the study was therefore to examine the effect of waste management practices of hotel operational performance in Mombasa County, Kenya. The practices need resources for their implementation thus may result to possible impacts on the hotel operational performance. The objectives of study were: to investigate how waste management practices affect hotel operational performance and determine the implementation by hotels in Mombasa County. The study aimed to find out the existing waste management practices by hotels; how waste management practices affect hotel operational performance. The study employedcensus survey research design. The unit of analysis was hotels in Mombasa County, Kenya. The target population was hotels operations managersin the 43 hotels in the study area or their equivalent offices depending on the structure of the hotels. The data collection was done by use of questionnaires that were administered to hotels operations managers andcorroborated with observation checklists. Data was then analyzed by use of descriptive statistics and inferential such as mean, standard deviation and used frequency in the analysis. The study also noted that, the model administered had a moderate explanatory power of the effect of waste management on hotel operational performance. Based on the findings of the study, the researcher recommended thathotels should adopt waste management practices that includes waste reduction, reuse and recycling, waste collection and depositing, and waste composting in order to improve their operational performance. The researcher also recommended that hotels' top management and government agencies should formulate waste management policies and guiding principles. These policies and guiding framework should be communicated to all stakeholders for their implementation. The researcher also recommended development and implementation of sensitization programme to all hotel employees on the need to employ proper waste management practices in their respective work stations.

TABLE OF CONTENTS

LIST OF TABLES

ABBREVIATIONS AND ACRONYMS

EPA: Environment Protection Authority

HOP: Hotel Operational Performance

IHEI: International Hotels Environment Initiative

KAHC: Kenya Association of Hotel keepers and Caterers

KNBS: Kenya National Bureau of Statistics

KTB: Kenya Tourist Board

OP**:**   Operational Costs

RBV: Resource- Based View

RDT: Resource Dependence Theory

UN**:**   United Nations

UNEP**:** United Nations Environment Program

WMPs**:** Waste Management Practices

WTO**:**   World Tourism Organization

WTTC: World Travel Tour Council

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The world is increasingly confronted with a number of environmental challenges including global warming, depletion of natural resources and pollution. Environmental degradation is increasing at an alarming rate mainly due to poor waste disposal practices (Kim, Ko& Park, 2013). Ustad (2010) survey indicated that, enormous amounts of waste, toxic gases and depleting of natural resources has contributed to degradation of environment to a large extent. Organizations have realized the contribution of practicing best waste management practices on firms' operational performance and realized the importance and need to save and protect it (Elkington, 1992).

Some of the theories that are of relevance to this study are resource dependence theory, institutional theory, resource based view and stakeholder's theory. Resource dependence theory (RDT) maintains that organizations are resource-insufficient. Institutional theory points out that, social pressures from other actors in market (such as the government and public) is an important factor in determining an organization intention to adopt or even comply with waste management practices(Delmas&Toffel,2003). Organizations are redefined by stakeholder's theory as a grouping of stakeholders and the purpose of the organization should be to manage the interests, needs and viewpoint of these diverse stakeholders (Freeman, 1984).The resource-based view (RBV) is seen as an "inside-out" process of strategy formulation that starts by identifying and classifying the firm's

resources, assess potential for value generation and end-up by defining a strategy that will allow the organization to capture the maximum of value in a sustainable way.

In Kenya, hotels are faced with challenges of degradation of the environment, demand fluctuation, insecurity, political and international economic instability, and desire to create quality culture based on cost and defect reduction as well as product and efficiency improvement. There are currently approximately 43 hotels in Mombasa Countythat offer travelersa wide range of accommodation options (KTB, 2015). Kenyan Mombasa County has an excellent range of hotels, including many well-appointed hotels of international standards with full facilities for tourists and business travelers (Karimi, 2014). The growth of hotels in this region has led to continuous increase of waste generation that possess a great challenge on the environmental degradation and impacts negatively on hotels operational performance (Gauge, 2011).

1.1.1 Waste Management

Waste is defined as any substance or article which constitutes a scrap material or an effluent or other surplus substances arising from application of any process(Environmental Protection Authority, 1990). Waste management is an overall approach to prevent waste and it combines a range of collection and treatment methods to handle all materials in the waste stream in an environmentally effective, economically affordable and socially acceptable way (McDougal, 2001).

Cooper (1998) defined waste management as the processes introduced by an organization for reducing, eliminating and ideally, preventing negative environmental impacts arising from its undertaking to environment.It encompassesmanagement of all processes and resources for proper handling of waste materials, from maintenance of waste transport trucks and dumping facilities to compliance with health codes and environmental regulations. Waste management practices include solid waste collection and decomposing, waste reduction, reuse and recycling and waste composting.

1.1.2 Operational Performance

The operational performance of any organizations as defined by Kaplan and Norton (1992) andGhalayini, Noble, and Crowe (1997) revolve around cost, quality, efficiency and flexibility. Various authors argue that, operational quality performance is influenced by both internal and external factors (Garvin, 1984; Rust& Oliver, 1995; Reed, 1996). They argued that, internal operational performance relates to internal functioning of hotel such as increase in productivity, improvement in efficiency, reduction in cost and waste. Operations managers are increasingly challenged to find ways to reduce cost without sacrificing the quality standards imposed to.Operational costsrefer to the expenses incurred during the normal operation of the hotels. Examples of these costs include food cost, labor cost, energy cost, water cost, waste management cost among others (Mensah 2006). The operational costs should be minimized in order for an organization to achieve the projected profits.

Efficiency is the capability of an organization to deliver products or services to its customers in the most cost-effective manner possible while still ensuring the high quality of its products and services. It denotes the organization's ability to minimize waste of inputs and maximize resource utilization so as to deliver quality, cheaper products and services to their customers. It is a useful measure utilized in managing the available resources (Muhittin&Reha, 1990).

1.1.3 Waste Management and Operational Performance

Waste management in the organizations is not only concerned with output of the operations that damage the environment but of great essence is the input of resources as well as totality of systems and processes involved in the operation of production facilities (Kirk, 1998; Lorente, 2001). Kirk (1998) indicates that, proper waste management practices are of much value to firm's operational performance in that: it improves efficiency in service delivery, reduce organizations operational cost through efficient operations, reduces time spend to offer service, enhances quality of service, and productivity. As a result, organizations image is improved in the eyes of the public enhancing company's competitive advantage (Kirk, 1996).

Organizations are faced with challenges of cost containment, more demanding customers in terms of quality and speed of service delivery. The success of any organization is dependent to a large extent on its flexibility to the ever changing internal and external environment. Adoption of best waste management systems reduces operational cost through waste minimization and efficient production processes. Also by practicing waste

4

management, organizations improve on hygiene standards and as a result, the quality of its services and products are improved.

1.1.4 Hotel Industry in Kenya

Kenya's hotel industry has been eager to capitalize on the favorable tourism outlook (Kenya Bureau of Statistics, 2014). The number of decent hotels in Kenya is approximated to be 500 and the figure is increasing day by day (KTB, 2010). The Government of Kenya (2013) National tourism strategy 2013-2018 rank Tourism as the most important industry in Kenya after agriculture. A study byMcClanahan, Mwaguni andMuthiga (2005) reported that hotel sector is responsible for 14% of GDP and 12% total employment in the country and the sectoris predicted to grow at 3.7% per annum for the next decade.

According to Kenya tourism board, rapid development of hotel industry in Kenya has presented challenges to the natural environment. These challenges include emission of toxic substance to the environment, unplanned sewage system, uncontrolled solid waste disposal among others.Karimi (2014) suggests that some of these hotels improve their operational performancethrough proper waste management initiatives that form an integral part of environmental improvement.

Hotel facilities in Mombasa Countyare of high class and have a collection of amenities that are designed to present total harmony of hotel operations to delight hotel guests.Most of the hotels are located along the beach because of attractiveness of sun, sand and sea. In

the recent past, all hotels in region are pressurized to practices waste management practices with the wakeup call for green supply chain for sustainable development. Green operations practices is viewed to be a key determinant of hotel operational performance and adoption of waste management practices by hotels have a positive effect on operational performance (Karimi, 2014).

1.2 Research Problem

Waste management is not only concerned with output of the operations that damage the environment but of great essence is the input of resources as well as totality of systems and processes involved in the operation of any organization. For firms to manage cost effectively, manage its operations efficiently and have flexible undertaking, they need to practice best waste management practices (McCrea, 2010). Thus, methods used by companies to dispose waste do not only affect the environment but also the operational performance.

Being large users of consumer goods, the growth of hotel industry in Kenya and especially in the Mombasa County has sparked concerns on quality of services and speed of service delivery. Hotel operating cost are on increase because of unplanned sewage system, high food cost and accommodation supplies. Poor solid waste management and dependence on non-recyclable material is a real problem to hotel managers (KTB, 2015). Hotels operate twenty four hours a day and seven days in a week round the year making operational cost high. Also customers are demanding new things that match

current technology forcing the market players to develop flexible systems that come with additional cost.

Irungu and Mungai (2013) findings on management commitment to application of green practice in 4-5 star hotels in Mombasashowed that,hotels have taken advantage from their environmental initiatives through responding to customers' increasing environmental concerns thereby enhancing speed of service delivery, cost containment and resource efficiency. Other research efforts have been made to identify what motivate hotel to go green (Karimi, 2014).Karimi further argued that, firms within a common industry context tend to implement similar environmental management strategies since they have similar situational contexts such as relationships with stakeholders and government regulations. Since then, quite a number of hotels have participated actively on green operation initiatives and adopted a pro-environmental policy.

Despite all these noteworthy contributions, the literature on waste management practices in hotel sector suffers from two significant limitations. First, most of existing studies investigated the general contribution of hotel operations in a broad perspective of environment, its sustainability and green hotels in developed tourists origin and destination countries.Secondly, past studies have failed to explicitly examine waste management practices in line with operational performance of hotels in Mombasa County. Therefore this research is needed because little empirical research has been conducted to examine the relationship between hotel operational performance and waste management practices in developing countriesAlso in contrast to the existing research

work on waste management practices, this study aims to cover a specific portion of Kenyan hotel market with relative high degree of details specifically in Mombasa County. The study therefore sought to answer the question: is there effect of waste management practices on hotel operational performance?

1.3 Research Objectives

The main objective of this study is to investigate how waste management practices affect hotel operational performance. The specific objectives will be to:

i. Determine the extent to which waste management practices are implemented by hotels in Mombasa County.

ii. Establish relationship between implementation of waste management practices and operational performance of hotels in Mombasa County.

1.4 Value of the Study

The present day environmental degradation challenges are believed to have led to the adoption of waste management practices by diverse industries in the efforts to reduce or present further negative effects on the environment. The hotel industry has not been left behind and the main adopted waste management practices include solid waste collection, reduction, reuse, and recycling, waste composting and practicing zero waste management approach. The need for waste management practices in the hotels is due to the fact that,

hotels are large consumers of natural resources and in return expel waste which affect the environment.

Practically, the study can be beneficial to hotel operators in understanding the best waste management practices and its contribution on organizations operational performance. The paper will also provide a theoretical understanding to readers to recognize the relationship between waste management practices and organizations operations performance and suggest best waysto enhance performance. The findings of the paper will add to the pool of knowledge in the field of academia already existing on waste management practices and operational performance. Finally the study will guide policy makers in the government agencies, top management of the hotels and other key stakeholders in the formulation of policies governing hotel operations and the environment.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter discusses literature on theoretical foundation of the study that entail resource base view, institutional theory, stakeholders theory and resource dependence theory, waste management practices that include solid waste collection, promotion of reduction, reuse and recycle and composting practices. It will also focus on key drivers of hotel operational performance that include cost reduction, speed of service delivery, quality, employee productivity and flexibility. The chapter will further look into other related studies conducted outside and within Kenya as well as conceptual framework of the study.

2.2 Theoretical Foundation of the Study

This study is anchored on four theories that includes, resource based view, institutional theory, resource dependence theory, and stakeholders' theory.

2.2.1 Resource Based View

The resource based view holds that firms can earn supra-normal returns if they have superior resources and the resources are protected by some form of isolating mechanism preventing their diffusion throughout the industry (Hibbets,Albright, & Funk, 2003). According to resource based view, organizations that own "strategic resources" have important competitive advantages over organizations that do not. A strategic resource aid in improving the organization's effectiveness and efficiency while neutralizing the opportunities and threats of competitors (Muhittin&Reha, 1990). Jay Barney who is considered as the father of modern RBV suggests that, there can be heterogeneity or firm-level differences among firms that allow some of them to sustain competitive advantage. Therefore, the RBV emphasis on strategic choice, changing the firm's management with the important tasks of identifying, developing and deploying key resources to maximize returns (Razzaque&Sheng, 2009).Although the hotel industry is extremely competitive, hotels that practice waste management practices turn a profit virtually every year. The capacity of a firm to cooperate and coordinate resources is seen as an intangible resource and earning positive returns on the value of resources depends on its sustainability.

Although many hotels offer similar products, the resource competencies of brand image, waste management, human resources and information technology can differentiate each from its competitors (Hibbets et al., 2003). This theory is of relevance to the study because the current situation in the hotel industry is characterized by increased competition and consequently demands effective operational decision-making processes

based on sufficient performance information. As a result, the hotels need to use the scarce resources efficiently, analyze and measure the performance of all services that play a crucial role in hotel organizations. In any case, there is an increased need for performance measurement and waste management tools that facilitate the development of organizational waste management strategies and the assessment of the success of organizational operational performance (Cruz, 2007). To measure the performance of hotel organizations, traditional measures such as cost reduction have been valued as an important control tool (Brander & Atkinson, 2001). In these traditional measures, tangible resources are well recorded because they meet criteria such as the flow of benefits to the company and the accurate determination of historical costs (Zambon, 2002).

2.2.2 Institutional Theory

Institutional theory of organization provides a rich complex view of the organization. The theory states that, organizations are influenced by normative pressures, sometimes arise from external sources such as state, other times arising from within the organization itself. The theory further argues that, under some conditions, these pressures lead the organization to be guided by legitimated elements from standard operating procedures to professional certification and state requirement, which often have the effect of directing attention away from task performance. Delmas and Toffel (2003) developed a model of institutional pressures on environmental management which integrated institutional pressures with characteristics of organization to explain the adoption of waste

management practices at a facility. Based on the Institutional theory, Delmas and Toffel model illustrated that, stakeholders' actions are moderated by the firm's own characteristics to adopt waste management practices.

The application of the institutional theory to waste management is an area that is currently in its infancy (Ketchen&Hult, 2007), particularly when the attention of focus is on sustainability of the environment and greening supply chain in hotel operations (Etzion, 2007). The strength of institutional theory in this study is it has been used extensively in studies exploring environmental management organizations (Hoffman, 1997;1999; Delmas, 2004; Bansal 2005) and it offers explanations of why certain practices are chosen without an obvious economic returns (Berrenet,1998; Meyer &Rwan, 1977; DiMaggio & Powell, 1983). The theory is key to this study because it will be used to explain how changes in social values, technological advancements and regulations affect decisions on "green" sustainable activities (Ball & Craig, 2010; Rivera, 2004) and waste management (Hoffman &Ventresca, 1999; Brown et al., 2006, Fowler and Hope, 2007).

2.2.3 Stakeholders' Theory

As stated previously, organizations are redefined by stakeholder's theory as a grouping of stakeholders and purpose of the organization should be to manage the interests, needs and viewpoints of these diverse stakeholders. In order to ensure stakeholders rights and participation in decision making, the management of organizations has responsibility to manage the organizations to benefit all stakeholders (Freeman, 1984).Business need to

identify the needs of their stakeholders and strive to meet their maximum expectations (Kotter, 2006).Therefore success of any company depends on how the management manages the relationships with stakeholders. Thus without support of stakeholders, there is no reason for a firm to exist (Libido Ten, 2007). According to Freeman (1984), stakeholders are those groups who are vital to the survival and success of the corporation.

Waste management issues are regarded as a part of the overall social responsibility of firms and are best approached by stakeholders' theory (Crespedes, 2003). Gurumurthy (2011) argued that, stakeholders monitor and enforce regulatory, economic and social license requirements to seek leverage by exploiting a variety of license terms. This implies that organizations performance on waste management is influenced by regulatory, social and economic licenses granted.

The implication of the stakeholder theory in this study is that hotels should put additional emphasis on the dimensions of waste management and hotel performance in the analysis of the interests of the stakeholders because the interests of the organization can be nurtured by an interactive symmetrical two way communication with the stakeholders (Madsen &Uihoi, 2001). Hotels need to communicate constantly with all stakeholders on waste management strategies it has put in place to a conducive work organizational operation environment.

2.2.4 Resource Dependence Theory

This theory is concerned with how organizational behavior is affected by external resources the organization utilizes, such as raw materials. The theory is of great importance to this study because the success of any organization is determined by its ability to gather, alter and exploit-raw materials faster than competitors. Resource dependence theory is underpinned by the idea that resources that are controlled by organizations are key to organizational success and that access and control over resources is a basis of power. This means that organizational strategies must be carefully considered in order to maintain open access to resources (Pfeffer&Salancik, 1978).

Resources dependence theory (RDT) maintains that organizations are resource – insufficient; they strive to acquire and sustain resources from their external environment that are controlled by external actors who exert demands on organization. These actors perceive certain advantages in their relationship with the organizations and exercise power through control over resources. The heavier the dependence on external resources, the more the demands of particular actors controlling these resources are influential (Pfeffer1982; Oliver 1991).

2.3 Waste Management Practices

The waste management practices mainly adopted by hotel industry are: waste collection, composting and reduction, reuse and recycling (Bohdanowicz, 2006; Iwanowski& Rushmore, 1994)

2.3.1 Promotion of Waste Reduction, Reuse and Recycle

Companies have been pushed by competitive pressures towards cost reduction and performance improvement of operations to provide better quality products to very demanding markets. The approach of waste reduction and performance has been gaining importance in organizations operations (Gurumurthy&Kadal, 2011; Taj &Morosa, 2011). Waste reduction can be achieved through implementation of lean production systems that includes assessing current situation and designing a production system based on lean system concepts &techniques (Womack &Jones, 2003)

Emphasis is placed on the three R's reduction, reuse and recycle. This helps in creating of less waste and increased material recovery. Waste reduction is achieved through waste minimization at its source so as to minimize the quantity required to be treated and disposedof. This can be achieved through better product design and or process management. Waste recycling is the process for recovering waste products as inputs or resources. Promotion of waste re-use can be realized through using waste as an input for

other purpose. Waste can as well be transformed into a form that is less costly or difficult to dispose of a process known as waste transformation (March, 1998).

2.3.2 Collection and Disposal of Waste

Waste collection and disposal should be undertaken regularly and people from economically backward section may be employed for the same. The collected non-degradable material should be removed using covered trucks and trailers. Care should be taken not to spill the waste during transportation. Disposal of waste should be undertaken in prescribed scientific manner. A sanitary landfill designed specifically for the final disposal of waste should be built (Croner, 1998).

Solid waste management involves activities associated with six basic principles of waste generation, storage, collection, transfer and transport processing and disposal (Sharholy, Ahmad, Vaishya, & Gupta,2007). The amount of waste generated and the way is disposed damages the environment (Choe&Fraser, 1999). Uncollected wastes causes' bad smell, drain blockage, invites scavengers, general public nuisance and become good breeding site for insects.

2.3.3 Waste Composting

In waste composting, organic wastes are subjected to a rapid composting step at a high temperature using a hyper thermal composting machine followed by a further piling step in the atmosphere. In this latter step, the temperature of the compost piles is kept at approximately 60°C for several weeks by the heat generated metabolically by the micro-

organisms growing in the compost piles, as is the case for general composting (Fogarty &Tuovinen, 1991; Williams, Ziegenfuss, & Sisk, 1992). After the metabolized organic compounds in the piles had been thoroughly utilized by the micro-organisms, the temperature of the piles are decreased to the ambient temperature, indicating the maturation of the compost piles.

Large scale composting is an expensive venture and hotels might not engage in the exercise because of the cost involved. For it to work, focus should be on developing ward level or preferably community level, small scale composting process. Hotel based composting helps in diverting a major portion of waste generated close to the source, thereby significantly reducing transportation costs and prolonging the life span of landfalls.

2.4 Empirical Review

Several empirical studies have found a link between environmental degradation and hotel operations. However, the studies have failed to link the effects of waste management practices on hotel operational performance specifically in KenyanMombasa County. Most studies have tackled the whole concept of waste management in a wide area of sustainable environment and the need for hotels to practice "green hotels".

Cumming (1997) developed a hierarchy model of hotel waste management practices that examine five levels for waste minimization to include commitment to waste minimization, purchase with eco-intelligence, use efficiency to generate less waste, reuse

waste materials and segregate and recycle waste. Findings showed that,Cummings model application failed to hoteliers who have negative attitudes towards the implementation of more sustainable waste management practices as the model does not have any system of motivation and/or pressure to influence hoteliers' behavioral intentions in relation to waste management practices.The study of Kirk (1998) investigated the perceived benefit of hotel management on environment. The findings of the study showed that some of the managers were of the view that perceived benefits on the environment include increased profitability, enhanced customer and employee satisfaction, improved relationships with local communities help with public relations and a marketing advantage over competitors.

Karimi (2014)investigated therelationship between green operations practices and operational performance of hotels in the coastal region. The finding of the study indicated that green hotel operations have a positive effect on hotel operational performance. Sample population of the study did not represent fairly all hotels inMombasa County because it only concentrated on hotels in the Mombasa Island and north coast. This study will narrow down to effect waste management practices on operational performance of all hotels in Mombasa County. Musau andPrideaux (2010) investigation on the role of Kenya's hotels on sustainable tourism Kenya's hotel sector has a scope to prepare, develop and market sustainable products and service that promote environment awareness thus increasing both yield and visitors numbers. The findings of Irungu and Mungai(2013) on management commitment and its application on green practice in 4-5

star hotels in Mombasarevealed that 88.9 percent of the managers were not satisfied with the current issues while 81.5 percent were focusing on improving the green concepts.

2.5 Conceptual Framework

The study adopted conceptual framework in figure 2.1 that identified the independent and the dependent variables of the study. The independent variable are waste management practices and the dependent variable are determinant of the operational performance.

Waste management practices include waste reduction, reuse and recycling, waste collection and depositing and waste composting. While the hotel operational performance are based on operational cost, quality, speed of service delivery and flexibility.

Figure 2.1: Conceptual Framework

Independent Variables   **Dependent Variables**

Waste Management Practices		**Hotel Operational Performance**
• Waste reduction, reuse and recycling • Waste collection and depositing • Waste composting	→	• Cost • Quality • Speed of service delivery • Flexibility

EE: RESEARCH METHODOLOGY
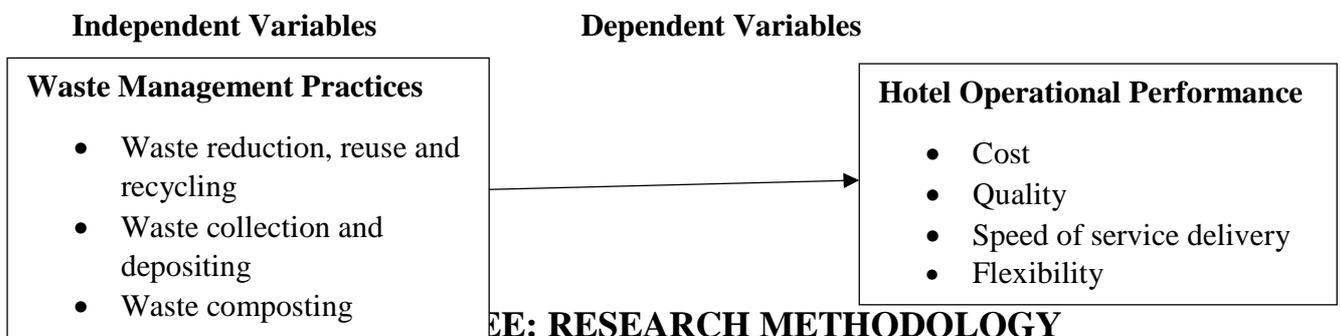
3.1   Introduction

This chapter describes the methods that was used to collect data pertinent in answering the research questions. It reviews the research design, the target population, data collection methods, and data analysis methods that were used in the study.

3.2 Research Design

The study employed a censussurvey research designs. This enabled the researcher to obtain sizeable and substantial data from the target population to determine the extent to which waste management practices affect the operational performance of hotels in Mombasa County. The designwas used further to allow the researcher to use of inferential statistics to establish the significant relationships between the dependent and the independent variables.

3.3 Population of the Study

The study population wasall hotels in MombasaCounty. The justification of the selection of the hotels wasthe fact that these hotels were assumed to have attained meaningful service levels (GOK, 2013). There are43 hotels in Mombasa County, as per association of hotel keeper's report (2014). The list of the target population is indicated inappendix II.

3.4 Data Collection

The source of the data wasprimary data that wascollected through structured questionnaire.The questionnairewas administered to thehotel operations managers in all hotels in the study area. Observational checklist was used by the researcher to corroborate the findings of the questionnaire. The questionnaire had three sections thatused both open-ended and closed-ended questions. Section A of the questionnairecontainedgeneral

data about hotels, section Bhadinformation on waste management practices and section C had information on the determinants of hotel operational performance. (See Appendix I)

The questionnaire wasadministered to the operations managers of the hotels and collected later. One questionnaire was issued per hotel.The physical observation characteristics included waste disposal, sewage system, and water usage among others. Thiscorroborated the research findings of the questionnaire.

3.6Data Analysis

The data collected wascleaned, examined to check for completeness, consistency and accuracy. Descriptive statistics was used to describe the data andstatistical package for social sciences (SPSS)was used for the analysis. This programassisted in interpreting information.

Regression model was used to show how the independent variablespredicted the dependent variables. The following regression model was used:

$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$

Where the variables are defined as:

Y- Operational performance index (dependent variable)

α = Constant

ß = Constant

X_1 = Waste reduction, reuse and recycling

X_2 = Waste collection and depositing

X_3 = Waste composting

ε = Error term

3.7 Operationalization ofStudy Variables

The key variables of the study were operationalized as shown in tables 3.1 and 3.2

Table 3.1: Operationalization of the Independent Variable

1.Waste, reduction, reuse and recycling	I.	Proper systems for the inspection of goods received
	II.	Proper food and beverage portioning to reduce food wastage.
	III.	Existence of operating procedures for the food preparation, repair of hotel equipment and properties.
	IV.	Existence of warning sign not to throw any solid waste on the pavement or open areas.
	V.	Provision of reusable items such as napkins, glass cups and ceramic dishes.
2. waste collection and depositing	I.	The existence of waste storage facilities designed for waste collection.
	II.	The accessibility of the waste storage facility.
	III.	Availability of persons or entity that carries,

		convey, bear or transport solid and liquid waste.
	IV.	Extent of the use of dustbins in the operational areas.
	V.	Proper pre- informed waste collection schedules.
	VI.	Use of properly colored bins for differed type of waste
	VII.	Procedure for sewage management systems.
3. Waste composting	I.	Existence of waste composting plants and systems
	II.	Extent of use of waste to energy technology
	III.	Enforcement of strict measures for segregation of waste at source
	IV.	The level of wastewater treatment before disposal

Table 3.2: Operationalization of Dependent Variables

Dependent variables	Indicators	
1. Cost reduction	I.	Decrease in water bills
	II.	Decrease in cost of packaging material
	III.	Reduced food cost
	IV.	Reduced labor cost
	V.	Reduced maintenance cost
2. Efficiency of operations	I.	Variety of services
	II.	Reduced service delivery time
	III.	Increased productivity
	IV.	Reduced customer complains
	V.	Readily available services
3. Speed of service	I.	Improved speed of regulatory compliance

delivery	II. Online communication systems
	III. Central reservation system
	IV. Increased customer loyalty
4. Quality of Products and services	I. Repeat clients
	II. Good public image
	III. Increase number of new customers
	IV. Increase of referral businesses
	V. Improved profit levels
5. Flexibility of operations	I. Low rate of staff turn over
	II. Reduced operational cost
	III. Reduced time of service delivery
	IV. Better services

CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter presents the analysis and finding of the study as set out in the research objectives and methodology. The research sought to investigate the effect of waste management practices on hotel operational performance. The data was gathered exclusively from questionnaires guides as the research instrument which was designed in line with the objective of the study.

The study targeted hotel operations managers and provided responses used to complete this study was 28 hotels out of 43 hotels in Mombasa County giving a response rate of 70%. This response rate was excellent and the representative and conforms to Mugenda (1999) stipulation that a response rate of 50% is adequate for analysis and reporting.

4.2 Demographic Characteristics

Table 4.1 provides a summary of descriptive statistics of the demographic characteristics of the respondents used in the current study in which 28 out of 43 respondents representing 70% response rate were valid and usable for the variables capturing , years of operation, hotel size by number of beds, target market and location of the hotels.

A significant proportion (48.3%) of the hotels targeted were relatively new having been in operation for fewer than 10 years. 13.8% had stayed open for above 40 years.

Table 4. 1: Frequency Distribution of Respondents Demographic Characteristics

Demographic Characteristics	Frequency (f)	Percentage (%)	Cum. Percentage
Years of Operation			
Below 10 years	14	48.3	48.3
11 -20 Years	9	31.0	79.3
21 - 30 Years	2	6.9	86.2
Above 40 Years	4	13.8	100.0
Total	29	100.0	
Hotel Size			
Below 50 Rooms	10	34.5	34.5
51 -100 Rooms	10	34.5	69.0
Above 100 Rooms	9	31.0	100.0
Total	29	100.0	
Location			
Town	17	58.62	58.62
Beach	12	41.38	100.00
Nat. Park/Reserve	0	0.00	
	29	100.00	

Source: Research Data.

Most hotels were small with less than 100 rooms representing 69% of the respondents; only 31 % had more than 100 guest rooms. Table 4.1 also indicates that none of the hotels was located in a National Park or National reserve with the majority 58.62% being town hotels and 41.38% being beach hotels. A greater proportion of the hotels (55.2%) reported that business tourists was their main target market followed by individual leisure tourists at 20.7%. Business leisure tourist, an emerging market for Mombasa County hotels was important surpassing the traditional mass organized (package tours) which

was a key market in only 6.9% of the hotels targeted. 17.2 % of the respondents were indifferent about the importance of all the three main target market and indicated that all segments were important.

Table 4. 2 : Distribution of Proportion of Hotels by Years of Operation against their Location

	Percentage Frequency	
Years of Operation	**Town Hotels**	**Beach Hotels**
Below 10 years	70.6	16.7
11 -20 years	29.4	33.3
21 -30 years	0	16.7
Above 40 years	0	33.3
	100	100

Source: Research Data

4.3   Importance of Waste Management Practices by Hotels

Respondents were required to complete a grid ranking their perception of importance of various waste management practices adopted by their respective hotels. A likert scale with scores from 1- 5 was to be assigned to rank relative importance of the nineteen (19) item waste management practices listed. The listed practices were categorized a priori into three thematic areas for the practices; waste reduction, reuse and recycling; Waste collection and depositing and waste composting. Table 4.4presents descriptive statistics of the responses obtained:

Table 4. 3: Descriptive Statistics of Waste Management Practices

Waste management practices	N	Mean	Std. Deviation
Waste Reduction, Reuse and Recycling	28	3.917	0.956
Waste collection and Depositing	28	4.084	0.900
Waste Compositing	28	3.074	1.548

From table 4.3 it was observed that procedure for waste collection and depositing was the most important waste management practice ($mean(\bar{x})$ = *4.084; Std. Dev =0.900*). Followed by waste collection and depositing and waste compositing (*$\bar{x}$= 3.917; Std. Dev =0.956 and $\bar{x}$ = 3.074; Std. Dev = 1.548)* respectively.

Waste composting entailed practices such as composting of kitchen waste, availability of composting sites, existence of composting plant& system as well as waste to energy technology used by the hotels. Waste collection and depositing captured availability of dust bins in operational areas, waste collection schedules, availability of colored bins and sewerage management system. The category on waste treatment grouped inspection of goods received, food and beverage portioning, existence of operating procedures, warning signage against poor waste disposal together with provision of reusable material.

Table 4. 4 : Descriptive Statistics of Specific Waste Management Practices

Waste Management Practice	N	Mean	Std. Deviation
Availability of Waste storage facilities	28	4.32	0.819
Accessibility of Wastes storage facilities	28	4.18	0.863
Solid & liquid waste transporter	28	3.96	1.036
Dust bins in operational areas	28	4.21	0.787
Waste collection schedules	28	3.89	0.786
colored bins	28	3.46	1.036
Seweragemanagement system	28	4.54	.693
Composting kitchen waste	28	2.96	1.255
Availability composting sites	28	3.00	1.323
Existence of composting plant &System	28	2.81	1.443
Waste to energy technology used	28	2.68	1.376
Strict segregation of waste at source	28	3.59	1.118
waste treatment before disposal	28	3.54	1.290
use of food waste composting	28	2.81	1.075

Source: Research Data.

From table 4.4 it was observed that procedure for sewerage management system was the most important waste management practice ($mean(\bar{x})$ = 4.54; Std. Dev =0.693). Followed by existence of waste storage facilities designed for waste collection and accessibility of waste storage facilities ($\bar{x}$= 4.32; Std. Dev =0.819 and $\bar{x}$ = 4.18; Std. Dev = 0.863) respectively. The least important waste management practice by respondents' ranking was extent of use of waste to energy technology ($\bar{x}$ = 2.63; Std. Dev =1.376).

Table 4. 5: Descriptive statistics of the Explanatory Variables

Factors (Explanatory Variables)	N	Mean	Std. Deviation
Waste Composting	28	3.074	1.548
Waste Collection & Depositing	28	4.084	0.900
Waste reduction, reuse & recycling	28	3.917	.68158
Valid N (list wise)	28		

Source: Research Data

4.4 Regression Analysis of each Dimension of Operational Performance

Regression analysis was conducted to examine the causal relationships between dependent and independent variables. A system of four regression models were formulated and tested where the dependent variable in each model represented an operational performance measure in a separate dimension; operational cost, efficiency, quality and flexibility.

$$Y_1 = \alpha_0 \pm \alpha_1 x_1 \pm \alpha_2 x_2 \pm \alpha_3 x_3 + \varepsilon \;\dots\dots\dots\dots\dots\dots\dots\dots\dots\text{..eqn 4}$$

$$Y_2 = \rho_0 \pm \rho_1 x_1 \pm \rho_2 x_2 \pm \rho_3 x_3 + \varepsilon \;\dots\dots\dots\dots\dots\dots\dots\dots\dots\text{.eqn 5}$$

$$Y_3 = \gamma_0 \pm \gamma_1 x_1 \pm \gamma_2 x_2 \pm \gamma_3 x_3 + \varepsilon \dots\dots\dots\dots\dots\dots\dots\dots\text{..…eqn 6}$$

$$Y_4 = \varphi_0 \pm \varphi_1 x_1 \pm \varphi_2 x_2 \pm \varphi_3 x_3 + \varepsilon \;\dots\dots\dots\dots\dots\dots.\dots\dots\dots\text{..eqn 7}$$

Where

Y_1= Operational Cost; Y_2 = Operational Efficiency; Y_3 = Quality of Products and Services; Y_4 = Operational Flexibility.

$\alpha_0 \cdots \alpha_3;\ \rho_0 \cdots \rho_3; \gamma_0 \cdots \gamma_3;\ \varphi_0 \cdots \varphi_3$ = are constants to be estimated

x_1 = Waste composting;

x_2 = Waste collection and depositing;

x_3 = Waste reduction, reuse and recycling

ε = error

4.5.1 Regression Model of Waste Management Practices on Operational Cost

Mean score indices measuring waste management practices as explanatory variable were regressed against operational costsas a measure of Hotels' performance (dependent variable) to estimate the casual relationship. Table 4.6 shows summary of statistics estimated by the regression model:

Table 4.6: Model Summary- Regression of Operational cost against Waste management Practices

Model 1	R	R.Square	Adjusted R	Std Error of the Estimate	Sig.
1	0.449	0.202	0.106	0.77309	0.125

a Predictors: (Constant), Mean Score WC, Mean Score WC&D, Mean score 3Rs

Source: Research Data

The regression coefficient $R= 0.45$ shows the strength of the causal relationship between the dependent and independent variable. Model1 was able to explain 45% of the observations. From the adjusted $R^2$was 0.106 the model estimated shows that there was 10.6% positive variation in operational cost as a result of changes in the waste management practices explained by our model. 89.4% of the variation in operationalcost

was explained by other factors other than waste management practices adopted by the hotels.

Overall statistical significance of the regression model was examining by testing the null hypothesis that r= 0 and the regression coefficient is not significant. From the model significance, (Sig. = 0.125). We failed to reject the null hypotheses and concluded that there was a statistically insignificant positive causal relationship between waste management practices adopted by the hotels and their operational costs

Table 4.6: presents the parameters and constants $(\alpha_0 \cdots \alpha_3)$ estimated in model 1. The table shows respective t statistic alongside their significance.

Table 4.7: Parameters of Regression Model of Waste Management Practices on Operational Cost

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		$\alpha_0 \cdots \alpha_3$	Std. Error	Beta		
1	(Constant)	-0.011	1.244		-0.009	0.993
	Mean score 3Rs	0.413	0.328	0.293	1.258	0.220
	Mean Score WC&D	0.257	0.320	0.174	0.803	0.429
	Mean Score WC	0.094	0.184	0.101	0.512	0.613

Dependent Variable: Mean Score operation cost

Source: Research Data.

It was observed that holding hotel operational cost performance at a constant of α_0 = -0.011 (sig.0.993), a unit increase in implementation of waste compositing would positively affect operational cost performance by 0.413units (*sig. 0.220*) while waste collection and depositing practices leads to increase in operational cost performance by 0.257 units (*sig. 0.429*). On the other hand Waste reduction, reuse and recycling practices were positively related to increase in operational cost performance by0.094 units (*sig. 0.613*)

The table 4.7 model 1 was formally estimated as:

$$Y_1 = -0.011 + 0.413x_1 + 0.258x_2 + 0.094x_3$$ …………………………….Eqn 8.

4.5.2 Regression Model of Waste Management Practices on Operational Efficiency

Mean score indices measuring waste management practices $(x_1, x_{2,} x_3)$as explanatory variables were then regressed against operational efficiency(Y_2)as a measure of Hotels' performance (dependent variable) to estimate the casual relationship. Table () Presents s summary of statistics estimated by the regression model 2:

Table 4.8: Model Summary- Regression of Operational Efficiency against Waste Management Practices

Model	R	R.Square	Adjusted R	Std. Error of the Estimate	Sig.
2	0.234(a)	0.055	-0.059	0. 93020	0.698

a Predictors: (Constant), Mean Score WC, Mean Score WC&D, Mean score 3Rs

Source: Research Data

The regression coefficient *R= 0.234*shows the strength of the causal relationship between the dependent and independent variable. Model2 was able to explain 23% of the observations. From the adjusted $R^2$was - 0.06 the model estimated shows that there was 6%negative variation in operational efficiency as a result of changes in the waste management practices explained by our model. 94% of the variation in operational efficiency was explained by other factors other than waste management practices adopted by the hotels.

Overall statistical significance of the regression model was examined by testing the null hypothesis that R= 0 and the regression coefficient is not significant. From the model significance, (Sig. = 0.698). We failed to reject the null hypotheses and concluded that there was a statistically insignificant negative causal relationship between waste management practices adopted by the hotels and their operational efficiency

Table 4.8: presents the parameters and constants $(\rho_0 \cdots \rho_3)$ estimated in model 2. The table shows respective t statistic alongside their significance.

Table 4.9: Parameters of Regression Model of Waste Management Practices on Operational Efficiency

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		$\rho_0 \cdots \rho_3$	Std. Error	Beta		
2	(Constant)	2.534	1.497		1.693	0.103
	Mean score 3Rs	-0.379	0.395	-0.243	-0.959	0.347
	Mean Score WC&D	0.433	0.386	0.265	1.123	0.272
	Mean Score WC	0.123	0.222	0.119	0.554	0.585

Dependent Variable: Mean Score operational efficiency
Source: Research Data.

The findings indicated that holding hotel operational efficiency performance at a constant of $\rho_0 = 2.534$ (sig.0.103), a unit increase in implementation of waste compositing would decrease operational efficiency by 0.397units (*sig.0.347*) while waste collection and depositing practices leads to increase in operational efficiency performance by 0.433units (*sig.0.272*). Waste reduction, reuse, recycling practices was positively related to increase in operational efficiency performance by 0.123units (sig.0.585).

The regression model 2 for causal relationship between operational efficiency and waste management practices was estimated formally as:

$$Y_2 = 2.534 - 2.534x_1 + 0.433x_2 + 0.123x_3 \ \dots\dots\dots\dots\dots\dots\dots\dots\text{.Eqn 9}$$

4.5.3 Regression Model of Waste Management Practices on Quality

Mean score indices measuring waste management practices (x_1, x_2, x_3) as explanatory variables were then regressed against quality of services and products (Y_3) as a measure of hotels' performance (dependent variable) to estimate the casual relationship. Table () Presents a summary of statistics estimated by the regression model 3

Table 4.10: Model Summary- Regression on Quality against Waste Management Practices

Model	R	R.Square	Adjusted R	Std. Error of the Estimate	Sig.
3	0.248(a)	0.062	- 0.051	1.09175	0.655

Predictors: (Constant), Mean Score WC, Mean Score WC&D, Mean score 3Rs

Source: Research Data.

Model 3 estimated the regression coefficient R= 0.248which indicates thestrength of the causal relationship between quality of products and services offered by hotels and waste management practices adopted. The model was able to account for explain 24% of the observations. From its adjusted R^2- 0.051 the model showed that there was 5% negative variation in service and product quality as a result of changes in the waste management practices explained by the model. 95% of the variation in service and product quality was explained by other factors other than waste management practices adopted by the hotels.

Overall statistical significance of the regression model was examined by testing the null hypothesis that R = 0 and the regression coefficient is not significant. From the model significance, (Sig. = 0.655). We failed to reject the null hypotheses and concluded that there was a statistically insignificant negative causal relationship between waste management practices adopted by the hotels and their operational efficiency

Table (): presents the parameters and constants ($\gamma_0 \cdots \gamma_3$) estimated in model 3. The table shows respective t statistic alongside their significance.

Table 4.11: Parameters of Regression Model of Waste Management Practices on Service and Product Quality

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		$\gamma_0 \cdots \gamma_3$	Std. Error	Beta		
3	(Constant)	2.421	1.757		1.379	.180
	Mean score 3Rs	-0.348	0.464	-0.190	-0.751	.459
	Mean Score WC&D	0.458	0.453	0.237	1.012	.321
	Mean Score WC	0.260	0.260	0.214	1.000	.327

Dependent Variable: Mean Score –Quality of Products and Services

Source: Research Data.

From table 4.11 model 3 was estimated as

$$Y_3 = 2.421 - 0.348x_1 + 0.458x_2 + 0.260x_3 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\text{Eqn 10}$$

Model3 indicated that holding hotel product & service quality at a constant of $\gamma_0 = 2.421$ (sig: 0.180), a unit increase in implementation of waste compositing would decreaseservice quality measure by 0.348units (*sig.0.459*) while waste collection and depositing practices leads to increase in service and product quality by0.458 units (sig.0.321). Waste reduction, reuse, recycling practices was positively related to increase in quality by 0.260units (sig.0.327).

Regression analysis of effects of waste management on product and service quality showed that at $\gamma_0 = 2.421$ a unit increase in implementation of waste compositing would negatively affect quality of products and services performance by -0.348units while waste collection and depositing practices leads to increase in operational efficiency performance by 0.458units. Waste reduction, reuse, recycling practices were positively related to increase in operational efficiency performance by 0.260units

4.5.4 Regression Model of Waste Management Practices on Flexibility in Operations.

Mean score indices measuring waste management practices (x_1, x_2, x_3)as explanatory variables were then regressed against quality of services and products (Y_4)as a measure of hotels' performance (dependent variable) to estimate the casual relationship. Table 4.12presents a summary of statistics estimated by the regression model 4.

Table 4.12: Model Summary- Regression of Operational Flexibility against Waste Management Practices

Model	R	R.Square	Adjusted R	Std. Error of the Estimate	Sig.
4	0.356(a)	0.127	0.022	1.02435	0.327

a Predictors: (Constant), Mean Score WC, Mean Score WC&D, Mean score 3Rs

Source: Research Data.

Model 4 estimated the regression coefficient R= 0.356which indicates thestrength of the causal relationship between quality of products and services offered by hotels and waste management practices adopted. The model was able to account for explain 35.6% of the observations. From its adjusted $R^2$0.022 the model showed that there was 2% positive variation in service and product quality as a result of changes in the waste management practices explained by the model. 98% of the variation in service and product quality was explained by other factors other than waste management practices adopted by the hotels.

Overall statistical significance of the regression model was examined by testing the null hypothesis that R = 0 and the regression coefficient is not significant. From the model significance, (Sig. = 0.327). We failed to reject the null hypotheses and concluded that there was a statistically insignificant negative causal relationship between waste management practices adopted by the hotels and their operational efficiency

Table 4.12: presents the parameters and constants ($\varphi_0 \cdots \varphi_3$) estimated in model 4. The table shows respective t statistic alongside their significance.

Table 4.13: Parameters of Regression Model of Waste Management Practices on Operational Flexibility

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		$\varphi_0 \cdots \varphi_3$	Std. Error	Beta		
1	(Constant)	0.440	1.648		0.267	0.792
	Mean score 3Rs	0.448	0.435	0.250	1.029	0.313
	Mean Score WC&D	0.114	0.425	0.061	0.269	0.790
	Mean Score WC	0.162	0.244	0.137	0.663	0.514

Dependent Variable: Mean Score –Operational Flexibility

Source: Research Data.

From table 4.13 it can be noted that operational flexibility of hotels at a constant $\varphi_0 = 0.440$ (sig. = 0.792) a unit increase in implementation of waste compositing would positively affect flexibility of operations by 0.448units (sig. = 0.313)and waste collection and depositing practices would improve flexibility of the hotels' performance by0.114units (sig =0.790). Waste reduction, reuse, recycling practices were positively related to increase in operational flexibility by 0.114units (sig. = 0.514).

The model estimated was stated as:

$$Y_4 = 0.440 + 0.448x_1 + 0.114x_2 + 0.114x_3 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\text{Eqn. 11}$$

4.5   Operational Performance

Respondents were asked to rank the level of enhancement of operational performance due to implementation of waste management practices. A twenty three (23) item criteria was presented to the respondents on which to rank performance of their hotels. The criterion was based on four operational dimensions including operational cost, efficiency, quality of product and service and flexibility. An index was generated from the mean of scores of the five point likert scale used in ranking level of enhancement in operational performance (1 =Not at all, 2 Small extent, 3 =moderate extent, 4= large extent and 5 =very large extent). The highest score obtained was 4.61 while the minimum score was 1.22 ($\bar{x}$ =3.124, Std Dev =0.98656). The score was then used in evaluating the effect of waste management practices on hotel operational performance as the dependent/explained variable (Y).

4.6   Effect of Waste Management Practices on Operational Performance of Hotels

A regression analysis was done to examine the casual relationship between waste management practices; waste composting, waste collection & depositing and waste treatment and operational performance index.

A liner regression model was specified as:

$$y = f(x_1, x_2, x_3) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\text{eqn 12}$$

Which took as additive formulation such that:

42

$$y = \beta_0 \pm \beta_1 x_1 \pm \beta_2 x_2 \pm \beta_3 x_3 + \varepsilon \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.\text{eqn 13}$$

Where:

y = Operational performance;

$\beta_0 , \beta_1, \beta_2 \& \beta_3$ = are constant parameters to be estimated;

x_1 = Waste composting;

x_2 = Waste collection and depositing;

x_3 = Waste treatment.

4.7.1   The Regression Analysis Model Summary

Table 4.14: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.308(a)	.095	-.018	.98334	.095	.839	3	24	0.486

A Predictors: (Constant), Waste treatment, Waste Composting, Waste Collection & Depositing

Table 4.14 shows a summary of the results of the regression model estimated; the regression coefficient (R) shows the strength of the casual relationship between dependent and independent variables in the estimated model. The model was able to explain 31% of the observations showing a statistically insignificant positive relationship between waste management practices and hotel operational performance ($R = 0.308; Sig. 0.486$).

Statistical significance of the positive relationship between the dependent and independent variable was examined by testing the hypothesis that

H0: r= o (the regression coefficient is not significant)

H0: r≠0 (the regression coefficient is significant)

We failed to reject the null hypothesis that the regression coefficient R is not significantly different from 0 as $Sig.$ 0.486.

4.7.2 Regression Coefficients

Table 4.15: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	3.802	1.493		2.547	.018	.721	6.882
	Waste Composting	-0.155	0.162	-0.193	-0.955	0.349	-0.490	0.180
	Waste Collection & Depositing	-0.395	0.330	-0.245	-1.197	0.243	-1.076	0.286
	Waste treatment	0.358	0.309	0.244	1.158	0.258	-0.279	0.995

Dependent Variable: Performance

Source: Research Data

From table 4.11 the following regression model was estimated:

$$Y = 3.802 - 0.155x_1 - 0.395x_2 + 0.358x_3 + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..\ldots.....eqn\ 13$$

From Equation 3, it was observed that holding hotel performance at a constant of $\beta_0 = 3.082$, a unit increase in implementation of waste composting would negatively affect operational performance by 0.155 units (*sig..349*) while waste collection and depositing practices leads to decline in operational performance by 0.395 units (*sig. 0.243*). On the other hand Waste treatment practices were positively related to increase in operational performance ($\beta_3 = 0.309; sig. 0.258$)

Table 4.16: Variable Correlation Matrix

	Pearson Correlation Coefficient			
	Waste Composting	**Waste Collection & Depositing**	**Waste treatment**	**Performance**
Waste Composting	1	-.042	.242	-.123
Waste Collection & Depositing	-0.042	1	.301	-.151
Waste treatment	0.242	0.301	1	.166
Performance	-0.123	-0.151	.166	1

Source: Research Data

A correlation matrix was generated to examine the association between the variables used in the regression model. It was observed that both waste composting and waste collection & deposing were negatively associated with hotel performance index (r = -0.123 and -

0.151 respectively) while waste treatment was positively associated with hotel performance (r = 0.166). The matrix also indicates a positive correlation between waste composting and waste treatment (r = 0.242). Waste collection & depositing and waste treatment (r=0.301)

CHAPTER FIVE: SUMMARY OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides the summary of the findings from chapter four and gives the conclusions and recommendations of the study based on the objectives of the research. The drawn conclusions and recommendation are in quest of addressing the research question or achieving the research objectives which were to determine the effect of waste management practice on hotel operational performance.

5.2 Summary of the Findings

The study aimed to investigate how waste management practices affect hotel operational performance and to determine the extent to which waste management practices are implemented by hotels in Mombasa County. It was established that 10% of hotels have been in operation for less than 10 years and 13.8% have been in operation for over 40 years.

The study also found that Business leisure tourist, an emerging market for Mombasa county hotels was important surpassing the traditional mass organized (package tours) which was a key market in only 6.9% of the hotels targeted. 17.2 % of the respondents were indifferent about the importance of all the three main target market and indicated that all segments were important.

5.2.1 The Extent to which Hotels adopt Waste Management Practices

The outcome of the study revealed that, all hotels embrace the concept of waste management practices on their day to day operation. The most used practices include but not limited to waste collection, reduction and reuse. However the study indicated that very few hotels use waste for energy technology, recycle water and none of them practice waste composting method and the respondents agreed that the practices are indeed important to the hotels. The respondents viewed waste collection method as key compared to other methods of waste management. Other preferred practices are waste reduction, recycling/ reuse, use of waste for energy in that order. The least used method is waste composting practice.

5.2.2 Effect of Waste Management Practices on Operational Performance

The study found out that, operational performance of the hotels is insignificantly affected by the waste management practices used.

It can as well be noted from table 4.7 that, the coefficient of correlation is 0.31 meaning that there is insignificant positive relationship between independent variables and dependent variables. The regression analysis shows a little positive relationship between the waste management practices and operational performance of the hotels.

The regression equation was established as follows

$$Y = 3.802 - 0.155x_1 - 0.395x_2 + 0.358x_3 + \varepsilon$$

The interpretation of the equation shows that, holding waste collection, waste reduction and reuse, size of the hotel, waste composting, and operationalindex (dependent) would be 3.802

5.3 Conclusions

The study concludes that100% of the hotels are committed to improving already existing waste management practices since they have positive effect operational performance. The study also conclude that the method of waste management used depends on the size of the hotel, its target market and its level of operation. It was also noted from results of the research that, even though none of the hotel practice was composting and water treatment, these waste management practices play a significant role in the whole process of waste management and need a reconsideration.The observation of the study indicated that waste management practices have insignificant effect on operational performance and the hotels should embrace them in order to improve public image of hotels and save environment.

The findings of the study agreed with observation made by Karimi (2014) and that of Kemunto, Iravo and Munene (2013) that most of waste management practices that are adopted by hotels affect hotel operational performance positively while others have negative effect on the performance.

5.4 Recommendations

From the findings and conclusions, the study recommends that the s should adopt waste management practices that includes waste collection and depositing, waste reduction, recycling and reuse and waste composting.

The study also recommend that there is a need to understand the best waste management practices to reduces its negative effect on operational cost, efficiency, speed of service delivery and quality of products and services offered. Government agencies and hotels need to develop policies and waste management guiding principles/ framework and communicated to all stakeholders for implementation.

The frame work will guide hotel employees on best waste management practices and the role these practices play on hotel operational performance. Hotels should partner with external stakeholders such as NEMA, local communities, NGO's and other government agencies to promote waste for energy technology, reuse and recycling of waste as well as developing waste composting systems and water treatment plants.

5.5 Limitations of the Study

The study is limited in that it only focused on hotels in the Mombasa country that represent a small fraction of hotels in the whole country. A better picture for policy formulation would have been given if the study covered all hotels in the country. Also that study assumed that all hotels have equal contribution on waste generation and their

operational performance are affected to the same extent by the waste management practices.

The researcher faced some resistance from some of the respondents because they felt that this would disclose some unprofessional waste management practices. However this was resolved by assuring them of confidentiality of the information provided. Lastly, the researcher faced financial and time constrains because of frequent visit to the respondents and follow ups calls. More time was required to have 100% response rate.

5.6 Suggestions for Future Studies

Future studies need to widen the scope to cover the whole country and extent beyond Kenyan borders in order to get a clear picture on the contribution of waste management practices of operational performance of the hotels. As clear picture on effect of was management is clearly known,future studies should narrow down to the contribution of waste management practices on each dimension of operational performance.

Waste management practices is environmental based approach. Further study would be conducted to determine the best practices for environmental sustainability. In addition, a study on other factors affecting operational performance of hotels could be conducted.

REFERENCES

AbdurRazzaque, M., & Chen Sheng, C. (1998). Outsourcing of logistics functions: a literature survey. *International Journal of Physical Distribution & Logistics Management*, *28*(2), 89-107.

Amin, M., Yahya, Z., Ismayatim, W. F. A., Nasharuddin, S. Z., &Kassim, E. (2013). Service quality dimension and customer satisfaction: an empirical study in the Malaysian hotel industry. *Services Marketing Quarterly*, *34*(2), 115-125.

Ball, A. (2005). Environmental accounting and change in UK local government. *Accounting, Auditing & Accountability Journal*, *18*(3), 346-373.

Bennett, M., & James, P. (Eds.). (1998). *The Green bottom line: environmental accounting for management: current practice and future trends*. Greenleaf Publishing.

Berry, L. L., Parasuraman, A., &Zeithaml, V. A. (1988). The service-quality puzzle. *Business horizons*, *31*(5), 35-43.

Bohdanowicz, P. (2005). European hoteliers' environmental attitudes greening the business. *Cornell Hotel and Restaurant Administration Quarterly*, *46*(2), 188-204.

Bohdanowicz, P. (2006). Environmental awareness and initiatives in the Swedish and Polish hotel industries—survey results. *International Journal of Hospitality Management*, *25*(4), 662-682.

Cai, L. A., & Woods, R. H. (1993). China's tourism service failure. *Cornell Hotel and Restaurant Administration Quarterly*, *34*(4), 30-39.

Choe, C., & Fraser, I. (1999). An economic analysis of household waste management. *Journal of environmental economics and management*, *38*(2), 234-246.

Choy, D. J., Dong, G. L., & Wen, Z. (1986). Tourism in PR China: Market trends and changing policies. *Tourism Management*, *7*(3), 197-201.

Claver-Cortés, E., Molina-Azorín, J. F., Pereira-Moliner, J., &López-Gamero, M. D. (2007). Environmental strategies and their impact on hotel performance. *Journal of Sustainable Tourism*, *15*(6), 663-679.

Claver-Cortés, E., Pereira-Moliner, J., José Tarí, J., & Molina-Azorín, J. F. (2008). TQM, managerial factors and performance in the Spanish hotel industry. *Industrial Management & Data Systems*, *108*(2), 228-244.

Cook, D. (1989). China's hotels: Still playing catch-up. *The Cornell Hotel and Restaurant Administration Quarterly*, *30*(3), 64-67.

Cooper, I. (1998). Emerging issues in environmental management. *Facility Management: Theory and Practice, Spon Press, London*, 111-9.

Crook, T. R., Ketchen, D. J., & Snow, C. C. (2003). Competitive edge: A strategic management model. *Cornell Hotel and Restaurant Administration Quarterly*, *44*(3), 44-53.

Cruz, I. (2007). How might hospitality organizations optimize their performance measurement systems? *International Journal of Contemporary Hospitality Management*, *19*(7), 574-588.

Cummings, L. E. (1997). Waste minimization supporting urban tourism sustainability: A mega-resort case study. *Journal of Sustainable Tourism*, *5*(2), 93-108.

Delmas, M., &Toffel, M. W. (2004). Stakeholders and environmental management practices: an institutional framework. *Business strategy and the Environment*, *13*(4), 209-222.

Delmas, M. A., &Toffel, M. W. (2005). Institutional pressure and environmental management.

DiMaggio, P., & Powell, W. (1991). The Iron Cahe Revisited-Institutional Isomorphism and Collective Rationality. *The new institutionalism in organizational analysis*, 63-82.

Hailes, J., Knight, P., & Elkington, J. (1991). The green business guide.

Enz, C. A. "Creating a competitive advantage by building resource capability: The case of outback steakhouse Korea. Cornell Hospitality Quarterly, 49 (1), 73-78." (2008).

Erdogan, N., &Baris, E. (2007). Environmental protection programs and conservation practices of hotels in Ankara, Turkey. *Tourism Management*, *28*(2), 604-614.

Fogarty, A. M., &Tuovinen, O. H. (1991). Microbiological degradation of pesticides in yard waste composting. *Microbiological reviews*, *55*(2), 225-233.

Freeman, R. E. (2010). *Strategic management: A stakeholder approach*. Cambridge University Press.

Galetić, L., Prester, J., &Braje, I. N. (2007). Organization as a source of competitive advantage: case of Croatia. *The Business Review Cambridge*, *7*(1), 130-136.

Gakungu, N. K., Gitau, A. N., Njoroge, B. N. K., & Kimani, M. W. (2012). Solid waste management in Kenya: a case study of public technical training institutions. *ICASTOR Journal of Engineering. 2012; 5: 3 (ISSN-0974-407X): 127*, *138*.

Ghalayini, A. M., Noble, J. S., & Crowe, T. J. (1997). An integrated dynamic performance measurement system for improving manufacturing competitiveness. *International Journal of production economics*, *48*(3), 207-225.

GoK (2007). *Kenya vision 2030: A globally Competitive and Prospective Kenya. Nairobi.*

GoK (2013). *National Tourism Strategy 2013-2018, Department of tourism Ministry of East Africa, Commerce and Tourism. Nairobi,* Nairobi: Kenya printers.

Graci, S., &Dodds, R. (2008). Why go green? The business case for environmental commitment in the Canadian hotel industry. *Anatolia*, *19*(2), 251-270.

Gunasekaran, A., Patel, C., &Tirtiroglu, E. (2001). Performance measures and metrics in a supply chain environment. *International journal of operations & production Management*, *21*(1/2), 71-87.

Gurumurthy, A., &Kodali, R. (2011). Design of lean manufacturing systems using value stream mapping with simulation: a case study. *Journal of Manufacturing Technology Management*, *22*(4), 444-473.

Hibbets, A. R., Albright, T., & Funk, W. (2003). The competitive environment and strategy of target costing implementers: Evidence from the field. *Journal of Managerial Issues*, 65-81.

Ho Kim, T., Jae Ko, Y., & Min Park, C. (2013). The influence of event quality on revisit intention: Gender difference and segmentation strategy. *Managing Service Quality: An International Journal*, *23*(3), 205-224.

Hooper, D., Coughlan, J., & Mullen, M. R. (2013). The services cape as an antecedent to service quality and behavioral intentions. *Journal of services marketing*, *27*(4), 271-280.

Ishii, K., Fukui, M., &Takii, S. (2000). Microbial succession during a composting process as evaluated by denaturing gradient gel electrophoresis analysis. *Journal of Applied Microbiology*, *89*(5), 768-777.

Iwanowski, K., & Rushmore, C. (1994). Introducing the eco-friendly hotel. *The Cornell Hotel and Restaurant Administration Quarterly*, *35*(1), 34-38.

Johns, M. R. (1995). Developments in wastewater treatment in the meat processing industry: A review. *Bio resource technology*, *54*(3), 203-216.

Kaplan, R. S., & Norton, D. P. (1995). Putting the balanced scorecard to work. *Performance measurement, management, and appraisal sourcebook*, *66*.

Karimi, E. K. (2014). *Relationship between green operations practices and operational performance of hotels in the coastal region, Kenya* (Doctoral dissertation, University of Nairobi).

Kemunto, J., Iravo, M., & Munene, C. (2013). Factors affecting performance of Hotels. 4(12).

Kim, S. H. (2009). *An investigation into hotel employees' perception of green practices* (Doctoral dissertation, University of Central Florida Orlando, Florida).

Kirk, D. (1995). Environmental management in hotels. *International journal of contemporary hospitality management*, *7*(6), 3-8.

Kirk, D. (1998). Attitudes to environmental management held by a group of hotel managers in Edinburgh. *International Journal of Hospitality Management*, *17*(1), 33-47.

KNBS. (2014). *Economic survey report.* Kenya Bureau of statistics.

Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International.

Kurien, G. P., & Qureshi, M. N. (2011). Study of performance measurement practices in supply chain management. *International Journal of Business, Management and Social Sciences*, *2*(4), 19-34.

Laufenberg, G., Gruss, O., & Kunz, B. (1996). New concepts for the utilization of residual products from food industry prospects for the potato starch industry. *Starch-Starke*, *48*(9), 315-321.

March. (1998). *Reducing Costs and Improving Environmental Performance through Waste Minimisation " The Aire & Calder Experience",.* Manchester: March Consulting Group,.

McClanahan, T., Mwanguni, S., & NA, M. (2005). Management of the Kenya Coast. *Ocean Coast Manage*, 48:901-931.

Mensah, I. (2006). Environmental management practices among hotels in the greater Accra region. *International Journal of Hospitality Management*, *25*(3), 414-431.

Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American journal of sociology*, 340-363.

Mohamed, M. O. S., Neukermans, G., Kairo, J. G., Dahdouh-Guebas, F., &Koedam, N. (2009). Mangrove forests in a peri-urban setting: the case of Mombasa (Kenya). *Wetlands Ecology and Management*, *17*(3), 243-255.

Mugenda, O. M. (1999). *Research methods: Quantitative and qualitative approaches*. African Centre for Technology Studies.

Oral, M., &Yolalan, R. (1990). An empirical study on measuring operating efficiency and profitability of bank branches. *European Journal of Operational Research*, *46*(3), 282-294.

Olsen, M. D., Tse, E. C. Y., & West, J. J. (2008). *Strategic management in the hospitality industry*. Prentice Hall.

Orsat, V., Raghavan, G. S. V., & Norris, E. R. (1996). Electro-osmosis. Canadian agricultural engineering, *38*(1), 63.

Parasuraman, A., Berry, L. L., &Zeithaml, V. A. (1991). Refinement and reassessment of the SERVQUAL scale. *Journal of retailing*, *67*(4), 420.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1994). Reassessment of expectations as a comparison standard in measuring service quality: implications for further research. *The Journal of Marketing*, 111-124.

Prentice, C. (2013). Service quality perceptions and customer loyalty in casinos. *International Journal of Contemporary Hospitality Management*, *25*(1), 49-64.

Rahman, S. U. (2001). Total quality management practices and business outcome: Evidence from small and medium enterprises in Western Australia.*Total Quality Management*, *12*(2), 201-210.

Raybould, M., & Wilkins, H. (2005). Over qualified and under experienced: Turning graduates into hospitality managers. *International Journal of Contemporary Hospitality Management*, *17*(3), 203-216.

Sarkis, J., &Cordeiro, J. J. (2001). An empirical evaluation of environmental efficiencies and firm performance: pollution prevention versus end-of-pipe practice. *European Journal of Operational Research*, *135*(1), 102-113.

Sasser, W. E., Olsen, R. P., & Wyckoff, D. D. (1978). *Management of service operations: Text, cases, and readings*. Allyn & Bacon.

Scheraga, C. A. (2004). The relationship between operational efficiency and customer service: a global study of thirty-eight large international airlines. *Transportation journal*, 48-58.

Soo, K., & Ji-Hwan, Y. (2010). Environmental Management of Korean Hotels. *International Journal of Tourism Sciences Society of Korea*, 10(2), 55-83.

Srivastava, K., & Sharma, N. K. (2013). Service quality, corporate brand image, and switching behavior: the mediating role of customer satisfaction and repurchase intention. *Services Marketing Quarterly*, *34*(4), 274-291.

Taj, S., &Morosan, C. (2011). The impact of lean operations on the Chinese manufacturing performance. *Journal of manufacturing technology management*,*22*(2), 223-240.

Tse, E. C. Y. (1991). An empirical analysis of organizational structure and financial performance in the restaurant industry. *International Journal of Hospitality Management*, *10*(1), 59-72.

Tzschentke, N., Kirk, D., & Lynch, P. A. (2004). Reasons for going green in serviced accommodation establishments. *International journal of contemporary hospitality management*, *16*(2), 116-124.

Tzschentke, N. A., Kirk, D., & Lynch, P. A. (2008). Going green: Decisional factors in small hospitality operations. *International Journal of Hospitality Management*, *27*(1), 126-133.

Ustad, B. H. (2010). *The adoption and implementation of environmental management systems in New Zealand hotels: the managers' perspective* (Doctoral dissertation, Auckland University of Technology).

Valarie, A. Z., &Bitner, M. (2000). Services marketing: integrating customer focus across the firm. *Copyright by the McGraw-Hill Education.*

Wang, Y. P., & Smith, R. (1994). Wastewater minimization. *Chemical Engineering Science*, *49*(7), 981-1006.

Williams, R. T., Ziegenfuss, P. S., & Sisk, W. E. (1992). Composting of explosives and propellant contaminated soils under thermophilic and mesophilic conditions. *Journal of Industrial Microbiology*, *9*(2), 137-144.

Womack, J. P., & Jones, D. T. (2010). *Lean thinking: banish waste and create wealth in your corporation*. Simon and Schuster.

Zambon, S. (2002). Accounting, intangibles and intellectual capital: an overview of the issues and some considerations. *PRISM Project, University of Ferrara*

APPENDICES

Appendix I: Questionnaire

PART A: BIODATA OF HOTEL

1. Name of the Hotel_____
2. Years of operation
   - i) Below 10 years
   - ii) 11-20 years
   - iii) 21-30 years
   - iv) Above 40 years
3. Number of guest rooms (size of hotel)
   - i) Below 50
   - ii) 51-100
   - iii) Above 100
4. Target Market
   - i) Business groups
   - ii) Individual Leisure tourists
   - iii) Mass organized leisure tourists
5. Location of the hotel
   - i) Town center
   - ii) Along the beach
   - iii) National parks and game reserves

PART B: HOW IMPORTANT IS EACH ATTRIBUTE TO THE HOTEL

	Level of importance				
Below is the list of waste management practices. Kindly indicate the level to which you agree to each item in relation to the level of importance of waste management practices to your hotel using the scale of 1-5. Where; 1 = not important; 2 = less important; 3 = important; 4 = very important; 5 = extremely important	Not important	Less important	important	Very important	Extremely important
WASTE REDUCTION, REUSE AND RECYCLING					
Proper systems for the inspection of goods received.					
Proper food and beverage portioning to reduce food wastage.					
Existence of operating procedures for the food preparation, repair of hotel equipment and properties.					
Existence of warning sign not to throw any solid waste on the pavement or open areas.					
Provision of reusable items such as napkins, glass cups and ceramic dishes.					
WASTE COLLECTION AND DEPOSTING					
The existence of waste storage facilities designed for waste collection.					
The accessibility of the waste storage facility.					
Availability of persons or entity that carries, convey, bear or transport solid and liquid waste.					
Extent of the use of dustbins in the operational areas.					
Proper pre- informed waste collection schedules.					
Use of properly colored bins for differed type of waste					
Procedure for sewage management systems.					
WASTE COMPOSTING					
Extent of composting kitchen waste					
Availability of waste composting sites					
Existence of waste composting plants and systems					
Extent of use of waste to energy technology					
Enforcement of strict measures for segregation of waste at source					
The level of wastewater treatment before disposal					
The use of food waste composting programs					

SECTION C. OPERATIONAL PERFOMANCE

Indicate the level of enhancement of operational performance by the implementation of waste management practices 1= Not at all; 2 = Small extent; 3= moderate extent 4= large extent; 5 = very large extent	Level of operational performance				
	Not at all	Small extent	Moderate extent	Large extent	Very large extent
Cost reduction					
Decrease in water bills					
Decrease in cost of packaging material					
Reduced food cost					
Reduced labor cost					
Reduced room tariffs					
Reduced maintenance cost					
Efficiency in operation					
Variety of services					
Reduced service delivery time					
Increased productivity					
Reduced lead time					
Reduced customer complains					
Readily available services					
Easy reservation of rooms					
Quality of products and services					
Repeat clients Increase of referral businesses					
Good public image					
Increase number of new customers					
Improved profit levels					
High customer loyalty					
Improved sales					
Flexibility of operations					
Low rate of staff turn over					
Reduced operational cost					
Reduced time of service delivery					
Better services					

Appendix II: List of Hotels in Mombasa County

S/No	Name of establishment
1.	SarovaWhitesands Beach Resort and Spa
2.	Mombasa Serena Hotel
3.	Neptune Paradise Villa
4.	Nyali International Beach Hotel
5.	Severin Sea Lodge
6.	Travellers Beach Hotel
7.	Hotel Sai Rock
8.	Indiana Beach Apartments
9.	Lawfords Hotel and Beach Club
10	Mombasa beach Hotel
11	Reef Hotel
12	Voyager Beach Resort
13	Palace Hotel
14	Hotel Dorse
15	Baobab Holiday Resort
16	Woburn Residence Clun
17	Bamburi Beach Resort
18	Acquirius beach Resort
19	Blue Bay Village
20	Bush Baby Resort
21	Casal Al Bahari Resort
22	Coconut Village
23	Driftwood Beach Hotel
24	Milele Beach Hotel
25	Hotel Baracuda
26	Hotel Malaika
27	Karibuni Villas
28	Kenya Bay Beach Hotel
29	Lotus Hotel
30	Mwembe Resort
31	Neptune Beach Hotel
32	Ocean Village Club

33	Paradise Beach Hotel
34	Scorpio Villa
35	Tropical African Dream
36	Royal Court Hotel
37	White Castle Hotel
38	Quale Hotel
39	Royal Reserve safari Club
40	Mombasa Continental Resort
41	Sunrise Resort
42	Bandari Hotel
43	Hotel sapphire

Source: Gok, (2014)